TAG Oil (NZ) Ltd
Sidewinder Production Station
Monitoring Programme
Annual Report
2018-2019

Technical Report 2019-35

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Executive summary

TAG Oil (NZ) Ltd (the Company) holds consents for a petrochemical production station located on Upper Durham Road at Inglewood, in the Waitara catchment. The Sidewinder Production Station processes oil and gas from the Company's adjacent Sidewinder wellsite. This report for the period July 2018 to June 2019 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess the Company's environmental and consent compliance performance during the period under review. The report also details the results of the monitoring undertaken and assesses the environmental effects of the Company's activities.

The Company holds three resource consents in relation to the Sidewinder Production Station, which include a total of 43 conditions setting out the requirements that the Company must satisfy. The Company holds one consent to discharge treated stormwater and production water from hydrocarbon exploration and production operations at the Sidewinder site into the Piakau Stream, and two consents to discharge emissions related to production activities into the air at this site.

During the monitoring period, TAG Oil (NZ) Ltd demonstrated an overall high level of environmental performance.

The Council's monitoring programme for the year under review included six inspections, three water samples collected for physicochemical analysis, and three ambient air quality analyses.

Visual inspections of the stormwater system and receiving waters, along with samples collected of both the discharge and receiving waters, indicated that the discharge from the site was unlikely to be causing any adverse effects in the Piakau Stream.

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

During the year, the Company demonstrated an overall high level of both environmental performance and administrative compliance with the resource consents. There were no unauthorised incidents recorded by the Council in relation to the Company's activities.

For reference, in the 2018-2019 year, consent holders were found to achieve a high level of environmental performance and compliance for 83% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 13% of the consents, a good level of environmental performance and compliance was achieved.

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

This report includes recommendations for the 2019-2020 year.

Table of contents

List of tables

List of figures

List of photos

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 2018 to June 2019 by the Taranaki Regional Council (the Council) on the monitoring programme associated with resource consents held by TAG Oil (NZ) Ltd (the Company). The Company operates the Sidewinder Production Station situated on Upper Durham Road at Inglewood, in the Waitara catchment.

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

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

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 the Company in the Waitara catchment;
- the nature of the monitoring programme in place for the period under review; and
- a description of the activities and operations conducted at the Sidewinder Production Station.

Section 2 presents the results of monitoring during the period under review, including scientific and technical data.

Section 3 discusses the results, their interpretations, and their significance for the environment.

Section 4 presents recommendations to be implemented in the 2019-2020 monitoring year.

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

1.1.3 The Resource Management Act 1991 and monitoring

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

a. the neighbourhood or the wider community around an activity, and may include cultural and social-economic effects;
b. physical effects on the locality, including landscape, amenity and visual effects;
c. ecosystems, including effects on plants, animals, or habitats, whether aquatic or terrestrial;

d. natural and physical resources having special significance (for example recreational, cultural, or aesthetic); and

e. risks to the neighbourhood or environment.

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

1.1.4 Evaluation of environmental and administrative performance

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

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

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

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

Environmental Performance

High: No or inconsequential (short-term duration, less than minor in severity) breaches of consent or regional plan parameters resulting from the activity; no adverse effects of significance noted or likely in the receiving environment. The Council did not record any verified unauthorised incidents involving significant 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 in response to unauthorised incident reports, 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 in response to unauthorised incident reports. 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 in response to unauthorised incident reports. Cumulative adverse effects of a persistent moderate non-compliant activity could elevate an 'improvement required' issue to this level. Typically there were grounds for either a prosecution or an infringement notice in respect of effects.

Administrative performance

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

Good: Perhaps some administrative requirements of the resource consents were not met at a particular time, however this was addressed without repeated interventions from the Council staff. Alternatively adequate reason was provided for matters such as the no or late provision of information, interpretation of 'best practical option' for avoiding potential effects, etc.

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

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

For reference, in the 2018-2019 year, consent holders were found to achieve a high level of environmental performance and compliance for 83% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 13% of the consents, a good level of environmental performance and compliance was achieved.[1]

1.2 Process description

The Sidewinder Production Station (Photo 1) was commissioned in late 2011 following the successful drilling and testing of the Sidewinder-1, 2, 3 and 4 exploration wells, which produce gas-rich condensate. A major site expansion to the southwest of the production station was carried out over the summer of 2012-2013 to allow for the drilling of three further exploration wells in 2013. Upgrades were also made to the site facilities to allow for increased throughput of oil and gas.

The facilities are designed to process up to 30 million cubic feet of gas per day, along with any associated condensate. Processed gas is exported via a 3.5 km pipeline which was constructed to provide a connection from the Sidewinder site to the North Island gas network. Condensate is exported via a truck load-out facility.

All chemical storage is contained within bunds and isolated from the stormwater system. Stormwater from these areas is directed for treatment through a three-stage API interceptor. The site's stormwater drain

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

system consists of open culvert ring-drains which capture general surface water run-off. All stormwater passes through two lined skimmer pits before discharging to the Piakau Stream at the southeastern corner of the site.

Photo 1 Sidewinder Production Station and wellsite (2019)

1.3 Resource consents

The Company holds three resource consents the details of which are summarised in the table below. Summaries of the conditions attached to each permit are set out in Section 3 of this report.

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

Table 1 Consents held by TAG Oil relating the Sidewinder Production Station

Consent number	Purpose	Granted	Review	Expires
7595-1	To discharge treated stormwater and production water from hydrocarbon exploration and production operations at the Sidewinder wellsite into the Piakau Stream	February 2010	June 2021	June 2027
7777-1	To discharge emissions to air associated with production activities at the Sidewinder wellsite, including flaring from well workovers, and emergency situations, and other miscellaneous activities	February 2011	June 2021	June 2027
7822-1	To discharge emissions into the air from the flaring of hydrocarbons arising from hydrocarbon production and processing operations, together with miscellaneous emissions, at the Sidewinder Production Station	June 2011	June 2021	June 2027

1.4 Monitoring programme

1.4.1 Introduction

Section 35 of the RMA sets obligations upon the Council to gather information, monitor and conduct research on the exercise of resource consents within the Taranaki region. The Council is also required to assess the effects arising from the exercising of these consents and report upon them.

The Council may therefore make and record measurements of physical and chemical parameters, take samples for analysis, carry out surveys and inspections, conduct investigations and seek information from consent holders.

The monitoring programme for the Sidewinder Production Station consisted of three 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;
- in discussion over monitoring requirements;
- preparation for any consent reviews, renewals or new consent applications;
- advice on the Council's environmental management strategies and content of regional plans; and
- consultation on associated matters.

1.4.3 Site inspections

The Sidewinder Production Station was visited six times during the monitoring period. With regard to consents for the discharge to water, the main points of interest were plant processes with potential or actual discharges to receiving watercourses, including contaminated stormwater and process wastewaters. Air inspections focused on plant processes with associated actual and potential emission sources and characteristics, including potential odour, dust, noxious or offensive emissions. Sources of data being collected by the Company were identified and accessed, so that performance in respect of operation, internal monitoring, and supervision could be reviewed by the Council. The neighbourhood was surveyed for environmental effects.

