

Dimar Partnership Landfill
Monitoring Programme
Annual Report
2016-2017

Technical Report 2017-96

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Executive summary

Dimar Partnership Limited (the consent holder) previously operated a refuse dump located on Ararata Road, Hawera, in the Tangahoe catchment. The site was investigated in June 2013, and it was found that it was accepting household rubbish and other refuse from off-site. It was also found that the edge of the disposal site was closer than 25 metres to a waterway. As this did not comply with the permitted activity rule for on farm domestic refuse disposal, an abatement notice was issued, and the site owner then applied for a resource consent to discharge leachate into the Mangimangi Stream.

This report for the period July 2016 to June 2017 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess the consent holder's environmental and consent compliance performance during the period under review. This is the fourth annual report for this site.

The consent holder holds one resource consent, which includes a total of five conditions setting out the requirements that the consent holder must satisfy. The consent allows the consent holder to discharge contaminants (leachate) from a closed farm refuse dump into land where it may enter the Mangimangi Stream.

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

The Council's monitoring programme for the year under review included two inspections and four water samples collected for physicochemical analysis.

The monitoring showed that no environmental impacts were found. The site was capped, contoured, and vegetated appropriately. Chemical sampling showed little, if any, change in water quality indicators when comparing the upstream and downstream sample results. There were no unauthorised incidents recording non-compliance in respect of this consent holder during the period under review.

During the year, the consent holder demonstrated a high level of environmental and administrative performance.

For reference, in the 2016-2017 year, consent holders were found to achieve a high level of environmental performance and compliance for 74% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 21% of the consents, a good level of environmental performance and compliance was achieved.

In terms of overall environmental and compliance performance by the consent holder since 2013, this report shows that the consent holder's performance has improved, from a good to a high level.

This report includes a recommendation for the 2017-2018 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 for the period July 2016 to June 2017 by the Taranaki Regional Council (the Council) and describes the monitoring programme associated with the resource consent held by Dimar Partnership Limited (the consent holder). The consent holder previously operated a refuse dump situated on Ararata Road at Hawera.

This report covers the results and findings of the monitoring programme implemented by the Council in respect of the consent held by the consent holder that relates to discharges of leachate in the Tangahoe catchment. This is the fourth annual report to be prepared by the Council to cover the consent holder's 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:

- consent compliance monitoring under the RMA and the Council's obligations;
- the Council's approach to monitoring sites through annual programmes;
- the resource consents held by the consent holder in the Tangahoe catchment;
- the nature of the monitoring programme in place for the period under review; and
- a description of the activities and operations conducted at the consent holder's site.

Section 2 presents the results of monitoring during the period under review, including scientific and technical data.

Section 3 discusses the results, their interpretations, and their significance for the environment.

Section 4 presents recommendations to be implemented in the 2017-2018 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); and
- 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, this report also assigns them a rating for their environmental and administrative performance during the period under review.

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 consent holder'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 interpretations, 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 failures 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 2016-2017 year, consent holders were found to achieve a high level of environmental performance and compliance for 74% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 21% of the consents, a good level of environmental performance and compliance was achieved.

1.2 Process description

The consent holder previously operated a refuse dump on a farm located at Ararata Road, Hawera. The total area of the site is approximately 17.8 hectares with the surrounding land uses being predominantly agricultural. The Mangimangi Stream is located to the west and southwest of the site (Figure 1).

For a number of years the dump was filled with household rubbish, broken concrete, timber, tree prunings and farm waste from several of the surrounding properties (Photo 1). The dump was located approximately 22 m away from the Mangimangi Stream, therefore the discharge of contaminants (leachate) into the Mangimangi Stream has the potential to result in the contamination of surface water.

Since the closure of the dump, the consent holder has rehabilitated the site. This has involved removing all rubbish located within 25 m of the stream, covering the site with 500 mm of clay, which was shaped to the desired contour, capping with 500 mm of top soil and re-vegetating with grass (Photo 2).

