

NZ Pure Bred Genetics Ltd (Piggery)
Monitoring Programme
Final Report
2016-2017

Technical Report 2017-70

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Executive summary

NZ Pure Bred Genetics Ltd the Company was operated by J & R Cooley who leased the piggery buildings and associated wastewater treatment system from E & J O'Sullivan. The Company operated a piggery situated on Mountain Road at Midhirst, in the Manganui catchment.

The Company specialises in growing eight to ten weeks old weaners for the market and do not grow fattening pigs at the piggery. Significantly less effluent was produced by not growing fattening pigs.

This final report for the period July 2016 to January 2017 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess the Company's environmental performance during the period under review, and the results and environmental effects of the Company's activities.

The Company held two resource consents which included a total of 22 conditions setting out the requirements that the Company must satisfy. The Company held resource consent 0351-3 to allow the discharge of treated effluent to land and into the Rumkeg Creek and consent 5249-2 to allow the discharge of emissions into the air from the piggery site. Consent 5249-2 has since expired and consent 0351-3 application to renew was withdrawn.

During this period under review the consent holder relocated their piggery operation to Marton, and the land and buildings have been sold by the land owner.

The Council's monitoring programme for the period under review included two inspections and one water sample collected for physicochemical analysis of piggery wastewater.

In the 2016-2017 monitoring period, the Council had received four alleged complaints concerning the Company regarding air, and discharges of pig effluent to water. All these complaints were investigated and found that burning appeared to comply with the Regional Air Quality Plan nor were there any unauthorised discharges from the effluent treatment system discharging into the receiving waters.

During the year, the Company demonstrated a good level of environmental and administrative performance with the resource consents.

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

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1 Introduction

1.1 Compliance monitoring programme reports and the Resource Management Act 1991

1.1.1 Introduction

This final half yearly report is for the period July 2016 to Jan 2017 by the Taranaki Regional Council (the Council) on the monitoring programme associated with resource consents held by NZ Pure Bred Genetics Ltd (formerly known as Meadowvale Stud Farm Ltd Piggery).

NZ Pure Bred Genetics Ltd (the Company) was operated by J & R Cooley who leased the piggery buildings and associated wastewater treatment system from E & J O'Sullivan. The Company operated a piggery situated on Mountain Road at Midhirst, in the Manganui catchment.

J & R Cooley have now relocated their piggery operation to Marton and the land and building have been sold.

The report includes the results and findings of the monitoring programme implemented by the Council in respect of the consents held by the Company that relate to discharges of water within the Manganui catchment, and the air discharge permit to cover emissions to air from the site.

One of the intents of the *Resource Management Act 1991* (RMA) is that environmental management should be integrated across all media, so that a consent holder's use of water, air, and land should be considered from a single comprehensive environmental perspective. Accordingly, the Council generally implements integrated environmental monitoring programmes and reports the results of the programmes jointly. This report discusses the environmental effects of the Company's use of water, land and air, and is the 13th and final compliance report by the Council for the site.

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 Company in the Manganui 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.

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 Company, 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 Company's approach to demonstrating consent compliance in site operations and management including the timely provision of information to Council (such as contingency plans and water take data) in accordance with consent conditions.

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

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

Environmental Performance

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

Good: Likely or actual adverse effects of activities on the receiving environment were negligible or minor at most. There were some such issues noted during monitoring, from self reports, or in response to unauthorised incident reports, but these items were not critical, and follow-up inspections showed they have been dealt with. These minor issues were resolved positively, co-operatively, and quickly. The Council was not obliged to issue any abatement notices or infringement notices in relation to the minor non-compliant effects; however abatement notices may have been issued to mitigate an identified potential for an environmental effect to occur.

For example:

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

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

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

Administrative performance

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

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

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

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

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

1.2 Process description



Figure 1 Aerial photograph of the piggery and wastewater treatment ponds

The Company operated the largest registered purebred herd in New Zealand with the NZ Pig Breeders Association of Berkshire, Duroc, Hampshire, Large White and Landrace breeds. Stock numbers included up to 180 sows, gilts, weaners, boars and up to 150 piglets and any one time (Table 1).

