RKM Farms Ltd (Piggery)

Monitoring Programme

Annual Report

2022-2023

Technical Report 2023-28

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Taranaki
Regional Council

Taranaki Regional Council
Private Bag 713
Stratford

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Executive summary

RKM Farms Ltd (the Company) operates a piggery located on 599A South Road at Hawera, in the Tangahoe catchment. The piggery is a breeder grower and finishing operation with up to 5,000 pigs and piglets at any one time, employing between four and five full time staff.

This report for the period July 2022 to June 2023 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess the Company's environmental and consent compliance performance during the period under review. The report also details the results of the monitoring undertaken and assesses the environmental effects of the Company's activities.

During the monitoring period, RKM Farms Ltd demonstrated a high level of environmental performance and high level of administrative performance.

The Company holds two resource consents, which include a total of 13 conditions setting out the requirements that the Company must satisfy. Resource consent 5108-2 allows the discharge of treated effluent into the Tawhiti Stream, and consent 5266-2 relates to the discharge of emissions into the air at this site.

An associated consent held by Lloyd Gernhoefer Contractor Ltd (consent 5352-3) permits the discharge of the contents of effluent treatment ponds, dairy effluent storage ponds, and solids from herd homes to land throughout the Taranaki region.

The Council's monitoring programme for the year under review included three inspections and the collection of two wastewater and receiving water samples collected for physicochemical analysis.

The monitoring showed that the wastewater and receiving water samples were well within the consented limits and there was no unauthorised incidents during the period under review. No non-compliant odour incidents were recorded during the period under review.

For reference, in the 2022-2023 year, consent holders were found to achieve a high level of environment performance and compliance for 878 (87%) of a total of 1007 consents monitored through the Taranaki tailored monitoring programmes, while for another 96 (10%) of the consents a good level of environmental performance and compliance was achieved. A further 27 (3%) of consents monitored required improvement in their performance, while the remaining one (<1%) achieved a rating of poor.

In terms of overall environmental and compliance performance by the consent holder over the last several years, this report shows that the consent holder's performance remains at a high level in the year under review.

This report includes recommendations for the 2023-2024 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 2022 to June 2023 by the Taranaki Regional Council (the Council) on the monitoring programme associated with resource consents held by RKM Farms Ltd (the Company) and Lloyd Gernhoefer Contractor Ltd. The Company operates a piggery situated on 599A South Road, Hawera, in the Tangahoe catchment (Figure 1).

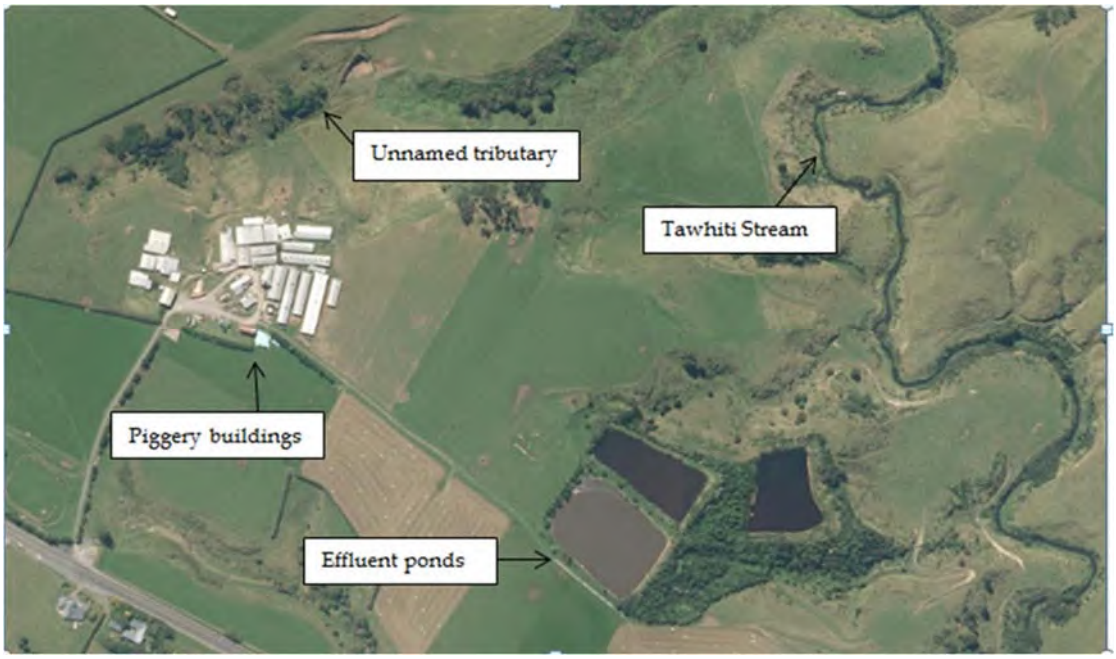

Figure 1 Location of RKM Ltd Piggery

The report includes the results and findings of the monitoring programme implemented by the Council in respect to the consents held by the Company that relate to discharges of water within the Tangahoe catchment, and cover emissions to air from the site. This report is the 13th annual report to be prepared by the Council to cover the Company's air and water discharges and their effects.