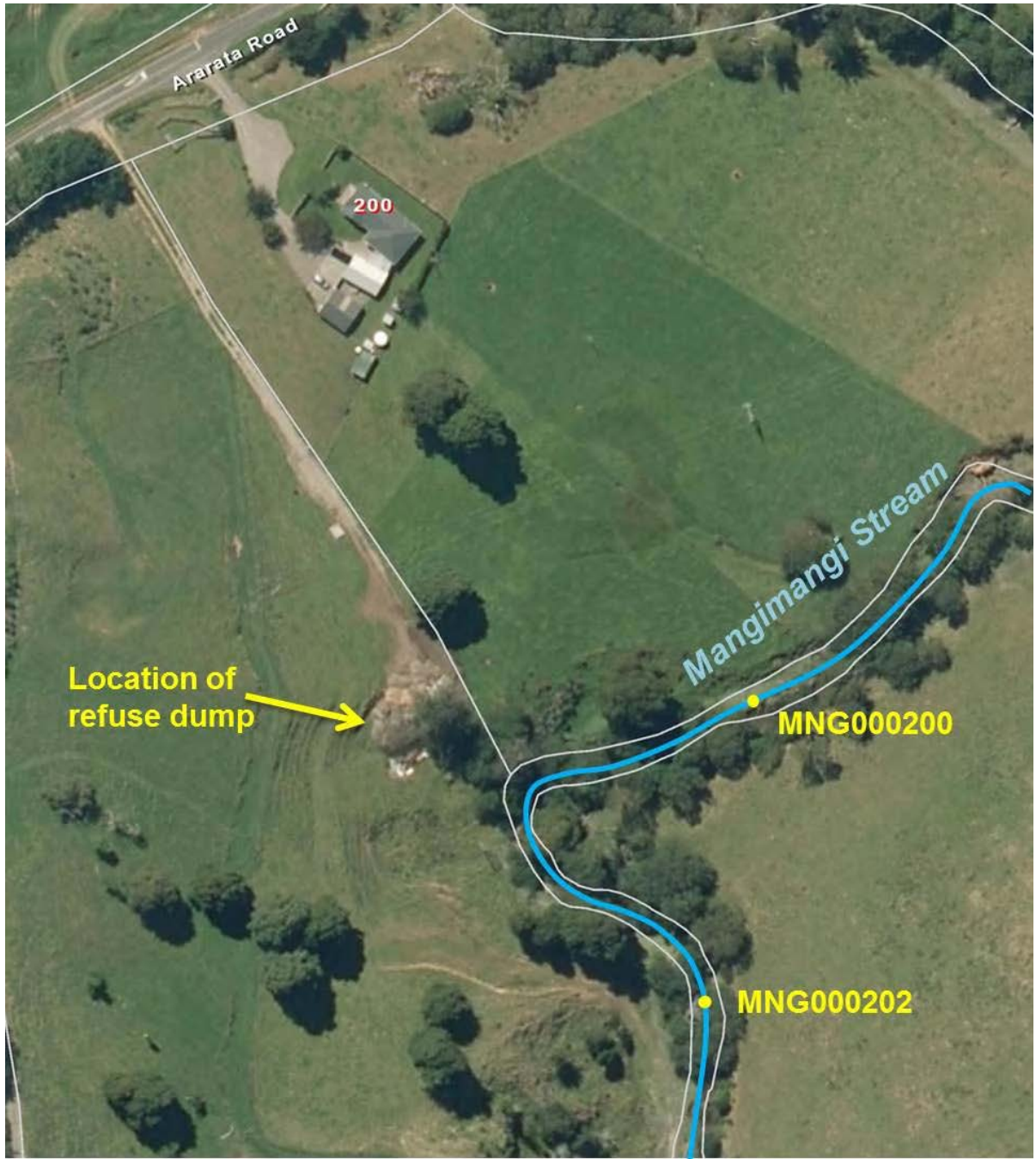


Figure 1 Aerial map of the site showing the location of the refuse dump and sampling sites



Photo 1 Photograph showing the refuse dump prior to capping



Photo 2 Photograph showing the refuse dump after capping (foreground)

1.3 Resource consent

1.3.1 Discharge of wastes to land

Sections 15(1)(b) and (d) of the RMA stipulate that no person may discharge any contaminant onto land if it may then enter water, or from any industrial or trade premises onto land under any circumstances, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations.

The consent holder holds discharge permit **9640-1** to cover the discharge of contaminants (leachate) from the closed farm refuse dump into land where it may enter the Mangimangi Stream. This permit was issued by the Council on 1 August 2013 under Section 87(e) of the RMA. It is due to expire on 1 June 2018.

Conditions 1 and 2 relate to the rehabilitation of the land previously used as a refuse dump.

Conditions 3 and 4 specify the level of acceptable change to the receiving waters as a result of the landfill operation.

Condition 5 contains provisions for optional review of the conditions of consent.

The permit is attached to this report in Appendix I.

This summary of consent conditions may not reflect the full requirements of each condition. The consent conditions in full can be found in the resource consent which is appended to this report.

1.4 Monitoring programme

1.4.1 Introduction

Section 35 of the RMA sets obligations upon the Council to gather information, monitor and conduct research on the exercise of resource consents within the Taranaki region. The Council is also required to assess the effects arising from the exercising of these consents and report upon them.

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 consent holder's Ararata Road 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 consent reviews, renewals or new consent applications;
- advice on the Council's environmental management strategies and content of regional plans; and
- consultation on associated matters.

