# CD Boyd
# Quarry Monitoring Programme
# Biennial Report
# 2011-2013

Technical Report 2013-06

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# Executive summary

The CD Boyd Quarry is located off Surrey Road at Inglewood, in the Waitara catchment. This report for the period July 2011-June 2013 describes the monitoring programme implemented by the Taranaki Regional Council to assess the Company's environmental performance during the period under review, and the results and environmental effects of the Company's activities.

The Company holds one resource consent to discharge treated stormwater and treated washwater into an unnamed tributary of the Mangamawhete Stream. It includes a total of 18 conditions setting out the requirements that the Company must comply with.

The Council's monitoring programme for the period under review included seven inspections. No water samples were collected for physicochemical analysis. No biomonitoring surveys of receiving waters were conducted as there was only limited discharge to the receiving waters and no adverse impacts were noted during inspections.

During the monitoring period it was found that the site was generally tidy. Discharges from the ponds were having no adverse effects on the receiving waters.

During the 2011-2013 monitoring period there were no unauthorised incidents associated with the consent holder.

CD Boyd achieved a high level of environmental performance and compliance with the resource consent in the 2011-2013 monitoring period.

This report includes recommendations for the 2013-2015 monitoring and reporting period.

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# 1. Introduction

This biennial report for the period July 2011-June 2013 by the Taranaki Regional Council report on the monitoring programme associated with the resource consent held by CD Boyd.

This report covers the results and findings of the monitoring programme implemented by the Council in respect of the consent held by CD Boyd that authorises to discharges of water in the Waitara catchment. This is the forth biennial report to be prepared by the Taranaki Regional Council to cover the Company's treated stormwater and treated washwater discharges and their effects.

## 1.1 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 consent held by CD Boyd 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 CD Boyd quarry site.

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 in the 2013-2015 monitoring period.

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

## 1.2 Compliance monitoring and the Resource Management Act (1991)

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.

### 1.2.1 Evaluation of environmental performance

Besides discussing the various details of the performance and extent of compliance by the consent holder(s) 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 inconsequential (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 monitoring period were negligible or minor at most, or, 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, or, 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, and any inconsequential non compliances with conditions were resolved positively, co-operatively, and quickly.

- **improvement required (environmental)** or **improvement required (administrative compliance)** (as appropriate) indicates that the Council may have been obliged to record a verified unauthorised incident involving measurable environmental impacts, and/or, there were measurable 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 the end of the period under review, and/or, there were on-going issues around meeting resource consent conditions even in the absence of environmental effects. Abatement notices may have been issued.

- **poor performance (environmental)** or **poor performance (administrative compliance)** indicates generally that the Council was obliged to record a verified unauthorised incident involving significant environmental impacts, or there were material failings to comply with resource consent conditions that required

significant intervention by the Council even in the absence of environmental effects. Typically there were grounds for either a prosecution or an infringement notice.

For reference, in the 2012-2013 year, 35% of consent holders in Taranaki monitored through tailored compliance monitoring programmes achieved a high level of environmental performance and compliance with their consents, while another 59% demonstrated a good level of environmental performance and compliance with their consents.

## 1.3 Process description

### 1.3.1 Background

In the past, a large percentage of aggregate production came from river-based sites within Taranaki. The Waiwhakaiho River supplied much of New Plymouth's requirements as far back as the 1950s with the Waitara River, Waiongana River, Kapuni Stream and Waingongoro River also providing a valuable source of aggregate. The aggregate source within these rivers was often over-exploited. The protective armouring of the boulders and gravel was removed in places, exposing the underlying erodible ash beds and creating deep narrow channels, which moved progressively upstream with no noticeable recovery. This brought about the need for the Shingle Extraction Bylaw introduced in 1974. Aggregate extraction from rivers was then controlled through the issue of permits accompanied by a set of conditions, with the removal of river-based aggregate being restricted to that for river control purposes only.

