

Pacific Natural Gut String Company  
Monitoring Programme  
Annual Report  
2010-2011

Technical Report 2011-58

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Taranaki Regional Council  
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## **Executive summary**

The Pacific Natural Gut String Company Ltd operates a natural gut processing plant located on SH45 west of Manaia, in the Kaipokonui catchment. The Company holds a resource consent to allow it to discharge wastewater directly into the Tasman Sea. This report for the period July 2010-June 2011 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 effects of the Company's activities.

The resource consent includes two special conditions setting out the requirements that the Company must satisfy.

The Council's monitoring programme included two inspections, and two water samples collected from the wastewater discharge for physicochemical analysis.

The monitoring showed that the wastewater discharge met the consent conditions and as such is not expected to cause any adverse effects on the receiving marine environment. The quality of the wastewater discharge continued at a similar level to previous years.

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

This report includes recommendations for the 2011-2012 year.



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# 1. Introduction

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

### 1.1.1 Introduction

This report is the Annual Report for the period July 2010-June 2011 by the Taranaki Regional Council describing the monitoring programme associated with resource consents held by Pacific Natural Gut String Company Ltd (Pacific Natural Gut). The Company operates a natural gut string processing factory situated west of Manaia.

This report covers the results and findings of the monitoring programme implemented by the Council in respect of the consent held by Pacific Natural Gut authorising discharges of wastewater by direct marine outfall to the Tasman Sea. This is the twenty-second Annual Report to be prepared by the Taranaki Regional Council to cover Pacific Natural Gut's water discharges and their effects.

### 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 Pacific Natural Gut, the nature of the monitoring programme in place for the period under review, and a description of the activities and operations conducted at the Pacific Natural Gut Factory.

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 2011-2012 monitoring year.

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

### 1.1.3 The Resource Management Act (1991) and monitoring

The 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 Pacific Natural Gut 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 Process description

The Company began its operation in 1976, with processing activities at the factory consisting of the production of high quality natural gut strings for tennis, squash and badminton racquets. The factory was once a dairy processing plant with an outfall to the cliff.

Although the Company's operation is sited on the banks of the Kaupokonui River it neither takes water from, nor discharges water to this river.

In October 1992 the Company was bought by Pacific Entermark GmbH, a sports goods marketing company based in Reichenbach, Germany. However the consent remains in the name of Pacific Natural Gut String.

The location of the factory is shown in Figure 1.

The Company receives fresh or frozen beef threads (intestine casings) which they clean through a series of soaking and rinsing, using soda ash (sodium carbonate), Ecoteric LA8N (a biodegradable surfactant), a 50% hydrogen peroxide solution, EDTA (ethylenediamine tetraacetic acid), and District Council water supply.

Table 1 indicates the types and quantities of process chemicals that are discharged. These absolute quantities vary from week-to-week depending on the level of production. The concentration in the effluent also varies depending on the current level of rainfall runoff. There are also minute quantities of other chemicals that are used from time-to-time for research purposes.

**Table 1** Pacific Natural Gut wastewater composition (approximate)

Component	Quantity used per month	Weight of chemical discharged kg/month	Percentage of process effluent	g/m <sup>3</sup> of process effluent	Percentage of total discharge	g/m <sup>3</sup> of total discharge
District Council water (m <sup>3</sup> )	1000	1 000	99.9598%		49.9799%	
Soda ash (kg)	120	120	0.0120%	120	0.0060%	60
Ecoteric LA8N (kg)	203	203	0.0203%	203	0.0101%	101
Hydrogen peroxide 50% solution (kg)	175	0	0.0000%	0	0	0
EDTA (kg)	79	79	0.0079%	79	0.0040%	40
Total effluent (kg)		1 000 402				
Rainwater runoff (rough estimate)		1 000 000				
Total discharge to sea		2 000 402				

The Company's best estimate of rainwater runoff accounts for between half and two thirds of the total yearly discharge. This is due to the fact that much of the runoff from the factory roof, plus additional amounts from the car park and road enter the wastewater system.



**Figure 1** Location of the factory and marine outfall

A very small quantity of the District Council supplied water is used for the personal needs of the staff, and is disposed of through the septic system.

The hydrogen peroxide is totally exhausted during the process; therefore the amount shown is based on input and is reduced to nil by the time it is discharged.

The discharge also contains materials extracted from the beef threads during processing. These predominantly include minute amounts of animal fats and oils, water-soluble proteins, and carotenoids.

Previously the discharge occurred once daily or more frequently, depending upon the combination of the process activity and rainfall. However due to a marine ecological inspection in 2001 revealing the discharge might be having an indirect effect on the reef ecology in the area, the automated discharge was reset to occur daily at midnight.