1.4.4 Chemical sampling

The Sidewinder Production Station discharge was sampled on one occasion, and the sample analysed for chlorides, conductivity, hydrocarbons, pH, suspended solids and turbidity. The Piakau Stream was sampled concurrently, and the samples analysed for the same constituents.

The Council undertook sampling of the ambient air quality outside the boundary of the site. A multi-gas meter was deployed on one occasion in the vicinity of the plant, with monitoring consisting of continuous measurements of gas concentrations for the gases of interest (carbon monoxide and combustible gases). A PM_{10} particulate monitor was deployed concurrently with the multi-gas meter. Two nitrogen oxide measuring devices were also deployed in the vicinity of the plant on one occasion during the year under review. Council also measured the concentrations of the volatile organic compounds benzene, toluene, ethylbenzene and xylenes (BTEX) on one occasion during the year as part of a regionwide monitoring programme.

2 Results

2.1 Water

2.1.1 Inspections

Six inspections were undertaken at the Sidewinder Production Station during the period under review. The inspections were undertaken on 10 September, 1 November, and 7 December 2018 and 23 January, 17 April and 6 June 2019. The inspections focused on the site's stormwater and air discharge systems, including the measures in place to prevent, avoid and mitigate any effects offsite. The site was found to be neat and tidy and complying with resource consent conditions during all inspections.

2.1.2 Results of discharge monitoring

Chemical water quality sampling of the discharge from the Sidewinder Production Station was undertaken once during the 2018-2019 period. The sample was collected on 5 June 2019. Table 2 presents the results. The location of the sampling site (IND002050) is shown in Figure 1.

Figure 1 Sidewinder Production Station and associated water quality sampling sites

Table 2 Results for discharge monitoring from Sidewinder Production Station

Parameter	Units	5 June 2019	Consent limits
Chloride	g/m^3	5.7	50
Conductivity @25°C	mS/m	5.5	-
Hydrocarbons	g/m^3	<0.7	15
Suspended solids	g/m^3	5	100
Temperature	Deg. C	9.7	-
pH		7.0	6.0 – 9.0
Turbidity	NTU	3.4	-

All results complied with the applicable conditions of consent 7595-1 at the time of sampling.

2.1.3 Results of receiving environment monitoring

Receiving water quality sampling was undertaken in conjunction with discharge sampling at points upstream (PIK000159) and downstream (PIK000166) of the discharge. The results are presented in Table 3 and the sampling sites are shown in Figure 1. These sites were chosen because they provide safe access to the stream during periods of rain and are outside of the discharge mixing zone. The stretch of the Piakau Stream between these two points has very high, steep banks which would not permit easy escape in the event of rising waters.

The results indicate that the discharge was not affecting the water quality of the Piakau Stream and was in compliance with all applicable consent conditions for receiving waters at the times of sampling.

Table 3 Receiving environment results for the Piakau Stream, 5 June 2019

Parameter	Units	Upstream site PIK000159	Downstream site PIK000166	Consent 7595-1 limits
Chloride	g/m^3	8.2	9.0	-
Conductivity @25°C	mS/m	9.9	10.1	-
Hydrocarbons	g/m^3	<0.7	<0.7	No conspicuous oil films or foams
Suspended solids	g/m^3	<3	<3	No conspicuous change
Temperature	Deg. C	10.6	10.7	< 2 °C increase
pH		7.4	7.5	-
Turbidity	NTU	1.5	1.3	No conspicuous change

2.2 Air

2.2.1 Inspections

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

2.2.2 Results of receiving environment monitoring

2.2.2.1 Carbon monoxide and combustible gases

During the monitoring year, a multi-gas meter was deployed on one occasion in the vicinity of the plant. The deployment lasted approximately 107 hours, with the instrument placed in a down-wind position at the start of the deployment. Monitoring consisted of continuous measurements of gas concentrations for the gases of interest (carbon monoxide and combustible gases). The monitoring sites used in the year under review are shown in Figure 2.

Figure 2 Air monitoring sites at Sidewinder Production Station for 2018-2019

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

The details of the sample run are summarised in Table 4 and the data from the sample run are presented graphically in Figure 3.

Table 4 Results of carbon monoxide and LEL monitoring at Sidewinder Production Station

Period		22 to 27 January 2019 (107 hours)
Max	CO(ppm)	7.30
	LEL(%)	0.20
Mean	CO(ppm)	0.30
	LEL(%)	0.00
Min	CO(ppm)	0.00
	LEL(%)	0.00