Historically, land-based sites required steady markets to compete with the easily won river-based extraction operations. However, in the early 1980s, due to the restriction placed on river-based aggregate extraction (and the completion of various major river control programmes and 'Think Big' projects) land-based sites became more widespread (Taranaki Regional Council, 1992).

Twenty-seven operating quarries presently supply aggregate in Taranaki. These quarries are generally located in a reasonable proximity to urban areas, from which the greatest demand for aggregate stems.

Quarrying and extraction of gravel in NZ is regulated by two statutory processes. Allocation and protection of priority rights to extract gravel is obtained under the Crown Minerals Act from NZ Petroleum and Minerals, a division of the Ministry of Economic Development.

Regulatory responsibility for control of environmental effects of quarrying and extraction is under the RMA 1991 as applied by respective regional councils. In some cases these controls may act as a constraint or limitation on allocation decisions.

Sections 15 and 30 of the Resource Management Act 1991 give regional councils responsibility for the discharge of contaminants into the environment. Discharges of water into water, contaminants onto or into land that may result in water contamination, and contaminants from industrial premises into air or onto/into land, may not take place unless expressly allowed by a rule in a regional plan, a resource

consent, or regulations. Aggregate extraction usually involves washing aggregates, and therefore requires the discharge of wastes. Other discharges, such as emissions to air from crushing and processing plants, disposal of spoil and solid wastes, and discharges of stormwater are also the responsibility of regional councils.

### 1.3.2 CD Boyd Quarry, Surrey Road, Inglewood

CD Boyd operates a quarry located on the true left bank of the Mangamawhete River off Surrey Road, Inglewood. The quarry produces up to 25,000 $m^3$/year and no washing is performed at this site as yet, however, a washing plant may be installed in the future. Machinery includes a screen, loader, excavator, truck, and a 5000 litre trailer mounted diesel fuel tank.

