

Todd Energy Aquatic Centre
Monitoring Programme
Annual Report
2014-2015

Technical Report 2015-13

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Executive summary

The New Plymouth District Council (NPDC) operates the Todd Energy Aquatic Centre (Aquatic Centre) located on Tisch Avenue, New Plymouth. This report for the period July 2014-June 2015 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess the consent holder's environmental and administrative performance during the period under review, and the results and environmental effects of the Company's activities.

During the monitoring period, NPDC demonstrated an overall good level of environmental performance.

The NPDC holds two resource consents relating to the Aquatic Centre, which include a total of thirteen special conditions that the NPDC must satisfy. One consent allows NPDC to discharge swimming pool wastewater into the Tasman Sea, and the other allows it to erect, place, use and maintain a discharge pipe at the site.

The Council's monitoring programme for the year under review included one site inspection, two marine ecological inspections, one discharge sample and one receiving water sample collected for physicochemical analysis.

The monitoring showed that the discharge of swimming pool wastewater from the Aquatic Centre did not result in elevated levels of chlorine beyond the mixing zone. No adverse effects were observed on low shore reef biota in the vicinity of the discharge pipe.

During the year, the NPDC demonstrated a good level of environmental and administrative performance and compliance with the resource consents. There was one unauthorised incident associated with the Aquatic Centre that occurred during the period under review.

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 a recommendation for the 2015-2016 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 2014-June 2015 by the Taranaki Regional Council (The Council) describing the monitoring programme associated with two resource consents held by the New Plymouth District Council (NPDC) for the Todd Energy Aquatic Centre (Aquatic Centre) on Tisch Avenue, New Plymouth.

This report covers the results and findings of the monitoring programme implemented by the Council in respect of the consents that relate to discharges of pool and filter water into the Tasman Sea and to erect, place, use and maintain an ocean outfall. This is the 15th Annual Report to be prepared by the Council to cover the Aquatic Centre's water discharges and the associated effects.

1.1.2 Structure of this report

Section 1 of this report 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 the NPDC, the nature of the monitoring programme in place for the period under review, and a description of the activities and operations conducted at the Aquatic Centre.

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 *Resource Management Act 1991* (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 Aquatic Centre is sited on the foreshore at Tisch Avenue, New Plymouth. The facility consists of outdoor pools, including a main pool, diving pool and children's pools, and an indoor pool complex (Figure 1).

Discharge of waste water from the outdoor pool complex filtration system takes place via the original discharge pipe which is situated on the foreshore to the east of the facility (Photograph 1) and in the vicinity of an intake for water used in heat exchange by the swimming pool.

The discharge pipe consists of a 300 mm diameter encased concrete pipe and discharges at approximately mid-tide level. This structure was constructed in 1962 and has been in use ever since for the purpose of backwashing the outdoor pool filters.



Photograph 1 Todd Energy Aquatic Centre ocean outfall

During 1993 a heated indoor aquatic centre was constructed next to the existing outdoor facility. The indoor facility consists of a main pool, children's pool and spa pool. The indoor facility has a diatomaceous earth filter which serves the main pool and four upright high pressure sand filters which serve the spa and the children's pools.

At the time of construction, the diatomaceous earth filter waste was discharged into coastal waters. This method was found to be environmentally unsatisfactory and was discontinued in late 1999. Ever since, the solid waste from the diatomaceous earth filter

has been removed from the site using an effluent disposal contractor, and disposed of at the New Plymouth landfill.

In 1999, a gas fired heating system was installed to replace the original 'water to water' heat exchange unit which relied on sea water as the source of heat. The old heat exchange unit was removed from the site when the gas-fired unit was commissioned.

Current wastewater management practice for the indoor pools is that backwash water from the spa and children's pools sand filtration systems continues to be connected to the outfall and is discharged on a daily basis.

The amount of water discharged is equivalent to approximately 120 litres/minute and the total backwash cycle runs for around 5-10 minutes. The maximum volume of the discharge at 1,200 litres is relatively insignificant in the context of the receiving environment, and the visual change is virtually inconspicuous due to the indoor nature of the pools and the frequency of backwashing, which is daily.