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

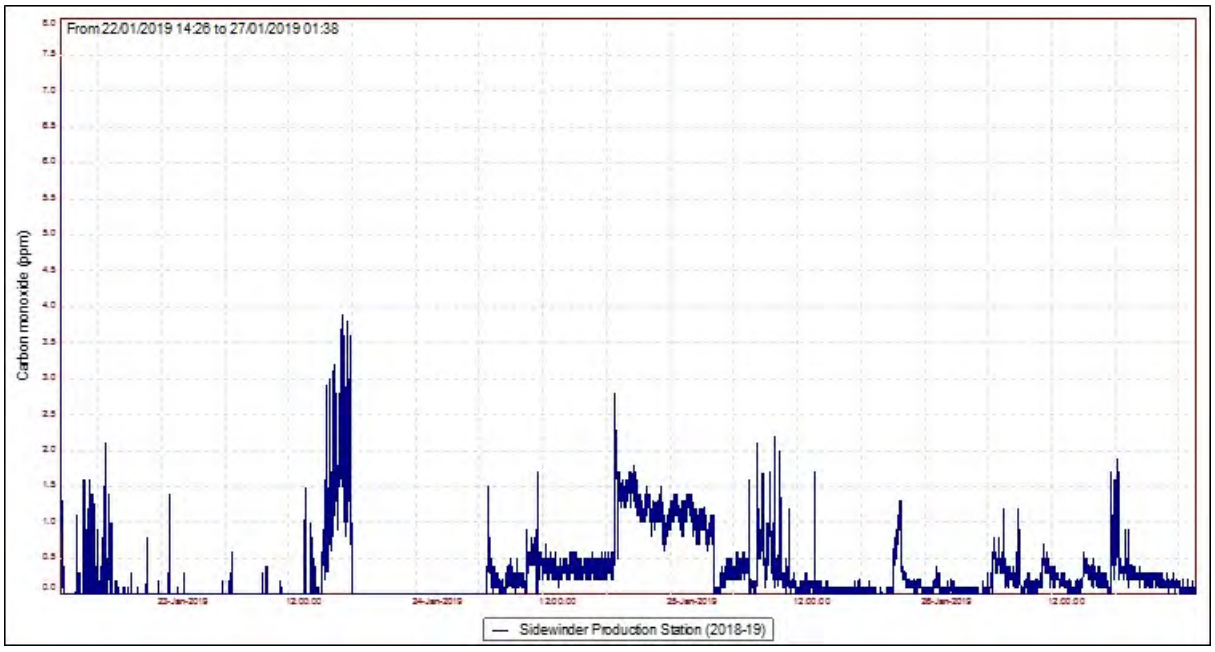

Figure 3 Ambient CO levels in the vicinity of Sidewinder Production Station

The consent covering air discharges from the Sidewinder Production Station has specific limits related to particular gases. Special condition 11 of consent 7822-1 sets a limit on the carbon monoxide concentration at or beyond the production station's boundary. The limit is expressed as 10 mg/m^3 for an eight hour average, or 30 mg/m^3 for a one hour average exposure. The maximum concentration of carbon monoxide found during the monitoring run was 8.4 mg/m^3 while the average concentration for the entire dataset was 0.34 mg/m^3, which comply with consent conditions. This is consistent with the pattern found in previous years.

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

2.2.2.2 PM_{10} particulates

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

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

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

During the reporting period, a DustTrak PM_{10} monitor was deployed on one occasion in the vicinity of Sidewinder Production Station. The deployment lasted approximately 37 hours, with the instrument placed in a down-wind position at the start of the deployment. Monitoring consisted of continual measurements of

PM_{10} concentrations. The location of the DustTrak monitor during the sampling run is shown in Figure 2. The results of the sample run are presented in Figure 4 and Table 5.

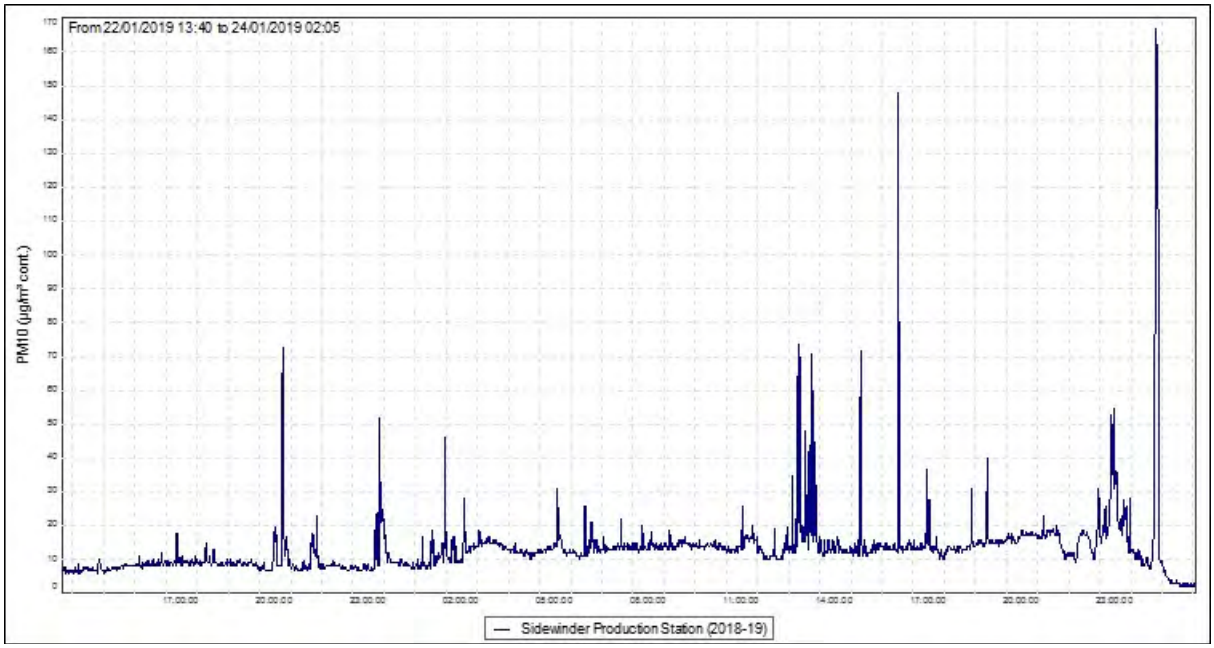

Figure 4 PM_{10} concentrations (µg/m³) at Sidewinder Production Station

Table 5 Daily averages of PM_{10} results from monitoring at Sidewinder Production Station

	22 to 24 January 2019 (37 hours)	
24 hr. set	Day 1 (start to 24 hours)	Day 2 (24 hours to end)
Daily average	11.6 µg/m³	15.1 µg/m³
NES	50µg/m³	

During the 37 hour run, from 22 to 24 January 2019, the average recorded PM_{10} concentration was 11.6 µg/m³ for the first 24 hour period and 15.1 µg/m³ for the second 24 hour period. These daily means equate to 23% of the 30 µg/m³ value that is set by the NES. Background levels of PM_{10} in the region have been found to be typically around 11 µg/m³.

2.2.2.3 Nitrogen oxides

From 2014 onwards, the Council implemented a coordinated region-wide compliance monitoring programme to measure nitrogen oxides (NOx). The programme involves deploying measuring devices at 30 NOx monitoring sites (including two sites in the vicinity of Sidewinder Production Station) on the same day, with retrieval three weeks later. This approach assists the Council in further evaluating the effects of local and regional emission sources and ambient air quality in the region.

The consents covering air discharges from the Sidewinder Production Station have specific limits related to particular gases. Special condition 12 of consent 7822-1 sets a limit on the nitrogen dioxide concentration at or beyond the production station's boundary. The limit is expressed as 200 µg/m³ for a one hour average or 100 µg/m³ for a 24 hour average exposure.

NOx passive adsorption discs were place at two locations in the vicinity of the Sidewinder Production Station on one occasion during the year under review. The discs were left in place for a period of 21 days. The calculated one hour and 24 hour theoretical maximum NOx concentrations found at Sidewinder Production Station during the year under review equate to 11.1 µg/m³ and 5.8 µg/m³, respectively. The

results show that the ambient ground level concentration of NOx is well below the limits set out by consent 7822-1.

2.2.2.4 BTEX

The volatile organic compounds (VOC) benzene, toluene, ethylbenzene and xylenes together are commonly refered to as BTEX. In New Zealand, benzene is the only member of the BTEX group subject to a national guideline value. The Ministry for the Environment (MfE) guideline for long-term exposure (annual average exposure), based on benzene's known mutagenic and carcinogenic properties, is 3.6 µg/m^3. There are no national ambient air quality guidelines for toluene, ethylbenzene or xylene. The MfE had prepared an internal technical document "Health Effects of Eleven Hazardous Air Contaminants and Recommended Evaluation Criteria" (October 2000) that suggested a short-term (1 hour) average value of 22 µg/m^3 for Benzene, 500 µg/m^3 for Toluene and 1000 µg/m^3 for Xylene as recommended guidelines values. However, these recommendations were not carried through to the final MfE guidelines published in 2002.

