

Nikau Contractors Limited  
Patea Freezing Works Remediation  
Monitoring Programme Report  
Technical Report 2010–70

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Taranaki Regional Council  
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STRATFORD

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## **Executive summary**

Nikau Contractors Ltd were contracted by the South Taranaki District Council to demolish the former Patea Freezing Works and remediate the site, which is located on Portland Quay, Patea, in the Patea catchment. Consultants AECOM Australia Pty Ltd were engaged by the South Taranaki District Council to oversee the project. This report for the period November 2009-June 2010 describes the temporary monitoring programme implemented by the Taranaki Regional Council to assess Nikau Contractors Ltd's environmental performance and the results and environmental effects of their activities.

The Company holds two resource consents in relation to activities at the former Patea Freezing Works site, which include a total of 15 conditions setting out the requirements that the Company must satisfy. The Company holds one consent to discharge emissions into the air, and one consent to discharge stormwater onto and into land.

The Council's monitoring programme included fifteen inspections, two marine ecological surveys and the review of air monitoring data from the consultants and provided by the Company.

The monitoring indicated that demolition and remediation activities at the site did not cause any adverse environmental effects.

The Company demonstrated a high level of environmental performance and compliance with the resource consents. There were no unauthorised incidents recorded by the Council in relation to the Company's activities.



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# **1. Introduction**

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

### **1.1.1 Introduction**

This report is for the period November 2009-August 2010, by the Taranaki Regional Council on the temporary monitoring programme associated with resource consents held by Nikau Contractors Limited [Nikau]. The Company was contracted by the South Taranaki District Council [STDC] to demolish and remediate the former Patea Freezing Works [the site] on Portland Quay, Patea, in the Patea catchment.

This report covers the results and findings of the temporary monitoring programme implemented by the Council in respect of the consents held by Nikau that cover emissions to air from the site and discharges of water within the Patea catchment. STDC engaged consultants AECOM to oversee the project.

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 the Company's use of water, land, and air.

### **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 programmes, the resource consents held by Nikau in the Patea 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 Company's 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.

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 (eg, 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 Nikau 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.



**Figure 1** Aerial photograph showing the location of the former Patea Freezing Works

## 1.2 Process description

The following process description was included in Nikau's tender documents. It has not been confirmed if this process was followed during the project.

### Phase 1

- Site establishment , set up HSE procedures.
- Remove visible asbestos containing material [ACM] within approximately 10 m of the building footprint, for placement in sealed containers and offsite disposal.
- Identify locations of other toxic substances such as polychlorinated biphenyls [PCBs], where identified and accessible remove to a secure area for collection.

### Phase 2

- Make safe damaged structures
- Remove remaining hazardous substances

- Salvage steel from ACM debris
- Remove ACM debris to offsite landfill
- Remove boiler house ACM

Where possible remove ACM cladding in-situ. For structures damaged to the extent that in-situ removal is unsafe then disconnect in sections and lower to the ground for safe removal. Floor and ground surfaces, to be cleared of loose ACM debris using manual labour, skid steers and skip bins. All ACM to be seal wrapped or deposited in sealed bins and placed in the temporary laydown area.

Conduct work systematically in grids of approximately 20 m<sup>2</sup>, working north to south and east to west. Extract salvageable material such as steel, timber and concrete in a manner that minimises the disturbance of dust and debris. Salvaged material shall be inspected for contamination by ACM.

### Phase 3

- Remove ground surface ACM soils
- Crush clean concrete
- Cap clinker waste

Surface soils to be scraped to a depth of 200 mm, within 10 m of building footprints and below concrete slabs, and to 100 mm depth across the rest of the site. Screening and testing shall determine whether soil is re-used on site or disposed of off site. All areas to be backfilled with clean soil and grassed. The area of clinker waste between the factory and estuary is to be capped with a geotextile material and 0.5 m of clean soil then grassed.