The outdoor pools are served by two large open gravity sand filters, which are located at the eastern end of the outdoor complex. These are air scoured and then backwashed through the outfall at high tide. Volumes of backwash water are significant (generally 22 m³) and the discharge can be a muddy colour for a short time. In the peak of the season, backwashes may be as frequent as 1-2 per week, but generally it is normal to backwash the outdoor pools approximately every two weeks during the summer season (from Labour weekend to Easter).

The outdoor pools are emptied once per year, generally during August, for the purpose of cleaning and maintenance. The discharge of pool water is free of chlorine, as the pools are not in use for the month prior to discharge. The pools are cleaned by mechanical methods, including water blasting, and do not involve the use of chemical cleaners. Mutton cloths are placed over the drains during water blasting and cleaning to catch all loose paint chips. The pool cleanings are discharged via the outfall.

Both the indoor and outdoor complexes are chlorinated using chlorine gas, which is contained in two separate 920 kg cylinders and chlorinator systems; one at the eastern boundary and one at the western boundary of the site. From time to time the chlorine gas is complemented by the manual dosing of calcium or sodium hypochlorite.

During July 2004 a medium pressure UV disinfection system was installed at the Aquatic Centre. This has resulted in savings on chemicals, heating, maintenance and water costs. The UV system operates by reducing the level of chloramines (combined chlorine compounds) which are the cause of the unpleasant chlorine smells in pools. Since the installation of the system the chlorine levels in the pool have decreased by 3 to 5 times to a level typically below 0.3 ppm. The water is also clearer and less milky, with bacterial levels dropping from low to nearly zero due to the water going through the UV system several times a day. Alterations were undertaken on the indoor facility in 2008 with the construction of year-round waterslides.



Figure 1 Location of Todd Energy Aquatic Centre with the swimming pool wastewater sampling site, (A), and the seawater sampling site, (B)

1.3 Resource consents

1.3.1 Water discharge permit

Section 15(1)(a) of the RMA 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.

NPDC holds water discharge permit **2339-4.0** to cover the discharge of swimming pool wastewater and filter backwash wastewater via an ocean outfall into the Tasman Sea. This permit was first issued by the Council on 1 May 1996 as a resource consent under Section 87(e) of the RMA. It was subsequently renewed on 6 August 2014 and is next due to expire on 1 June 2032.

There are ten special conditions attached to this consent.

Condition 1 requires the consent holder to adopt the best practicable option at all times to prevent or minimise any adverse effects on the environment from the exercise of this consent.

Condition 2 specifies the volume and frequency permitted for various pool discharges.

Condition 3 states that no discharge from the emptying of any pool shall occur unless there has been no addition of chemicals to the pool for at least seven days.

Condition 4 specifies the standards which must be met for a range of constituents of the discharge water. This condition applies before entry of the treated wastewater into the receiving waters.

Condition 5 states that on each occasion that a pool is emptied the consent holder shall notify the Chief Executive, Taranaki Regional Council, at least 7 working days before any discharge occurs.

Condition 6 states that the discharge is not to have adverse effects on the appearance, odour, and ecology of the receiving environment outside of a 5 metre mixing zone.

Condition 7 requires that the discharge shall not give rise to a total residual chlorine level of greater than 0.1 g/m³ beyond a 5 metre mixing zone.

Condition 8 requires that any discharge shall only occur two hours either side of high tide.

Condition 9 requires the consent holder to maintain and regularly update a 'Contingency Plan' that details measures and procedures that will be undertaken in the event of a chemical spill.

Condition 10 is a standard condition providing for consent review and amendment.

The permit is attached to this report in Appendix I.

1.3.2 Coastal structure permit

The NPDC holds resource consent **4588-3.0** to erect, place, use and maintain a discharge pipe within the coastal marine area. This permit was first issued by the Council on 1 May 1996. It was subsequently renewed on 6 August 2014 and is next due to expire on 1 June 2032.

