

Dimar Partnership Landfill
Monitoring Programme
Annual Report
2015-2016

Technical Report 2016-66

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Taranaki Regional Council
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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 consent to discharge leachate into the Mangimangi Stream.

This report for the period July 2015 to June 2016 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess the consent holder's environmental performance during the period under review, and the results and environmental effects of the consent holder's activities. This is the third 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 good 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, for the most part, vegetated appropriately. On one inspection a minor amount of stock damage was observed in localised spots on the slope towards the stream, however there was no significant erosion or exposed refuse found. There were no unauthorised incidents recording non-compliance in respect of this consent holder during the period under review, and the abatement noticed issued during the 2013-2014 monitoring period was being complied with.

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

For reference, in the 2015-2016 year, 71% 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 24% demonstrated a good level of environmental performance and compliance with their consents.

In terms of overall environmental and compliance performance by the consent holder over the last three years, this report shows that the consent holder's performance has improved and has remained at a high or good level for the last two monitoring years.

This report includes recommendations for the 2016-2017 year.

Table of contents

	Page
1. Introduction	1
1.1 Compliance monitoring programme reports and the Resource Management Act 1991	1
1.1.1 Introduction	1
1.1.2 Structure of this report	1
1.1.3 The Resource Management Act 1991 and monitoring	1
1.1.4 Evaluation of environmental and administrative performance	2
1.2 Process description	4
1.3 Resource consent	6
1.3.1 Discharge of wastes to land	6
1.4 Monitoring programme	6
1.4.1 Introduction	6
1.4.2 Programme liaison and management	6
1.4.3 Site inspections	7
1.4.4 Chemical sampling	7
2. Results	8
2.1 Water	8
2.1.1 Inspections	8
2.1.2 Results of receiving environment monitoring	8
2.2 Investigations, interventions, and incidents	10
3. Discussion	11
3.1 Discussion of site performance	11
3.2 Environmental effects of exercise of consents	11
3.3 Evaluation of performance	11
3.4 Recommendation from the 2014-2015 Annual Report	12
3.5 Alterations to monitoring programmes for 2016-2017	12
4. Recommendation	13
Glossary of common terms and abbreviations	14
Bibliography and references	16
Appendix I Resource consent held by Dimar Partnership Limited	

List of tables

Table 1	Results of chemical monitoring of the Mangimangi Stream, 16 September 2015	9
Table 2	Results of chemical monitoring of the Mangimangi Stream, 29 June 2016	9
Table 3	Summary of performance for consent 9640-1	11

List of figures

Figure 1	Aerial map of the site showing the location of the refuse dump and sampling sites	4
Figure 2	Receiving water ammoniacal nitrogen concentrations 26 February 2014 to date	9

List of photos

Photo 1	Photograph showing the refuse dump prior to capping	5
Photo 2	Photograph showing the refuse dump after capping (foreground)	5

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 2015 to June 2016 by the Taranaki Regional Council (the Council) describing 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 third 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 2016-2017 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 2015-2016 year, 71% 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 24% demonstrated a good level of environmental performance and compliance with their consents.

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.

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. 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.