1.1.2 Structure of this report

Section 1 of this report is a background section. It sets out general information about:

- consent compliance monitoring under the *Resource Management Act 1991* (RMA) and the Council's obligations;
- and the Council's obligations;
- the Council's approach to monitoring sites though annual programmes;
- the resource consents held by the Company 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 in the Company's site/catchment.

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 2023-2024 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' in as much 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 holders, this report also assigns a rating as to each Company's environmental and administrative performance during the period under review. The rating categories are high, good, improvement required and poor for both environmental and administrative performance. The interpretations for these ratings are found in Appendix II.

For reference, in the 2022-2023 year, consent holders were found to achieve a high level of environmental performance and compliance for 878 (87%) of a total of 1007 consents monitored through the Taranaki tailored monitoring programmes, while for another 96 (10%) of the consents a good level of environmental performance and compliance was achieved. A further 27 (3%) of consents monitored required improvement in their performance, while the remaining one (<1%) achieved a rating of poor. [1]

[1] The Council has used these compliance grading criteria for more than 19 years. They align closely with the 4 compliance grades in the MfE Best Practice Guidelines for Compliance, Monitoring and Enforcement, 2018

1.2 Process description

The piggery is a breeder, grower and finishing operation holding up to a maximum of 5,000 pigs and piglets (3,636 pig equivalents) onsite at any one time (Table 1). The discharge is made up of effluent and wash water from the piggery operation.

The piggery stock inventory figures supplied by the consent holder have dropped compared to that of the 2021-2022 monitoring period. The 50 kg pig equivalents (SPU) value has decreased by 60 from 2021-2022 to 2022-2023 monitoring period. Pig numbers are also well below the consented limit of 3,636 SPU, by a total of 1,874 SPU.

Table 1 Piggery inventory as at 30 June 2023

Type of pigs	No of pigs	Average weight kg	Total weight kg	50 kg Equivalent pigs (SPU)
Breeding sows (older than 12 months)	205	162	33,210	664
Breeding sows (less than 12 months)	0	75	0	0
Boars	8	160	1,280	26
Weaners (less than 10 weeks)	520	18	9,360	187
Growers (10-17 weeks)	695	44	30,580	612
Growers (older than 17 weeks)	210	65	13,650	273
Total	**1,638**			**1,762**

Approximately 70 m^3 of wastewater is discharged on a daily basis. The wastewater from around the piggery is gravity fed to a series of sumps and is then mixed and pumped from the sumps to the oxidation pond treatment system.

The treatment system comprises three ponds. The first pond, which is anaerobic in nature, is designed to capture the solid component of the discharge, and has an approximate holding capacity of 34,587 m^3. The second and third ponds are aerobic and have capacity for 10,350 m^3 and 10,800 m^3, respectively. The pond treatment system has a combined capacity of approximately 55,737 m^3.

The discharge from the pond treatment system flows through a tertiary treatment system in the form of a wetland which is approximately 1,600 m^3 in area. Raupō is planted within the wetland to further treat the discharge.

From the wetland the treated discharge flows through an open drain and directly into the Tawhiti Stream. The treatment system rarely discharges during the warmer months (January to March) because of evaporation within the two aerobic ponds. In addition to discharging to the Tawhiti Stream, effluent including accumulated solids is pumped out of the anaerobic pond and onto land as required.

1.3 Resource consents

The Company holds two resource consents, the details of which are summarised in the table below. Summaries of the conditions attached to each permit are set out in Section 3 of this report.

An associated consent is held by Lloyd Gernhoefer Contractor Ltd (consent 5352-3) which permits discharge of the contents of effluent treatment ponds, dairy effluent storage ponds, and solids from herd homes to land throughout the Taranaki region (Table 2). This consent is for the purpose of desludging the oxidation pond system. This consent is currently not monitored as part of the programme.

A summary of the various consent types issued by the Council is included in Appendix I, as are copies of all permits held by the Company during the period under review.