In January 2019 the Council implemented a coordinated monitoring programme to measure the concentrations of BTEX at 20 monitoring sites around the region (Figure 5).

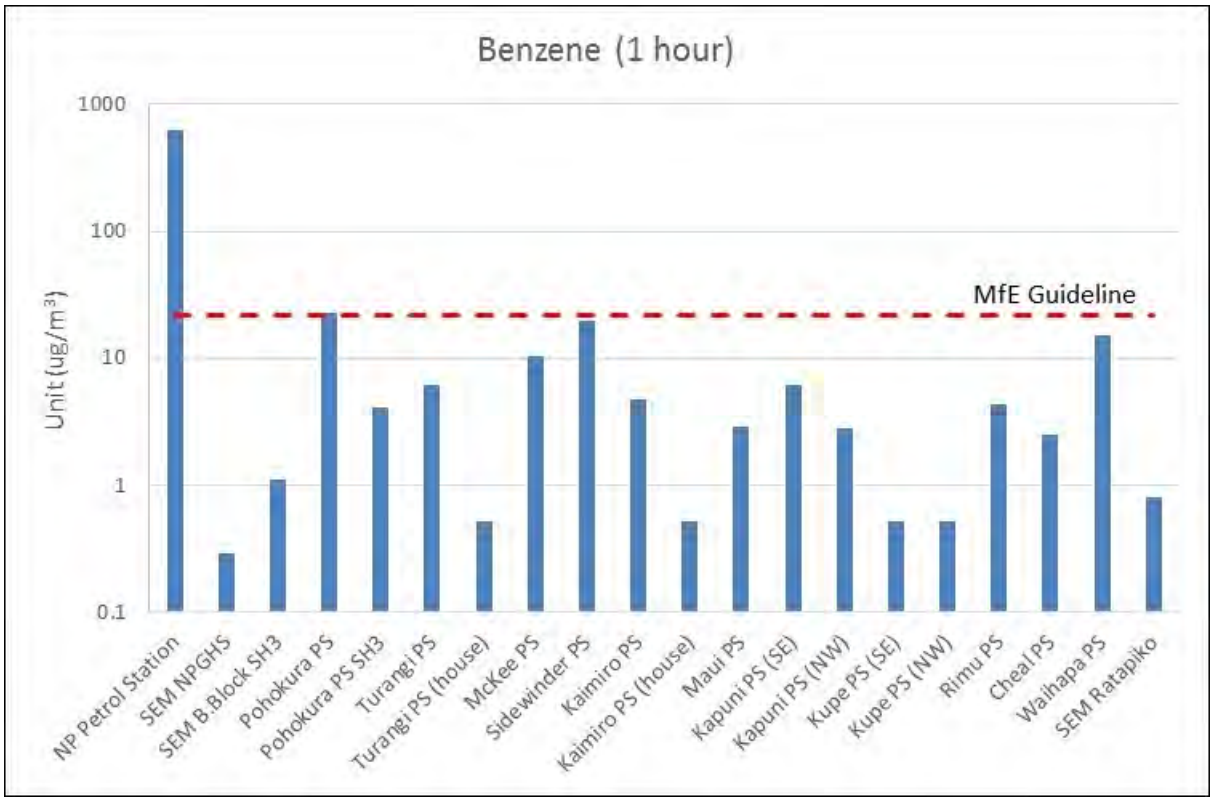

Figure 5 Regional benzene monitoring results 2019

The period of sampling was 503 hours (21 days). A conversion factor was applied to estimate an approximate peak short-term concentration that might have arisen during the full sampling period (assuming a steady-state source). These modelled concentrations are also presented in Table 6, alongside the actual concentrations as detected.

The results obtained for benzene at the Sidewinder Production Station were one of the highest levels found throughout the region (Figure 5). However, the level was below the recommended guideline and well below the level found at an urban petrol station (1 hour calculation of 633 µg/m^3). The levels of toluene and xylene detected were well below the recommended guidelines.

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

Table 6 Actual and recalculated (p0.2) BTEX results from Sidewinder Production Station, January 2019

Site ID / Where	Time total Min.	Benzene (µg/m³)		Toluene (µg/m³)		Ethyl Benzene	o,m,p – (µg/m³) Xylene Total	
		Lab. Results	1 hr. Calc.	Lab. Results	1 hr. Calc.	Lab. Results	Lab. Results	1 hr. Calc.
AIR007831 Sidewinder PS	502	5.71	19.8	12.27	42.6	0.77	20.56	71.3
Blank**		<0.15	<0.5	<0.19	<0.7	<0.19	<0.43	<1.5
MfE recommended **guidelines** (2000), one -hour average. (µg/m³)			**22**		**500**			**1000**

2.2.3 Summary of flaring volumes reported by the Company

There were 12 flaring events during the period under review (similar to the 2017-2018 monitoring period where there were 15). The majority of which were caused by process upsets. Light smoke was recorded on one occasion, however no complaints were received by the Company or the Council during the 2018-2019 period. A summary of flaring volumes at Sidewinder Production Station is provided in Figure 6.