The consent has three special conditions attached.

Conditions 1 and 2 require the consent holder to maintain the structure, and to notify the Council prior to any maintenance works.

Condition 3 allows the Council to review any or all of the conditions of this consent for the purpose of ensuring that the conditions adequately deal with any adverse environmental effects arising from the exercise of this consent.

A copy of the permit is attached to this 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 Aquatic Centre consisted of four 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 Aquatic Centre was visited twice during the monitoring period. With regard to the consent for the 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

Samples were collected from the Aquatic Centre when the outdoor pool was being emptied. Samples were taken of the wastewater prior to discharge via the ocean outfall and at a seawater site outside of the 5 metre mixing zone. The samples were analysed for chlorine, pH, oil and grease, and suspended solids.

1.4.5 Ecological inspections

Inspections of the marine low tide biota around the vicinity of the discharge pipe were undertaken after both the indoor and outdoor pools were emptied to assess compliance with condition 3(d) of the discharge permit.

2. Results

2.1 Water

2.1.1 Inspections

During the second inspection of the Aquatic Centre, on 2 June 2015, some chemical sacks were found on the ground of the chemical storage shed. It was asked that these be shifted and stored on pallets, as was the case with the remaining chemical sacks. Overall, however, the site was tidy and well managed. No other issues were noted during either inspection.



Photograph 2 Outdoor pool prior to emptying on 2 June 2015

2.1.2 Results of discharge monitoring

No samples were collected when the indoor pool was emptied on 12 January 2015.

The results of samples collected on 2 June 2015 prior to the outdoor pool being emptied, and from the receiving waters approximately 30 minutes after the pool water began discharging, are presented in Table 1.

Table 1 Results of pool discharge and shoreline seawater outside mixing zone

| Parameter | Units | 2 June 2015 | |
|------------------|------------------|----------------------------------|---|
| | | Discharge wastewater [STW001079] | 5 metres east of discharge pipe [SEA902051] |
| Free chlorine | g/m ³ | <0.1 | <0.1 |
| Total chlorine | g/m ³ | <0.1 | <0.1 |
| pH | pH | 7.9 | 8.0 |
| Suspended solids | g/m ³ | <2 | 86 |
| Temperature | °C | 12.9 | 14.5 |
| Oil and grease | g/m ³ | <0.5 | <0.5 |

Chlorine levels in the seawater sample collected at the 5 metre mixing zone boundary were less than 0.1 g/m³. The suspended solids content in the pool water collected on 2 June 2015 was much lower than found in the receiving waters and would not have caused any visual or environmental effects.

**Photograph 3** High flow rate discharging at approximately low tide

2.1.3 Marine inspections

Two marine ecological inspections were conducted during the 2014-2015 monitoring year. The first inspection, undertaken on 13 January 2015, was conducted during low tide on the morning following the indoor pool being emptied. The second inspection,

undertaken on 2 June 2015, was conducted during low tide on the afternoon of the same day the discharge commenced. A full copy of each inspection report is appended to this report.

13 January 2015

In summary, the range and abundance of intertidal species identified during this inspection were considered normal for this type of environment. No adverse effects on local intertidal biological communities were observed as a result of the outdoor pool discharge beyond the 5 metre mixing zone specified in consent **2339-4.0**.

2 June 2015

Upon arrival at the reef at approximately low tide there was still a high flow rate discharging from the pipe and the main outdoor pool was not yet empty. This discharge was occurring four hours outside of the permitted time frame. The ecological inspection identified what was considered to be a normal range and abundance of intertidal species for this type of environment. Although the discharge was occurring outside of the permitted time period, no adverse effects on local intertidal biological communities were observed.

2.2 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 required to record an incident in association with conditions in their resource consent.

On 2 June 2015 a pool wastewater discharge was found to be occurring four hours outside of the permitted timeframe. Consequently, a 14-day letter was issued requesting a formal response as to why this breach of consent occurred. NPDC staff responded by attributing the breach of consent to a communication breakdown between the Team Leader of Operations and the Aquatic Coordinator in charge for that day. NPDC staff have since made an effort to prevent further incidents by reiterating the importance of consent compliance at an operations meeting. The Council has subsequently decided not to take any further enforcement action.