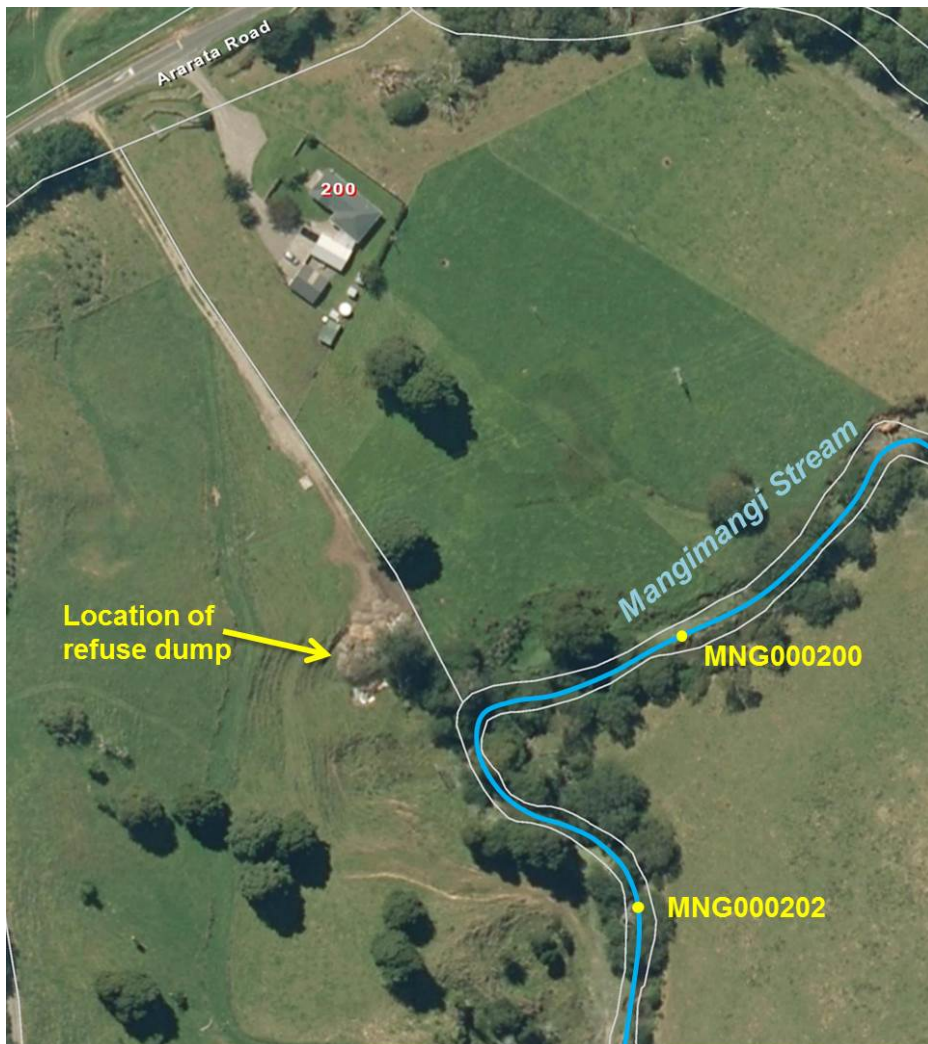


Figure 1 Aerial map of the site showing the location of the refuse dump and sampling sites



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.

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 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 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

16 September 2015

The site was inspected in fine weather. Receiving water samples were also collected.

The cap appeared to be in sound condition with no evidence of slumping or erosion. The cap had reasonable grass cover and appeared to have performed well over the wet winter season. Spring water from the hill above the area continued to be directed around the cap.

Samples were taken upstream and downstream of the covered refuse area. It was noted that the Mangimangi Stream was at moderate flow and quite turbid due to the recent wet weather conditions.

The consent holder was also advised in the inspection notice that the receiving water samples that were collected on 2 June 2015 showed no environmental effects from the covered landfill.

29 June 2016

The site was inspected in overcast conditions following recent wet weather. It was found that the area had been grazed recently. The top of the cap was intact with no ponding, slumping, or cracking present. There was reasonable grass cover present apart from a few isolated patches. It was noted that there was some minor stock erosion starting to occur on the face sloping down towards the stream where the soil had become exposed in small patches. There was some minor pugging on the flat below this face. The consent holder was asked to monitor the stock erosion to ensure that the refuse does not become exposed. It was noted that the stormwater from above the filled area was being directed around the cap. Receiving water samples were also collected.

The consent holder was advised that the following action was to be taken:
Ensure that stock management on the site is such that damage to the cap is avoided, and permanent grass cover is maintained across the cap as required by special condition 1.

2.1.2 Results of receiving environment monitoring

Sampling of two sites upstream and downstream of the closed refuse dump was undertaken on 16 September 2015 and 29 June 2015 (Table 1 and Table 2).