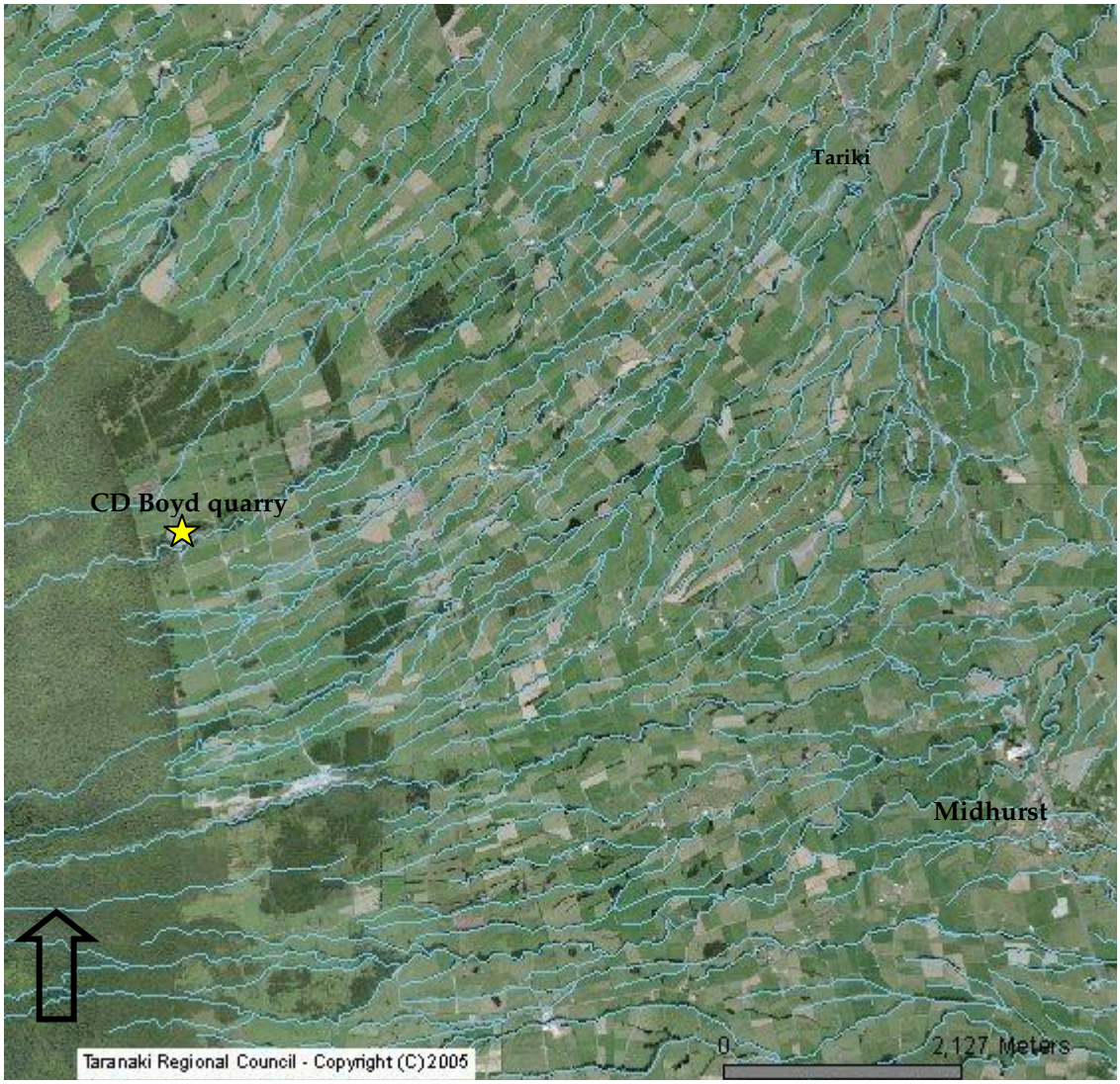


**Figure 1** Approximate location of CD Boyd Quarry site

The site has been divided into three areas of approximately 1 ha each, these will be progressively excavated and reinstated. The site is contoured and bunded so that stormwater is directed to a settling pond system at the bottom of the site or to a drain at the top of the site. Wastewater is also directed into the settling ponds.


**Figure 2** CD Boyd Surrey Road, Quarry site

## 1.4 Resource consent

### 1.4.1 Water abstraction permit

Section 14 of the Resource Management Act 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.

Sufficient volumes of water within streams and rivers to protect aquatic habitat is a primary concern of the Regional Council with respect to water abstraction permits. Water abstraction for quarries is primarily only required for the washing of aggregate, and in this regard the Council encourages the recycling of both washwater and stormwater to minimise the requirement to abstract surface water. Often when combined with efficient recycling, the small volumes of surface water required to be abstracted for washing at quarries fit within the permitted activity rule [Rule 15] of the Regional Fresh Water Plan for Taranaki. That is, the abstraction volume shall not exceed 50 cubic metres per day, and the abstraction rate shall not exceed 1.5 litres per second.

No consent for abstraction of surface water is required at this quarry. Wastewater and washwater is recirculated to minimise the volume of discharge and to reduce the need for water abstraction.

### 1.4.2 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.
Water quality is a primary concern to the Regional Council with regard to aggregate extraction. A quarry can operate as either a `dry' quarry discharging only stormwater or a 'washing' quarry where aggregate washing facilities are in place. Many of the quarries in Taranaki have some form of washing facility and also operate in the vicinity of a water body or have some form of discharge into a water body.

Wastewater from aggregate washing has a high silt concentration. Discharge of this water into a waterbody, particularly to a river during low flow, results in a smothering of instream life and deterioration in aesthetic conditions and can affect downstream abstractions of water, local fisheries and recreational activity.