3. Discussion

3.1 Discussion of site performance

Although there was an incident during the 2014-2015 monitoring period, this was resolved positively, co-operatively, and quickly. The Aquatic Centre was otherwise well managed during the period under review. The site management and contingency plans were updated in January 2013, and reviewed by Council staff, who found the updates satisfactory.

3.2 Environmental effects of exercise of consents

The discharged wastewater had no observable effects on the low shore reef biota in the vicinity of the discharge pipe. This is supported by the physicochemical sampling results outside the mixing zone where the chlorine concentrations complied with consent conditions.

3.3 Evaluation of performance

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

Table 2 Summary of performance for Consent 2339-4.0

| Purpose: Discharge swimming pool wastewater and filter backwash wastewater | | |
|---|---|----------------------|
| Condition requirement | Means of monitoring during period under review | Compliance achieved? |
| 1. Best practice to prevent or minimise adverse effects | Inspections and correspondence | Yes |
| 2. Limits on volume and frequency of discharge | Not assessed during period under review | N/A |
| 3. No chemicals added to pool within 7 days prior to discharge | Samples collected | Yes |
| 4. Limits on discharge constituents | Samples collected | Yes |
| 5. TRC notified by TEAC staff 7 days prior to discharge | TEAC communicating with TRC via email and phone | Yes |
| 6. Effects not observed beyond mixing zone | Inspection | Yes |
| 7. Chlorine concentration limit beyond mixing zone | Samples collected | Yes |
| 8. Discharge to occur within two hours of high tide | Inspection | No |
| 9. Contingency plan | Plan reviewed in January 2013 | Yes |
| 10. Option for review of consent | Next consent review date June 2020 | Yes |
| Overall assessment of consent compliance and environmental performance in respect of this consent | | Good |
| Overall assessment of administrative performance in respect of this consent | | Good |

N/A = not applicable

Table 3 Summary of performance for Consent 4588-3.0

| Purpose: To erect, place and maintain a discharge pipe | | |
|---|--|----------------------|
| Condition requirement | Means of monitoring during period under review | Compliance achieved? |
| 1. Notification prior to maintenance works | No maintenance undertaken | N/A |
| 2. Maintenance of structure | Inspection | Yes |
| 3. Review of consent conditions | Next consent review date June 2020 | N/A |
| Overall assessment of consent compliance and environmental performance in respect of this consent | | High |
| Overall assessment of administrative performance in respect of this consent | | High |

During the year, the Company demonstrated a good level of environmental and administrative performance with the resource consents as defined in Section 1.1.4.

3.4 Recommendations from the 2013-2014 Annual Report

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

THAT monitoring of discharges from the Todd Energy Aquatic Centre in the 2014-2015 year continues at the same level as in 2013-2014.

This recommendation was implemented in full.

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, the programme remains unaltered from that for 2014-2015. A recommendation to this effect is attached to this report.

3.6 Exercise of optional review of consent

Resource consents 2339-4.0 and 4588-3.0 do not provide for an optional review in June 2015. The next date on which the consent may be subjected to a review is June 2020.

4. Recommendations

THAT monitoring of discharges from the Todd Energy Aquatic Centre in the 2015-2016 year continues at the same level as in 2014-2015.

Glossary of common terms and abbreviations

The following abbreviations and terms may be used within this report:

| | |
|------------------|---|
| Biota | Flora and fauna of a particular place. |
| Bund | a wall around a tank to contain its contents in the case of a leak. |
| 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 |
| IR | 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. |
| L/s | litres per second. |
| 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. |
| NTU | Nephelometric Turbidity Unit, a measure of the turbidity of water. |
| 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. |
| SS | suspended solids. |
| Temp | temperature, measured in °C (degrees Celsius). |
| Turb | turbidity, expressed in NTU. |
| UI | Unauthorised Incident. |