Nikau provided STDC with tonnages of materials salvaged and recycled, and contaminated material disposed of at the Midwest Disposals Ltd landfill in Wanganui. The information is summarised in Table 1.

**Table 1** Materials summary (tonnes)

Type	Sold	Reused on site	Landfilled	Totals
Building materials (ACM and demolition debris)			1,850	1,850
Concrete		23,000	600	23,600
Steel	1,800	40	14.2	1,854
Soil		2,618	1,127	3,745
Totals	1,800	25,658	3,591	31,049

## 1.3 Resource consents

### 1.3.1 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.

Nikau holds discharge permit **7524-1** to discharge emissions to air from demolition of the Patea freezing works. This permit was issued by the Taranaki Regional

Council on 25 August 2009 under Section 87(d) of the Resource Management Act. It is due to expire on 1 June 2011.

Conditions 1 and 2 require adoption of the best practicable option and notification of the Council.

Conditions 3, 5 and 6 set limits on emissions.

Conditions 4, 7 and 8 relate to monitoring, records to be kept and provided to Council.

The permit is attached to this report in Appendix I.

### **1.3.2 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.

Nikau holds discharge permit **7525-1**, to discharge stormwater onto and into land from demolition of the Patea freezing works. This permit was issued by the Taranaki Regional Council on 25 August 2009 under Section 87(d) of the Resource Management Act. It is due to expire on 1 June 2011.

Conditions 1 and 2 require adoption of the best practicable option and notification of the Council.

Condition 3 relates to treatment of the discharge.

Condition 4 sets limits on contaminants in the discharge.

Condition 5 requires bunding of hazardous substances.

Condition 6 requires stabilisation of earthworks.

Condition 7 concerns effects on the receiving environment.

The permit is attached to this report in Appendix I.

## **1.4 Monitoring programme**

### **1.4.1 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 Patea Freezing Works consisted of four primary components.

#### **1.4.2 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.

#### **1.4.3 Site inspections**

The site was inspected on fifteen occasions during the monitoring period. With regard to the consent for discharges to water, the main points of interest were plant processes with potential or actual discharges to receiving watercourses, including contaminated stormwater and process wastewaters. Air inspections focused on plant processes with associated actual and potential emission sources and characteristics, including potential odour, dust, noxious or offensive emissions. Sources of data being collected by the 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.



**Photograph 1** Part of the site after the fire and prior to demolition

#### **1.4.4 Marine ecology surveys**

The Taranaki Regional Council undertook two surveys of the estuary mudflats adjacent to the site, in relation to Nikau's activities. One survey during the project and one after completion (an earlier survey had been carried out prior to the commencement of activities at the site) were conducted to determine whether there had been any adverse effects on the mudflat environment.

#### **1.4.5 Review of air monitoring data**

The Taranaki Regional Council reviewed the results of air monitoring conducted by the onsite consultants AECOM.

## **2. Results**

### **2.1 Inspections**

The site was inspected on fifteen occasions during the monitoring period. Inspection dates and notes are reproduced below.

#### **27 November 2009**

Inspection at the commencement of demolition. The wind was a light south westerly and gusty at times but there was no evidence of dust blowing from site. Diggers and heavy equipment on site were being used for preliminary works, with sprinkler systems being utilised in the vicinity of digger activity to suppress dust and prevent any off site effects. A perimeter inspection from the mud flat side and also from Rakaupiko/Pilot Station Road (downwind) showed no impact or effects from the operation.

#### **14 December 2009**

Perimeter inspection of the stormwater run off area immediately adjacent to the site. Heavy equipment was on site and demolition works were being carried out. Silt retention cloth was in place in the likely run off area to the south of the site. The wind was a slight south easterly breeze, with no evidence of any dust arising as result.

#### **23 December 2009**

The site had been secured until 4 January 2010. All suspect materials had been covered to prevent dust emissions, with sprinklers deployed in areas as required. The stormwater runoff area was being safe guarded by silt retention cloth. There was no stormwater run off from the site. A decontamination area had been established and was bunded. The site was neat, tidy and well organised for a demolition site.

