Pacific Natural Gut String Company Limited Monitoring Programme Annual Report 2014-2015

Technical Report 2015-29

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Executive summary

The Pacific Natural Gut String Company Limited (the Company) operates a natural gut processing plant located on SH45 west of Manaia, in the Kaupokonui River catchment. The Company holds a resource consent to allow it to discharge wastewater directly into the Tasman Sea. This report for the period July 2014-June 2015 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess the Company's environmental performance during the period under review, and the results and effects of the Company's activities.

The Company holds one resource consent, which includes a total of seven conditions setting out the requirements that the Company must satisfy.

During the monitoring period, the Company demonstrated an overall high level of environmental performance.

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

During the 2014-2015 monitoring year, the factory was not in operation and as a result there had been no consent related activity on-site.

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. As the factory had been inactive, the wastewater discharge was mainly composed of stormwater runoff from site.

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

For reference, in the 2014-2015 year, 75% 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 22% demonstrated a good level of environmental performance and compliance with their consents.

This report includes recommendations for the 2015-2016 year.

Table of contents

List of tables

List of figures

List of photos

1. Introduction

1.1 Compliance monitoring programme reports and the Resource Management Act 1991

1.1.1 Introduction

This report is for the period July 2014-June 2015 by the Taranaki Regional Council (the Council) describing the monitoring programme associated with resource consents held by Pacific Natural Gut String Company Limited (the Company). 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 the Company authorising discharges of wastewater by direct marine outfall to the Tasman Sea. This is the 25th Annual Report to be prepared by the Council to cover the Company'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 1991* (RMA) and the Council's obligations and general approach to monitoring sites through annual programmes, the resource consents held by the Company, 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 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 2015-2016 monitoring year.

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

1.1.3 The Resource Management Act 1991 and monitoring

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

(a) the neighbourhood or the wider community around an activity, and may include cultural and social-economic effects;
(b) physical effects on the locality, including landscape, amenity and visual effects;
(c) ecosystems, including effects on plants, animals, or habitats, whether aquatic or terrestrial;
(d) natural and physical resources having special significance (for example recreational, cultural, or aesthetic);

(e) risks to the neighbourhood or environment.

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

1.1.4 Evaluation of environmental and administrative performance

Besides discussing the various details of the performance and extent of compliance by the consent holder/s during the period under review, this report also assigns a rating as to each Company's environmental and administrative performance.

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

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

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

Environmental Performance

- **High** No or inconsequential (short-term duration, less than minor in severity) breaches of consent or regional plan parameters resulting from the activity; no adverse effects of significance noted or likely in the receiving environment .The Council did not record any verified unauthorised incidents involving significant environmental impacts and was not obliged to issue any abatement notices or infringement notices in relation to such impacts.

- **Good** Likely or actual adverse effects of activities on the receiving environment were negligible or minor at most. There were some such issues noted during monitoring, from self reports, or in response to unauthorised incident reports, but these items were not critical, and follow-up inspections showed they have been dealt with. These minor issues were resolved positively, co-operatively, and quickly. The Council was not obliged to issue any abatement notices or

infringement notices in relation to the minor non-compliant effects; however abatement notices may have been issued to mitigate an identified potential for an environmental effect to occur.

For example:

- High suspended solid values recorded in discharge samples, however the discharge was to land or to receiving waters that were in high flow at the time;
- Strong odour beyond boundary but no residential properties or other recipient nearby.

- **Improvement required** Likely or actual adverse effects of activities on the receiving environment were more than minor, but not substantial. There were some issues noted during monitoring, from self reports, or in response to unauthorised incident reports. Cumulative adverse effects of a persistent minor non-compliant activity could elevate a minor issue to this level. Abatement notices and infringement notices may have been issued in respect of effects.

- **Poor** Likely or actual adverse effects of activities on the receiving environment were significant. There were some items noted during monitoring, from self reports, or in response to unauthorised incident reports. Cumulative adverse effects of a persistent moderate non-compliant activity could elevate an 'improvement required' issue to this level. Typically there were grounds for either a prosecution or an infringement notice in respect of effects.

Administrative performance

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

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

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

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

For reference, in the 2014-2015 year, 75% 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 22%

demonstrated a good level of environmental performance and compliance with their consents.

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 (Photograph 1). The factory was once a dairy processing plant with an outfall discharging to the Tasman Sea via the cliff.

Although the Company's operation is sited on the banks of the Kaupokonui River (Figure 1) 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 Company Limited.

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

Photo 1 Factory operating in 2012

Table 1 indicates the types and quantities of process chemicals that are discharged when the factory is operating. 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 Factory wastewater composition (approximate) when in operation

Component	Quantity used per month	Weight of chemical discharged (kg/month)	Percentage of process effluent	g/m³ of process effluent	Percentage of total discharge	g/m³ of total discharge
District Council water (m³)	1,000	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 is estimated to account for between half and two thirds of the total yearly discharge when in operation. 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 of discharge.