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

Bibliography and references

- Taranaki Regional Council, 2000: New Plymouth District Council Fletcher Challenge Energy Aquatic Centre Monitoring Programme Annual Report 1999-2000. Technical Report 2000-54.
- Taranaki Regional Council, 2001: New Plymouth District Council Fletcher Challenge Energy Aquatic Centre Monitoring Programme Annual Report 2000-01. Technical Report 2001-77.
- Taranaki Regional Council, 2002: New Plymouth District Council Fletcher Challenge Energy Aquatic Centre Monitoring Programme Annual Report 2001-2002. Technical Report 2002-42.
- Taranaki Regional Council, 2003: New Plymouth District Council New Plymouth Aquatic Centre Monitoring Programme Annual Report 2002-2003. Technical Report 2003-49.
- Taranaki Regional Council, 2004: New Plymouth District Council New Plymouth Aquatic Centre Monitoring Programme Annual Report 2003-2004. Technical Report 2004-27.
- Taranaki Regional Council, 2005: New Plymouth District Council New Plymouth Aquatic Centre Monitoring Programme Annual Report 2004-2005. Technical Report 2005-29.
- Taranaki Regional Council, 2006: New Plymouth District Council New Plymouth Aquatic Centre Monitoring Programme Annual Report 2005-2006. Technical Report 2006-52.
- Taranaki Regional Council, 2007: New Plymouth District Council New Plymouth Aquatic Centre Monitoring Programme Annual Report 2006-2007. Technical Report 2007-31.
- Taranaki Regional Council, 2008: New Plymouth District Council New Plymouth Aquatic Centre Monitoring Programme Annual Report 2007-2008. Technical Report 2008-35.
- Taranaki Regional Council, 2009: New Plymouth District Council New Plymouth Aquatic Centre Monitoring Programme Annual Report 2008-2009. Technical Report 2009-25.
- Taranaki Regional Council, 2010: New Plymouth District Council New Plymouth Aquatic Centre Monitoring Programme Annual Report 2009-2010. Technical Report 2010-95.
- Taranaki Regional Council, 2011: New Plymouth District Council New Plymouth Aquatic Centre Monitoring Programme Annual Report 2010-2011. Technical Report 2011-71.
- Taranaki Regional Council, 2012: New Plymouth District Council New Plymouth Aquatic Centre Monitoring Programme Annual Report 2011-2012. Technical Report 2012-44.
- Taranaki Regional Council, 2013: New Plymouth District Council New Plymouth Aquatic Centre Monitoring Programme Annual Report 2012-2013. Technical Report 2013-98.
- Taranaki Regional Council, 2014: New Plymouth District Council New Plymouth Aquatic Centre Monitoring Programme Annual Report 2013-2014. Technical Report 2014-10.

Appendix I

Resource consents held by New Plymouth District Council

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

Name of
Consent Holder: New Plymouth District Council
Private Bag 2025
New Plymouth 4342

Decision Date 06 August 2014

Commencement Date 06 August 2014

Conditions of Consent

Consent Granted: To occupy the Coastal Marine Area with a discharge pipe
from the New Plymouth Aquatic Centre

Expiry Date: 01 June 2032

Review Date(s): June 2020, June 2026

Site Location: Tisch Avenue, New Plymouth

Legal Description: Adjacent to Pt Sec E Tn of New Plymouth

Grid Reference (NZTM) 1692028E-5676596N

Catchment: Tasman Sea

*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 with section 36 of the Resource Management Act 1991.