Table 2 Summary of resource consents held by RKM Farms and Lloyd Gernhoefer

Consent holder	Consent number	Purpose	Granted	Review	Expires
Water discharge permits					
RKM Farms Ltd	**5108-2**	To discharge treated piggery effluent into Tawhiti Stream	August 2010	NA	June 1 2028
Air discharge permit					
RKM Farms Ltd	**5266-2.0**	To discharge piggery operation and associated emissions to air	May 2017	NA	June 1 2028
Discharges of waste to land					
Lloyd Gernhoefer Contractor Ltd	**5352-3**	To irrigate effluent to land	March 2021	June 2025	December 1 2029

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 RKM Farms Ltd (Piggery) 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;
- 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 Company's site was visited three times during the monitoring period. With regard to the consents for the discharge to water and air, the main points of interest were plant processes with potential or actual discharges to receiving watercourses, including contaminated storm-water and process wastewaters. Three inspections are conducted annually. Air inspections focused on plant processes with associated actual and potential emission sources and characteristics, including potential odour, noxious or offensive emissions. Sources of data being collected by the Company were identified and accessed, so that performance in

respect of operation, internal monitoring, and supervision could be reviewed by the Council. The neighbourhood was surveyed for environmental effects.

1.4.4 Chemical sampling

The Council undertook sampling of the discharge from the site and the water quality upstream and downstream of the discharge point and mixing zone. The monitoring programme allows for the discharge and receiving water to be sampled on two occasions.

The treated effluent discharge was sampled on two occasions, and the sample analysed for biochemical oxygen demand (BOD), chloride, conductivity, dissolved reactive phosphate (DRP), unionised ammonia, pH, suspended solids, turbidity and temperature.

The Tawhiti Stream, upstream and downstream of the discharge was sampled on two occasions, and the samples are analysed for carbonaceous biochemical oxygen demand (CBOD), chloride, conductivity, dissolved reactive phosphate (DRP), unionised ammonia, pH, suspended solids, turbidity and temperature.

2 Results

2.1 Water

2.1.1 Inspections

The piggery site was inspected on three separate occasions during the 2022-2023 monitoring period. These inspections were carried out on 27 July 2022, 14 November 2022 and 8 May 2023.

Consent 5108-2 Special Condition 3 requires that the number of pigs (equivalent to 50 kg per pig/ SPU) on the property at any one time shall not exceed 3,636 pig equivalents. Inventory figures supplied by the consent holder for the 2022-2023 monitoring year shows the piggery is operating well below the consented limit at approximately 1,638 pig equivalents. Slightly down on the previous year numbers at 1,698 pig equivalents.

Discussion over the monitoring period included the general production inventory, piggery buildings, feed regime in relation to source and odour, and laboratory results in relation to consent conditions and biosecurity requirements.

During the three inspections the following was found to be occurring; the effluent treatment ponds were functioning well with good microbial activity in the top anaerobic observed during each visit. The anaerobic pond also displayed a red colour again indicating good bacterial activity. The bottom two aerobic ponds were also observed to be in good condition. Discharge from the pond system to the Tawhiti Stream was observed on two separate occasions during the 14th of November and 8th of May, these were performed in conjunction with the discharge monitoring surveys. The 14th of November 2022 discharge was slightly turbid, with a light tea brown colour. The discharge was estimated to be at 1 L/s with a slight odour only. The 8th of May 2023 discharge was turbid brown with a flow rate of approximately 1 L/s. Again odour was very minimal. No visual environmental impacts downstream of the discharge point to the Tawhiti Stream observed at any time during the financial year.

Effluent collection points within piggery viewed during all inspections. Found to be in good condition, with no signs of spills or overflows even after heavy prolonged rain periods. Bunding functioning well. During the 8th May inspection a burst underground effluent pipe between the southern sheds was brought to the attention of the inspecting officer. Open drain was dug to divert effluent to correct collection point, from where it is then piped to the main collection point. No evidence of spillage or leakage beyond the open drain. Issue dealt with accordingly resulting in no environmental impacts. Reason for burst pipe due to iron sand build up.

The spring flowing down the bank below the piggery was observed on each inspection to be running clear with no obvious environmental effects

During this monitoring period no effluent/solids were applied to land. The ponds are well sized for maximum production of 3,636 pig equivalents. Desludging the ponds may be required if production is increased significantly.

Overall the piggery appeared to be well maintained and well managed.

2.1.2 Results of abstraction and discharge monitoring

Receiving waters physicochemical monitoring

The consent holders' farm boundary borders along the true right bank of Tawhiti Stream to where it meets the Tangahoe River, and along the river to South Road Bridge. Environmental monitoring sites are provided in relation to the piggery operation's discharge point (Table 3).

Table 3 Location of sampling sites in Tawhiti Stream including the piggery discharge

Site	Site Code	GPS reference	Location
Tawhiti Stream	TWH000495	E1715350 N5614243	20 m upstream of piggery discharge
Piggery effluent	PGP003001	E1715305 N5614206	Discharge outlet from aerobic pond
Tawhiti Stream	TWH000496	E1715356 N5614111	30 m downstream of piggery discharge

Samples were collected from the discharge point as well as upstream and downstream of the discharge on two occasions during the monitoring year under review.