Table 1 Piggery Composition as at December 2016

Type of pigs	No of pigs	Average weight	Total weight	50 kg Equivalent pigs
Sows	180	162	29,160	583
Gilts	24	150	3,600	72
Boars	18	160	2,880	58
Weaners (8 – 10 weeks)	150	18	2,700	54
Total	372		38,340	767

The Company specialised in growing eight to ten weeks old weaners for the market and do not produce fattening pigs at the piggery. Significantly less effluent is produced by not growing fattening pigs.

Piggery wastewater was collected from various collection sumps situated around the piggery. Raw piggery effluent passed through a cyclone separator which separated out the solid component from the wastewater. Removal of solids from the wastewater stream significantly reduced the biochemical oxygen demand (BOD). Wastewater from the separation process was pumped to the initial anaerobic pond. The solid waste were binned and sold as a soil conditioner.

The oxidation pond system consists of three ponds as shown in Figure 1. These ponds were designed to operate as an initial anaerobic pond, followed by two aerobic ponds. However, in practice the second pond operates as an anaerobic pond. Therefore there are two anaerobic ponds and one aerobic pond.

These ponds are adequately sized for the treatment of the piggery wastes provided the system is regularly maintained.

From the treatment pond system, treated wastewater was discharged to the Rumkeg Creek. The Rumkeg Creek is a tributary of the Manganui River in the Waitara catchment and joins the Manganui River 750 m downstream of the discharge.

Wastewater from the treatment system is only discharged to the Rumkeg Creek when river flow conditions provide for at least 250 times effluent dilution.

1.3 Resource consents

1.3.1 Water and Land discharge permit

Section 15(1)(a) of the RMA stipulates that no person may discharge any contaminant into water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or by national regulations.

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 Company held water and land discharge permit **0351-3** to discharge treated piggery effluent from an oxidation pond treatment system into the Rumkeg Creek, a tributary of the Manganui River in the Waitara catchment (during high flow conditions) and to discharge treated piggery effluent into and onto land. This permit was issued by the Council on 5 September 2003 (change of conditions: 27 July 2009) as a resource consent under Section 87(e) of the RMA.

Permit **0351-3** expired on 1 June 2015 and the Company had applied to renew this permit in late Feb 2015. Whilst the Council was processing this application the Company were operating under the expired permit, this is in accordance with Section 124 of the RMA.

The discharge of treated wastewater of this nature may affect the water quality of a stream, particularly if there is insufficient dilution. Some effects may be obvious (e.g. appearance, turbidity) while biological effects may be more subtle.

The discharge of piggery effluent to land greatly improves soil fertility. However piggery effluent also has the potential to contaminate groundwater and surface water if managed inappropriately.

The Council's policy is to promote spray irrigation to land in preference to discharging to water.

There are sixteen special conditions that are attached to this consent.

Discharge to water

Special condition 1 refers to the consent holder operating the piggery and associated activities and discharges in accordance to information provided as directed by conditions set out in the resource consent.

Special conditions 2, 3 and 4 relate to the operation of piggery and associated activities and discharges to water within consent conditions and defines the mixing zone and prohibited effects on the receiving waters.

Special condition 5 requires the consent holder to operate and maintain the treatment and discharge system to ensure compliance.

Special condition 6 requires the consent holder to maintain the minimum dilution rate at all times in the receiving water at point of discharge.

Special condition 7 requires the consent holder to monitor, maintain and supply records of the discharge.

Special condition 8 requires riparian fencing and planting to be completed.

Discharge to land

Special conditions 9 and 10 limit effluent application rates to land in terms of nutrient loadings over any 12 month period.

Special conditions 11, 12 and 13 relate to areas and locations of land discharge, prohibit discharges to surface water, and place restrictions on ponding.

Special condition 14 requires the consent holder to monitor and maintain records of the land discharge.

Special condition 15 requires that the discharge to land shall be maximised and used in preference to discharge to water.

Special condition 16 relates to review of consent conditions.

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

1.3.2 Air discharge permit

Section 15(1)(c) of the RMA stipulates that no person may discharge any contaminant into air, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or by national regulations.