Stormwater is generally less contaminated (in terms of silt concentration) and run-off tends to occur when rivers are in higher flow. This means that the effect of silt contamination is reduced due to lower quantities, dilution and carrying capacity. The installation of appropriate stormwater diversion structures, together with construction and maintenance of contaminated stormwater and aggregate washing discharge treatment facilities are most important in maintaining water quality.

CD Boyd holds water discharge permit **6569-1** to cover discharge of treated stormwater and treated washwater from a quarry site onto and into land and into an unnamed tributary of the Mangamawhete Stream a tributary of the Manganui River in the Waitara catchment. This permit was issued by the Taranaki Regional Council on 8 June 2005 under Section 87(e) of the Resource Management Act. It is due to expire on 1 June 2021.

Condition 1 relates to minimising adverse effects to the environment.

Condition 2 relates to exercising the consent as described in the consent application.

Condition 3 states that no untreated discharges are to occur to the stream.

Conditions 4 and 5 relate to contouring and bunding of the site, and erosion control and minimising sediment in the stormwater system.

Conditions 6 and 7 relate to progressive reinstatement of the site, and fencing off of the riparian zone in block A of the quarry.

Condition 8 relates to excluding stock from the active quarry area.

Conditions 9 and 10 relate to the stormwater catchment area, and the riparian management zone.

Condition 11 relates to maintenance and operation of silt control structures.

Condition 12 relates to concentration limits in the discharge.

Conditions 13 and 14 relate to discharge effects in receiving waters.

Condition 15 relates to management and contingency plans for the site.

Condition 16 relates to reinstatement of site on cessation of quarrying operations.

Condition 17 relates to consent lapse.

Condition 18 relates to review of consent conditions.

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

### 1.4.3 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.

Rule 16 of the Council's Regional Air Quality Plan for Taranaki (July 2013) allows the discharge of emissions from quarrying operations as a permitted activity, subject to compliance with various environmental performance conditions.

## 1.5 Monitoring programme

### 1.5.1 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 CD Boyd quarry site consisted of three primary components.

### 1.5.2 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.

### 1.5.3 Site inspections

The CD Boyd quarry site was visited seven times during the monitoring period. The monitoring programme for 2011-2013 required a minimum of one wet weather

inspection per year. The main points of interest were plant processes with potential or actual discharges to receiving watercourses, including contaminated stormwater and process wastewaters. The neighbourhood and particularly the receiving waters were surveyed for environmental effects.

### 1.5.4 Chemical sampling

The monitoring programme includes physicochemical sampling of the treated discharge at the stormwater outfall, if warranted. Samples are to be analysed for pH and suspended solids. No samples were collected in the monitoring period under review.

### 1.5.5 Biomonitoring surveys

A biological survey was not performed on an unnamed tributary of the Mangamawhete or the Manganui River, as site management was such that biological monitoring was not required. Inspections of the site included checking the state of receiving waters.

# 2. Results

## 2.1 Water

### 2.1.1 Inspections

During the 2011-2013 monitoring period the Council carried out seven inspections of the consent holder's quarry site. Inspection notes are summarised below.

**3 October 2011**
It was raining at the time of inspection. No product was onsite and no processing was occurring. The site was tidy at the time of inspection.

**1 March 2012**
Some processing had occurred since the last inspection. The machinery was still onsite. There was some product stockpiled. The pond discharge was small and had no effect on the receiving waters. The site was tidy and complying with the consent conditions at the time of inspection.

**8 June 2012**
There was very little activity at the quarry. There were some small piles of product stockpiled. The site was tidy. There was a small discharge into the receiving waters that was having no effect visually beyond the mixing zone.

**25 October 2012**
The inspection was undertaken in fine weather. The quarry was operating and there was a small amount of product stockpiled. There was extraction and processing taking place. There was a small discharge into the receiving waters that was having no visual impact from the site. There were no ponding or dust issues. The site was tidy and complying with consent conditions at the time of inspection.

**23 January 2013**
There was no crushing at the time of inspection. The digger was working and there was stockpiled metal ready to be processed. There was not a lot of product stored on site and there were no ponding or dust issues.