#### **5 January 2010**

Perimeter inspection, there was no stormwater runoff or visible dust arising from the site. Integrity of contaminated material storage seemed sound and there were no problems as a result of this stockpile. Silt retention cloth was in place at discharge points as required. No odours or any off site effects were noted.

#### **15 January 2010**

The site was inspected during strong southerly winds, with no evidence of any dust arising from the site, apart from about the concrete crushing plant, but there were no off site effects as a result of this operation. A perimeter inspection was undertaken and there was no stormwater run off or any emissions from the site. The site was being well run by a very professional contractor. Site security ensured appropriate PPE equipment including respirators were worn by all personnel who entered the operational area.

#### **28 January 2010**

A perimeter inspection of the site from outside of the hazardous material work area was conducted. An inspection of the stormwater run off area showed that no discharge of storm water had occurred from the site, despite the showery weather prior to the inspection. There was no dust from the hazardous material zone, with

sprinklers deployed and in use at the time of the inspection. There was minor dust arising from the crushing operation, but there were no off site effects.

#### **2 February 2010**

Demolition works were continuing, with no dust issues as a result of this operation. There was minor onsite dust around the concrete crushing area. Sprinklers were deployed and ready for operation as the need arose. There was no stormwater run off from the site. Hazardous materials were covered and segregated to prevent cross contamination. Tool box meetings were being held at the commencement of work each day to highlight hazards. It was considered that the demolition activity was a very professional operation.

#### **11 February 2010**

Site demolition works were continuing, with no dust emissions as a result of this operation and a brisk west south west breeze blowing. The site was neat and tidy, there was no stormwater runoff from the site nor was there likely to be. Silt cloth & sprinkler systems were in place in readiness. During a fly over the previous day by Council monitoring staff, aerial photos of the site were taken. A strong westerly was blowing at the time and there was no dust arising from the site. The site was being well supervised and managed.

#### **17 February 2010**

The site was inspected after recent showery weather, there was no stormwater runoff. Machinery was in action at the time of the inspection and there were no dust issues or adverse effects as a result of the operation.

#### **5 March 2010**

The site was inspected during a period of fine weather with little or no wind. Perimeter stormwater contingencies were in place to minimise any off site effects from stormwater run off. There was no visual evidence of any previous run off despite good rainfall during the previous week. There was no evidence of any dust arising from the site at the time of inspection.

#### **12 March 2010**

Demolition works were proceeding in accordance with information supplied to the Council. All contingencies were in place to prevent any dust emissions occurring off site. The site was neat and tidy with contaminated materials segregated for disposal to an approved disposal site. Any stormwater runoff would be further treated by over land discharge and silt control mesh positioned in an approved manner. Random sampling was being undertaken to test for any remaining hazardous materials on site.

#### **16 April 2010**

Crushing of concrete was ongoing, with no dust arising as a result of this operation. Sprinklers were deployed to minimise any dust that may have arisen. Recontouring and reinstatement of the clinker area was being undertaken at the time of the inspection. Some areas have been overlaid with topsoil in preparation for regrassing. Site security and traffic was well controlled.

**3 May 2010**

The site was neat and tidy, demolition work was nearly complete, with site restoration and reinstatement yet to be completed. There was no discharge off site after recent rain during the weekend. There were no dust issues arising as result of works. The site was secure and well managed.



**Photograph 2** View from east to west on 3 May 2010

**25 May 2010**

Demolition works were nearly completed, with no dust issues, and site reinstatement works were underway. There was no stormwater run off from the site despite recent heavy rain. Contouring with topsoil was nearly completed adjacent to the estuary and other areas were being prepared for regrassing. The disposal of hazardous materials was all but completed. The site was neat and tidy.

