

Austral Pacific Energy (NZ) Limited  
Cheal A 6 & 7 Wellsite  
Monitoring Programme  
Annual Report  
2007-2008  
Technical Report 2008–49

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## **Executive summary**

During 2007 Austral Pacific Energy (NZ) Limited re-entered the Cheal A hydrocarbon exploration site located on Mountain Road, Ngaere, in the Waingongoro catchment. This operation took place from April 2008 to August 2008.

This report describes the monitoring programme implemented by the Taranaki Regional Council to assess the Company's environmental performance in relation to drilling operations at the Cheal A wellsite during the period under review, and the results and environmental effects of the Company's activities.

The Company holds a total of 4 resource consents, for the activities relating to exploration at the Cheal A wellsite. Consents include a total of 54 conditions setting out the requirements that the Company must satisfy. The Company holds consent 4727-1 to discharge treated stormwater onto and into land, consent 6362-1 to discharge drilling wastes from hydrocarbon exploration activities onto and into land, consent 4729-1 to discharge emissions to air during flaring and miscellaneous emissions arising from exploration and production operations, and consent 4728-1 to discharge drilling mud, drill water and produced water by deepwell injection.

The Council's monitoring programme for the year under review included 7 inspections of the site and surrounding environment, and auditing of information held by the Company.

The monitoring showed that all ring drains, skimmer pits, bunded areas, and air emissions were well maintained and controlled. The drains and skimmer pits were coping well with heavy rain. The site was well managed despite the severe weather experienced during exploration.

Drilling fluids and cuttings were disposed of off-site by a contractor to the land disposal area at a managed composting/worm farm at Uruti in North Taranaki.

No flaring was carried out on site during exploration activities.

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

This report includes recommendations for the 2008-2009 monitoring year.



# Table of contents

	<b>Page</b>
1. Introduction	1
1.1 Compliance monitoring programme reports and the Resource Management Act 1991	1
1.1.1 Introduction	1
1.1.2 Structure of this report	1
1.1.3 The Resource Management Act (1991) and monitoring	2
1.1.4 Evaluation of environmental performance	2
1.2 Resource consents	3
1.2.1 Background	3
1.2.2 Water discharge permit	3
1.2.3 Air discharge permit	4
1.2.4 Discharges of wastes to land	5
1.2.5 Discharges of wastes to land	6
1.3 Monitoring programme	7
1.3.1 Introduction	7
1.3.2 Programme liaison and management	8
1.3.3 Site inspections	8
1.3.4 Chemical sampling	8
1.3.5 Solid wastes	8
1.3.6 Air quality monitoring	8
1.3.7 HSNO Inspections	8
1.3.8 Biomonitoring surveys	9
2. Results	10
2.1 Water	10
2.1.1 Inspections	10
2.1.2 Results of discharge monitoring	11
2.1.3 Results of receiving environment monitoring	11
2.2 Air	11
2.2.1 Inspections	11
2.2.2 Results of discharge monitoring	12
2.2.3 Results of receiving environment monitoring	12
2.3 Land	12
2.3.1 Land status	12
2.4 Contingency plan	12
2.5 Register of incidents	12
3. Discussion	13
3.1 Discussion of plant performance	13
3.2 Environmental effects of exercise of consents	13
3.3 Evaluation of performance	13
4. Recommendations	17
Glossary of common terms and abbreviations	18
Appendix I Resource consents held by Austral Pacific Energy (NZ) Limited	

## List of tables

Table 1	Summary of performance for Consent 4727-1 discharge of treated stormwater and treated production water	13
Table 2	Summary of performance for Consent 4728-1 discharge of drilling muds, drilling waste from hydrocarbon exploration via deepwell injection	14
Table 3	Summary of performance for Consent 4729-1 discharge emissions to air during flaring and miscellaneous emissions arising from exploration	14
Table 4	Summary of performance for Consent 6362-1 to discharge drilling muds, drilling cuttings and drilling waste from hydrocarbon exploration	15

# **1. Introduction**

## **1.1 Compliance monitoring programme reports and the Resource Management Act 1991**

### **1.1.1 Introduction**

This report is the report for the period July 2007 to June 2008 by the Taranaki Regional Council on the monitoring programme associated with resource consents held by Austral Pacific Energy (NZ) Limited in relation to exploration activities at the Cheal A 6 & 7 wells. The wellsite is located on the property of JR & RP Lightoller, on Mountain Road at Ngaere, in the Waingongoro catchment. The area surrounding the wellsite is of a gently sloping topography, with the predominant landuse being dairy farming.

This report covers the results and findings of the monitoring programme implemented by the Council in respect of the consents held by Austral Pacific Energy (NZ) Limited relating to exploration activities at the Cheal A wellsite.

One of the intents of the Resource Management Act (1991) 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 Taranaki Regional Council generally implements integrated environmental monitoring programmes and reports the results of the programmes jointly. This report discusses the environmental effects of Austral Pacific Energy (NZ) Limited's use of water, land, and air, and is the first report by the Taranaki Regional Council for the wellsite.

### **1.1.2 Structure of this report**

Section 1 of this report is a background section. It sets out general information about compliance monitoring under the Resource Management Act and the Council's obligations and general approach to monitoring sites through annual programmes, the resource consents held by Austral Pacific Energy (NZ) Limited in relation to exploration activities at the Cheal A wellsite, the nature of the monitoring programme in place for the period under review, and a description of the activities and operations conducted on the Cheal A wellsite during exploration activities.

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

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

Section 4 presents recommendations to be implemented.

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 Resource Management Act 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 a discharger, and may include cultural and socio-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 (e.g., recreational, cultural, or aesthetic);
- (e) risks to the neighbourhood or environment.

In drafting and reviewing conditions on discharge permits, and in implementing monitoring programmes, the Taranaki Regional Council is recognising the comprehensive meaning of 'effects' inasmuch as is appropriate for each discharge source. Monitoring programmes are not only based on existing permit conditions, but also on the obligations of the Resource Management Act to assess the effects of the exercise of consents.