**22 April 2013**
There was not a lot of product stockpiled. A pile of sawdust had been dumped on the site, this was discussed with a staff member and it was determined that the saw dust was generated onsite from the calf shed. A quarry cannot receive offsite material for burning or fill without a resource consent.

**17 June 2013**
There was not a lot of product onsite. The extraction area looked good. The pond was working well. There was a small pile of Tanalised offcuts that had been dumped onsite, this was discussed with a staff member and it was determined that the offcuts were generated onsite.

### 2.1.2 Sampling

No water samples were collected for physicochemical analyses during either inspection as this was considered unnecessary (the discharge was clear and there was no visible effect on the receiving water during compliance monitoring inspections).

## 2.2 Air

### 2.2.1 Inspections

Visual checks were undertaken during compliance monitoring inspections. It was found that site operation and management was such that no dust or other discharges to air were found to be objectionable.

### 2.2.2 Results of discharge monitoring

No monitoring of air emissions was undertaken as they were considered to be within acceptable limits.

## 2.3 Investigations, interventions, and incidents

The monitoring programme for the year was based on what was considered to be an appropriate level of monitoring, review of data, and liaison with the consent holder. During the year matters may arise which require additional activity by the Council eg provision of advice and information, or investigation of potential or actual courses of non-compliance or failure to maintain good practices. A pro-active approach that in the first instance avoids issues occurring is favoured.

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 Unauthorised Incident Register (UIR) includes events where the company concerned has itself notified the Council. The register contains details of any investigation and corrective action taken.

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

There were no incidents recorded by the Council that were associated with operations at the CD Boyd Surrey Road quarry during the 2011-2013 monitoring period.

# 3. Discussion

## 3.1 Discussion of plant performance

During the 2011-2013 monitoring period seven compliance monitoring inspections of the consent holder's Surrey Road quarry site were carried out.

No problems were noted at the site during compliance monitoring inspections.

In terms of the discharges, stormwater control was found to be satisfactory and in compliance with consent conditions.

## 3.2 Evaluation of performance

A tabular summary of the consent holder's compliance record for the period under review is set out in Table 1.

**Table 1** Summary of performance for Consent 6569-1 stormwater and washwater discharge into land and into water

| Condition requirement | Means of monitoring during period under review | Compliance achieved? |
|---|---|---|
| 1. Best practicable option to minimise adverse effects | Inspections of site | Yes |
| 2. Exercise of consent as described in application | Inspections of site | Yes |
| 3. No direct discharge of untreated stormwater | Inspections of the site and treatment system | Yes |
| 4. Contouring and bunding of site | Inspections of site | Yes |
| 5. Control erosion | Inspections of site | Yes |
| 6. Progressively reinstate site | Inspections of site | Yes |
| 7. Fencing of riparian zone | Inspections of site | Yes |
| 8. Exclude stock from quarry area | Inspections of site | Yes |
| 9. Maximum stormwater catchment area | Inspections of site | Yes |
| 10. Minimum riparian zone | Inspections of site | Yes |
| 11. Maintain and operate silt control structure | Inspections of site | Yes |
| 12. Concentration limits | Inspections and sampling | Yes |
| 13. Mixing zone | Inspections and sampling | Yes |
| 14. Limits on turbidity increase | Inspections and sampling | Yes |
| 15. Stormwater management plan and contingency plan for the site | Received | Yes |

| Condition requirement | Means of monitoring during period under review | Compliance achieved? |
|---|---|---|
| 16. Reinstatement prior to surrender or lapse of consent | N/A | N/A |
| 17. Consent lapse | N/A | N/A |
| 18. Review | Scheduled for review in June 2015 | N/A |
| Overall assessment of consent compliance and environmental performance in respect of this consent | | **High** |

N/A= Not applicable

CD Boyd quarry achieved a high level of environmental performance and compliance with the resource consent in the 2011-2013 monitoring period. There were no unauthorised incidents at the site.