## 1.3 Resource consents

### 1.3.1 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.

Pacific Natural Gut holds water discharge permit **0934** to cover the discharge of up to 100 cubic metres per day (30 litres per second) of treated wastewater and stormwater from a natural gut string processing factory, over a cliff at the end of Lower Glenn Road into the Tasman Sea. This permit was issued by the Taranaki Regional Council on 24 March 1993 as a resource consent under Section 87(e) of the Resource Management Act. It is due to expire on 1 June 2011.

Special condition 1 states that the discharge shall be within the pH range of 6.5 to 11.0 at all times.

Special condition 2 requires the consent holder to maintain satisfactory storage and standby pumping facilities at the factory.

A copy of the coastal permit is included as Appendix I.

Pacific Natural Gut String Company applied to renew this resource consent in September 2010, resource consent 0934-2 will be replaced by 0934-3 in 2011.

## **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 Pacific Natural Gut site consisted of three 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 Pacific Natural Gut site was visited three times during the monitoring period. With regard to the consent for discharge to water, the main points of interest were plant processes with potential or actual discharges to receiving watercourses, including contaminated stormwater and process wastewaters. 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.

### **1.4.4 Chemical sampling**

The Taranaki Regional Council undertook sampling of the wastewater discharge from the site on two occasions, with the sample analysed for pH, alkalinity/acidity and conductivity.

## **2. Results**

### **2.1 Water**

#### **2.1.1 Inspections**

Officers of the Council undertook two routine monitoring inspections at the Pacific Natural Gut factory during the period under review on 4 October 2010 and 8 June 2011. On 3 May 2011 HSNO Inspection and compliance monitoring inspection were combined.

##### **4 October 2010**

There were no problems in the factory, with all chemicals stored in bunded areas, however, the pump shed was found to have some water on the floor as the pump had been relagged and needed to be tightened.

There was no discharge over the cliff, nor evidence of recent discharge (ie. foaming).

##### **3 May 2011 HSNO Inspection**

The location certificate was current and site had a good relationship with the test certifier. Approved handlers were onsite. Site plans were to be upgraded as discussed. Safety data sheets (SDS) were present in the chemical storage/use areas; extra copies should also be in the office area also. Signage throughout the site was excellent. The Council Officer discussed upgrading signage at site entrance to meet requirements, based on the 'Chemsafe' report generated for the site. Segregation of materials was excellent throughout. The flammable goods store was clear of electrical installations and no flammable odours were noted. The oxidiser store was essentially empty. Emergency Response Plan templates were provided to the Company and are to be reviewed annually. One is to be left with each SDS folder around the site.

A compliance monitoring inspection was also conducted on this date. The wind was blowing from the North East. No objectionable odours or emissions were noted during the inspection. The stormwater catchment appeared clear of spills, all materials within storage areas were found to be well managed, and there was clear signage throughout. Some foaming was occurring from drainage inspection chambers along South Road, although this remained localised. Management of waste liquids was discussed. An AEE was currently being drawn up for renewal process. Additives that could be used to reduce the foaming effect of surfactants make effluent less environmentally friendly. The effluent pump is currently set to discharge at midnight to avoid aesthetics issue.

##### **8 June 2011**

The inspection found the factory to be tidy, with all chemicals stored in bunded areas. The holding tank was found to be 2/3 full and had not been discharged for the last few days. The floor in the pump shed was dry and there were no leaks at the time of inspection. An enquiry into the holding capacity of the hydrogen peroxide shed bund was made. In addition, the non-return valve was also being investigated as it was not working effectively.

There was no discharge over the cliff, and no evidence of recent discharge was present down the cliff or on the reef, however the pipe did have a very low, continuous flow.

### 2.1.2 Results of discharge monitoring

Samples were collected from the bleed-off valve in the outlet pipe in the pump shed during both inspections. The results of the water quality analyses are presented, along with a summary of previous years' results, in Table 2 below.

**Table 2** Results of wastewater sampling at Pacific Natural Gut during the period under review, together with a summary of previous results since March 1988

Parameter	Unit	Date		Number	Range	Median
		4-Oct-10	8-Jun-11			
Alkalinity	g/m <sup>3</sup> CaCO <sub>3</sub>	86	25	42	25 - 850	102
Conductivity	mS/m	34.6	7.2	39	7.2 - 920	33.7
pH		7.6	7.2	42	7 - 11.5	9.35
Temperature	°C	13.5	12.2	32	8.5 - 25.5	14.5

The pH of samples collected during the period under review were within the consent limits of 6.5 – 11.0. The results of all other parameters were within the ranges of previous results and similar to historical medians (Table 2).

## 2.2 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).

In the 2010-2011 year, there were no incidents recorded by the Council that were associated with Pacific Natural Gut.

### 3. Discussion

#### 3.1 Discussion of plant performance

The natural gut processing factory was generally well managed during the monitoring period. The discharge was sampled on two occasions and found to be in compliance with conditions of the resource consent.

An updated contingency plan for the site was received in September 2010, this was reviewed and approved by the Council.