Results of the survey performed on 14th November 2022 are presented in Table 4. On this occasion the stream was running at a moderate, steady flow, slightly turbid and slight brown in colour. The ponds' treated wastewater discharge was estimated at about 1 L/s and light tea brown in colour with a very slight noticeable odour. The weather was dry with light SE wind direction. The wastewater discharge from the wetland showed no significant downstream environmental impact on the Tawhiti Stream. The results below show the parameters tested were well within consented limits.

Table 4 Receiving water and discharge samples 14 November 2022

Parameter	Units	PGP003001 Discharge	TWH000495 Upstream	TWH000496 Downstream
Time of sample collection	hrs/NZST	0905	0850	0920
Temperature	°C	16.2	15.8	15.6
pH	pH units	8.0	7.9	7.9
Un-ionised ammonia	g/m^{3}N	0.51	0.0002	0.0004
Ammoniacal nitrogen	g/m^{3}N	16.7	0.011	0.018
BOD_5	g/m^3	25	-	-
BOD_5 (filtered, carbonaceous)	g/m^3	-	<1.0	<1.0
Chloride	g/m^3	210	32	32
Conductivity @ 25°C	mS/m	133.9	27.6	27.8
DRP	g/m^{3}P	12.5	0.024	0.029
Suspended solids	g/m^3	35	21	22
Turbidity	FNU/NTU	24 NTU	9.8 FNU	8.9 FNU

Results of the survey performed on 8th May 2023 are presented in Table 5. The Tawhiti Stream was running at a moderate and steady flow and turbid brown in colour. The ponds' treated wastewater discharge was estimated at about 1 L/s and was turbid brown in colour with a very light odour. The weather was overcast with heavy rain preceding the visit. No visual environmental effects were observed in the Tawhiti Stream from the piggery discharge near the downstream monitoring site. The results below show the parameters tested were well within consented limits.

Table 5 Receiving water and discharge samples 08 May 2023

Parameter	Units	PGP003001 Discharge	TWH000495 Upstream	TWH000496 Downstream
Time of sample collection	hrs/NZST	1305	1255	1315
Temperature	°C	17.0	16.2	16.3
pH	pH units	7.9	7.9	7.9
Un-ionised ammonia	g/m^{3}N	0.0103	0.0004	0.0007
Ammoniacal nitrogen	g/m^{3}N	0.44	0.015	0.029
BOD_5	g/m^3	6	-	-
BOD_5 (filtered, carbonaceous)	g/m^3	-	<1.0	<1.0
Chloride	g/m^3	148	30	30
Conductivity @ 25°C	mS/m	97.6	28	27.9
DRP	g/m^{3}P	7.3	0.029	0.036
Suspended solids	g/m^3	38	25	24
Turbidity	FNU/NTU	20 NTU	12.7 FNU	12.7 FNU

Special consent condition 4b specifies that after a mixing zone of 30 m downstream of where the discharge enters the Tawhiti Stream, the un-ionised ammonia level shall not exceed 0.025 g/m^3. The above results showed minimal change in un-ionised ammonia at the upstream and downstream sites, well below the consented limit.

Special consent condition 4a specifies that after a mixing zone of 30 m downstream of where the discharge enters the Tawhiti Stream, filtered carbonaceous biochemical oxygen demand must not exceed 2.00 g/m^3. The results show that all Tawhiti stream sites (upstream and downstream) on both monitoring surveys are below the detection limit of <1.0 g/m^3. No measurable increase of BOD was recorded, meaning the consent holder is well within the consenting limits.

Although not a consent requirement the above results indicate that good dilution in the Tawhiti Stream has been maintained throughout both surveys.

Monitoring of wastewater on the two occasions during the 2022-2023 year indicated that the wastewater was well treated in terms of BOD, suspended solids and pH. Nutrient levels are within an acceptable range, with the 8th of May 2023 visit showing low nutrient levels compared to that of the 14th of November 2022 visit. Results are displayed in Table 6.

Table 6 Summary of treated wastewater analyses from RKM Farms Ltd piggery for the period July 2022 to June 2023

Parameter	Units	14 November 2022	08 May 2023	Mean
Conductivity @ 25°C	mS/m	133.9	97.6	115.7
Chloride	g/m^3	210	148	179
pH	pH Units	8.0	7.9	7.95
Total carbonaceous BOD_5	g/m^3	25	6	15.5
Ammoniacal nitrogen	g/m^{3}N	16.7	0.44	8.57
DRP	g/ g/m^{3}P	12.5	7.3	9.9

Parameter	Units	14 November 2022	08 May 2023	Mean
Suspended solids	g/m^3	35	38	36.5

2.2 Air

2.2.1 Inspections

As far as practicable, inspections relating to air emissions were integrated with inspections undertaken for other purposes.

2.2.2 Results of abstraction and discharge monitoring

The RMA effectively requires that there should be no offensive or objectionable odour beyond the boundary of the farm.