In accordance with section 35 of the Resource Management Act 1991, the Council undertakes compliance monitoring for consents and rules in regional plans; and maintains an overview of performance of resource users against regional plans and consents. Compliance monitoring, including impact monitoring, also enables the Council to continuously assess its own performance in resource management as well as that of resource users particularly consent holders. It further enables the Council to continually re-evaluate its approach and that of consent holders to resource management, and, ultimately, through the refinement of methods, to move closer to achieving sustainable development of the region's resources.

### 1.1.4 Evaluation of environmental performance

Besides discussing the various details of the performance and extent of compliance by the Company during the period under review, this report also assigns an overall rating. The categories used by the Council, and their interpretation, are as follows:

- a **high** level of environmental performance and compliance indicates that essentially there were no adverse environmental effects to be concerned about, and no, or trivial (such as data supplied after a deadline) non-compliance with conditions.
- a **good** level of environmental performance and compliance indicates that adverse environmental effects of activities during the year were negligible or minor at most, items of concern were resolved positively, co-operatively, and quickly, the Council did not record any verified unauthorised incidents involving significant environmental impacts and was not obliged to issue any abatement notices, there were perhaps some items noted on inspection notices for attention but these items were not urgent nor critical, and follow-up inspections showed they have been dealt with.
- **improvement desirable** indicates that the Council may have been obliged to record a verified unauthorised incident involving significant environmental

impacts against the company, and/or abatement notices may have been issued; there were adverse environmental effects arising from activities and intervention by Council staff was required, and there were matters that required urgent intervention, took some time to resolve, or remained unresolved at end of the period under review.

- **poor** performance is used when there were grounds for prosecution or infringement notice

## **1.2 Resource consents**

### **1.2.1 Background**

Austral Pacific Energy (NZ) Limited holds 4 resource consents related to exploration activities at the Cheal A wellsite. The consent applications were processed on a non-notified basis as Austral Energy had obtained the landowner's approval as an affected party, and the Council was satisfied that the environmental effects of the activity would be minor.

The consents are discussed below.

Copies of the consents and the Council reports describing the associated activities are contained in Appendix I of this report.

Site construction was permitted under Rule 25 of the Regional Fresh Water Plan for Taranaki.

### **1.2.2 Water discharge permit**

Section 15(1)(a) of the Resource Management Act 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.

Austral Pacific Energy (NZ) Limited holds water discharge permit **4727-1** to cover the discharge of up to 100 cubic metres/day [1.2 litres/second] of treated stormwater and treated production water from hydrocarbon exploration and production operations onto and into land in the vicinity of an unnamed tributary of the Mangawharawhara Stream in the Waingongoro catchment. This permit was issued by the Taranaki Regional Council on 2 May 1995 (change to conditions September 2005) under Section 87(e) of the Resource Management Act. It is due to expire on 1 June 2011.

There are 9 special conditions attached to this consent.

Condition 1 requires the establishment of a mixing zone for the discharge.

Condition 2 states the concentration limits in the receiving waters.

Condition 3 states the limit for hydrocarbons in the discharge.

Condition 4 states there shall be no change to the natural colour and clarity of the receiving water.

Condition 5 states the discharge shall not have an adverse effect on the freshwater biological communities of the receiving water.

Condition 6 requires the consent holder to provide the Council with a contingency plan for the site.

Condition 7 requires the disposal of mud waste be carried out to the satisfaction of the Chief Executive of the Council.

Condition 8 states the Council shall be advised prior to site reinstatement.

Condition 9 is a review provision.

A copy of the permit is attached to this report in Appendix I.

### **1.2.3 Air discharge permit**

Section 15(1)(c) of the Resource Management Act 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.

Austral Pacific Energy (NZ) Limited holds air discharge permit **4729-1** to cover the discharge of emissions into the air during flaring together with miscellaneous emissions arising from hydrocarbon exploration and production operations. This permit was issued by the Taranaki Regional Council on 2 May 1995 (change to conditions in September 2005) under Section 87(e) of the Resource Management Act. It is due to expire on 1 June 2011.

There are 12 special conditions attached to this consent.

Condition 1 states that the consent holder is responsible for any obligations, duties, responsibilities, and liabilities, as specified in Section 17 of the RMA.

Condition 2 requires the consent holder adopt the best practicable option to prevent or minimise effects.

Condition 3 states that all gas is to be treated by effective liquid separation and recovery prior to flaring.

Condition 4 requires well discharge be combusted until effective separation of oil and gas can be established.

Condition 5 requires all separated gas be combusted to minimise emissions of smoke.

Condition 6 states there shall be no alterations to plant equipment or processes which may alter the nature of the flare.

Condition 7 states the consent holder shall provide an analysis of a typical gas and crude oil stream from the wells.

Condition 8 requires the consent holder to keep and make available to the Council, a record of all smoke-emitting incidents.

Condition 9 requires the consent holder to keep and make available to the Council, logs of flaring.

Condition 10 states the Council shall be notified 24 hours prior to flaring.

Condition 11 states the consent holder shall notify residents within one kilometre of the site prior to the burning of any oil.

Condition 12 is a review provision.

A copy of the permit is attached to this report in Appendix I.

#### **1.2.4 Discharges of wastes to land**

Sections 15(1)(b) and (d) of the Resource Management Act 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.

Austral Pacific Energy (NZ) Limited holds discharge permit **4728-1** to cover the discharge of up to 200 cubic metres per day of drilling mud wastes, waste drill water and produced water from hydrocarbon exploration and production operations by deepwell injection. This permit was issued by the Taranaki Regional Council on 2 May 1995 (change to conditions in September 2005) under Section 87(e) of the Resource Management Act. It is due to expire on 1 June 2011.

There are 6 special conditions attached to this consent.

Condition 1 states the consent holder shall monitor the injected wastes for maximum and mean concentrations and make the records available to the Council.

Condition 2 states that the consent holder shall keep monthly records of the nature and amounts of all material injected.

Condition 3 states that the consent holder shall provide the Council with a log of the injection well prior to discharge to ensure the injected material will not contaminate groundwater.

Condition 4 requires that the consent holder ensures the discharge will not contaminate any freshwater aquifer.

Condition 5 requires that the consent holder provides the Council with a report detailing all the matters required by conditions 1, 2, 3, and 4 of this consent.

Condition 6 is a review provision.

A copy of the permit is attached to this report in Appendix I.