#### 3.2 Environmental effects of exercise of consents

The wastewater discharge meets the conditions of consent 0934, and in comparison to previous years the quality of the wastewater discharge continued at a similar level. This is a result of the change in use of chemicals in the cleansing process of the beef threads in 2000.

#### 3.3 Evaluation of performance

A tabular summary of the Company's compliance record for the year under review is set out in Table 3.

**Table 3** Summary of performance for Consent 0934-2 to discharge untreated wastewater over a cliff to the Tasman Sea

Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. pH of discharge within limits of 6.5-11.0	Water samples collected	Yes
2. Maintenance of storage and standby pumping facilities	Site inspections	Yes
Overall assessment of consent compliance and environment performance in respect of this consent		<b>High</b>

N/A = not applicable

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

#### 3.4 Recommendations from the 2009-2010 Annual Report

In the 2009-2010 Annual Report, it was recommended:

1. THAT monitoring of discharges from Pacific Natural Gut String Company Ltd in the 2010-2011 year continue at the same level as in 2009-2010.

This recommendation was implemented.

### **3.5 Alterations to monitoring programmes for 2011-2012**

In designing and implementing the monitoring programmes for 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 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 discharging to the environment.

In the case of Pacific Natural Gut, the programme for 2010-2011 was unchanged from that for 2009-2010. Similarly, it is proposed that for 2011-2012, the programme remains unchanged. A recommendation to this effect is attached to this report.

## **4. Recommendations**

1. THAT monitoring of discharges from Pacific Natural Gut String Company Ltd in the 2011-2012 year continue at the same level as in 2010-2011.

## Glossary of common terms and abbreviations

The following abbreviations and terms are used within this report:

bund	a wall around a tank to contain its contents in the case of a leak
Condy	Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 20°C and expressed in mS/m
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
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.
pH	a numerical system for measuring acidity in solutions, with 7 as neutral. Numbers lower than 7 are increasingly acidic and higher than 7 are increasingly alkaline. The scale is logarithmic i.e. a change of 1 represents a ten-fold change in strength. For example, a pH of 4 is ten times more acidic than a pH of 5.
Physicochemical	measurement of both physical properties (e.g. temperature, clarity, density) and chemical determinants (e.g. metals and nutrients) to characterise the state of an environment
resource consent	refer Section 87 of the RMA. Resource consents include land use consents (refer Sections 9 and 13 of the RMA), coastal permits (Sections 12, 14 and 15), water permits (Section 14) and discharge permits (Section 15)
RMA	Resource Management Act 1991 and subsequent amendments
Temp	temperature, measured in °C (degrees Celsius)
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

For further information on analytical methods, contact the Council's laboratory

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## **Appendix I**

**Resource consent held by  
Pacific Natural Gut String Company Ltd**



TRK930934

COPY



**COASTAL PERMIT**

**Pursuant to the RESOURCE MANAGEMENT ACT 1991  
a resource consent is hereby granted by the  
Taranaki Regional Council**

PRIVATE BAG  
STRATFORD  
NEW ZEALAND  
PHONE (0663) 7127  
FAX (0663) 5097

Name of Consent Holder: PACIFIC NATURAL GUT STRING CO LTD  
PO BOX 74 MANAIA

Renewal Granted Date: 24 March 1993

**CONDITIONS OF CONSENT**

Consent Granted: TO DISCHARGE UP TO 100 CUBIC METRES/DAY [30 LITRES/SECOND] OF UNTREATED WASTEWATER AND STORMWATER FROM A NATURAL GUT STRING PROCESSING FACTORY, OVER A CLIFF AT THE END OF LOWER GLENN ROAD INTO THE TASMAN SEA AT OR ABOUT GR: P21:020-807

Expiry Date: 1 June 2011

Review Date(s): 1 June 1999 and 1 June 2005

Site Location: LOWER GLENN ROAD KAUPOKONUI

Legal Description: LOT 1 DP6381 BLK VI WAIMATE SD

Catchment:	TASMAN SEA	905.000
	KAUPOKONUI	355.000

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

TRK930934

COPY

GENERAL CONDITIONS

- (a) The consent holder shall provide on request by the General Manager, Taranaki Regional Council, plans, specifications and maintenance programmes of works associated with the exercise of the consent, showing that the conditions of the consent are able to be met.
- (b) The standards, techniques and frequency of monitoring of the consent shall be to the specific approval of the General Manager, Taranaki Regional Council.
- (c) The consent holder shall pay all charges required by the General Manager, Taranaki Regional Council, to enable recovery of the actual and reasonable costs incurred in administration, monitoring and supervision of the consent.

SPECIAL CONDITIONS

- 1) THAT the discharge shall be within the range pH 6.5 to 11.0 at all times.
- 2) THAT the consent holder shall maintain satisfactory storage and standby pumping facilities at the factory, to the satisfaction of the General Manager, Taranaki Regional Council.

Signed at Stratford on 24 March 1993

For and on behalf of  
TARANAKI REGIONAL COUNCIL

  
GENERAL MANAGER