The Company held air discharge permit 5249-2 to discharge emission into the air from a pig farming activity and associated activities, including solids composting, effluent treatment and irrigation and other waste management activities. This permit was issued by the Council on 27 July 2009 as a resource consent under Section 87(e) of the RMA. It is due to expire on 1 June 2027.

Piggery effluent has the potential to produce significant odour especially when discharged to land. Six special conditions are attached to this consent.

Special condition 1 stipulates the number of pigs equivalents allowed on the property at any one time.

Special condition 2 requires the consent holder to adopt the best practicable option to prevent or minimise any actual or likely adverse effects.

Special condition 3 controls alterations which may significantly change the nature or quantity of contaminants from the site.

Special condition 4 requires the consent holder to minimise the emissions and impacts of air contaminants from the site.

Special condition 5 requires the consent holder limit odour at or beyond the boundary.

Special condition 6 allows for two additional reviews.

This summary of consent conditions may not reflect the full requirements of each condition. The consent conditions in full can be found in the resource consent which is 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 Company consisted of three primary components.

1.4.2 Programme liaison and management

There is generally a significant investment of time and resources by the Council in:

- ongoing liaison with resource consent holders over consent conditions and their interpretation and application;
- in discussion over monitoring requirements;
- preparation for any consent reviews, renewals or new consent applications;
- advice on the Council's environmental management strategies and content of regional plans; and
- consultation on associated matters.

1.4.3 Site inspections

The piggery was visited on two occasions during the period monitored. With regard to consents for discharge to receiving watercourses, including contaminated stormwater and process wastewaters. Air inspections focused on plant processes with associated actual and potential emission sources and characteristics, including potential odour, dust, 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 piggery discharge was sampled on one occasion as part of an investigation, and the sample analysed for carbonaceous biochemical oxygen demand (CBOD5), chloride, conductivity, suspended solids, and dissolved reactive phosphate (DRP), un-ionised ammonia, pH, turbidity and temperature.

The Rumkeg Creek was also sampled on the same occasion, and the sample analysed for upstream of the treated discharge. The samples were analysed for filtered carbonaceous biochemical oxygen demand (FCBOD5), chloride, conductivity, suspended solids, and dissolved reactive phosphate (DRP), un-ionised ammonia, pH, turbidity and temperature.

The downstream of the treated discharge sample was taken inadvertently from outside the specified monitoring site therefore the downstream analytical results are not used in this report. However the piggery wastewater results were useful in determining the wastewater strength to ascertain if further action was warranted.

The monitoring programme allowed for the discharge and receiving water to be sampled on two occasions however during the six month period of operation there were only limited opportunities to sample due to low river levels which prohibited the consent holder from discharging.

2 Results

2.1 Water

2.1.1 Inspections

Compliance monitoring inspections were performed on the 25 August 2016 and 16 December 2016.

25 August 2016

This initial inspection was carried out during wet, calm weather conditions. The solids separator was operating at the time of inspection. The pond levels were relatively full although adequate storage was available if required. The final aerobic pond was not discharging to the Rumkeg Creek at the time of inspection. No odour was found to be emanating around the piggery nor was odour noticed around the solids separation area.

05 December 2016

This inspection was carried out during fine weather with a light north easterly breeze blowing. The solids separator was operating via a screen as the cyclone separator had since been removed. No odour was emanating from around this area. Discharge records were sighted and records showed that discharges were being recorded. All pond levels showed adequate freeboard and it appeared that the pond contents were contained. No odour was detected around the ponds system nor was odour emanating downwind of the piggery at all sites monitored.