**28 June 2010**

Inspection undertaken after a period of prolonged rainfall. There was no evidence of any contaminated material left on site. The removal and clean up had been completed. Site contouring was almost complete, but final topsoil overlay and regrassing was planned for Oct/Nov. There was no evidence of stormwater contamination, nor discharge of any dust particulate off site. The site clean up was nearing completion as a result of extensive and thorough works carried out by Nikau.



**Photograph 3** Eastern end of the site on 28 June 2010

## 2.2 Marine ecology surveys

The first marine ecological survey of the estuary mudflats was conducted in May 2008 prior to demolition/remediation activities commencing. A second survey took place in January 2010 while works were underway and the final survey was in August 2010 when the works had been completed. The surveys concluded that life on the mudflats had not been affected by activities at the site.

Copies of the marine ecology survey reports are included in Appendix III.

## 2.3 Review of air monitoring data

Nikau provided the Council with the results of air monitoring conducted by AECOM. Asbestos air monitoring was generally carried out six days a week (no asbestos work on Sundays) from 23 November 2009 until 25 June 2010, when the site was demobilised. Samples were typically collected from the following locations:

- clean end change area of the decontamination unit and lunch room,
- site fenced boundaries and the main gate,
- chimney and boiler house area, particularly during asbestos removal, and
- around concrete crushing, truck loading and soil screening operations,

resulting in an average of ten tests per day. All results were below the level of detection of 0.01 fibres/ml of air. In terms of compliance with the consent to discharge emissions to air, these results indicate that the work procedures employed successfully minimised the discharge of dust from the site.

## **2.4 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 '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.

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).

During the monitoring period there were no incidents recorded by the Council that were associated with Nikau's activities at the Patea freezing works site.

### 3. Discussion

#### 3.1 Discussion of plant performance

Nikau notified the Council of activities and provided information as required by the consents. It was noted during inspections that the site was neat, tidy and well organised.

#### 3.2 Environmental effects of exercise of consents

Works were initially planned for winter 2009 to take advantage of wet conditions for asbestos removal. It was expected that this would result in the discharge of water off site into the estuary. However, due to delays the project did not get underway until November 2009 and consequently there were no discharges of water. Surveys of the mudflats before, during and after the site works indicated that there were no adverse effects on the mudflat environment. Council inspections and the results of air monitoring by AECOM indicated that the work procedures employed, successfully minimised the discharge of dust from the site.

#### 3.3 Evaluation of performance

A tabular summary of the Company's compliance record for the period under review is set out in Tables 2 and 3.

**Table 2** Summary of performance for Consent 7524-1 to discharge emissions to air from demolition of the Patea freezing works

Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Adoption of the best practicable option	Inspection and liaison with consent holder	Yes
2. Notification to Council 7 days prior to activities commencing	Notification received	Yes
3. Asbestos in air at or beyond the boundary shall be less than 0.01 fibres per ml.	Air monitoring	Yes
4. Company to monitor asbestos and report to Council	Company records	Yes
5. Dust deposition beyond site boundary shall not exceed 4 g/m <sup>2</sup> /30 days or 0.13 g/m <sup>2</sup> /day	Inspections showed monitoring not warranted	N/A
6. No hazardous/toxic/noxious contaminants beyond boundary	Inspection	Yes
7. Keep & maintain record of dust emitting incidents	Inspection and Company records	Yes
8. Provision of data to Council	Data received	Yes
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High</b>

**Table 3** Summary of performance for Consent 7525-1 to discharge stormwater onto and into land from demolition of the Patea freezing works

Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Adoption of the best practicable option	Inspection and liaison with consent holder	Yes
2. Notification to Council 7 days prior to activities commencing	Notification received	Yes
3. Stormwater shall be filtered to remove asbestos fibres	Inspection	Yes
4. Constituents in discharge shall not exceed; pH 6-9, SS 100 g/m <sup>3</sup> , TPH 15 g/m <sup>3</sup>	No discharge	N/A
5. Bunding of hazardous substances	Inspection	Yes
6. Stabilisation of earthworks ASAP	Inspection	Yes
7. No adverse effects on aquatic life	Marine survey	Yes
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High</b>

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

#### **4. Recommendations**

1. THAT this report be distributed to interested parties.
2. THAT no further monitoring is required, even though the consents remain in force until 1 June 2011.