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

Previously the discharge occurred once daily or more frequently, depending on the process activity and rainfall. However, in 2001, the results of a marine ecological inspection indicated the discharge might be having an indirect effect on reef ecology. As a result, discharge is now only permitted within one hour of high tide, unless heavy rainfall causes the storage capacity of the holding tank to be exceeded.

1.3 Resource consents

1.3.1 Water discharge permit

Section 14 of the RMA stipulates that no person may take, use, dam or divert any water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or it falls within some particular categories set out in Section 14.

The Company holds water discharge permit **0934-3** to cover the discharge of wastewater and stormwater from a natural gut string processing factory into the Tasman Sea in 'batches' from a holding tank. This permit was issued by the Taranaki Regional Council on 1 December 2011 as a resource consent under Section 87(e) of the RMA. It is due to expire on 1 June 2016.

There are seven special conditions attached to the consent.

Conditions 1 and 2 relate to the volume and timing of the discharges.

Conditions 3 to 5 deal with the pH of the discharge, testing and recording of this.

Condition 6 deals with effects of the discharge in the receiving waters.

Condition 7 requires the Company to produce a report evaluating all reasonable alternatives to discharging to the sea.

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

1.4 Monitoring programme

1.4.1 Introduction

Section 35 of the RMA sets out obligations upon the Council to gather information, monitor, and conduct research on the exercise of resource consents, and the effects arising, within the Taranaki region and report upon these.

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

The monitoring programme for the Company's 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 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;
- new consents;
- advice on the Council's environmental management strategies and content of regional plans and;
- consultation on associated matters.

1.4.3 Site inspections

The Company's site was visited twice 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 Council took a sample of the wastewater discharge from the site on one occasion, with the sample being analysed for pH, alkalinity and conductivity.

2. Results

2.1 Inspections

Officers of the Council undertook two inspections at the gut string factory during the period under review.

30 September 2014
The site was inspected without entering the factory building. As the factory had not been operating it was previously noted that stormwater would be the main discharge from the holding tank. The site's stormwater catchment was found to be in a satisfactory condition. No chemicals were being stored in any exposed, outdoor locations.

7 April 2015
Since the previous inspection on 30 September 2014, the factory had not been in operation and there had been no consent related activity on site. Raw materials in the main building included: 5 bags of Trilon BX Pulver (chelating agent), 7 bags of soda ash, ~50 tins of Lusterthane 988, 2 bags of caustic soda pearls and one drum of unidentified contaminated product. A waterproof cover was in place over the bags of Trilon BX Pulver and soda ash.

The chemical storage area was checked. The bunded area was found to be clean, dry and free from any algal/moss growth. Eight containers of Interox were being stored in this area.

The holding tank was empty at the time of the inspection. The morning of the inspection, the discharge pump was activated and a sample was collected for TRC lab analysis.

The outfall pipe was not checked during this inspection as the factory had not been in use and only stormwater was being discharged (although there was no discharge at the time of inspection).

Following the inspection, it was recommended that the drum of unidentified product should be removed from site using a professional waste management company.

In response to this request, the Operations Manager of the Company informed the Council that this drum contains Ecoteric LA8; a non ionic detergent, which is still usable. Furthermore, the contamination is the lining of the drum peeling off. To remedy this, the product may be filtered prior to use.

Council staff asked the Company to ensure that the drum was properly labelled and that relevent staff were made aware of the chemical inventory kept on-site.

2.2 Results of discharge monitoring

Prior to the inspection on 7 April 2015, Company staff collected a sample from the bleed-off valve in the outlet pipe in the pump shed. Results of the water quality analysis are presented in Table 2, including a summary of previous years' results.

Table 2 Results of wastewater sampling during the period under review and a summary of previous results since March 1988

Parameter	Unit	Date	Sample Number	Range	Median
		7 April 2015			
Alkalinity	g/m^3 $CaCO_3$	24	45	20-850	104
Conductivity	mS/m	7.4	42	5.1-920	31.3
pH	pH	7.1	45	7-11.5	9.4
Temperature	°C	-	35	8.5-25.5	14.6

The pH of the sample collected during the period under review was within the consent limits of 6.5 – 11.0. As the factory had been inactive, the wastewater discharge was mainly composed of stormwater runoff from site. As a consequence, the alkalinity, conductivity and pH results were towards the bottom end of the range previously recorded and lower than historical medians (Table 2).

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, for example 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 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 Incident Register (IR) 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).

In the 2014-2015 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with the Company's conditions in resource consents or provisions in Regional Plans.