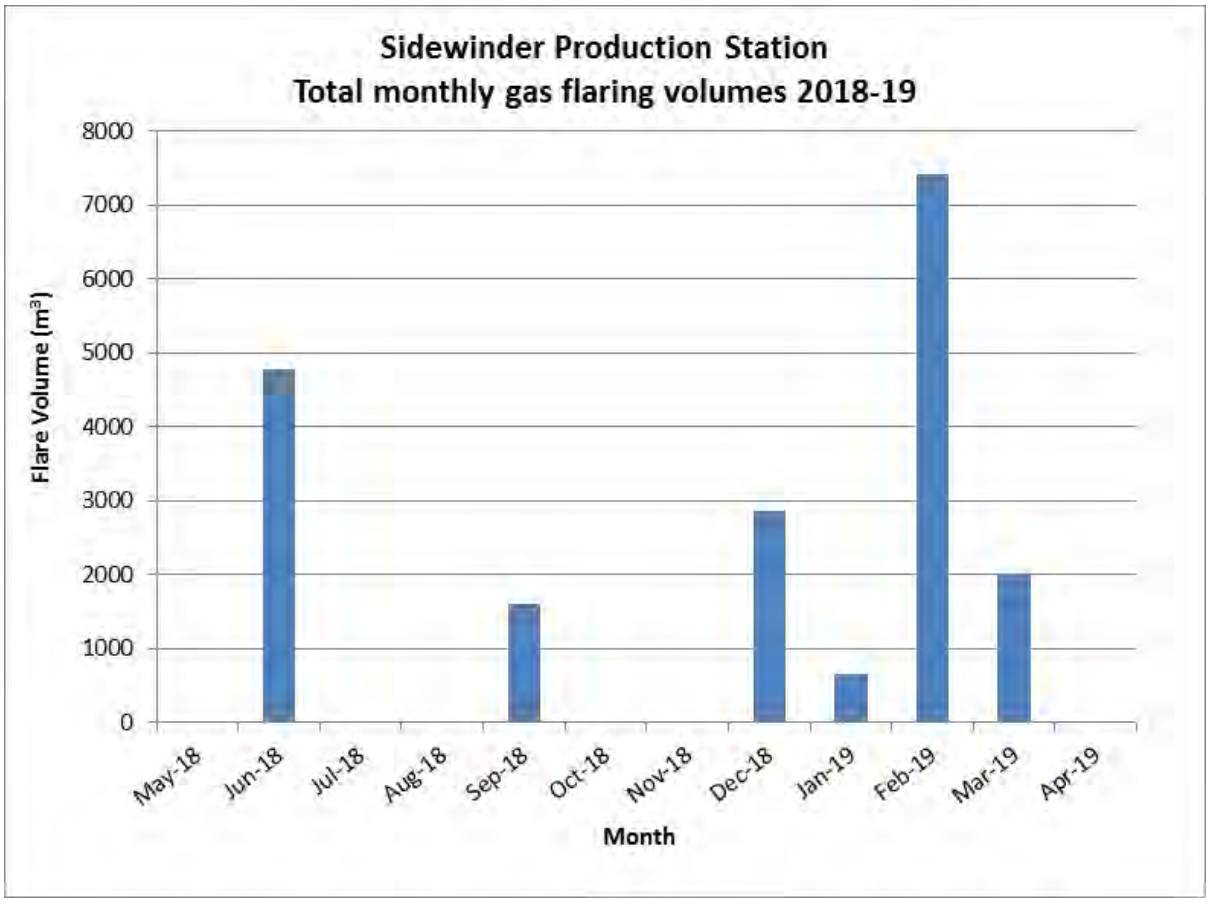

Figure 6 Monthly gas flaring for Sidewinder Production Station under consent 7822-1

2.3 Incidents, investigations, and interventions

The monitoring programme for the year was based on what was considered to be an appropriate level of monitoring, review of data, and liaison with the Company. During the year matters may arise which require additional activity by the Council, for example provision of advice and information, or investigation of

potential or actual causes of non-compliance or failure to maintain good practices. A pro-active approach, that in the first instance avoids issues occurring, is favoured.

For all significant compliance issues, as well as complaints from the public, the Council maintains a database record. The record includes events where the individual/organisation concerned has itself notified the Council. Details of any investigation and corrective action taken are recorded for non-compliant events.

Complaints may be alleged to be associated with a particular site. If there is potentially an issue of legal liability, the Council must be able to prove by investigation that the identified individual/organisation is indeed the source of the incident (or that the allegation cannot be proven).

In the 2018-2019 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with the Company's conditions in resource consents or provisions in Regional Plans.

Photo 2 Clean burning flare at the Sidewinder Production Station

3 Discussion

3.1 Discussion of site performance

Monitoring the Sidewinder Production Station during the 2018-2019 year found that the site was well managed. All consent conditions relating to site operations and management were complied with.

3.2 Environmental effects of exercise of consents

Visual inspections of the stormwater system and receiving waters, along with samples collected of both the discharge and receiving waters, indicated that the discharge from the site was unlikely to be causing any adverse effects on the Piakau Stream.

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

3.3 Evaluation of performance

A tabular summary of the consent holder's compliance record for the year under review is set out in Tables 7-9, while Table 10 presents an evaluation of environmental performance over time.

Table 7 Summary of performance for consent 7595-1

Purpose: ***To discharge treated stormwater and production water from hydrocarbon exploration and production operations at the Sidewinder wellsite into the Piakau Stream***		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of the best practicable option	Inspection and liaison with consent holder	Yes
2. Maximum stormwater catchment area	Inspection and company records	Yes
3. Notification to Council seven days prior to site works and well drilling	No site works during monitoring period	Yes
4. Maintenance of a contingency plan	Latest update received January 2018	Yes
5. Design and maintenance of stormwater system in accordance application documentation	Inspection and liaison with consent holder	Yes
6. All stormwater and produced water discharged through treatment system	Inspection	Yes
7. Skimmer pits to be lined with impervious material and have shut off valves	Inspection	Yes
8. Bunding and containment of hazardous substances	Inspection	Yes
9. Limits on constituents in the discharge	Water sampling	Yes

Purpose: *To discharge treated stormwater and production water from hydrocarbon exploration and production operations at the Sidewinder wellsite into the Piakau Stream*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
10. Temperature increase of not more than 2 degrees Celsius in receiving waters	Water sampling	Yes
11. Limits on effects in receiving waters	Inspections and water sampling	Yes
12. 48 hrs notice prior to reinstatement	Site still active	N/A
13. Lapse provision	Consent exercised	N/A
14. Optional review provision	Next option for review June 2021	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 8 Summary of performance for consent 7777-1

Purpose: *To discharge emissions to air associated with production activities at the Sidewinder wellsite, including flaring from well workovers, and emergency situations, and other miscellaneous activities*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Notification prior to continuous flaring	Notifications received	Yes
2. Notification of neighbours prior to flaring	No complaints received	Yes
3. Effective liquid and solid separation prior to flaring	Inspection and notifications	Yes
4. Only gaseous hydrocarbons to be flared	Inspection and notifications	Yes
5. Adoption of best practicable option to minimise effects from the flare	Inspection and air monitoring	Yes
6. No offensive odour or smoke beyond boundary	Inspection	Yes
7. Hydrocarbon storage vessels to have vapour recovery systems	Inspection	Yes
8. Control of carbon monoxide emissions	Air monitoring	Yes
9. Control of nitrogen oxide emissions	Air monitoring	Yes
10. Control of emissions to meet WES limits for other contaminants	Explosive gases, PM_{10} and BTEX levels also monitored	Yes
11. Analysis of typical gas and condensate stream	Analysis not requested	N/A
12. Keep and maintain a flaring log	Inspection and annual flaring report	Yes

Purpose: *To discharge emissions to air associated with production activities at the Sidewinder wellsite, including flaring from well workovers, and emergency situations, and other miscellaneous activities*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
13. Lapse provision	Consent exercised	N/A
14. Optional review provision	Next option for review June 2021	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 7822-1