## Glossary of common terms and abbreviations

The following abbreviations and terms may be 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
BTEX	MAH's benzene, toluene, ethylbenzene and xylene
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>	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
l/s	litres per second
MAHs	monocyclic aromatic hydrocarbons, molecules consist of a single six-sided hydrocarbon ring
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)
PAHs	polycyclic aromatic hydrocarbons, molecules consist of more than two six-sided hydrocarbon rings
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)
TPH	total petroleum hydrocarbons
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**

Former Patea freezing Works - Letter of Clearance for Aboveground Demolition Work and Asbestos Removal. AECOM Australia Pty Ltd, 5 November 2010.

Clearance Statement : Materials Removed for Salvage Recycling and Disposal. Nikau Contactors Ltd, 30 June 2010.

## **Appendix I**

### **Resource consents held by Nikau Contractors Ltd**





CHIEF EXECUTIVE  
PRIVATE BAG 713  
47 CLOTEN ROAD  
STRATFORD  
NEW ZEALAND  
PHONE: 06-765 7127  
FAX: 06-765 5097  
[www.trc.govt.nz](http://www.trc.govt.nz)

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: Nikau Contractors Limited  
P O Box 13761  
Onehunga  
AUCKLAND 1643

Consent Granted  
Date: 25 August 2009

**Conditions of Consent**

Consent Granted: To discharge emissions to air from demolition of the Patea  
freezing works at or about (NZTM) 1727436E-5597692N

Expiry Date: 1 June 2011

Site Location: 43 Portland Quay, Patea

Legal Description: Site of old Patea freezing works - Various

**General conditions**

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
  - i) the administration, monitoring and supervision of this consent; and
  - ii) charges authorised by regulations.

**Special conditions**

1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
2. The consent holder shall notify the Chief Executive, Taranaki Regional Council, in writing at least seven days prior to the exercise of this consent. Notification shall include the consent number and a brief description of the activity consented and be emailed to [worknotification@trc.govt.nz](mailto:worknotification@trc.govt.nz). Notification by fax or post is acceptable only if the consent holder does not have access to email.
3. The level of asbestos in air, at or beyond the site boundary, as determined by the Membrane Filtration Method, shall be less than 0.01 fibres per millilitre.
4. The consent holder shall conduct daily air monitoring for asbestos [except where adverse wet weather may damage sampling equipment] and notify the Chief Executive, Taranaki Regional Council, immediately if any air sampling results, for sites at or beyond the site boundary, exceed 0.01 fibres per millilitre, as determined by the Membrane Filtration Method.
5. The dust deposition rate beyond the site boundary arising from the discharge shall be less than 4.0 g/m<sup>2</sup>/30 days or 0.13 g/m<sup>2</sup>/day.
6. Any discharge to air from the site shall not give rise to any offensive, objectionable, noxious or toxic levels of dust at or beyond the boundary of the property, and in any case, suspended particulate matter shall not exceed 3 mg/m<sup>3</sup> [measured under ambient conditions] beyond the boundary of the site.

Consent 7524-1

7. The consent holder shall keep, and make available to the Chief Executive, Taranaki Regional Council, upon request, a record of the time, duration and cause of all dust incidents having actual or potential off-site impacts.
8. The consent holder shall, on a weekly basis, provide the Chief Executive, Taranaki Regional Council, with the results of all air monitoring carried out in relation to the activity. The results shall be emailed to [worknotification@trc.govt.nz](mailto:worknotification@trc.govt.nz), and shall include the consent number.