Special conditions

1. This consent authorises the occupation of space in the Coastal Marine Area by the outlet structure existing at the time the application for this consent was lodged, and as described in the application. Any change to the nature or scale of the structure may therefore need to be authorised by a formal process in accordance with the Resource Management Act, 1991.
2. The consent holder shall maintain the structure in a safe and sound condition such that it continues to function effectively as an outlet structure.
3. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2020 and/or June 2026 for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 06 August 2014

For and on behalf of
Taranaki Regional Council

A D McLay
Director - Resource Management

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

Name of
Consent Holder: New Plymouth District Council
Private Bag 2025
New Plymouth 4342

Decision Date 06 August 2014

Commencement Date 06 August 2014

Conditions of Consent

Consent Granted: To discharge public swimming pool wastewater and filter
backwash wastewater via an ocean outfall into the Tasman
Sea

Expiry Date: 01 June 2032

Review Date(s): June 2020, June 2026, and in accordance with special
condition 10

Site Location: Tisch Avenue, New Plymouth

Legal Description: Adjacent to Pt Sec E Tn of New Plymouth

Grid Reference (NZTM) 1692028E-5676596N (point of discharge)

Catchment: Tasman Sea

*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 with section 36 of the Resource Management Act 1991.

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 authorises the following discharges:
 - a) up to 20 cubic metres per fortnight of outdoor pool treated filter backwash,
 - b) up to 1.2 cubic metres per day of indoor children's pool and spa sand treated filter backwash,
 - c) up to 1000 cubic metres of pool wastewater on two occasion per year for the purpose of emptying the indoor or outdoor swimming pool systems.
3. No discharge from the emptying of any pool shall occur unless there has been no addition of chemicals to the pool for at least seven days.
4. Constituents of the discharge from the emptying of either pool 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 ⁻³ |
| Oil and grease | Concentration not greater than 15 gm ⁻³ |
| Total residual chlorine | Concentration not greater than 0.5 gm ⁻³ |

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

5. On each occasion that a pool is emptied the consent holder shall notify the Chief Executive, Taranaki Regional Council, at least 7 working days before any discharge occurs. Notification shall include the consent number and a brief description of the activity consented, and shall be emailed to worknotification@trc.govt.nz.
6. After allowing for reasonable mixing, within a mixing zone extending 5 metres of the discharge point, the discharge shall not, either by itself or in combination with other discharges, give rise to any or all of the following effects in the receiving water:
 - 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) any significant adverse effects on aquatic life.

Consent 2339-4.0

7. Beyond a mixing zone of 5 metres the discharge shall not give rise to a total residual chlorine level of greater than 0.1 gm-3
8. Any discharge shall only occur two hours either side of high tide.
9. The consent holder shall maintain and regularly update a 'Contingency Plan' that details measures and procedures that will be undertaken in the event of a chemical spill. The plan shall be approved by the Chief Executive, Taranaki Regional Council, acting in a certification capacity as being adequate to avoid, remedy or mitigate the environmental effects of such an event.
10. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review:
 - a) during the month of June 2020 and/or June 2026, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time; and/or
 - b) annually during the month of June for the purpose of including conditions requiring provision of records necessary to check compliance with condition 2.

Signed at Stratford on 06 August 2014

For and on behalf of
Taranaki Regional Council

A D McLay
Director - Resource Management

Appendix II

Marine ecological inspection 13 January 2015

File note

14 January 2015

Document: 1456283

Todd Energy Aquatic Centre intertidal biological inspection – 13 January 2015

New Plymouth District Council (NPDC) staff notified Taranaki Regional Council (the Council) that the indoor pool at the Todd Energy Aquatic Centre required emptying on 12 January 2015¹. NPDC staff confirmed that, on the day of emptying, residual chlorine concentration in the pool wastewater was 0.0 g/m³.



Photograph 1 Indoor pool closed for four months for maintenance purposes

An inspection² of intertidal communities in the vicinity of the Todd Energy Aquatic Centre water discharge pipe was undertaken on 13 January 2015 between 10:15 and 10:45 (NZDT). Low tide on this day occurred at 09:46 (NZDT) at a height of 1.1 m.

¹ Due to maintenance requirements the indoor pool will be closed for approximately four months commencing mid January 2015 (Photograph 1).

² This will count as one of the two inspections undertaken annually for the Todd Energy Aquatic Centre, replacing (for this year only) the routine inspection undertaken following discharge of the pool backwash.

There was no detectable chlorine odour at the end of the pipe where the discharge entered the receiving environment (Photograph 2). A small amount of white foam, human hair and thread was present within 5 m of the end of the discharge pipe (Photograph 3).