Purpose: *To discharge emissions into the air from the flaring of hydrocarbons arising from hydrocarbon production and processing operations, together with miscellaneous emissions, at the Sidewinder Production Station*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option to minimise effects from the flare	Inspection and air monitoring	Yes
2. Keep and maintain a flaring log	Inspection and annual flaring report	Yes
3. Monthly flaring information supplied	Information received	Yes
4. Provision of annual flaring and air emissions report	Report received	Yes
5. Keep and maintain a record of smoke emitting incidents	Inspection and annual flaring report	Yes
6. Analysis of typical gas and condensate stream	Analysis not requested	N/A
7. Consultation prior to plant alterations which may alter flare emissions	Inspection and liaison with consent holder	Yes
8. Notification of continuous flaring	Notifications received	Yes
9. No offensive odour, dust or smoke beyond boundary	Inspection and public notification	Yes
10. No hazardous/toxic/noxious contaminants beyond boundary	Inspections and air monitoring	Yes
11. Control of carbon monoxide emissions	Air monitoring	Yes
12. Control of nitrogen oxide emissions	Air monitoring	Yes
13. Control of emissions to meet WES limits for other contaminants	Explosive gases, PM_{10} levels and BTEX also monitored	Yes
14. Lapse provision	Consent exercised	N/A
15. Optional review provision	Next option for review June 2021	N/A

Purpose: *To discharge emissions into the air from the flaring of hydrocarbons arising from hydrocarbon production and processing operations, together with miscellaneous emissions, at the Sidewinder Production Station*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
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 10 Evaluation of environmental performance over time

Year	Consent no.	Environmental performance rating			
		High	Good	Improvement req	Poor
2012-14	7595-1	1	-	-	-
	7777-1	1	-	-	-
	7822-1	1	-	-	-
2014-15	7595-1	1	-	-	-
	7777-1	1	-	-	-
	7822-1	1	-	-	-
2015-16	7595-1	1	-	-	-
	7777-1	1	-	-	-
	7822-1	1	-	-	-
2016-17	7595-1	1	-	-	-
	7777-1	1	-	-	-
	7822-1	1	-	-	-
2017-18	7595-1	1	-	-	-
	7777-1	1	-	-	-
	7822-1	1	-	-	-
Totals		15	0	0	0

During the year, the Company demonstrated an overall high level of both environmental performance and administrative compliance with the resource consents as defined in Section 1.1.4. There were no unauthorised incidents recorded by the Council in relation to the Company's activities. The Sidewinder Production Station and associated wellsites were well managed and maintained.

3.4 Recommendations from the 2017-2018 Annual Report

In the 2017-2018 Annual Report, it was recommended:

1. THAT in the first instance, monitoring of consented activities at the Sidewinder Production Station in the 2018-2019 year continue at the same level as scheduled in 2017-2018.

2. THAT should there be issues with environmental or administrative performance in 2017-2018, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

Recommendation one was implemented, while there were no issues with environmental or administrative performance that required additional monitoring as per recommendation two.

3.5 Alterations to monitoring programmes for 2019-2020

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 2019-2020 that monitoring of consented activities at the Sidewinder Production Station remains similar to that scheduled in 2017-2018, however inspections will be reduced from six to four.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2019-2020.

4 Recommendations

1. THAT in the first instance, monitoring of consented activities at the Sidewinder Production Station in the 2019-2020 year is altered from that of 2018-2019, with a reduction in inspections from six to four.
2. THAT should there be issues with environmental or administrative performance in 2019-2020, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

Glossary of common terms and abbreviations

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

BTEX	Benzene, toluene, ethylbenzene and xylenes (BTEX).
Bund	A wall around a tank to contain its contents in the case of a leak.
Conductivity	An indication of the level of dissolved salts in a sample, usually measured at 25°C and expressed in mS/m.
g/m^3	Grams per cubic metre, and equivalent to milligrams per litre (mg/L). In water, this is also equivalent to parts per million (ppm), but the same does not apply to gaseous mixtures.
Incident	An event that is alleged or is found to have occurred that may have actual or potential environmental consequences or may involve non-compliance with a consent or rule in a regional plan. Registration of an incident by the Council does not automatically mean such an outcome had actually occurred.
Intervention	Action/s taken by Council to instruct or direct actions be taken to avoid or reduce the likelihood of an incident occurring.
Investigation	Action taken by Council to establish what were the circumstances/events surrounding an incident including any allegations of an incident.
Incident Register	The Incident Register contains a list of events recorded by the Council on the basis that they may have the potential or actual environmental consequences that may represent a breach of a consent or provision in a Regional Plan.
L/s	Litres per second.
m^2	Square Metres.
MfE	Ministry for the Environment.
Mixing zone	The zone below a discharge point where the discharge is not fully mixed with the receiving environment. For a stream, conventionally taken as a length equivalent to 7 times the width of the stream at the discharge point.
mS/m	Millisiemens per metre.
NES	National Environmental Standard.
NTU	Nephelometric Turbidity Unit, a measure of the turbidity of water.
O&G	Oil and grease, defined as anything that will dissolve into a particular organic solvent (e.g. hexane). May include both animal material (fats) and mineral matter (hydrocarbons).
pH	A numerical system for measuring acidity in solutions, with 7 as neutral. Numbers lower than 7 are increasingly acidic and higher than 7 are increasingly alkaline. The scale is logarithmic i.e. a change of 1 represents a ten-fold change in strength. For example, a pH of 4 is ten times more acidic than a pH of 5.
Physicochemical	Measurement of both physical properties (e.g. temperature, clarity, density) and chemical determinants (e.g. metals and nutrients) to characterise the state of an environment.
PM_{10}	Relatively fine airborne particles (less than 10 micrometre diameter, respectively).
Resource consent	Refer Section 87 of the RMA. Resource consents include land use consents (refer Sections 9 and 13 of the RMA), coastal permits (Sections 12, 14 and 15), water permits (Section 14) and discharge permits (Section 15).
RMA	*Resource Management Act 1991* and including all subsequent amendments.

SS	Suspended solids.
Temp	Temperature, measured in °C (degrees Celsius).
Turb	Turbidity, expressed in NTU.
UI	Unauthorised Incident.
VOC	Volatile organic compounds
WES	Workplace Exposure Standards

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

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Taranaki Regional Council (2019): TAG Oil (NZ) Ltd Sidewinder Production Station Monitoring Programme Annual Report 2017-2018. Technical Report 2018-45.

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Tkachenko, V (2019): Air monitoring survey of hydrocarbon compounds (BTEX) in the Taranaki Region 2019, August 2019.

Tkachenko, V (2019): Ambient Gas (PM10, CO and LEL) Monitoring at Sidewinder Production Station during 2018-2019 monitoring year, June 2019.

Tkachenko, V (2019): Monitoring of nitrogen oxides (NOx) levels in Taranaki near the NOx emitting sites, year 2018-2019, June 2019.