### 1.2.5 Discharges of wastes to land

Sections 15(1)(b) and (d) of the Resource Management Act 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.

Austral Pacific Energy (NZ) Limited holds discharge permit **6362-1** to cover the discharge of drilling muds, drilling cuttings, and drilling wastes from hydrocarbon exploration activities. This permit was issued by the Taranaki Regional Council on 26 April 2004 under Section 87(e) of the Resource Management Act. It is due to expire on 1 June 2023.

There are 27 special conditions attached to this consent.

Condition 1 allows for the discharge of up to 500m<sup>3</sup> of solid drilling wastes.

Condition 2 states the consent holder shall provide the Council with a report detailing the mix-bury-cover areas prior to discharge.

Condition 3 states that the consent holder shall ensure the discharge, licensed by this consent, takes place in accordance with information submitted in support of the application.

Condition 4 states the consent holder shall notify the Council at least 48 hours prior to, and following discharge to the mix-bury-cover sites.

Condition 5 states the consent holder shall keep records of the composition and volumes of the material to be discharged.

Condition 6 states that the edge of the mix-bury-cover zone shall be at least 30 metres from any surface water body or spring.

Condition 7 requires all ponded water is removed from the drilling waste holding receptacle.

Condition 8 states that if sumps are used to hold drilling waste, the impermeable liner shall be perforated.

Condition 9 states that drilling waste shall be incorporated with uncontaminated soil.

Condition 10 requires the placement of drilling wastes be above the watertable.

Condition 11 states the total loading of trace elements shall not exceed the Alberta Energy and Utilities Board guidelines.

Condition 12 states the loading of chloride must not exceed 1,600 kg total for each mix-bury-cover site.

Condition 13 states the loading of nitrogen must not exceed 400 kg total for each mix-bury-cover site.

Condition 14 states that the hydrocarbon content of the soil waste mix shall not exceed 0.0015%.

Condition 15 states that the exercise of consent shall not result in a level of total dissolved salts of more than 2500gm<sup>3</sup>.

Condition 16 requires the disposal of solid drilling waste complies with the heavy metal receiving environment concentration limits.

Condition 17 requires the drilling waste be covered by at least 0.5 metres of uncontaminated soil.

Condition 18 requires the consent holder compacts and contours the surface material to ensure all stormwater is directed away from the mix-bury-cover area.

Condition 19 requires the consent holder adopts the best practicable option to prevent or minimise effects.

Condition 20 states the exercise of consent shall not lead to a direct discharge of contaminants to surface water.

Condition 21 states that the exercise of this consent shall have no adverse impacts on groundwater.

Condition 22 states that the level of hydrocarbons in the soil shall comply with the guideline values for the soil type.

Condition 23 states the concentration limits for conductivity, total dissolved salts, sodium and chloride in the upper soil levels.

Condition 24 states the consent holder can apply to the Council for a change or cancellation of conditions.

Condition 25 states that the Council may review any of the conditions of this consent within 2 months of receiving data required by condition 5 of this consent.

Condition 26 relates to consent lapse.

Condition 27 is a review provision.

A copy of this consent is attached to this report in Appendix I.

## **1.3 Monitoring programme**

### **1.3.1 Introduction**

Section 35 of the Resource Management Act sets out an obligation for the Taranaki Regional Council to gather information, monitor, and conduct research on the exercise of resource consents, and the effects arising, within the Taranaki region.

The Taranaki Regional 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 Cheal A wellsite consisted of three primary components.

### **1.3.2 Programme liaison and management**

There is generally a significant investment of time and resources by the Taranaki Regional Council in ongoing liaison with resource consent holders over consent conditions and their interpretation and application, in discussion over monitoring requirements, preparation for any reviews, renewals, or new consents, advice on the Council's environmental management strategies and the content of regional plans, and consultation on associated matters.

### **1.3.3 Site inspections**

The Cheal A site was visited 7 times through the site construction and drilling phases, to ensure that good environmental practices were adhered to and resource consent special conditions were complied with. An important requirement of the site establishment is to ensure that the site is contoured so that all stormwater and any runoff is diverted via ring drains through a series of skimmer pits for treatment prior to discharge to a water body. Sources of data being collected by the consent holder 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.

### **1.3.4 Chemical sampling**

No physicochemical water samples were taken at the Cheal A 6 & 7 sites as there were no discharges observed during inspections.

### **1.3.5 Solid wastes**

During exploration activities on the site drill cuttings were removed by a contractor and disposed of by land farming at a licensed disposal area at the composting/worm farm at Uruti.

### **1.3.6 Air quality monitoring**

Air quality monitoring is usually carried out in association with the well clean-up phase, where flaring can cause smoke emissions, as well as observing any miscellaneous emissions. Special conditions relating to the air discharge permit were complied with; as were the conditions relating to the location of the site, flare pit and the distance to the nearest residence. These conditions and provision of specialist separation equipment ensured that no effects occurred. No flaring occurred at the site.

### **1.3.7 HSNO Inspections**

In addition to RMA compliance monitoring inspections, the Council carried out HSNO (Hazardous Substances and New Organisms Act) compliance inspections at

various sites during 2007-2008. The Cheal A site was visited 4 times during the monitoring period. Visits were aimed at providing HSNO-related advice and information to companies; assisting them to understand relevant requirements and helping them progress towards achieving compliance within a reasonable period of time. For reasons of efficiency inspections were generally undertaken in conjunction with RMA compliance inspections.

### **1.3.8 Biomonitoring surveys**

No biomonitoring surveys were performed as no discharges were observed from the site during the monitoring period.

## **2. Results**

### **2.1 Water**

#### **2.1.1 Inspections**

Inspections paid special attention to the ring drains, mud sumps, treatment by skimmer pits and the final discharge point from the skimmer pit onto land and then into water. At each visit to the site, an inspection was also made of the water take to ensure that the Council's conditions for abstraction as a permitted activity were adhered to.