2.1.2 Results of discharge monitoring

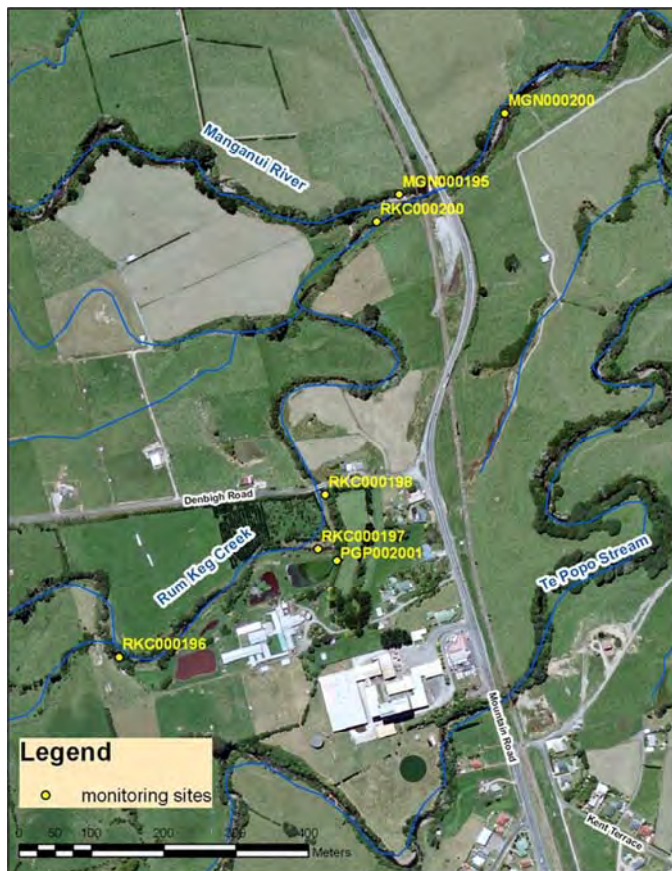


Figure 2 Aerial photograph of monitoring sites

Figure 2 shows the piggery site in relation to the receiving waters of the Rumkeg Creek and Manganui River. Te Popo Stream also borders the piggery boundary on the southern side. Environmental monitoring sites are also illustrated in relation to the piggery operation.

Table 2 Location of sampling sites in Rumkeg Creek, a tributary of the Manganui River

Site	Site code	GPS reference	Location
Rumkeg Creek	RKC000197	E1708759 N5650789	20 metres upstream of piggery discharge
Piggery effluent	PGP002001	E1708785 N5650773	Discharge outlet from aerobic lagoon
Rumkeg Creek	RKC000198	E1708769 N5650764	Denbigh Road Bridge (75m d/s of discharge)

05 October 2015 survey

Results of the survey investigation performed on 05 October 2016 are presented in Table 3. On this occasion the stream was running in a light fresh and the ponds' treated wastewater discharge was estimated at about 10 L/s.

Table 3 Results from NZ Pure Bred Genetics Ltd and the Rumkeg Creek, sampled on 05 October 2016

Parameter	Unit	Site	
		Rumkeg Creek u/s RKC000197	Piggery final effluent PGP002001
Time	NZST	2000	1955
Temperature	°C	11.9	16.8
Conductivity @ 20°C	mS/m	9.1	71
Chloride	g/m ³	8.5	39.7
pH		7.4	7.6
Total carbonaceous BOD ₅	g/m ³	-	72
Filtered carbonaceous BOD ₅	g/m ³	<0.5	-
Ammoniacal nitrogen	g/m ³ N	0.150	47.8
Unionised ammonia	g/m ³ NH ₃	0.0010	0.7097
Dissolved reactive phosphorus	g/m ³ P	0.038	15.1
Turbidity	NTU	3.3	28
Suspended solids	g/m ³	2	34
Appearance		Relatively clear	Slightly turbid brown

Table 4 Summary of treated wastewater analyses from the NZ Pure Bred Genetics Ltd piggery for the period July 2010 to October 2016

Parameter	Unit	N	Range 2010 – 2016	Median 2010-2016	October 2016
Conductivity @ 20°C	mS/m	8	62-175	95	71
Chloride	g/m ³	8	24.2-85	48.4	39.7
pH	pH	8	7.5-8.1	7.8	7.6
Total carbonaceous BOD ₅	g/m ³	6	80-120	94	72
Ammoniacal nitrogen	g/m ³ N	8	21.4-176	75	48
Dissolved reactive phosphate	g/m ³ P	8	14.6-37	21.8	15
Turbidity	NTU	8	22-140	84	28
Suspended solids	g/m ³	8	34-310	150	34

These results (Tables 3 & 4) indicate the treated wastewater discharge dilution ratio in the stream at the time of sampling appear to have been above the minimum ratio of 1:250 required by Special Condition 6 of the consent.