## 3.3 Recommendations from the 2009-2011 Biennial Report

In the 2009-2011 Biennial Report, it was recommended:

1. THAT monitoring of discharges from CD Boyd Quarry in the 2011-2013 monitoring period continues at the same level as in 2009-2011.

2. THAT CD Boyd Quarry provide the Council with an up to date site plan, a stormwater management plan and a contingency plan as per condition 15 of resource consent 6569-1.

These recommendations were implemented. An updated stormwater management plan and contingency plan was received and accepted 22 March 2011.

## 3.4 Exercise of optional review of consent

Consent 6569-1 to discharge stormwater and washwater into land and into water includes a condition which allows the Council to review the consent in June 2014, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of the Resource Consent, which were not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Based on the results of monitoring during the period under review, it is considered that there are no grounds that require a review to be pursued, subject to any further site usage and any matters arising.

Consents 6569-1 is due to expire in June 2021

## 3.5 Alterations to monitoring programme for 2013-2015

In designing and implementing the monitoring programmes for air/water discharges in the region, the Taranaki Regional Council has taken into account the extent of information made available by previous authorities, its relevance under the Resource

Management Act, the obligations of the Act in terms of monitoring emissions/discharges and effects, and subsequently reporting to the regional community, 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 emitting to the atmosphere/discharging to the environment.

In the case of CD Boyd quarry it is proposed that the monitoring programmes for 2013-2015 remain unaltered from that of 2011-2013. Recommendations to this effect are made in section 4.

# 4. Recommendation

1. THAT monitoring of discharges from CD Boyd Quarry in the 2013-2015 monitoring period continues at the same level as in 2011-2013.

# 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 |
| Cumec | A volumetric measure of flow- 1 cubic metre per second (1 $m^3s^{-1}$) |
| DO | dissolved oxygen |
| DRP | dissolved reactive phosphorus |
| *E.coli* | *escherichia coli,* 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 |
| $g/m^3$ | 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 |
| 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 |
| $NH_4$ | ammonium, normally expressed in terms of the mass of nitrogen (N) |
| $NH_3$ | unionised ammonia, normally expressed in terms of the mass of nitrogen (N) |
| $NO_3$ | 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 |
| $PM_{10}$ | 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 including all subsequent amendments |
| SS | suspended solids |
| SQMCI | semi quantitative macroinvertebrate community index; |
| Temp | temperature, measured in °C (degrees Celsius) |
| Turb | turbidity, expressed in NTU |
| UI | Unauthorised Incident |
| UIR | Unauthorised 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 |
| 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.

# Bibliography and references

Taranaki Regional Council 1992: Regional Policy Statement Working Paper, Aggregate extraction in Taranaki TRC Report.

Taranaki Regional Council, 2007: Quarry Monitoring Programme Biennial Report 2005-2007: CD Boyd, Technical Report 07-101.

Taranaki Regional Council, 2009: Quarry Monitoring Programme Biennial Report 2007-2009: CD Boyd, Technical Report 09-70

Taranaki Regional Council, 2011: Quarry Monitoring Programme Biennial Report 2009-2011: CD Boyd, Technical Report 11-65

# Appendix I

# Resource consent held by CD Boyd Quarry

Consent 6569-1

TARANAKI REGIONAL COUNCIL

CHIEF EXECUTIVE
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47 CLOTEN ROAD
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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: | C D Boyd<br>P O Box 44<br>INGLEWOOD |
| Consent Granted Date: | 8 June 2005 |

## Conditions of Consent

| | |
|---|---|
| Consent Granted: | To discharge treated stormwater and treated washwater from a quarry site onto and into land and into an unnamed tribuary of the Mangamawhete Stream a tributary of the Manganui River in the Waitara catchment at or about GR: Q20:114-142 |
| Expiry Date: | 1 June 2021 |
| Review Date(s): | June 2007, June 2009, June 2015 |
| Site Location: | Norfolk Road, Inglewood |
| Legal Description: | Secs 9 & 10 Blk XII Egmont SD |
| Catchment: | Waitara |
| Tributary: | Manganui<br>Mangamawhete |

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

## General conditions

a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.

b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.

c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:

   i) the administration, monitoring and supervision of this consent; and
   ii) charges authorised by regulations.