During each inspection the following were checked and noted:

- weather;
- flow rate of surface waters in the general vicinity;
- flow rate of water take;
- whether pumping of water was occurring;
- general tidiness of site;
- ring drains;
- hazardous substance bunds;
- treatment by skimmerpits;
- drilling muds;
- drill cuttings;
- mud pit capacity and quantity contained in pit;
- sewage treatment and disposal;
- cementing waste disposal;
- surface works;
- whether flaring was in progress, and if there was a potential for flaring, whether the Council had been advised;
- discharges and surface waters in the vicinity for effects on colour and clarity, aquatic life and odour;
- site records; and
- general observations

Inspections of the wellsite were undertaken on the following dates (main points noted during each visit are also indicated):

#### **16 April 2008**

The inspection was undertaken during fine weather. The wellsite was found to be in good order. The skimmer pits and the air emissions were satisfactory.

#### **12 May 2008**

The inspection was undertaken during fine weather. Notification was received that mobilisation of the rig to the site would commence the week of 19 June. Site preparation was being completed. All bunds, storage facilities, ring drains and skimmer pits were to be assessed at the next inspection, when other equipment began arriving.

#### **3 June 2008**

The inspection was carried out during fine weather. The ring drains, skimmer pits, bunded areas and air emissions were all in good order. The site was being readied for the rig.

**10 June 2008**

Inspection was undertaken during fine weather. Well spud-in had been delayed for a few days. The site was neat, tidy and well managed. There were bunds around the bulk fuel store and the smaller lubricating oil stores. The flare line to the flare pit had been hooked up. The flare pit was well located in relation to the site and nearby residences, in regard to visual and noise issues. The skimmer pits and ring drains were clean and secure.

**24 June 2008**

Inspection was carried out during wet and windy conditions. A minor alteration to the stormwater system was required, as a result of the ongoing severe weather, the alteration was approved. Runoff was going to the auxiliary containment pit and was then pumped to the main skimmer pit system, as approved in the AEE that was submitted to the Council. There was not likely to be any environmental effects as a result of the alteration. All other ring drains and bunds were coping with the inclement weather. The bulk fuel and drilling mud areas were secure. The site was being well managed despite extreme weather.

**3 July 2008**

The inspection was undertaken during a period of exceptional rainfall. The main skimmer pit had been pumped out for disposal to trade waste. The auxiliary pit was being pumped to the main system. The pump was coping well with the rainfall and there was no discharge occurring. The daily report was inspected, all drilling systems and activities were on line and the information available to the Council if required. The flaring information and logs were not available from the system in use, but were available through the production phase, from the companies involved with production testing.

**31 July 2008**

The inspection was carried out during heavy rain. Drilling had been completed and most equipment had been removed from the site. The ring drains and skimmer pits were coping with the extreme conditions.

**2.1.2 Results of discharge monitoring**

No sampling of the discharge was undertaken. At inspections of the site, during heavy rain there were no observed discharges.

**2.1.3 Results of receiving environment monitoring**

No sampling of the receiving environment was undertaken as no discharges from the site were observed.

No biomonitoring was undertaken as no discharge occurred and there would have been no effect on the macroinvertebrate communities of the receiving water.

**2.2 Air****2.2.1 Inspections**

Air quality monitoring inspections were carried out as part of routine monitoring of the Cheal A site. Inspections found no noticeable or objectionable odours or dust on the site at any time.

## **2.2.2 Results of discharge monitoring**

No air quality monitoring was undertaken.

## **2.2.3 Results of receiving environment monitoring**

No monitoring was undertaken on the receiving environment, as no discharges were observed from the site.

### **2.2.3.1 Other ambient monitoring**

No other ambient air monitoring was undertaken, as the controls implemented by the Company did not give rise to any concerns in regards to air quality.

## **2.3 Land**

### **2.3.1 Land status**

The site is not reinstated. All wellsite equipment has been removed from the site.

## **2.4 Contingency plan**

An updated contingency plan for the site was received, reviewed, and approved on 8 August 2008. There was no reason to invoke the spill response contingency plan at any time during the drilling of Cheal A 6 & 7.

## **2.5 Register of incidents**

The Taranaki Regional Council operates and maintains a register of all complaints or reported and discovered excursions from acceptable limits and practices, including non-compliance with consents, which may damage the environment. The register ('unauthorised incident register') includes events where the company concerned has itself notified the Council. The register contains details of any investigation and corrective action taken.

Incidents may be alleged to be associated with a particular site. If there is 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 period under review, there were no incidents recorded by the Council that were associated with the Cheal A wellsite.

### 3. Discussion

#### 3.1 Discussion of plant performance

Austral Pacific Energy (NZ) Limited provided the following plans and information in compliance with the consents:

- contingency plan for accidental spillage or discharge;
- advice of drilling muds and fluids components;
- final site layout plan; and
- notification of the various stages of activity

Careful management on site ensured that no effects to the environment occurred. All staff co-operated and any minor works requested were promptly carried out.

#### 3.2 Environmental effects of exercise of consents

All stormwater was directed to the well constructed skimmer pits where contaminants were separated before discharge.

There were no environmental effects to water as a result of the drilling. No discharges were observed from the skimmer pits during inspections. Any discharge would have been onto land.

The air discharge consent was not exercised as no flaring took place.

#### 3.3 Evaluation of performance

A tabular summary of the Company's compliance record for the year under review is set out in Tables 1-4.

**Table 1** Summary of performance for Consent 4727-1 discharge of treated stormwater and treated production water

Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Establish a permanent mixing zone	Inspections of the site	Yes
2. Concentration limits	Sampling – No discharges observed	N/A
3. Limit for hydrocarbons	Sampling- No discharges observed	N/A
4. Discharge of suspended solids not change colour or clarity	Inspections	Yes
5. Discharge not to cause adverse effect on freshwater biological communities	Biomonitoring – No discharge observed from site	N/A
6. Provide a contingency plan to the Council	Received, reviewed, and approved	Yes
7. Disposal of mud wastes to be to satisfaction of Council	Inspections – mud disposed of offsite	Yes

Condition requirement	Means of monitoring during period under review	Compliance achieved?
8. Advise Council prior to reinstatement of site	Site not reinstated	N/A
9. Review provision	Not scheduled for consideration in year under review. Last optional review was June 2005	N/A

N/A = not applicable

**Table 2** Summary of performance for Consent 4728-1 discharge of drilling muds, drilling waste from hydrocarbon exploration via deepwell injection

Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Monitor injected waste concentrations and make records available to Council	Inspections of records	N/A
2. Keep records of material injected and make records available to Council	Inspections of records	N/A
3. Supply Council with log of injection well and injection well operation management plan	Inspections of well log	N/A
4. Discharge not to contaminate any freshwater aquifer	Sampling	N/A
5. Provide Council with report detailing matters required in conditions 1, 2, 3, and 4	N/A	N/A
6. Review provision	Not scheduled for consideration in year under review. Last optional review June 2005	N/A

**Table 3** Summary of performance for Consent 4729-1 discharge emissions to air during flaring and miscellaneous emissions arising from exploration

Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Nothing in this consent removes the obligations, responsibilities, duties or liabilities specified in the Resource Management Act	Inspections of site and records	Yes
2. Adopt the best practicable option	Inspections of the site and records	Yes
3. All gas must be treated prior to flaring to minimise emissions	Inspections of site	Yes
4. Discharge to be combusted until effective separation of oil and gas can be achieved	Inspections of records	Yes
5. Separated gas is to be combusted to minimise smoke emissions	Inspections of site and records	Yes

Condition requirement	Means of monitoring during period under review	Compliance achieved?
6. No alterations to plant or equipment without prior consultation	Inspections – Change made to stormwater system	Yes
7. Make available to Council, analysis of typical gas and crude oil stream from the wells	Available upon request	Yes
8. Keep a record of all smoke emitting incidents	Inspections of records	Yes
9. Keep a log of all flaring	Inspections of records	Yes
10. Notify the Council within 24 hours prior to any flaring	Notifications received	Yes
11. Undertake to notify residents prior to flaring	Inspections of records	Yes
12. Review provision	Not scheduled for consideration in year under review. Last optional review June 2005	Yes

**Table 4** Summary of performance for Consent 6362-1 to discharge drilling muds, drilling cuttings and drilling waste from hydrocarbon exploration

Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Discharge of drilling waste by way of mix-bury-cover	Inspections of site	Yes
2. Provide Council with a report detailing the mix-bury-cover area prior to discharge	Received	Yes
3. Ensure the discharge licensed by this consent takes place in accordance with information submitted	Inspections of site and records	Yes
4. Notify the TRC at least 48 hours prior to commencement of discharge	Notification received	Yes
5. Keep records of the composition and volumes of material discharged	Inspections of records	Yes
6. Mix-bury-cover zone shall be at least 30 metres from any surface water, spring or groundwater supply bore	Inspections of site	Yes
7. Poned water to be removed from drilling waste holding receptacle prior to recovery/mixing	Inspections of site	Yes
8. If sumps used for disposal area, the impermeable liner is to be perforated	Inspections of site	Yes
9. Placement of solid drilling waste shall be above the watertable	Inspections of site	Yes
10. Placement of solid drilling wastes shall be above the watertable	Inspections of site and records	Yes

Condition requirement	Means of monitoring during period under review	Compliance achieved?
11. Total loading of trace elements in solid drilling waste shall not exceed Alberta Energy Board guidelines	Inspections of records	Yes
12. Loading of chloride must not exceed 1,600kg for each mix-bury-cover site	Inspections of records	Yes
13. Loading of nitrogen must not exceed 400kg for each mix-bury-cover site	Inspections of records	Yes
14. Hydrocarbons of the soil waste mix not to exceed 0.0015% on a dry weight basis	Inspections of records	Yes
15. Level of total dissolved salts not to exceed 2500gm <sup>3</sup>	Inspections of records	Yes
16. Disposal of solid drilling waste shall comply with heavy metal receiving environment concentration limits	Inspections of records	Yes
17. Solid drilling wastes shall be covered by at least 0.5 metres if uncontaminated soil	Inspections of records and site	Yes
18. Compact and contour cover material to direct stormwater away from the mix-bury-cover areas	Inspections of site	Yes
19. Adopt the best practicable option	Inspections of site	Yes
20. Exercise of consent shall not lead to a direct discharge of contaminants to surface water	Inspections of site	Yes
21. Exercise of consent not to result in adverse impacts on groundwater	Inspections of records	Yes
22. Levels of hydrocarbons shall comply with guideline values for the designated soil type	Inspections of records	Yes
23. Concentration limits in the upper soil levels	Inspections of records	Yes
24. Consent holder may apply to the Council for change or cancelation of conditions	N/A	N/A
25. Council may review any or all of the conditions of consent	N/A	N/A
26. Consent lapse	N/A	N/A
27. Review provision	Next consideration for optional review June 2011	N/A

The Company demonstrated a high level of environmental performance and compliance with the resource consents. The site was well managed. The skimmer pits, ring drains, and banded areas were all well maintained and functional.

## 4. Recommendations

In the 2008-2009 monitoring period it is recommended:

1. THAT this report be forwarded to the Company, and to any interested parties upon request; and
2. THAT the Company be asked to inform the Council of the intention to either drill, test or undertake reinstatement.
3. THAT the current level of monitoring during exploratory drilling be continued for all similar operations.

## Glossary of common terms and abbreviations

The following abbreviations and terms are used within this report:

Al*	aluminium.
As*	arsenic
Biomonitoring	assessing the health of the environment using aquatic organisms
BOD	biochemical oxygen demand. A measure of the presence of degradable organic matter, taking into account the biological conversion of ammonia to nitrate
BODF	biochemical oxygen demand of a filtered sample
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
cfu	colony forming units. A measure of the concentration of bacteria usually expressed as per 100 millilitre sample
COD	chemical oxygen demand. A measure of the oxygen required to oxidise all matter in a sample by chemical reaction.
Condy	Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 20°C and expressed in mS/m
Cu*	copper
DO	dissolved oxygen
DRP	dissolved reactive phosphorus
<i>E.coli</i>	<i>Escherichia coli</i> , an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre sample
Ent	Enterococci, an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre of sample
F	Fluoride
FC	Faecal coliforms, an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre sample
fresh	elevated flow in a stream, such as after heavy rainfall
g/m <sup>3</sup>	grammes per cubic metre, and equivalent to milligrammes per litre (mg/L). In water, this is also equivalent to parts per million (ppm), but the same does not apply to gaseous mixtures
l/s	litres per second
MCI	macroinvertebrate community index; a numerical indication of the state of biological life in a stream that takes into account the sensitivity of the taxa present to organic pollution in stony habitats
mS/m	millisiemens per metre
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 <sub>4</sub>	ammonium, normally expressed in terms of the mass of nitrogen (N)