Photograph 2 Todd Energy Aquatic Centre discharge pipe



Photograph 3 Foam, hair and thread present within 5 m of the end of the discharge pipe

The discharge from the outdoor pool did not appear to have had any observable adverse impacts on organisms beyond the 5 m mixing zone off the end of the discharge pipe specified in special condition 6, consent 2339-4: no dead or dying animals were seen and the shrimp *Palaemon affinis* were actively swimming in the pools.

The following invertebrates were present on the upper shore in the vicinity of the pipe: molluscs *Melagraphia aethiops* (very abundant), *Diloma* spp., *Turbo smaragdus*, *Cellana radians* and *Sypharochiton pelliserpentis*, barnacle *Chamaesipho* sp., shrimp *Palaemon affinis* and the polychaete worm *Spirobranchus cariniferus*. A species of green algae resembling *Ulva intestinalis* covered rocks and pools around the pipe (Photograph 4). The brown alga *Ralfsia* sp. and red alga *Gelidium caulacanthum* were also present. This assemblage is similar to that

found on previous inspections in the vicinity of the pipe, and is typical for this height on the shore.



Photograph 4 Green macroalgae *Ulva intestinalis* (indicative of freshwater input) dominated pools in the near vicinity of the discharge pipe, but was not abundant further down the shore

Lower down on the shore, still within the influence of the pipe discharge, the following species were identified: the molluscs *Haustorium scobina* (very abundant), *Melagraphia aethiops*, *Turbo smaragdus*, *Cominella maculosa*, *Cellana radians*, *Cellana ornata*, *Xenostrobus pulex* and *Sypharochiton pelliserpentis*, barnacle *Chamaesipho* sp., sea urchin *Evechinus chloroticus* and the polychaete worms *Spirobranchus cariniferus* and *Neosabellaria kaiparaensis*. Algae included coralline turf (abundant in pools), *Hormosira banksii* (very abundant), *Notheia anomala*, *Gelidium caulacanthum*, *Cystophora* sp. and *Ralfsia* sp. These species are similar to what would be expected at this elevation on the shore (Photograph 5).

Following the intertidal inspection, Council staff (Emily Roberts and Abbie Bates) discussed maintenance work with NPDC staff at the Todd Energy Aquatic Centre (Bernie Pratt). NPDC staff confirmed that contractors working on the pool had received an induction informing that the drains discharged to the reef, therefore no chemicals should be disposed of down the drains. Council staff requested that NPDC notify council of any significant discharges occurring during or after maintenance works for the purpose of assessing compliance with consent 2339-4.



Photograph 5 Macroalgae in low shore rock pools

In summary, the range and abundance of intertidal species identified during this inspection are considered normal for this type of environment. No adverse effects on local intertidal biological communities were observed as a result of the outdoor pool discharge beyond the 5 m mixing zone specified in consent 2339-4. Discussions with NPDC staff indicated that the maintenance works were being well managed with respect to potential discharges. **Council request that NPDC provide notification of any significant discharges occurring during or after maintenance works to ensure that compliance with consent 2339-4 can be assessed.**

Emily Roberts
Marine Ecologist

Appendix III

Marine ecological inspection 2 June 2015

File note

5 June 2015

Document: 1518074

Todd Energy Aquatic Centre intertidal biological inspection – 2 June 2015



New Plymouth District Council (NPDC) staff notified Taranaki Regional Council (the Council) that the outdoor pool at the Todd Energy Aquatic Centre required emptying on 25 May 2015. TRC staff tested the chlorine concentration of the outdoor pool water on 2 June 2015. The concentration of free chlorine was less than 0.2 g m^3 and so was in compliance with special condition 4, consent 2339-4.0. The discharge commenced at approximately 08:30 (NZST) and the high tide that morning occurred at 09:19 (NZST) at a height of 3.2 m.

An inspection of the intertidal community in the vicinity of the Todd Energy Aquatic Centre discharge pipe was undertaken on 2 June 2015 between 15:30 and 16:30 (NZST). Low tide on this day occurred at 15:55 (NZST) at a height of 0.4 m.