Monitoring of wastewater on one occasions during the 2016-2017 year indicated a more dilute wastewater than was found in the previous six years, with relatively low total carbonaceous BOD₅, ammoniacal nitrogen, dissolved reactive phosphorus, conductivity and turbidity. Suspended solids and chloride concentrations were well within the recently recorded ranges (Table 4).

2.1.3 Treated effluent discharge records

Discharge to water

Special condition 6 of consent 0351-3 requires a minimum dilution rate of 1 part effluent to 250 parts receiving water at the point of discharge and is to be maintained at all times during discharge events.

Special condition 7 of consent 0351-3 requires the consent holder shall monitor and maintain records, including date, time, rate, staff gauge reading and duration of discharge. These records are to be supplied to the Council quarterly or as requested.

Although the piggery wastewater discharge records were sighted, no records were received by the Council.

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 Company. 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).

In the 2016-2017 period that was monitored, the Council received four alleged complaints concerning NZ Pure Bred Genetic Limits regarding odour (as a result of burning) and discharge of pig effluent to water.

The four (three water discharge and one air discharge) incidents associated with NZ Pure Bred Genetics Ltd were investigated by Council Officers. No treated effluent was found to be discharging on two of the occasions; however the investigation on the 5 October 2016 found the final pond was discharging piggery effluent to the Rumkeg Creek. River conditions at the time of investigation allowed for a consented discharge to take place. Samples and photographs were collected on this occasion. The wastewater sample results showed only a slight environmental impact on the receiving water at the time of discharge due to a diluted wastewater concentration and river flow conditions.

Two separate complaints were received by Council on the 30 December 2017. The first complaint was in regard to the type of material being burnt in a fire at the Midhirst piggery. It was found that that the fire was burning low and the fire appeared to comply with the Taranaki Regional Air Quality Plan. The second investigation was an alleged piggery discharge. On inspection it was found the piggery was not discharging treated wastewater into the Rumkeg Creek, however it was evident that best practise was not being adopted to ensure that the piggery effluent system was well maintained. The pond levels were high and the final pond was close to overflowing.

The Councils' policy is to investigate all complaints received within a four hour period.

3 Discussion

3.1 Discussion of site performance

NZ Pure Bred Genetics Ltd was operated by J & R Cooley who leased the piggery buildings and associated wastewater treatment system from E & J O'Sullivan. The Company operated a piggery situated on Mountain Road at Midhirst, in the Manganui catchment.

During the six month period compliance monitoring indicated that the Company demonstrated that a good level of environmental performance and compliance relating to the consents was generally maintained.

All alleged discharge complaints received by the Council were promptly investigated by Council Officers; and it was found that on two occasions there was no discharge of treated wastewater to the receiving water occurring. Another investigation found the piggery was discharging treated wastewater to the river but this was allowable as per consented river flow conditions at the time of investigation. However it was evident that best practise was not being adopted to ensure the piggery system was well maintained. All pond levels were found to be high and the final pond was close to overflowing.

During this period the consent holder was relocating the piggery to a new site. They have since relocated their piggery operation to Marton, and the land and buildings have been sold by the land owner.

Consent 5249-2 has since expired and consent 0351-3 application was withdrawn.

3.2 Evaluation of performance

A tabular summary of the consent holder's compliance record for the year under review is set out in Tables 5 and 6

Table 5 Summary of performance for consent 0351-3

Purpose: To discharge treated piggery effluent to the Rumkeg Creek and land		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Operation and discharge in accordance with application	Inspections of data and discharge point inspections	Yes
2. Concentration limits upon potential contaminants in discharge	Physicochemical sampling	Yes
3. Maximum increase in turbidity after mixing	Physicochemical sampling	Yes
4. Constituents not permitted in receiving water after mixing	Monitoring inspection of receiving water	Yes
5. Operation and maintenance of treatment and discharge system	Monitoring inspections	On most occasions
6. Minimum dilution rate in receiving waters	Discharge records received by Council	Yes
7. Records of discharge	Discharge records received by Council	No
8. Riparian fencing and planting	Monitoring inspections and liaison with the consent holder	N/A