NH <sub>3</sub>	unionised ammonia, normally expressed in terms of the mass of nitrogen (N)
NO <sub>3</sub>	nitrate, normally expressed in terms of the mass of nitrogen (N)
NTU	Nephelometric Turbidity Unit, a measure of the turbidity of water
O&G	oil and grease, defined as anything that will dissolve into a particular organic solvent (e.g. hexane). May include both animal material (fats) and mineral matter (hydrocarbons)
Pb*	lead
pH	a numerical system for measuring acidity in solutions, with 7 as neutral. Numbers lower than 7 are increasingly acidic and higher than 7 are increasingly alkaline. The scale is logarithmic i.e. a change of 1 represents a ten-fold change in strength. For example, a pH of 4 is ten times more acidic than a pH of 5.
Physicochemical	measurement of both physical properties(e.g. temperature, clarity, density) and chemical determinants ( e.g. metals and nutrients) to characterise the state of an environment
PM <sub>10</sub>	relatively fine airborne particles (less than 10 micrometre diameter)
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 subsequent amendments
SS	suspended solids,
Temp	temperature, measured in °C (degrees Celsius)
Turb	turbidity, expressed in NTU
UIR	Unauthorised Incident Register entry- an event recorded by the Council on the basis that it had potential or actual environmental consequences that may represent a breach of a consent or provision in a Regional Plan
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 the Council's laboratory



## **Appendix I**

### **Resource consents held by Austral Pacific Energy (NZ) Limited**





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

CHIEF EXECUTIVE  
PRIVATE BAG 713  
47 CLOTON ROAD  
STRATFORD  
NEW ZEALAND  
PHONE: 06-765 7127  
FAX: 06-765 5097  
www.trc.govt.nz

Please quote our file number  
on all correspondence



Name of  
Consent Holder:

Austral Pacific Energy [NZ] Limited  
P O Box 17-258  
Karori  
WELLINGTON



Change To  
Conditions Date:

8 September 2005 [Granted: 2 May 1995]

**Conditions of Consent**



Consent Granted:

To discharge up to 100 cubic metres/day [1.2 litres/second]  
of treated stormwater and treated production water from  
hydrocarbon exploration and production operations onto  
and into land in the vicinity of an unnamed tributary of the  
Mangawharawhara Stream in the Waingongoro catchment  
at or about GR: Q20:224-012

Expiry Date:

1 June 2011

Review Date(s):

June 1999, June 2005

Site Location:

Cheal-A wellsite, Mountain Road, Ngaere  
[Property owners: JR & RP Lightoller]

Legal Description:

Pt Sec 24 Blk VI Ngaere SD

Catchment:

Waingongoro

Tributary:

Mangawharawhara

*For General, Standard and Special conditions  
pertaining to this consent please see reverse side of this document*  
www.trc.govt.nz

**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, in conjunction with the Taranaki Regional Council, shall establish a permanent mixing zone for the discharge, which is 25 metres below the point of discharge into the receiving waters.
- 2. The discharge shall not cause the receiving waters to exceed the following limits outside of the mixing zone established in special condition 1 above at any time:

chloride	50 mg/L
un-ionized ammonia	0.02 mg/L
total zinc	0.05 mg/L
total vanadium	0.10 mg/L
total chromium 6+	0.01 mg/L
total chromium 3+	0.10 mg/L
total copper	0.01 mg/L
pH range	6.5 - 8.5
temperature increase	2 deg C
biochemical oxygen demand increase	2.00 mg/L

Further, should the concentration or level of any of the above parameters in the receiving water above the discharge point exceed the limits specified above, the consent holder shall apply to the Chief Executive, Taranaki Regional Council, for approval to discharge in possible contravention of those limits.

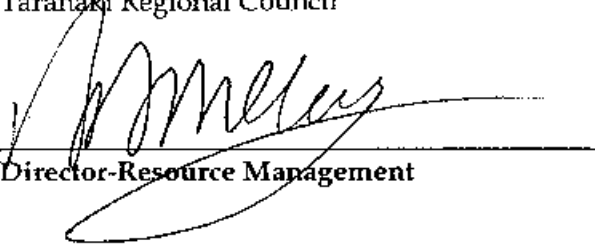
- 3. The discharge shall not contain total recoverable hydrocarbons [infra red spectroscopic technique] in excess of 15 mg/L at any time.
- 4. The discharge of suspended solids or other constituents shall not markedly alter the natural colour and clarity of the receiving water outside of the mixing zone established in special condition 1 above.
- 5. The discharge shall not be shown to cause any significant adverse effect on freshwater biological communities of the receiving water outside of the mixing zone established in special condition 1 above.

Consent 4727-1

6. The consent holder shall provide for the written approval of the Chief Executive, Taranaki Regional Council, a contingency plan and map outlining measures and procedures undertaken to prevent a spillage, or accidental discharge of materials and/or waters not licensed by this consent and procedures to be carried out should such a spillage or discharge occur.
7. The disposal of mud wastes shall be carried out to the satisfaction of the Chief Executive, Taranaki Regional Council.
8. The Chief Executive, Taranaki Regional Council, shall be advised prior to the reinstatement of the site and the reinstatement shall be carried out to the satisfaction of the Chief Executive, Taranaki Regional Council.
9. The Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during June 1999 and/or June 2005 and/or within three months following the first exercise of this consent, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects of the discharge on the receiving environment.