Odours emitted from normal piggery operations are generally influenced by weather conditions (i.e. wind direction), effluent treatment, pond management, irrigating sludge to land and general piggery hygiene practices.

The offensiveness of odour at any time is reliant on individual perception, Council methods of measurement, and practices of the pork producer. The Environmental Management System (EMS) deals with piggery operational practices ensuring the effect of odour is taken into account when the pork producer is undertaking activities relating to different areas of the piggery.

All inspections that were carried out during the monitoring period found 'normal to slightly noticeable' piggery type odour emanating downwind of the piggery and near the offal pit. In general, wind conditions were from the western quarter and were only slight. No odour emissions were 'noted' beyond the perimeter of the property boundary. Therefore, odours were restricted to the property and not considered likely to impact neighbouring properties.

2.3 Incidents, investigations, and interventions

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 causes 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 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).

During the 2022-2023 monitoring period there was no recorded incidents, additional investigations or interventions required by the Council in relation to the Company's activities.

3 Discussion

3.1 Discussion of site performance

Compliance inspections carried out by Council officers during the 2022-2023 monitoring year found the piggery to be a well-managed operation. All wastewater treatment facilities and disposal processes were adequately maintained. No complaints were received by the council during the 2022-2023 monitoring period. The piggery has now been operating for nearly a century and has indicated good compliance during previous monitoring periods.

In terms of consents held:

To discharge treated piggery effluent into Tawhiti Stream, consent **5108-2.**

Results from upstream and downstream of the discharge outlet indicated minimal increases in chemical analyses, showing that the discharge is having little to no measurable effect on the receiving waters, and there is good dilution in the stream with minimal environmental impacts arising directly as a result of this consented activity.

To discharge piggery operation and associated emissions to air, consent **5266-2.0.**

There were no process changes undertaken by the Company during the monitoring period. All 'normal to slightly noticeable' piggery type odours were only observed downwind of the offal pit. No other odour emissions were noted beyond the perimeter of the property, and were not considered to impact neighbouring properties.

Overall, the Company was found to have performed well in the period under review with regards to their consents and performance.

3.2 Environmental effects of exercise of consents

The discharge of wastewater to Tawhiti Stream was recorded to have little to no environmental impacts outside or inside the mixing zone. There was a relatively small increase in nutrients observed downstream of the discharge during moderate flow conditions. In isolation, this is unlikely to have a significant effect on the Tawhiti Stream however, it is important to keep in mind that any increase in nutrient concentration will contribute to the overall accumulation of nutrient load within the stream and any receiving environment.

In regard to air emissions from the piggery and effluent treatment system, there were no incidents related to odours beyond the site boundary. Inspections by Council found local odour around the effluent drains and collection area.

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 7 and 8.

Table 7 Evaluation of performance for consent 5108-2

Purpose: ***To discharge treated piggery effluent from an oxidation ponds system followed by tertiary treatment into water***		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Provision of wastewater plan	Plan received by Council Nov 2010	Yes

Purpose: *To discharge treated piggery effluent from an oxidation ponds system followed by tertiary treatment into water*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
2. Adoption of best practical option to avoid or minimise adverse effects	Liaison with Company and inspection	Yes
3. Maximum allowable number of pig equivalents	Liaison with Company	Yes
4. Specified limits in receiving water after mixing	Inspection and physicochemical sampling	Yes
5. Optional review provision	Consent expires June 2028	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 8 Evaluation of performance for consent 5266-2

Purpose: *To discharge emissions to air from a pig farming operation and associated practices including effluent treatment and other waste management activities*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Maximum allowable number of pig equivalents	Liaison with Company	Yes
2. Adoption of best practical option	Liaison with Company and inspection	Yes
3. Consultation and approval prior to alterations to plant and process	Liaison with Company	N/A
4. Minimisation of impact and emissions through use of equipment and suitable methods	Monitoring inspections	Yes
5. Objectionable odour at site boundary not permitted	Monitoring inspections	Yes
6. Optional review provision	Consent expires June 2028	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 9 Summary of performance over the years

Year	Consent no	High	Good	Improvement req	Poor
2013-2014	5108	1	-	-	-
	5266	1	-	-	-
2014-2015	5108	1	-	-	-
	5266	1	-	-	-
2015-2016	5108	1	-	-	-
	5266	1	-	-	-
2016-2017	5108	1	-	-	-
	5266	1	-	-	-
2017-2018	5108	1	-	-	-
	5266	1	-	-	-
2018-2019	5108	1	-	-	-
	5266	1	-	-	-
2019-2020	5108	1	-	-	-
	5266	1	-	-	-
2020-2021	5108	-	1	-	-
	5266	1	-	-	-
2021-2022	5108	1	-	-	-
	5266	1	-	-	-
2022-2023	5108	1	-	-	-
	5266	1	-	-	-
Totals		19	1	-	-

During the year, the Company demonstrated a high level of environmental and high level of administrative performance with the resource consents as defined in Appendix II.