Appendix I

Resource consents held by TAG Oil (NZ) Ltd

(For a copy of the signed resource consent
please contact the TRC Consents department)

Consent number	Purpose	Granted	Review	Expires
7595-1	To discharge treated stormwater and production water from hydrocarbon exploration and production operations at the Sidewinder wellsite into the Piakau Stream	February 2010	June 2021	June 2027
7777-1	To discharge emissions to air associated with production activities at the Sidewinder wellsite, including flaring from well workovers, and emergency situations, and other miscellaneous activities	February 2011	June 2021	June 2027
7822-1	To discharge emissions into the air from the flaring of hydrocarbons arising from hydrocarbon production and processing operations, together with miscellaneous emissions, at the Sidewinder Production Station	June 2011	June 2021	June 2027

Water abstraction permits

Section 14 of the RMA stipulates that no person may take, use, dam or divert any water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or it falls within some particular categories set out in Section 14. Permits authorising the abstraction of water are issued by the Council under Section 87(d) of the RMA.

Water discharge permits

Section 15(1)(a) of the RMA stipulates that no person may discharge any contaminant into water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or by national regulations. Permits authorising discharges to water are issued by the Council under Section 87(e) of the RMA.

Air discharge permits

Section 15(1)(c) of the RMA stipulates that no person may discharge any contaminant from any industrial or trade premises into air, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising discharges to air are issued by the Council under Section 87(e) of the RMA.

Discharges of wastes to land

Sections 15(1)(b) and (d) of the RMA stipulate that no person may discharge any contaminant onto land if it may then enter water, or from any industrial or trade premises onto land under any circumstances, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising the discharge of wastes to land are issued by the Council under Section 87(e) of the RMA.

Land use permits

Section 13(1)(a) of the RMA stipulates that no person may in relation to the bed of any lake or river use, erect, reconstruct, place, alter, extend, remove, or demolish any structure or part of any structure in, on, under, or over the bed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Land use permits are issued by the Council under Section 87(a) of the RMA.

Coastal permits

Section 12(1)(b) of the RMA stipulates that no person may erect, reconstruct, place, alter, extend, remove, or demolish any structure that is fixed in, on, under, or over any foreshore or seabed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Coastal permits are issued by the Council under Section 87(c) of the RMA.

Discharge Permit

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

Name of Consent Holder:	TAG Oil (NZ) Limited PO Box 402 New Plymouth 4340	
Decision Date (Change):	05 August 2014	
Commencement Date (Change):	05 August 2014	(Granted Date: 11 February 2010)

Conditions of Consent

Consent Granted:	To discharge treated stormwater and production water from hydrocarbon exploration and production operations at the Sidewinder wellsite into the Piakau Stream
Expiry Date:	01 June 2027
Review Date(s):	June 2015, June 2021
Site Location:	Sidewinder wellsite, 323 Upper Durham Road, Inglewood
Legal Description:	Lot 4 DP 420600 (Discharge source & site)
Grid Reference (NZTM)	1703995E-5659276N
Catchment:	Waitara
Tributary:	Manganui Ngatoro Maketawa Piakau

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

General condition

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

Special conditions

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

2. Stormwater discharged shall be collected from a catchment area of no more than 1.85 ha.

3. The Chief Executive, Taranaki Regional Council, shall be notified in writing at least 7 days prior to any site works commencing, and again in writing at least 7 days prior to any well drilling operation commencing. Notification shall include the consent number and a brief description of the activity consented and be emailed to worknotification@trc.govt.nz.

4. The consent holder shall maintain a contingency plan that, to the satisfaction of the Chief Executive, Taranaki Regional Council, details measures and procedures to be undertaken to prevent spillage or accidental discharge of contaminants not authorised by this consent and measures to avoid, remedy or mitigate the environmental effects of such a spillage or discharge.

5. The design, management and maintenance of the stormwater system shall be undertaken in accordance with the information provided in support of the original application for this consent and with any subsequent application to change consent conditions. Where there is conflict between the applications, the later application shall prevail, and where there is conflict between an application and the consent conditions, the conditions shall prevail.

6. All stormwater and produced water shall be directed for treatment through the stormwater treatment system identified in condition 5 before being discharged.

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

8. Any significant volumes of hazardous substances (e.g. bulk fuel, oil, drilling fluid) on site shall be:

   a) contained in a double skinned tank, or
   b) stored in a dedicated bunded area with drainage to sumps, or to other appropriate recovery systems, and not directly to the site stormwater system.

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

Constituent	Standard
pH	Within the range 6.0 to 9.0
suspended solids	Concentration not greater than 100 gm^{-3}
total recoverable hydrocarbons	Concentration not greater than 15 gm^{-3}
chloride	Concentration not greater than 50 gm^{-3}

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

10. After allowing for a mixing zone of 25 metres, the discharge shall not give rise to an increase in temperature of more than 2 degrees Celsius.

11. After allowing for a mixing zone of 25 metres, the discharge shall not give rise to any of the following effects in the receiving water:

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

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

13. This consent shall lapse on 31 March 2015, 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 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 05 August 2014

For and on behalf of
Taranaki Regional Council

_____

A D McLay
Director - Resource Management

Discharge Permit

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

Name of Consent Holder:	TAG Oil (NZ) Limited P O Box 262 STRATFORD 4352
Decision Date:	7 February 2011
Commencement Date:	7 February 2011

Conditions of Consent

Consent Granted:	To discharge emissions to air associated with production activities at the Sidewinder wellsite, including flaring from well workovers, and emergency situations, and other miscellaneous activities at or about (NZTM) 1703906E-5659287N
Expiry Date:	1 June 2027
Review Date(s):	June 2015, June 2021
Site Location:	Sidewinder wellsite, 323 Upper Durham Road, Inglewood [Property owner: B.F.F Limited]
Legal Description:	Lot 4 DP 420600 [Discharge source & site]
Catchment:	Waitara

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. Other than in emergencies, the consent holder shall notify the Chief Executive, Taranaki Regional Council, whenever the continuous flaring of hydrocarbons [other than purge gas] is expected to occur for more than five minutes in duration. Notification shall be no less than 24 hours before the flaring commences. Notification shall include the consent number and be emailed to worknotification@trc.govt.nz.

2. At least 24 hours before any flaring, other than in emergencies, the consent holder shall provide notification to all residents within 300 metres of the wellsite of the commencement of flaring. The consent holder shall include in the notification a 24-hour contact telephone number for a representative of the consent holder, and shall keep and make available to the Chief Executive, Taranaki Regional Council, a record of all queries and complaints received in respect of any flaring activity.

3. To the greatest extent possible, all gas that is flared must first be treated by effective liquid and solid separation and recovery.

4. Only gaseous hydrocarbons originating from the well stream shall be combusted within the flare pit.

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

6. The discharge shall not cause any objectionable or offensive odour or smoke at or beyond the boundary of the property where the wellsite is located.

7. All permanent tanks used as hydrocarbon storage vessels, shall be fitted with vapour recovery systems.

8. The consent holder shall control all emissions of carbon monoxide to the atmosphere from the flare so that, whether alone or in conjunction with any other emissions from the wellsite, the maximum ground level concentration of carbon monoxide arising from the exercise of this consent measured under ambient conditions does not exceed 10 milligrams per cubic metre [mg/m^3] [eight-hour average exposure], or 30 mg/m^3 one-hour average exposure] at or beyond the boundary of the property where the wellsite is located.