Photograph 1 Outdoor area on the morning of 2 June 2015

Upon arrival at the reef (at approximately 15:30 NZST), there was still a high flow rate discharging from the pipe and the main outdoor pool was not yet empty (see photograph 2). This was in breach of special condition 8, consent 2339-4.0: *Any discharge shall only occur two hours either side of high tide.*



Photograph 2 A Todd Energy Aquatic Centre discharge pipe discharging onto Kawaroa Reef at 15:45 (low tide at 15:55). B Low level of water remaining in outdoor pool at 15:50 (low tide at 15:55)

There was no detectable chlorine odour at the end of the pipe where the discharge entered the receiving environment. A small amount of rubbish, including hair ties and a plastic cord were found within 5 m of the end of the discharge pipe (see Photograph 3). A small accumulation of scum was discovered on the surface of a tidal pool approximately 10 m from the discharge pipe; outside of the designated 5 m mixing zone (see Photograph 4).



Photograph 3 Rubbish, including hair ties and plastic cord found within 5 m of the end of the discharge pipe



Photograph 4 Scum on the surface of intertidal pools approximately 10 m from the discharge pipe

The following invertebrates were present on the upper shore in the vicinity of the pipe: molluscs *Melagraphia aethiops*, *Diloma* spp., *Turbo smaragdus*, *Haustrum scobina*, *Cellana radians* and *Cellana ornata*, barnacle *Chamaesipho* sp., and the polychaete worm *Spirobranchus cariniferus*. A species of green algae resembling *Ulva intestinalis* was present, although not as widespread as in the previous survey, where it covered rocks and pools around the pipe. The brown alga *Ralfsia* sp. and red alga *Gelidium caulacanthum* were also present. In comparison with the intertidal community further down the shore the area surrounding the pipe supported very little biomass and was less diverse (Photograph 5). However, this assemblage is similar to that found on previous inspections in the vicinity of the pipe, and is typical for this height on the shore.



Photograph 5 Relatively low biomass and diversity of the upshore community

Further down on the shore, still within the influence of the pipe discharge, the following species were identified: the molluscs *Haustrum scobina* (very abundant), *Melagraphia aethiops*, *Turbo smaragdus*, *Cominella maculosa*, *Cellana radians*, *Cellana ornata*, *Xenostrobus pulex* and *Sypharochiton pelliserpentis*, barnacles *Chamaesipho* sp and *Epopella plicata*., and the polychaete worm *Spirobranchus cariniferus*. Algae included coralline turf (abundant in pools), *Hormosira banksii* (very abundant), *Notheia anomala*, *Gelidium caulacanthum*,. and *Ralfsia* sp. These species are similar to what would be expected at this elevation on the shore (Photograph 6).



Photograph 6 Higher diversity and biomass further downshore

Although the discharge was occurring outside of the authorised time period, there were no obvious signs of it adversely affecting the intertidal biota surrounding the pipe. Furthermore, the source of the scum that had accumulated outside of the 5 m mixing zone was ambiguous so could not definitely be attributed to the TEAC discharge.

On the morning of the 2 June 2015 an inspection of the chemical storage shed was also conducted. For the most part the chemical storage was secure and tidy. However, there were some sacks of a chemical that were being stored on the ground near the door of the shed. It was asked that these sacks be kept on pallets, as was the case with the adjacent products. This is important to stop any chemical from leeching through the sack lining and being carried into the environment outside of the shed if it were to come in contact with water. There was a very slight amount of rainwater that had seeped under the door of the shed at the time of the inspection.

In summary, the range and abundance of intertidal species identified during this inspection are considered normal for this type of environment. No adverse effects on local intertidal biological communities were observed as a result of the outdoor pool discharge beyond the 5 m mixing zone specified in consent 2339-4. It is requested that any chemical sacks currently being stored on the floor be shifted on top of a pallet.

Thomas McElroy
Technical Officer

Emily Roberts
Marine Ecologist