1.4.3 Site inspections

The site was visited twice during the monitoring period. With regard to the consent for the discharge of leachate, the main points of interest were processes with potential or actual discharges to receiving watercourses, including contaminated stormwater and leachate. Sources of data being collected by the

consent holder, if any, were identified and accessed where available, 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 undertook sampling of the water quality upstream and downstream of the discharge point and mixing zone. The Mangimangi Stream was sampled on two occasions, and the samples were analysed for a range of water quality parameters.

2 Results

2.1 Water

2.1.1 Inspections

9 November 2016

A site inspection was carried out during fine weather conditions. The cap appeared to be in reasonable condition.

There was no visual environmental impact in the receiving water adjacent to the site. Water samples were collected upstream and downstream of the area to confirm this.

13 June 2017

The cap appeared sound during the inspection, with no evidence of pugging, slumping or erosion. Grass cover was adequate and it appeared to have performed well over the initial winter period. Spring water from the hill above the area continued to be directed around the cap. The area below the buried tip face remained boggy. Temporary fencing was being used to keep cattle off the buried tip face, with fence posts (without wire) present along the top of the tip face.

Samples were collected upstream and downstream of the area. The Mangimangi Stream was at moderate to high flow and was quite turbid due to recent inclement weather.

2.1.2 Results of receiving environment monitoring

Sampling of two sites upstream and downstream of the closed refuse dump was undertaken on 9 November 2016 and 13 June 2017 (Table 1 and Table 2).

The results show that the levels of landfill indicator species such filtered carbonaceous biological oxygen demand, ammonia, and zinc were at low levels at both up and downstream sites.

On the whole, there was little variation in water quality occurring between the two sites. There was a very slight increase in filtered carbonaceous biological oxygen demand found between the upstream and downstream monitoring sites on 9 November 2016. However this result was well within the consent limit and the repeatability of the test method used to determine this parameter. The results indicate that landfill is having little, if any, effect on the Mangimangi Stream.

Table 1 Results of chemical monitoring of the Mangimangi Stream, 9 November 2016

Parameter	Unit	MNG000200 (20 m upstream of Dimar Landfill)	MNG000202 (40 m downstream of Dimar Landfill)	Consent 9640-1 limits
BODCF	g/m ³	<0.5	0.5	<3 g/m ³ increase
Unionised Ammonia	g/m ³	0.00125	0.00122	<0.025
Ammoniacal Nitrogen	g/m ³ N	0.079	0.077	-
pH	pH	7.7	7.7	6.0 – 9.0
Temperature	Deg.C	14.6	14.6	-
Dissolved Zinc	g/m ³	<0.005	<0.005	<0.05

Table 2 Results of chemical monitoring of the Mangimangi Stream, 13 June 2017

Parameter	Unit	MNG000200 (20 m upstream of Dimar Landfill)	MNG000202 (40 m downstream of Dimar Landfill)	Consent 9640-1 limits
BODCF	g/m ³	<0.5	<0.5	<3 g/m ³ increase
Unionised Ammonia	g/m ³	0.00042	0.00039	<0.025
Ammoniacal Nitrogen	g/m ³ N	0.039	0.036	-
pH	pH	7.6	7.6	6.0 – 9.0
Temperature	Deg.C	12.4	12.4	-
Dissolved Zinc	g/m ³	<0.005	<0.005	<0.05

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 includes events where the consent holder 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 consent holder is indeed the source of the incident (or that the allegation cannot be proven).

In the 2016-2017 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with the consent holder's conditions in resource consents or provisions in Regional Plans.

3 Discussion

3.1 Discussion of site performance

During the period under review it was found that the capped area was generally well vegetated, with reasonable stock and stormwater management practices in place.

There was an effective drainage channel around the filled area for groundwater springs flowing from the bank above the former dump site, reducing the potential for leachate production.

3.2 Environmental effects of exercise of consents

Chemical sampling showed little, if any, change in water quality indicators when comparing the upstream and downstream sample results.

At inspection there was no spring water/leachate observed to be flowing out from under the toe of the landfill. Under these circumstances the Mangimangi Stream would be providing a high level of dilution for any unobserved leachate that may be entering this water body.

No odour or dust nuisances were noted during the inspections.

Based on the results of the sampling and observations made during the inspections, the presence of the landfill is likely to be having, little, if any, effect on the environment.

3.3 Evaluation of performance

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

Table 3 Summary of performance for consent 9640-1

Purpose: To discharge contaminants (leachate) from a closed farm refuse dump into land where it may enter water		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Land to be permanently covered with low level vegetation	Inspection	Yes
2. Compaction and maintenance of overlying soil	Inspection	Yes
3. Limits on concentration of unionised ammonia, zinc, biochemical oxygen demand	Sampling	Yes
4. Discharge cannot cause specified adverse effects in Mangimangi Stream beyond the mixing zone	Inspection and chemical sampling	Yes
5. Review of consent	No further opportunities for review	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

N/A = not applicable

Table 4 Evaluation of environmental performance over time

Year	Consent no	High	Good	Improvement req	Poor
2013-14	9640-1		1		
2014-15	9640-1	1			
2015-16	9640-1		1		
2016-17	9640-1	1			
Totals		2	2		

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

3.4 Recommendation from the 2015-2016 Annual Report

In the 2015-2016 Annual Report, it was recommended:

1. THAT monitoring of consented activities at the consent holder's former landfill in the 2016-2017 year continues at the same level as in 2015-2016.