3. Discussion

3.1 Discussion of site performance

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

3.2 Environmental effects of exercise of consents

The wastewater discharge complies with the conditions of Consent 0934-3. As the factory was inactive during the period under review, the wastewater discharge was mainly composed of stormwater runoff from site. Environmental effects associated with this discharge are likely to be insignificant.

3.3 Evaluation of performance

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

Table 3 Summary of performance for Consent 0934-3

Purpose: ***To discharge wastewater to the Tasman Sea***		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Discharge in batches not exceeding 44m^3, daily total not to exceed 100m^3	Company self monitoring	Yes
2. Discharge within one hour of high tide	Company self monitoring	Yes
3. pH range 6.5 – 11.0	Samples and company self monitoring	Yes
4. Discharge tested prior to release	Company self monitoring	Yes
5. Results of testing provided to TRC	Results provided	Yes
6. Effects not to arise in receiving waters	No coastal inspections – factory not in operation therefore only discharging stormwater	N/A
7. Report on alternatives to ocean outfall	Not required if not operating	N/A
Overall assessment of consent compliance and environment performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

N/A = not applicable

During the year, the Company demonstrated a high level of administrative and environmental performance and compliance with the resource consent defined in Section 1.3.1. An updated Contingency Plan was received from the Company on 8 April 2014 and as no significant changes have taken place at the factory since, this plan is considered to be valid and active.

3.4 Recommendations from the 2013-2014 Annual Report

In the 2013-2014 Annual Report, it was recommended:

THAT monitoring of discharges from Pacific Natural Gut String Company Limited in the 2014-2015 year continues at the same level as in 2013-2014.

This recommendation was implemented.

3.5 Alterations to monitoring programmes for 2015-2016

In designing and implementing the monitoring programmes for air/water discharges in the region, the Council has taken into account the extent of information made available by previous authorities, its relevance under the RMA the obligations of the Act in terms of monitoring emissions/discharges and effects, and subsequently reporting to the regional community. The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki emitting to the atmosphere/discharging to the environment.

It is proposed that for 2015-2016 no changes are made to the monitoring programme from 2014-2015. However, an alteration is proposed concerning special condition seven of the Company's resource consent.

Special condition seven of resource consent 0934-3 requires the consent holder to provide a report to the Council which evaluates all reasonable alternatives to discharging to sea by 1 December 2015. As the Company are not currently operating, and are therefore not discharging any process wastewater, the consent holder will not be required to produce this report by the proposed date. If the consent holder decides to reapply for the consent (it is due to expire 1 June 2016), then a report on discharge alternatives will likely be required as a part of the application process.

4. Recommendations

1. THAT monitoring of discharges from Pacific Natural Gut String Company Limited in the 2015-2016 year continues at the same level as in 2014-2015.

2. THAT as long as the factory is not operating the consent holder is not required to provide a report to the Council as outlined in special condition seven of resource consent 0934-3.

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^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
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 consents held by Pacific Natural Gut String Company Ltd

Coastal Permit

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

Name of Consent Holder:	Pacific Natural Gut String Co. Limited P O Box 74 MANAIA 4641
Decision Date:	1 December 2011
Commencement Date:	1 December 2011

Conditions of Consent

Consent Granted:	To discharge wastewater and stormwater from a natural gut string processing factory into the Tasman Sea in 'batches' from a holding tank at or about (NZTM) 1692948E-5618745N
Expiry Date:	1 June 2016
Site Location:	Lower Glenn Road, Kaupokonui
Legal Description:	Lot 2 DP 18172 Blk VI Waimate SD [Discharge source] Sec 42 Blk VI Waimate SD [Discharge site]
Catchment:	Tasman Sea Kaupokonui

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

General condition

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

Special conditions

1. Discharges shall be in discrete batches not in exceeding 44m^3 and the total daily discharge shall not exceed 100m^3.

2. The discharge shall only occur within one hour of high tide at all times, except where heavy rainfall would cause the storage capacity of the holding tank to be exceeded.

3. The pH of the discharge shall be within the range pH 6.5 to 11.0 at all times.

4. Batch discharges shall be pH tested and recorded prior to any discharge being released.

5. The consent holder shall provide records for each batch detailing the date and time, pH and volume of each discharge as well as the time of high tide. The record shall also detail any discharges that do not occur at high tide. Records collected shall be provided to the Taranaki Regional Council monthly.

6. The discharge of wastewater and stormwater shall not give rise to all or any of the following effects in the receiving waters after a reasonable mixing zone extending 10 metres from the discharge point:

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

7. Before 1 December 2015 the consent holder shall provide to the Chief Executive, Taranaki Regional Council a report that evaluates all reasonable alternatives to discharging to the sea, and identifies the best alternative.

Signed at Stratford on 1 December 2011

For and on behalf of
Taranaki Regional Council

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Chief Executive