9. The consent holder shall control all emissions of nitrogen oxides to the atmosphere from the flare so that, whether alone or in conjunction with any other emissions from the wellsite, the maximum ground level concentration of nitrogen dioxide arising from the exercise of this consent measured under ambient conditions does not exceed 100 micrograms per cubic metre [$\mu g/m^3$] [24-hour average exposure], or 200 $\mu g/m^3$ [1-hour average exposure] at or beyond the boundary of the of the property where the wellsite is located.

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

    a) by more than $1/30^{th}$ of the relevant Occupational Threshold Value-Time Weighted Average, or by more than the Short Term Exposure Limit at any time [all terms as defined in Workplace Exposure Standards, 2002, Department of Labour]; or

    b) if no Short Term Exposure Limit is set, by more than three times the Time Weighted Average at any time [all terms as defined in Workplace Exposure Standards, 2002, Department of Labour].

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

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

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

    b) the zone from which flaring occurred;

    c) the volume of substances flared;

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

13. This consent shall lapse on 31 March 2016, 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 and/or June 2021, for any of the following purposes:

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

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

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

Signed at Stratford on 7 February 2011

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:	TAG Oil (NZ) Limited P O Box 262 STRATFORD 4352
Decision Date:	22 June 2011
Commencement Date:	22 June 2011

Conditions of Consent

Consent Granted:	To discharge emissions into the air from the flaring of hydrocarbons arising form hydrocarbon production and processing operations, together with miscellaneous emissions, at the Sidewinder Production Station at or about (NZTM) 1703971E-5659277N
Expiry Date:	1 June 2027
Review Date(s):	June 2015, June 2021
Site Location:	Sidewinder wellsite, 323 Upper Durham Road, Inglewood [Property owner: B.F.F Limited]
Legal Description:	Lot 4 DP 420600 [Discharge source & site]

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

Exercise of consent

1. The consent holder shall at all times adopt the best practicable option [as defined in section 2 of the Resource Management Act 1991] to prevent or minimise any actual or likely adverse effects on the environment associated with the discharge of contaminants into the environment arising from the emissions to air from the flare.

Recording and submitting information

2. The consent holder shall keep and maintain a log of all continuous flaring incidents lasting longer than 5 minutes and any intermittent flaring lasting for an aggregate of 10 minutes or longer in any 60-minute period. The log shall contain the date, the start and finish times, the quantity and type of material flared, and the reason for flaring. The log shall be made available to the Chief Executive, Taranaki Regional Council, upon request, and summarised annually in the report required under condition 4. Flaring, under normal operation in the low pressure flare, of rich mono-ethylene glycol degasser vapour, condensate tank vapours, non-condensibles from tri-ethylene glycol/mono-ethylene glycol regeneration and purge gas shall be excluded from this requirement.

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

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

    a) detailing gas combustion at the production station flare, including but not restricted to routine operational flaring and flaring logged in accordance with condition 2;
    b) detailing any measures that have been undertaken by the consent holder to improve the energy efficiency of the production station;
    c) detailing any measures to reduce smoke emissions;
    d) detailing any measures to reduce flaring,
    e) addressing any other issue relevant to the minimisation or mitigation of emissions from the production station flare; and
    f) detailing any complaints received and any measures undertaken to address complaints.

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

Information and notification

6. The consent holder shall make available to the Chief Executive, Taranaki Regional Council upon request, an analysis of a typical gas and/or condensate stream from the Mt Messenger Formation, covering sulphur compound content and the content of compounds containing six or more carbon atoms in their molecular structure.

7. Prior to undertaking any alterations to the plant equipment, processes or operations, which may substantially alter the nature or quantity of flare emissions other than as described in the consent application, the consent holder shall first consult with the Chief Executive, Taranaki Regional Council, and shall obtain any necessary approvals under the Resource Management Act 1991.

8. The consent holder shall notify the Chief Executive, Taranaki Regional Council, as soon as practicable, whenever the continuous flaring of hydrocarbons [other than the flaring of rich mono-ethylene glycol degasser vapour, condensate tank vapours, non-condensibles from tri-ethylene glycol/mono-ethylene glycol regeneration and purge gas] is expected to occur for more than five minutes in duration.

Preventing and minimising emissions

9. The discharges authorised by this consent shall not, whether alone or in conjunction with any other emissions from the site arising, give rise to any levels of odour or dust or smoke that are offensive or obnoxious or objectionable at or beyond the boundary of the site as shown on attached aerial photograph [figure 1].

10. The consent holder shall not discharge any contaminant to air from the site at a rate or a quantity such that the contaminant, whether alone or in combination with other contaminants, is or is liable to be hazardous or toxic or noxious at or beyond the boundary of the site as shown on attached aerial photograph.

11. The consent holder shall control all discharges of carbon monoxide to the atmosphere from the flare, whether alone or in conjunction with any other emissions from the site, in order that the maximum ground level concentration of carbon monoxide arising from the exercise of this consent measured under ambient conditions does not exceed 10 milligrams per cubic metre [eight-hour average exposure], or 30 milligrams per cubic metre [one-hour average exposure] at or beyond the boundary of the site as shown on attached aerial photograph.

12. The consent holder shall control all discharges of nitrogen dioxide or its precursors to the atmosphere from the flare, whether alone or in conjunction with any other discharges to the atmosphere from the site, in order that the maximum ground level concentration of nitrogen dioxide arising from the exercise of this consent measured under ambient conditions does not exceed 200 micrograms per cubic metre [one hour average exposure], or 100 micrograms per cubic metre [twenty-four hour average exposure], at or beyond the boundary of the site as shown on attached aerial photograph [figure 1].

13. The consent holder shall control discharges to the atmosphere from the flare of contaminants other than carbon dioxide, carbon monoxide, and nitrogen oxides, whether alone or in conjunction with any other emissions from the site, in order that the maximum ground level concentration for any particular contaminant arising from the exercise of this consent, measured at or beyond the boundary of the site as shown on attached aerial photograph, is not increased above background levels:

    a) by more than 1/30th of the relevant Workplace Exposure Standard-Time Weighted Average [exposure averaged over a duration as specified for the Workplace Exposure Standard-Time Weighted Average], or by more than 1/10th of the Workplace Exposure Standard-Short Term Exposure Limit over any short period of time [all terms as defined in Workplace Exposure Standards, 2002, Department of Labour]; or

    b) if no Short Term Exposure Limit is set, by more than the General Excursion Limit at any time [all terms as defined in Workplace Exposure Standards, 2002, Department of Labour].

Lapse and Review

14. This consent shall lapse on 30 June 2016, 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.

15. 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 purposes of:

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

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

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

Signed at Stratford on 22 June 2011

For and on behalf of
Taranaki Regional Council

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Director-Resource Management

Figure 1

Aerial photograph showing site boundary [white line]