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

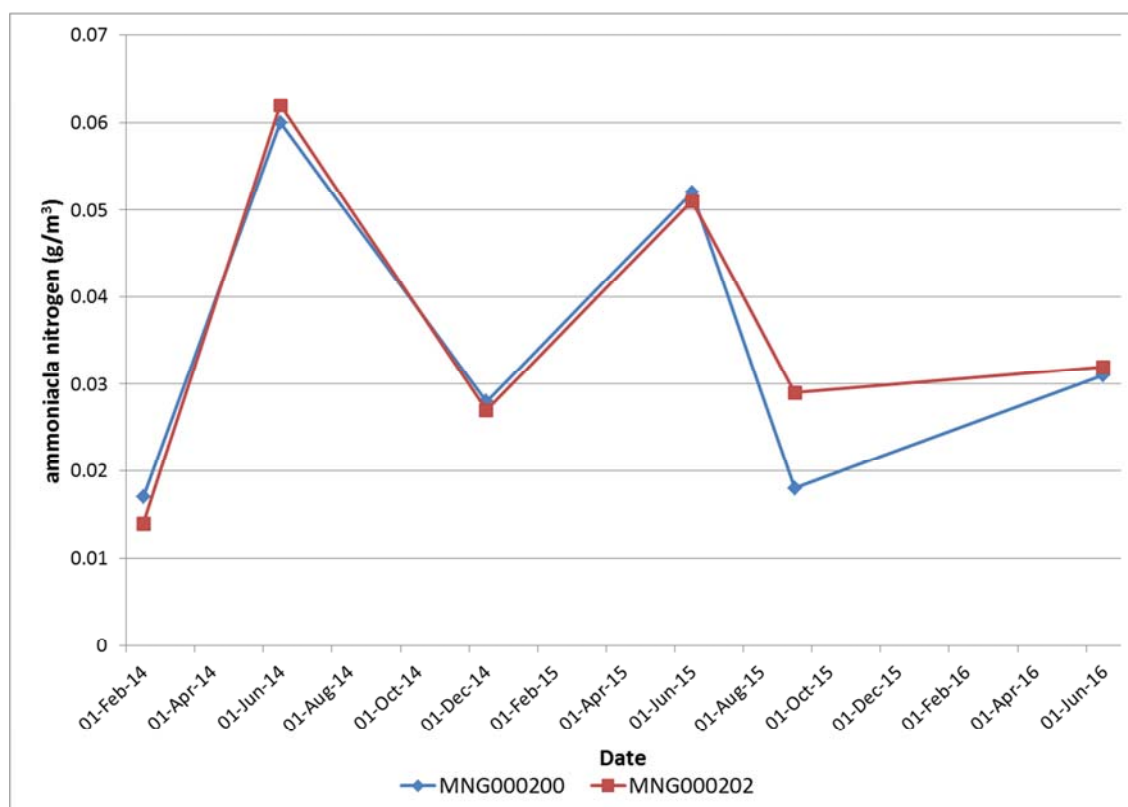
On the whole, there was little variation in water quality occurring between the two sites. There was a slight increase in ammoniacal nitrogen found between the upstream and downstream monitoring sites on 16 September 2015, however this was not seen in the samples collected on 30 June 2016, and is noted that this has not been a typical finding of the receiving water monitoring (**Figure 2**)

Table 1 Results of chemical monitoring of the Mangimangi Stream, 16 September 2015

Parameter	Unit	MNG000200 (20 m upstream of Dimar Landfill)	MNG000202 (40 m downstream of Dimar Landfill)
BODCF	g/m ³	<0.5	<0.5
Unionised Ammonia	g/m ³	0.00013	0.00020
Ammoniacal Nitrogen	g/m ³ N	0.018	0.029
pH	pH	7.4	7.4
Temperature	Deg.C	12.8	12.8
Dissolved Zinc	g/m ³	<0.005	<0.005

Table 2 Results of chemical monitoring of the Mangimangi Stream, 29 June 2016

Parameter	Unit	MNG000200 (20 m upstream of Dimar Landfill)	MNG000202 (40 m downstream of Dimar Landfill)
BODCF	g/m ³	<0.5	<0.5
Unionised Ammonia	g/m ³	0.00025	0.00026
Ammoniacal Nitrogen	g/m ³ N	0.031	0.032
pH	pH	7.5	7.5
Temperature	Deg.C	11.5	11.6
Dissolved Zinc	g/m ³	<0.005	<0.005

**Figure 2** Receiving water ammoniacal nitrogen concentrations 26 February 2014 to date

The results indicate that landfill is having little, if any, effect on the Mangimangi Stream.

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 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 2015-2016 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. It was noted that there was some minor stock damage starting to occur on the batter down towards the stream, however no significant erosion, exposed refuse or leachate discharges were observed.

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 only a small change in the ammoniacal nitrogen concentration at the time of one of the two sampling surveys. There was little, if any, change in the other 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	Localised minor stock damage found at one inspection
2. Compaction and maintenance of overlying soil	Inspection	Yes
3. Limits on concentration of unionised ammonia, zinc, biochemical oxygen demand	Sampling	Yes

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?
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		Good
Overall assessment of administrative performance in respect of this consent		High

N/A = not applicable

During the year, the consent holder demonstrated a good 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 2014-2015 Annual Report

In the 2014-2015 Annual Report, it was recommended:

THAT monitoring of consented activities at the Dimar Partnership former landfill in the 2015-2016 year continues at the same level as in 2014-2015.

This recommendation was implemented.

3.5 Alterations to monitoring programmes for 2016-2017

In designing and implementing the monitoring programmes for air and 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;
- its obligations to monitor emissions and discharges and their effects under the RMA; and
- to report 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 and discharging to the environment.

It is proposed that for 2016-2017 the programme remains unchanged.

4. Recommendation

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.

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.
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).

*an abbreviation for a metal or other analyte may be followed by the letters 'As', to denote the amount of metal recoverable in acidic conditions. This is taken as indicating the total amount of metal that might be solubilised under extreme environmental conditions. The abbreviation may alternatively be followed by the letter 'D', denoting the amount of the metal present in dissolved form rather than in particulate or solid form.

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

Bibliography and references

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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**

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