3.4 Recommendations from the 2021-2022 Annual Report

1. THAT in the first instance, monitoring of consented activities at Company's piggery in the 2022-2023 year continue at the same level as in 2021-2022.
2. THAT the provisions in the monitoring programme to sample the discharge and receiving waters on two separate occasions remain unchanged.
3. THAT the consent holder continues to notify Council with information when solids are extracted from the main pond for disposal, including details of where the solids are spread over land.
4. THAT the inspections for the 2022-2023 period continue at three inspections and these inspections are to be carried out on a four-monthly basis.
5. THAT should there be issues with environmental or administrative performance in 2022-2023, monitoring may be adjusted to reflect any additional investigative or intervention as found necessary.

3.5 Alterations to monitoring programmes for 2023-2024

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 2023-2024 there will not be any significant alteration to the monitoring programme.

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 subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2023-2024.

4 Recommendations

1. THAT in the first instance, monitoring of consented activities at Company's piggery in the 2023-2024 year continue at the same level as in 2022-2023.
2. THAT the consent holder continues to notify Council with information when solids are extracted from the main pond for disposal, including details of where the solids are spread over land. This relates to Lloyd Gernhoefer Contractor Ltd (consent 5352-3).
3. THAT should there be issues with environmental or administrative performance in 2023-2024, monitoring may be adjusted to reflect any additional investigative or intervention as found necessary.

Glossary of common terms and abbreviations

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

Al*	Aluminium.
As*	Arsenic.
Biomonitoring	Assessing the health of the environment using aquatic organisms.
BOD	Biochemical oxygen demand. A measure of the presence of degradable organic matter, taking into account the biological conversion of ammonia to nitrate.
BODF	Biochemical oxygen demand of a filtered sample.
Bund	A wall around a tank to contain its contents in the case of a leak.
CBOD	Carbonaceous biochemical oxygen demand. A measure of the presence of degradable organic matter, excluding the biological conversion of ammonia to nitrate.
cfu	Colony forming units. A measure of the concentration of bacteria usually expressed as per 100 millilitre sample.
COD	Chemical oxygen demand. A measure of the oxygen required to oxidise all matter in a sample by chemical reaction.
Conductivity	Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 25°C and expressed in µS/cm.
Cu*	Copper.
Cumec	A volumetric measure of flow- 1 cubic metre per second (1 m^3s^{-1}).
DO	Dissolved oxygen.
DRP	Dissolved reactive phosphorus.
E.coli	Escherichia coli, an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre sample.
Ent	Enterococci, an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre of sample.
F	Fluoride.
FC	Faecal coliforms, an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre sample.
FNU	Formazin nephelometric units, a measure of the turbidity of water.
Fresh	Elevated flow in a stream, such as after heavy rainfall.
$g/m^2/day$	grams/metre^2/day.
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.
L/s	Litres per second.
m^2	Square Metres.
MCI	Macroinvertebrate community index; a numerical indication of the state of biological life in a stream that takes into account the sensitivity of the taxa present to organic pollution in stony habitats.
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.
MPN	Most Probable Number. A method used to estimate the concentration of viable microorganisms in a sample.
µS/cm	Microsiemens per centimetre.
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).
NO_3	Nitrate, normally expressed in terms of the mass of nitrogen (N).
NTU	Nephelometric Turbidity Unit, a measure of the turbidity of water.
O&G	Oil and grease, defined as anything that will dissolve into a particular organic solvent (e.g. hexane). May include both animal material (fats) and mineral matter (hydrocarbons).
Pb*	Lead.
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.
PM_{10}, $PM_{2.5}$, $PM_{1.0}$	Relatively fine airborne particles (less than 10 or 2.5 or 1.0 micrometre diameter, respectively).
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 including all subsequent amendments.
SS	Suspended solids.
SQMCI	Semi quantitative macroinvertebrate community index.
Temp	Temperature, measured in °C (degrees Celsius).
Turb	Turbidity, expressed in NTU or FNU.
Zn*	Zinc.

*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 an Environment Quality Manager.

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Appendix I

Resource consents held by RKM Farms Ltd

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

Water abstraction permits

Section 14 of the RMA stipulates that no person may take, use, dam or divert any water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or it falls within some particular categories set out in Section 14. Permits authorising the abstraction of water are issued by the Council under Section 87(d) of the RMA.

Water discharge permits

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. Permits authorising discharges to water are issued by the Council under Section 87(e) of the RMA.

Air discharge permits

Section 15(1)(c) of the RMA stipulates that no person may discharge any contaminant from any industrial or trade premises into air, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising discharges to air are issued by the Council under Section 87(e) of the RMA.