This recommendation was implemented.

3.5 Alterations to monitoring programmes for 2017-2018

In designing and implementing the monitoring programmes for air/water discharges in the region, the Council has taken into account:

- the extent of information already made available through monitoring or other means to date;
- its relevance under the RMA;
- the Council's obligations to monitor consented activities and their effects under the RMA;
- the record of administrative and environmental performances of the consent holder; and
- 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 exercising resource consents.

It is proposed that for 2017-2018 the programme is reduced to one inspection per year, with upstream and downstream samples also collected once. There is provision in the programme to carry out a second inspection if deemed necessary. Leachate discharge may also be collected if this is observed.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site(s) in question. The Council reserves the right to adjust this baseline programme should the need arise if potential or actual non-compliance is determined at any time during 2017-2018.

4 Recommendation

1. THAT in the first instance, monitoring of consented activities at the consent holder's former landfill in the 2017-2018 year is reduced to one inspection and one set of samples collected per year. There is provision in the altered programme to carry out extra inspections and sampling if deemed necessary.
2. THAT should there be issues with environmental or administrative performance in 2017-2018, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

Glossary of common terms and abbreviations

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

BOD	Biochemical oxygen demand. A measure of the presence of degradable organic matter, taking into account the biological conversion of ammonia to nitrate.
BODCF	Biochemical oxygen demand, carbonaceous filtered.
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.
Incident register	The 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.
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 seven times the width of the stream at the discharge point.
NH ₄	Ammonium, normally expressed in terms of the mass of nitrogen (N).
NH ₃	Unionised ammonia, normally expressed in terms of the mass of nitrogen (N).
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	<i>Resource Management Act</i> 1991 and including all subsequent amendments.
SS	Suspended solids.
Temp	Temperature, measured in °C (degrees Celsius).

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

Bibliography and references

- Taranaki Regional Council (2016): *Dimar Partnership Landfill Monitoring Programme Annual Report 2015-2016*. Technical Report 2016-66
- Taranaki Regional Council (2016): *Dimar Partnership Landfill Monitoring Programme Annual Report 2014-2015*. Technical Report 2015-62
- Taranaki Regional Council (2014): *Dimar Partnership Landfill Monitoring Programme Annual Report 2013-2014*. Technical Report 2014-100
- Taranaki Regional Council (2013): *Officer Report for Consent 9640- 1 To discharge contaminants (leachate) from a closed farm refuse dump into land where it may enter water*. Document number 1226368

Appendix I

Resource consent held by Dimar Partnership Limited

(For a copy of the signed resource consent
please contact the TRC Consents department)

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

Name of
Consent Holder: Dimar Partnership
 (Mark Owen & Diane Fay West)
 162B Ararata Road
 R D 14
 HAWERA 4674

Decision Date: 1 August 2013

Commencement Date: 1 August 2013

Conditions of Consent

Consent Granted: To discharge contaminants (leachate) from a closed farm
 refuse dump into land where it may enter water

Expiry Date: 1 June 2018

Review Date(s): June 2014

Site Location: 162B Ararata Road, Hawera

Legal Description: Lot 3 DP 19598 Blk VI Hawera SD (Discharge site)

Grid Reference (NZTM) 1714046E-5620496N

Catchment: Tangahoe

Tributary: Mangimangi

*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 ensure that the area of land previously used as a refuse dump is permanently covered with low level vegetation.
2. The consent holder shall ensure that the soil overlying the closed refuse dump shall be compacted, contoured, and maintained to ensure that stormwater is directed away from this area.
3. The discharge shall not cause any of the following effects in the Mangimangi Stream after a mixing zone extending 10 metres downstream of the discharge point:
 - (a) unionised ammonia (expressed as nitrogen) concentration greater 0.025 gm⁻³;
 - (b) dissolved zinc concentration greater than 0.05 gm⁻³;
 - (c) an increase in biochemical oxygen demand of more than 3.00 g; or
 - (d) a pH of <6.0 or >9.0.
4. After allowing for reasonable mixing, within a mixing zone extending 10 metres downstream 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) the rendering of fresh water unsuitable for consumption by farm animals;
 - e) any significant adverse effects on aquatic life.
5. 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 2014, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of 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 1 August 2013

For and on behalf of
Taranaki Regional Council

Director-Resource Management