Signed at Stratford on 8 September 2005

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**

CHIEF EXECUTIVE  
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on all correspondence



Name of  
Consent Holder: Austral Pacific Energy [NZ] Limited  
P O Box 17-258  
Karori  
WELLINGTON



Change To  
Conditions Date: 8 September 2005 [Granted: 2 May 1995]

**Conditions of Consent**



Consent Granted: To discharge up to 200 cubic metres per day of drilling  
mud wastes, waste drill water and produced water from  
hydrocarbon exploration and production operations by  
deepwell injection into the Mount Messenger Formation at  
or about GR: Q20:224-012

Expiry Date: 1 June 2011

Review Date(s): June 1999, June 2005

Site Location: Cheal-A wellsite, Mountain Road, Ngaere  
[Property owners: JR & RP Lightoller]

Legal Description: Pt Sec 24 Blk VI Ngaere SD

Catchment: Waingongoro

Tributary: Mangawharawhara

**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**

**Conditions 1 to 3 – changed**

1. The consent holder shall monitor the injected wastes monthly for maximum and mean concentrations of suspended solids, total dissolved solids, salinity, chlorides, and total hydrocarbons and shall make the records available to the Taranaki Regional Council every two months.
2. The consent holder shall keep monthly records of the nature and amounts of all material injected, including injection pressure and rate, and shall make the records available to the Taranaki Regional Council on a three monthly basis, and when there has been a significant pressure change event.
3. Prior to the exercise of this consent for each individual well to be used for deep well injection, the consent holder shall submit, to the written satisfaction of the Chief Executive, Taranaki Regional Council, a log of the injection well, and an injection well operation management plan, to demonstrate that special condition 4 of this consent can be met. The report shall:
  - a) identify the injection zone, including a validated bore log and geophysical log,
  - b) detail the results of fluid sampled from the injection zone, and the proposed wastes to be injected for maximum and mean concentrations for pH, suspended solids, total dissolved solids, salinity, chlorides, and total hydrocarbons;
  - c) demonstrate the integrity of well casing; and
  - d) outline design and operational procedure to isolate the zone.

**Condition 4 – unchanged**

4. That the consent holder shall ensure that the discharge will not contaminate or endanger any actual or potential usable freshwater aquifer.

Consent 4728-1

**Condition 5 – additional**

5. The consent holder shall provide to the Taranaki Regional Council during the month of May of each year, for the duration of the consent, a written report on all matters required under special conditions 1, 2, 3 and 4 above.

**Condition 6 [previously condition 5] -- unchanged**

6. That the Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during June 1999 and/or June 2005 and/or within three months following the first exercise of this consent, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects of the discharge on the receiving environment.

Signed at Stratford on 8 September 2005

For and on behalf of  
Taranaki Regional Council



Director Resource Management





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Please quote our file number  
on all correspondence

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



Name of  
Consent Holder: Austral Pacific Energy [NZ] Limited  
P O Box 17-258  
Karori  
WELLINGTON



Change To  
Conditions Date: 8 September 2005 [Granted: 2 May 1995]

**Conditions of Consent**



Consent Granted: To discharge emissions into the air during flaring together  
with miscellaneous emissions arising from hydrocarbon  
exploration and production operations at the Cheal-A  
wellsite at or about GR: Q20:224-012

Expiry Date: 1 June 2011

Review Date(s): June 1999, June 2005

Site Location: Cheal-A wellsite, Mountain Road, Ngaere  
[Property owners: JR & RP Lightoller]

Legal Description: Pt Sec 24 Blk VI Ngaere SD

**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**

**Conditions 1 to 6 – unchanged**

- 1. Nothing in this consent shall remove from the consent holder the obligations, responsibilities, duties, and/or liabilities specified in section 17 of the Resource Management Act 1991, or in any other part of that Act.
- 2. The consent holder shall adopt the best practicable option to prevent or minimise any actual or potential effect on the environment arising from the flare emission, emissions from the flare pit, or any other emissions from the site.
- 3. All gas being flared must first be treated by effective liquid separation and recovery, as far as practicable, to ensure that smoke emission during flaring is minimised. If separation cannot be implemented within six hours of well flow commencing from any zone, the consent holder shall immediately notify the Chief Executive, Taranaki Regional Council. In any case, flaring of gas or oil shall not occur for more than:
  - (a) a total of 96 hours per zone during well clean-up and initial testing and;
  - (b) a total of 45 days per zone during production testing.
- 4. As soon as is practicable after flow commences from any zone, the well discharge shall be combusted through an oil combustion system, and incineration of the discharge shall continue through such a system until the effective separation of oil and gas can be established.
- 5. As soon as is practicable after flow commences, the separated gas shall be combusted so that emissions of smoke are minimised to the satisfaction of the Chief Executive, Taranaki Regional Council.

Consent 4729-1

6. No alteration shall be made to plant equipment or processes which may substantially alter the nature or quality of flare emissions or other site emissions, other than as notified in the attachments to this consent application, without prior consultation with the Chief Executive, Taranaki Regional Council.

**Condition 7 – changed**

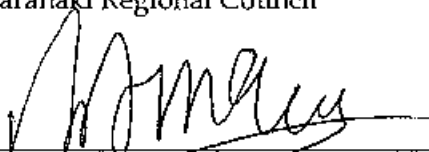
7. The consent holder shall make available to the Chief Executive, Taranaki Regional Council, upon request, an analysis of a typical gas and crude oil stream from the wells being flowed at the Cheal-A wellsite, covering sulphur compound content and the content of carbon compounds of structure C6 or higher number of compounds.

**Conditions 8 to 12 – unchanged**

8. The consent holder shall keep and make available to the Chief Executive, Taranaki Regional Council, upon request, a record of all smoke-emitting incidents during the exercise of this consent, noting time, duration, cause, and wind direction.
9. The consent holder shall keep and make available to the Chief Executive, Taranaki Regional Council, logs of flaring, including time, duration, and [as far as is practicable], volumes of substances flared.
10. The Taranaki Regional Council shall be notified within 24 hours prior to any flaring being commenced.
11. The day before the burning of any oil, the consent holder shall undertake all practicable measures to notify residents within one kilometre of the site. The consent holder shall include in the notification a 24-hour contact telephone number for a representative of the consent holder.
12. The Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during the month of June 1999, and/or the month of June 2005 for the purpose of ensuring that the conditions are adequate to deal with any adverse effects of the discharge on the receiving environment.