Signed at Stratford on 25 August 2009

For and on behalf of  
Taranaki Regional Council



Director-Resource Management





CHIEF EXECUTIVE  
PRIVATE BAG 713  
47 CLOTEN ROAD  
STRATFORD  
NEW ZEALAND  
PHONE: 06-765 7127  
FAX: 06-765 5097  
[www.trc.govt.nz](http://www.trc.govt.nz)

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: Nikau Contractors Limited  
P O Box 13761  
Onehunga  
AUCKLAND 1643

Consent Granted  
Date: 25 August 2009

**Conditions of Consent**

Consent Granted: To discharge stormwater onto and into land from  
demolition of the Patea freezing works at or about (NZTM)  
1727436E-5597692N

Expiry Date: 1 June 2011

Site Location: 43 Portland Quay, Patea

Legal Description: Site of old Patea freezing works - Various

Catchment: Patea

**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. Notwithstanding any other condition of this consent, the consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
- 2. At least 7 working days prior to the commencement of works the consent holder shall notify the Taranaki Regional Council of the proposed start date for the work. Notification shall include the consent number and a brief description of the activity consented and shall be emailed to [worknotification@trc.govt.nz](mailto:worknotification@trc.govt.nz). Notification by fax or post is acceptable only if the consent holder does not have access to email.
- 3. All stormwater discharged from the site shall appropriately filtered to ensure the removal of any asbestos fibres.
- 4. Constituents of the discharge shall meet the standards shown in the following table.

<u>Constituent</u>	<u>Standard</u>
pH	Within the range 6.0 to 9.0
suspended solids	Concentration not greater than 100 gm <sup>-3</sup>
total recoverable hydrocarbons	Concentration not greater than 15 gm <sup>-3</sup>

- 5. Any significant volumes of hazardous substances [e.g. bulk fuel, oil] on site shall be stored in a dedicated bunded area with drainage to sumps, or to other appropriate recovery systems, and not directly to the site stormwater system.
- 6. All earthwork areas shall be stabilised vegetatively or otherwise as soon as is practicable immediately following completion of soil disturbance activities.

Consent 7525-1

7. The discharge authorised by this consent shall not cause any significant change to water quality within the estuary that is deleterious to aquatic life, nor shall it cause a significant adverse effect to aquatic life.

Signed at Stratford on 25 August 2009

For and on behalf of  
Taranaki Regional Council



Director-Resource Management



## **Appendix II**

### **Marine ecology surveys**



## Memorandum

**To** S Reynolds, Scientific Officer; GK Bedford, Director-Environment Quality  
**From** E Zydervelt, Scientific Officer [Marine Biology]  
**Document** 789118  
**Date** 5 August 2010  
**File ref** Consent 7525-1 Nikau Contractors

### Mud flats adjacent to Patea Freezing Works

Following a fire and possible asbestos contamination on 6 February 2008, the old Patea Freezing Works buildings have been demolished and removed. I visited the mud flats adjacent to the old Patea Freezing Works site on 5 August 2010, at 11:00, at low tide. This was the third and final inspection of the mud flats, the first being carried out in May 2008, and the second in January 2010.

The mud flats are located directly to the south of the now derelict Patea Freezing Works site, with several small streams flowing from the site to the mud flats.

The upper mud flats contained a variety of different types of plants (Photograph 1 and 2).



**Photograph 1** Mud Flats adjacent to rehabilitated Freezing Works site at Patea showing several shrubs growing 5-8-10



**Photograph 2** Mud Flats adjacent to rehabilitated Freezing Works site at Patea showing plant life 5-8-10

There were numerous crabs and crab holes across the entire mud flats, including the higher areas (Photograph 3 and 4).



**Photograph 3** Mud Flats adjacent to rehabilitated Freezing Works site at Patea showing numerous crab holes 5-8-10



**Photograph 4** Mud Flats adjacent to rehabilitated Freezing Works site at Patea showing crab holes present throughout mud flat 5-8-10

As in the previous two inspections, the mud snail, *Amphibola crenata*, was very abundant across the lower areas of mud flat (Photograph 5). Of note were healthy numbers of snails along the small streams leaving the Patea Freezing Works site (Photograph 6).