Purpose: <i>To discharge treated piggery effluent to the Rumkeg Creek and land</i>		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
9. Maximum total nitrogen application to land	Not yet accessed by Council	N/A
10. Maximum total potassium application to land	Not yet accessed by Council	N/A
11. Proximity of discharge to dwelling or water body	Monitoring inspections	Yes
12. Contamination of surface water not permitted from land irrigation	Monitoring inspections	Yes
13. Extended surface ponding not permitted	Monitoring inspections (sump overflow)	Yes
14. Discharge to land	Liaison with consent holder	Insufficient available land
15. Maximum discharge to land over water	Records and monitoring inspections	N/A
16. Optional review process	Consent expired June 2015	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		Good

N/A = not applicable

Table 6 Summary of performance for consent 5249-2

Purpose: <i>To discharge emissions into the air and waste management activities</i>		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Total number of pigs allowed	Liaison with consent holder	Yes
2. Operation and air discharge in accordance with application	Monitoring inspections	Yes
3. Consultation and approval prior to alterations to plant or process	Liaison with consent holder	Yes
4. Minimise emissions and impacts of contaminants discharged to air	Monitoring inspections	Yes
5. Objectionable odour at or beyond the boundary	Monitoring inspection and incident investigations	Yes
6. Optional review provision	Surrendered consent	N/A

<i>Purpose: To discharge emissions into the air and waste management activities</i>		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
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

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

No Recommendations are included in this report as the piggery is no longer in operation.

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.

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.

Conductivity Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 20°C and expressed in mS/m

Cumec A volumetric measure of flow- 1 cubic metre per second ($1 \text{ m}^3\text{s}^{-1}$).

DRP Dissolved reactive phosphorus.

Fresh Elevated flow in a stream, such as after heavy rainfall.

$\text{g/m}^2/\text{day}$ Grams/metre²/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.

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.

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).

NTU Nephelometric Turbidity Unit, a measure of the turbidity of water.

pH A numerical system for measuring acidity in solutions, with 7 as neutral. Numbers lower than 7 are increasingly acidic and higher than 7 are increasingly alkaline. The scale is logarithmic i.e. a change of 1 represents a ten-fold change in strength. For example, a pH of 4 is ten times more acidic than a pH of 5.

Physicochemical	Measurement of both physical properties (e.g. temperature, clarity, density) and chemical determinants (e.g. metals and nutrients) to characterise the state of an 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	<i>Resource Management Act 1991</i> and including all subsequent amendments.
SS	Suspended solids.
Temp	Temperature, measured in °C (degrees Celsius).
Turb	Turbidity, expressed in NTU.
UI	Unauthorised Incident.

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

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- Taranaki Regional Council 2004: Meadowvale Stud Farm Piggery Monitoring Programme Annual Report 2003-2004 Technical Report 2004-75.

Appendix I

Resource consents held by NZ Pure Bred Genetics Ltd Piggery

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

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

Name of
Consent Holder: NZ Pure Bred Pig Genetics Limited
131 York Road
R D 24
STRATFORD 4394

Decision Date
(Change): 27 July 2009

Commencement
Date (Change): 27 July 2009 (Granted: 5 September 2003)

Conditions of Consent

Consent Granted: To discharge treated piggery effluent from an oxidation pond treatment system into Rum Keg Creek a tributary of the Manganui River in the Waitara catchment (during high flow conditions) at or about (NZTM) 1708745E-5650801N and to discharge treated piggery effluent onto and into land at or about (NZTM) 1708434E-5650801N

Expiry Date: 1 June 2015

Review Date(s): June 2010

Site Location: Mountain Road, Stratford

Legal Description: Lot 2 DP 405477, Lot 2 DP 20963 Pt Sec 125, Sec 22
Manganui Dist Blk XIII Huiroa SD

Catchment: Waitara

Tributary: Manganui
Rum Keg Creek

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

General conditions

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
 - i) the administration, monitoring and supervision of this consent; and
 - ii) charges authorised by regulations.

Special conditions

Condition 1 (changed)

1. The consent holder shall, at all times, operate the piggery and associated activities and discharges in accordance with the information provided in support of applications 1959 and 6284, except as otherwise required or directed by the conditions set out in this resource consent.