Signed at Stratford on 8 September 2005

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**  
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CHIEF EXECUTIVE  
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Please quote our file number  
on all correspondence

Name of  
Consent Holder: Austral Pacific Energy [NZ] Limited  
P O Box 17-258  
Karori  
WELLINGTON

Consent Granted  
Date: 26 April 2004

**Conditions of Consent**

Consent Granted: To discharge drilling muds, drilling cuttings and drilling wastes from hydrocarbon exploration activities at the Cheal-A wellsite onto and into land via mix-bury-cover at or about GR: Q20:224-012

Expiry Date: 1 June 2023

Review Date(s): June 2011, June 2017

Site Location: Cheal-A wellsite, 4273 Mountain Road, Ngaere, Stratford  
[Property owner: RK, MA, MA & JE Vickers]

Legal Description: Pt Sec 24 Blk VI Ngaere SD

Catchment: Waingongoro

Tributary: Mangawharawhara

## Consent 6362-1

### 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. This consent allows for the discharge of up to 500 m<sup>3</sup> of solid drilling wastes [including drill cuttings and residual fluids] by way of mix-bury-cover into land on the Cheal-A wellsite and surrounding land. Mix-bury-cover discharge areas for wastes from individual wells shall be kept separate and distinct.
2. Prior to the exercise of this consent for each separate mix-bury-cover discharge the consent holder shall provide to the written satisfaction of the Chief Executive, Taranaki Regional Council, a report describing proposed mix-bury-cover, including area, location, nature of material, means of compliance with conditions, etc, and the results of any relevant monitoring of existing mix-bury-cover discharge sites under this consent. In any case additional mix-bury-cover discharges shall not take place under this consent within 12 months of any previous mix-bury-cover discharge, unless this requirement is waived in writing by the Chief Executive, Taranaki Regional Council.
3. The consent holder shall ensure that the discharge, licensed by this consent, takes place in general accordance with the information submitted in support of application 2952. In particular but without limitation, any amendment to the location of the mix-bury-cover site, pre-treatment of solids, changes to fluids/additives, method of mix-bury-cover, or post burial site management, shall be advised to the Chief Executive, Taranaki Regional Council, prior to any discharge to the mix-bury-cover site, and shall not provide or result in any less environmental protection than that set out or provided for in the information submitted in support of application 2952.
4. The consent holder shall notify the Taranaki Regional Council at least 48 hours prior to commencement, and upon completion of the discharge to the mix-bury-cover site[s].
5. The consent holder shall keep records of the composition and volumes of the material to be discharged, including records of quantities and types of drilling fluids and additives used [materials and their composition], and shall forward the records to the Taranaki Regional Council prior to the discharge.
6. The edge of the mix-bury-cover zone shall be at least 30 metres from any surface water body, spring, or any pre-existing groundwater supply bore.
7. All ponded water shall be removed from the drilling waste holding receptacle prior to the recovery/mixing operation.

## Consent 6362-1

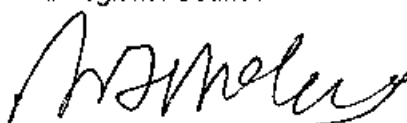
8. If sumps are used as drilling waste holding receptacles on the site, and the sump is to be used for a disposal area, the impermeable liner shall be perforated, and where possible removed, so that it no longer encloses the solid drilling wastes.
9. The solid drilling wastes [drill cuttings and residual fluids] shall be incorporated with uncontaminated soils with a mixing ratio of 1 part solid drilling wastes [drill cuttings, additives and residual fluids] to a minimum of 3 parts uncontaminated soil.
10. The placement of the solid drilling wastes [drill cuttings and residual fluids] shall as far as practicable be above the watertable.
11. The total loading of trace elements in the solid drilling wastes to be disposed of in the mix-bury-cover operation shall not exceed those listed in Table 3-1 of the Alberta Energy and Utilities Board, 1996, G-50 guidelines.
12. The loading of chloride must not exceed 1,600 kg for each distinct mix-bury-cover disposal area for wastes from an individual well.
13. The loading of nitrogen must not exceed 400 kg for each distinct mix-bury-cover disposal area for wastes from an individual well.
14. The hydrocarbon content of the soil waste mix shall not exceed 0.0015% [15 mg/kg] on a dry weight basis.
15. The exercise of this consent shall not result in a level of total dissolved salts within any surface water or ground water of more than 2500 gm<sup>-3</sup>.
16. The disposal of solid drilling wastes shall comply with the heavy metal receiving environment concentration limits specified in Table C, Section 9, Public Guidelines for the Safe Use of Sewage Effluent and Sewage Sludge on Land, Ministry of Health, 1992.
17. The solid drilling wastes [drill cuttings and residual fluids] shall be covered by at least 0.5 m of uncontaminated soil, and shall be revegetated and thereafter maintained with pasture cover within 6 months of the completion of any mix-bury-cover operation.
18. The consent holder shall compact and contour the cover material such that all surface stormwater is directed away from the mix-bury-cover site and shall maintain the cover layer of soil so as to ensure its integrity at all times to the satisfaction of the Chief Executive, Taranaki Regional Council.
19. 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 adverse effects on the environment arising from the discharge, including but not limited to any water body or soil.
20. The exercise of this consent shall not lead, or be liable to lead, to a direct discharge of contaminants to a surface water body.
21. The exercise of this consent shall not result in any adverse impacts on groundwater as a result of leaching, or on surface water including aquatic ecosystems, and/or result in a change to the suitability of use of the receiving water as determined by the Chief Executive, Taranaki Regional Council.
22. At any time the levels of hydrocarbons in the soil shall comply with the guideline values for the designated soil type in the surface layer [less than 0.5 metre depth] set out in Tables 4.12 and 4.15 of the Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand [Ministry for the Environment, 1999].

Consent 6362-1

23. At any time the upper [less than 0.5 metre depth] soil levels shall not exceed the following limits: conductivity  $290 \text{ mSm}^{-1}$ ; total dissolved salts  $2500 \text{ gm}^{-3}$ ; sodium  $460 \text{ gm}^{-3}$ ; and chloride  $700 \text{ gm}^{-3}$ .
24. The consent holder may apply to the Taranaki Regional Council for a change or cancellation of any of the conditions of this consent in accordance with section 127(1)(a) of the Resource Management Act 1991 to take account of operational requirements or the results of monitoring.
25. The Taranaki Regional Council may review any or all of the conditions of this consent within two months of receiving data on the volume and composition of the material under condition 5 for the purpose of assessing the adequacy of monitoring and mitigation measures.
26. 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.
27. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2011 and/or June 2017, 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 26 April 2004

For and on behalf of  
Taranaki Regional Council



**Director-Resource Management**