## Special conditions

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

2. The exercise of this consent shall be undertaken generally in accordance with the documentation submitted in support of application 3575 and to ensure that the conditions of this consent are met at all times. In the case of any contradiction between the documentation submitted in support of application 3575 and the conditions of this consent, the conditions of this consent shall prevail.

3. There shall be no direct discharge of untreated stormwater or washwater from the quarry into the unnamed tributary of the Mangamawhete Stream, as a result of the exercise of this consent.

4. The active quarry site shall be contoured/bunded so that all water generated in this area is directed to the silt control structures for treatment prior to discharge, and the flow of uncontaminated stormwater into this area is prevented.

5. The consent holder shall undertake measures during excavation to control erosion of exposed areas within the quarry site and to minimise the amounts of sediment contained in the stormwater discharge licensed by this consent.

6. The consent holder shall operate and progressively reinstate the quarry site in a manner which ensures that the area of exposed, unvegetated earth within the quarry's stormwater catchment is kept to a minimum at all times. Only rock and soil derived from the quarry site shall be used for reinstatement.

7. On reinstatement of the area described as quarry Block A the consent holder shall fence off of a riparian buffer zone of at least 15 metres wide on the Mangamawhete Stream in the section shown as proposed fencing on Conservation Plan CP195.

8. Stock shall be excluded from accessing the active area of quarry Blocks A, B and C at all times.

9. The maximum disturbed stormwater catchment area shall be no more than two hectares at any one time.

10. The consent holder shall maintain a minimum riparian management zone of 13 metres wide in all areas covered under CP195.

11. The consent holder shall properly and efficiently maintain and operate the silt control structures in such a manner that any discharge which may occur shall not breach the conditions of this consent. The silt control structures shall be operated, as far as practicable, so as to maximise the treatment of the stormwater and washwater, and to minimise the duration and frequency of the discharge.

12. The following concentrations shall not be exceeded in the discharge:

| **Component** | **Concentration** |
|---|---|
| pH (range) | 6-9 |
| total recoverable hydrocarbons [infrared spectroscopic technique] | 15 $gm^{-3}$ |
| Suspended solids | 100 $gm^{-3}$ |

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

13. After allowing for reasonable mixing within a mixing zone extending 25 metres downstream of the confluence between the unnamed tributary and the Mangamawhete Stream, the discharge shall not give rise to any of the following effects in the receiving waters of the Mangamawhete Stream:

a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended material;
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.

14. After allowing for reasonable mixing, within a mixing zone extending 25 metres downstream of the confluence of the unnamed tributary and Mangamawhete Stream, the discharge shall not give rise to an increase in the turbidity of Mangamawhete Stream of more than 50 %, as determined using NTU [nephelometric turbidity units].

15. Prior to the exercise of this consent, the consent holder shall provide a site plan, stormwater management plan, and contingency plan to the Taranaki Regional Council. These plans are to outline the measures and procedures to be undertaken to prevent the spillage or accidental discharge of contaminants into the stormwater catchment, and measures to avoid, remedy or mitigate environmental effects from the exercise of this consent.

16. On cessation of quarrying operations or prior to the surrender or lapsing of this consent at the site licensed by this consent, the active quarry area, including the silt control structures, and surrounding areas shall be reinstated to the satisfaction of the Chief Executive, Taranaki Regional Council.

17. 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.

18. 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 2007 and/or June 2009 and/or June 2015, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 8 June 2005

For and on behalf of
Taranaki Regional Council

**Director-Resource Management**