Discharge to Water - conditions 2 - 8 (unchanged)

2. After allowing for reasonable mixing within a mixing zone extending 50 metres downstream of the discharge point, the discharge shall not cause the receiving waters of the Rum Keg Creek to exceed the following concentrations:

Constituent	Concentration
Unionised ammonia	0.025 gm ³
Filtered carbonaceous BOD ₅	2.0 gm ³

3. After allowing for reasonable mixing within a mixing zone extending 50 metres downstream of the discharge point, the discharge shall not give rise to an increase in turbidity of more than 50% in the Rum Keg Creek.
4. That after allowing for reasonable mixing, within a mixing zone extending 50 metres below the discharge point, the discharge shall not give rise to any of the following constituents in the receiving water:
 - i) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended solids;
 - ii) any conspicuous change in colour or visual clarity;
 - iii) any emission of objectionable odour;
 - iv) the rendering of fresh water unsuitable for consumption by farm animals;
 - v) any significant adverse effects on aquatic life, habitats or ecology.

Consent 0351-3

5. The consent holder shall operate and maintain the treatment and discharge system to ensure that the conditions of this consent are met.
6. A minimum dilution rate of 1 part effluent to 250 parts receiving water shall be maintained at all times in the receiving water at the point of discharge during discharge events.
7. The consent holder shall monitor and maintain records of the discharge, including date, rate, and duration of discharge to the Rum Keg Creek, and the staff gauge reading at the site. These records shall be made available to the Taranaki Regional Council, quarterly (September 30, December 31, March 31, and June 30).
8. The 600 metres section of Rum Keg Creek on the property shall be riparian fenced and planted within 3 years, with at least one third of the planting and fencing to be undertaken each year.

Discharge to Land - conditions 9 - 10 (changed)

9. Over any 12 month period the amount of Total Nitrogen applied to land as a result of the discharge shall be no more than 200 kg per hectare of land used for effluent application over that period.
10. Over any 12 month period the amount of Potassium applied to land as a result of the discharge shall be no more than 100 kg per hectare of land used for effluent application over that period.

Conditions 11 - 15 (unchanged)

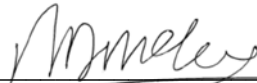
11. No contaminants shall be discharged within 150 metres of any dwelling, nor within 50 metres from any bore, well or spring used for water supply purposes, nor within 25 metres of any surface water body.
12. The discharge shall not result in any discharge of contaminants to surface water.
13. The discharge shall not result in any ponding on the surface which remains for more than 3 hours after the discharge has ceased.
14. The consent holder shall monitor and maintain records of the discharge, including date, application area, rate, and duration of discharge. These records shall be made available to the Taranaki Regional Council, quarterly (September 30, December 31, March 31, and June 30).
15. The discharge to land shall be maximised and be used in preference to discharge to water.

Review - condition 16 (unchanged)

16. 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 2010, 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.

Transferred at Stratford on 1 December 2012

For and on behalf of
Taranaki Regional Council



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: NZ Pure Bred Pig Genetics Limited
131 York Road
R D 24
STRATFORD 4394

Decision Date: 27 July 2009

Commencement
Date: 27 July 2009

Conditions of Consent

Consent Granted: To discharge emissions into the air from a pig farming activity and associated activities, including solids composting, effluent treatment and irrigation and other waste management activities at or about (NZTM) 1708696E-5650669N

Expiry Date: 1 June 2027

Review Date(s): June 2015, June 2021

Site Location: 3084 Mountain Road, Midhirst, Stratford

Legal Description: Lot 2 DP 405477, Lot 2 DP 20963 Pt Sec 125, Sec 22
Manganui Dist Blk XIII Huiroa SD

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

General conditions

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
 - i) the administration, monitoring and supervision of this consent; and
 - ii) charges authorised by regulations.

Special conditions

1. The number of pigs [equivalent 50 kg per pig] on the property at any one time shall not exceed 2500 pig equivalents.
2. Notwithstanding any other condition of this consent, 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.

Consent 5249-2

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 2015 and/or June 2021, 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.

Transferred at Stratford on 1 December 2012

For and on behalf of
Taranaki Regional Council



Director-Resource Management