**Photograph 5** The mud snail, *Amphibola crenata* 5-8-10



**Photograph 6** The mud snail, *Amphibola crenata* around streams from old site 5-8-10

The trees and plantings growing around the edge of the mud flats also appear healthy and unaffected by any activities on the site (photograph 7 and 8).



**Photograph 7** Mud Flats adjacent to rehabilitated Freezing Works site at Patea showing growth of trees and plantings bordering site 5-8-10



**Photograph 8** Mud Flats adjacent to rehabilitated Freezing Works site at Patea showing growth of trees and plantings bordering site 5-8-10

Life on the mud flats does not appear to have been affected by the clean-up operations being undertaken at the Patea Freezing Works site, with healthy numbers of plants and animals present.

In respect of consent 7525-1 held by Nikau Contractors Ltd to discharge stormwater onto and into land from demolition of the Patea freezing works, I consider that Nikau Contractors have complied with special condition 7: *The discharge authorised by this consent shall not cause any significant change to water quality within the estuary that is deleterious to aquatic life, nor shall it cause a significant adverse effect to aquatic life*

Erin Zydervelt  
Scientific Officer, Marine Ecology



## Memorandum

**To** S Reynolds, Scientific Officer; GK Bedford, Director-Environment Quality  
**From** K Giles, Scientific Officer [Marine Biology]  
**Document** 713954  
**Date** 27 January 2010

### Mud flats adjacent to Patea Freezing Works

Following a fire and possible asbestos contamination on 6 February 2008, the old Patea Freezing Works buildings are in the process of being demolished and removed. I visited the mud flats adjacent to the old Patea Freezing Works site on 27 January 2010, at 13:15, approximately an hour before low tide. This was the second inspection of the mud flats, the first being carried out in May 2008.

The mud flats are located directly to the south of the now derelict Patea Freezing Works site, with several small streams flowing from the site to the mud flats.

The upper mud flats contained a variety of different types of plants.

There were numerous crabs and crab holes across the entire mud flats, including the higher areas (Photograph 1).



**Photograph 1** Crab holes on mud flats

As in the previous inspection, the mud snail, *Amphibola crenata*, was very abundant across the lower areas of mud flat (Photograph 2). Of note were healthy numbers of snails along the small streams leaving the Patea Freezing Works site.



**Photograph 2** The mud snail, *Amphibola crenata*

Life on the mud flats does not appear to have been affected by the clean-up operations being undertaken at the Patea Freezing Works site, with healthy numbers of plants and animals present.

Kate Giles  
Scientific Officer, Marine Ecology

## Memorandum

**To** S Reynolds, Scientific Officer; GK Bedford, Director-Environment Quality  
**From** K Giles, Scientific Officer [Marine Biology]  
**Document** 419164  
**Date** 8 May 2008

### Mud flats adjacent to Patea Freezing Works

Following a fire and possible asbestos contamination on 6 February 2008, I visited the mud flats adjacent to the old Patea Freezing Works site on Thursday 8 May 2008, at 7:30, around two hours after low tide.

The mud flats are located directly to the south of the now derelict Patea Freezing Works site, with several small streams flowing from the site to the mud flats.

The upper mud flats contained a variety of different types of plants and a number of birds.

There were numerous crab holes across the entire mud flats, including the higher areas (Photograph 1).



**Photograph 1** Crab holes on mud flats

The mud snail, *Amphibola crenata*, was abundant across the lower areas of mud flat. Photograph 2 shows large numbers of the snails in one of the small streams leaving the Patea Freezing Works site.



**Photograph 2** The mud snail, *Amphibola crenata*

Life on the mud flats does not appear to have been affected by the events at the Patea Freezing Works, with healthy numbers of plants, birds and other animals present.

Kate Giles  
Scientific Officer, Marine Ecology