Discharges 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. Permits authorising the discharge of wastes to land are issued by the Council under Section 87(e) of the RMA.

Land use permits

Section 13(1)(a) of the RMA stipulates that no person may in relation to the bed of any lake or river use, erect, reconstruct, place, alter, extend, remove, or demolish any structure or part of any structure in, on, under, or over the bed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Land use permits are issued by the Council under Section 87(a) of the RMA.

Coastal permits

Section 12(1)(b) of the RMA stipulates that no person may erect, reconstruct, place, alter, extend, remove, or demolish any structure that is fixed in, on, under, or over any foreshore or seabed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Coastal permits are issued by the Council under Section 87(c) of the RMA.

Discharge Permit

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

Name of Consent Holder:	RKM Farms Limited 599B South Road R D 12 HAWERA 4672
Decision Date:	9 August 2010
Commencement Date:	9 August 2010

Conditions of Consent

Consent Granted:	To discharge treated piggery effluent from an anaerobic and twin aerobic pond treatment system, followed by a tertiary treatment system, into the Tawhiti Stream
Expiry Date:	1 June 2028
Review Date(s):	June 2012, June 2014, June 2016, June 2022
Site Location:	599A South Road, Hawera
Legal Description:	Pt Lot 3 DP 3116
Grid Reference (NZTM)	1715327E-5614198N
Catchment:	Tangahoe
Tributary:	Tawhiti

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 [the Council] all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act.

Special conditions

Information to be submitted

1. The consent holder shall prepare a Site Layout Plan [drawing] which clearly shows the entire wastewater network system including the location and extent of the following:

    - The drainage system [e.g. swales] within the piggery sheds which the wastewater generated drains to;
    - The collection areas [e.g. sumps] for the wastewater prior to it being pumped to the pond treatment system;
    - The pipe network between the collection areas and pond treatment system;
    - The pond treatment system including the location of the pipe network between the ponds; and
    - Any other details which would assist in showing how the wastewater is conveyed from the piggery sheds to the wastewater treatment system.

    The Plan shall be submitted to the Chief Executive, Taranaki Regional Council, within two months of the commencement date of this consent.

Wastewater discharge

2. 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.

3. The number of pigs [equivalent 50 kg per pig] on the property at any one time shall not exceed 3636 pig equivalents.

4. After a mixing zone of 30 metres downstream of the point where the discharge enters the Tawhiti Stream, the discharge shall not, either by itself or in combination with other discharges, give rise to any or all of the following adverse effects in the Tawhiti Stream:

    a) filtered carbonaceous biochemical oxygen demand must not exceed 2.00 gm^{-3};
    b) a level of unionised ammonia greater than 0.025 gm^{-3};
    c) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
    d) any conspicuous change in the colour or visual clarity;
    e) any emission of objectionable odour;
    f) the rendering of fresh water unsuitable for consumption by farm animals; and
    g) any significant adverse effects on aquatic life.

5. In accordance with section 128 and 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 in any of the following years: 2012, 2014, 2016, 2022; for any of the following purposes:

   a) Ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, and in particular to address any more than minor adverse effects relating to the discharge of wastewater; and/or

   b) To determine any measures that may be appropriate to comply with condition 2 of this consent, and which are necessary to address any adverse effects of the discharge of wastewater from the site; and/or

   c) To address any apparent deficiencies in the design of the pond treatment system.

Transferred at Stratford on 01 August 2013

For and on behalf of
Taranaki Regional Council

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Director-Resource Management

Discharge Permit

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

Name of Consent Holder:	RKM Farms Limited 599B South Road RD 12 Hawera 4672
Decision Date:	16 May 2017
Commencement Date:	16 May 2017

Conditions of Consent

Consent Granted:	To discharge emissions into the air from a pig farming operation and associated practices including effluent treatment
Expiry Date:	1 June 2028
Review Date(s):	June 2022
Site Location:	599B South Road, Hawera
Grid Reference (NZTM)	1714646E-5614435N

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 number of pigs (equivalent 50 kg per pig) on the property at any one time shall not exceed 3636 pig equivalents.
2. 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 actual or likely adverse effect on the environment associated with the discharge of contaminants from the site.
3. Prior to undertaking any alterations to the piggery unit's processes, operations, equipment or layout, which may significantly change the nature or quantity of contaminants emitted from the site, the consent holder shall consult with the Chief Executive, Taranaki Regional Council, and shall obtain any necessary approvals under the Resource Management Act 1991 and its amendments.
4. The consent holder shall minimise the emissions and impacts of contaminants discharged into air from the site by:
   (a) the selection of the most appropriate process equipment;
   (b) process control equipment and emission control equipment;
   (c) the methods of control;
   (d) the proper and effective operation, supervision, maintenance and control of all equipment and processes; and
   (e) the proper care of all pigs on the site.
5. The discharges authorised by this consent shall not give rise to an odour at or beyond the property boundary that is offensive or objectionable.
6. 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 2022, 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 16 May 2017

For and on behalf of
Taranaki Regional Council

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A D McLay
Director - Resource Management

Discharge Permit

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

Name of Consent Holder:	Lloyd Gernhoefer Contractor Limited PO Box 31 Eltham 4353
Decision Date	9 March 2021
Commencement Date	9 March 2021

Conditions of Consent

Consent Granted:	To discharge the contents of dairy effluent treatment ponds, dairy effluent storage ponds, and solids from herd homes to land throughout the Taranaki region
Expiry Date:	1 June 2029
Review Date(s):	June 2022, June 2025, June 2028
Site Location:	Various locations throughout Taranaki region
Grid Reference (NZTM)	Various
Catchment:	Various

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. For the purposes of this consent:
   (a) Unless otherwise specified, 'effluent' includes its liquid, slurry and solid forms. It also includes sand trap cleanings; and
   (b) 'Liquid effluent' is any effluent that is discharged through a pipe or spray equipment, any non-liquid effluent is 'solid effluent'.

2. All effluent shall only be discharged onto pasture on the property from which it was collected.

3. When removing effluent from anaerobic ponds the consent holder shall ensure that a minimum of one-third of the total volume of waste is retained in the pond following the operation.

4. The discharge shall not result in any effluent reaching surface water, any subsurface drainage system or any adjacent property.

5. The discharge shall not result in ponding on the surface that remains for more than 30 minutes after the discharge has ceased.

6. The discharge shall not occur on land with a slope that is likely to result in run off or at a rate which it cannot be assimilated by the soil/pasture system.

7. No contaminants shall be discharged within:

   (a) 25 metres of any surface water body; or
   (b) 25 metres of any fenced (or otherwise identified) urupa without the written approval of the relevant Iwi; or
   (c) 50 metres of any bore or well;
   (d) 50 metres of any spring used for water supply purposes; or
   (e) 150 metres from any marae, unless the written approval of the marae Chair has been obtained to allow the discharge at a closer distance.

8. The consent holder shall ensure that over any June to May period the Total Nitrogen applied to land as a result of the discharge is no more than 200 kg per hectare. For discharges from dairy effluent treatment ponds and holding ponds this shall be achieved by discharging the waste collected as evenly as practicable over an area of no less than 4 ha for each 100 cows milked on the property.

9. Any settled sludges and solids from herd homes or the bottom zone of a storage facility, and any sand trap cleanings, shall be discharged to an area where there has been no effluent discharged in the previous 12 months.

10. The depth of liquid effluent discharged to land in any single discharge event shall not exceed the maximum application shown in the table below for the soil type that corresponds with soil in the area that the effluent is applied.

Soil Type	Maximum Application
Sand	15 mm
Sandy loam	24 mm
Silt loam	24 mm
Clay loam	18 mm
Clay	18 mm
Peat	20 mm

11. The consent holder shall maintain records associated with the exercise of this consent and make these available to the Chief Executive, Taranaki Regional Council, upon request. The records collected shall include:

    (a) details, including owner and location, of property from which effluent is collected;
    (b) date of discharge;
    (c) source of discharge;
    (d) volume of discharge;
    (e) area (in hectares) over which the effluent was discharged; and
    (f) specific location of area of land to which effluent was discharged.

12. The consent holder shall notify the Chief Executive, Taranaki Regional Council at least 24 hours prior to undertaking any discharge authorised by this consent. Notification shall include the property address, property owner and date of the proposed discharge. It shall be served by completing and submitting the 'Notification of work' form on the Council's website (http://bit.ly/TRCWorkNotificationForm).

13. If, as a consequence of the activity authorised by this consent, an event occurs that may have significant adverse effect on water quality in any watercourse, the consent holder shall as soon as reasonably practicable, telephone the Taranaki Regional Council and any downstream water supply operators, and notify them of the event.

14. This consent lapses 5 years after its commencement date (shown on the front of this document), unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

15. The Taranaki Regional Council may review any or all of the conditions by giving notice of review during June 2022 and at 3-yearly intervals thereafter, for the purpose of ensuring that the conditions are adequate to deal with any significant adverse effects on the environment arising from the exercise of this consent, which either was not foreseen at the time the application was considered or which it was not appropriate to deal with at the time, including any new and improved methods relating to dairy effluent discharge.

Signed at Stratford on 9 March 2021

For and on behalf of
Taranaki Regional Council

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A D McLay
Director - Resource Management

Appendix II

Categories used to evaluate environmental and administrative performance

Categories used to evaluate 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 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 during investigations of incidents reported to the Council by a third party 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 during investigations of incidents reported to the Council by a third party. 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 during investigations of incidents reported to the Council by a third party. 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.