NZ Pure Bred Genetics Ltd (Piggery) Monitoring Programme Annual Report 2013-2014

Technical Report 2014–24

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Executive summary

NZ Pure Bred Genetics Ltd (formerly Meadowvale Piggery) operates a piggery located on Mountain Road at Midhirst, in the Manganui catchment. Transfer of consents between the two parties became effective on 1 December 2012. NZ Pure Bred Genetics Ltd specializes in growing 8 to 10 weeks old weaners for the market and do not grow fattening pigs at the piggery. Significantly less effluent is produced by not growing fattening pigs.

This report for the period July 2013-June 2014 describes the monitoring programme implemented by the Taranaki Regional 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 holds two resource consents, which include a total of 22 conditions setting out the requirements that the Company must satisfy. The Company holds resource consent **0351-3** to allow the discharge of treated effluent to land and into Rumkeg Creek and consent **5249-2** to allow the discharge of emissions into the air from the piggery site.

The Council's monitoring programme for the year under review included four inspections and one wastewater and receiving water physicochemical sampling survey.

Consent **0351-3** expires June 2015 with no further review date. The consent holder will need to consider the proposed changes in the Regional Fresh Water Plan which relates to managing diffuse source discharges to land and water in the Taranaki Region when a new consent is applied for.

During the year, the Company demonstrated a high level of environmental performance and compliance with their resource consents.

This report includes recommendations for the 2014-2015 year.

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1. Introduction

1.1 Compliance monitoring programme reports and the Resource Management Act 1991

1.1.1 Introduction

This is the annual report for the period July 2013-June 2014 by the Taranaki Regional 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 business is now owned and operated by J & R Cooley who leases the piggery buildings from E & J O'Sullivan. The Company operates a piggery situated on Mountain Road at Midhirst, in the Waitara catchment.

NZ Pure Bred Genetics Ltd currently have the largest registered purebred herd in New Zealand with the NZ Pig Breeders Association of Berkshire, Duroc, Hampshire, Large White and Landrace breeds. Current stock numbers include up to 140 sows, gilts, weaners, boars and up to 100 piglets and any one time. Future plans are to increase stock numbers up to 180 breeding sows.

NZ Pure Bred Genetics Ltd specializes in growing 8 to 10 weeks old weaners for the market and do not grow fattening pigs at the piggery. Significantly less effluent is produced by not growing fattening pigs.

Prior to 1 December 2012 over a four month period Meadowvale piggery had significantly reduced stock numbers allowing NZ Pure Bred Genetics Ltd to become established. During this period no land or water discharges (from either party) took place.

Transfer of consents between the two parties became effective on 1 December 2012.

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 Taranaki Regional Council generally implements integrated environmental monitoring programmes and reports the results of the programmes jointly.

This report covers the results and findings of the monitoring programme implemented by the Council in respect of the consents held by NZ Pure Bred Genetics Ltd that relate to discharges to water, air and land from the site. This is the 11th combined annual report by the Taranaki Regional 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 compliance monitoring under the RMA and the Council's obligations and general approach to monitoring sites through annual programmes, the resource consents held by NZ Pure Bred Genetics Ltd in the Manganui catchment, (which flows on into the Waitara River) the nature of the monitoring programme in place for the period

under review, and a description of the activities and operations conducted at the piggery site.

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

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

Section 4 presents recommendations to be implemented in the 2013-2014 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 1991and monitoring

The *Resource Management Act 1991 (*(RMA) primarily addresses environmental 'effects' which are defined as positive or adverse, temporary or permanent, past, present or future, or cumulative. Effects may arise in relation to:

(a) the neighbourhood or the wider community around a discharger, and may include cultural and socio-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 (eg, recreational, cultural, or aesthetic);
(e) risks to the neighbourhood or environment.

In drafting and reviewing conditions on discharge permits, and in implementing monitoring programmes, the Taranaki Regional Council is recognising the comprehensive meaning of 'effects' inasmuch as is appropriate for each discharge source. 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 performance of resource users against regional plans and consents. Compliance monitoring, (covering both activity and impact) monitoring, also enables the Council to continuously assess its own performance in resource management as well as that of resource users particularly consent holders. It further 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 performance

Besides discussing the various details of the performance and extent of compliance by NZ Pure bred Genetics Ltd during the period under review, this report also assigns an overall rating. The categories used by the Council, and their interpretation, are as follows:

- A **high** level of environmental performance and compliance indicates that essentially there were no adverse environmental effects to be concerned about, and no, or inconsequential non-compliance with conditions.

- A **good** level of environmental performance and compliance indicates that adverse environmental effects of activities during the monitoring period were negligible or minor at most, or, 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, or, there were perhaps some items noted on inspection notices for attention but these items were not urgent nor critical, and follow-up inspections showed they have been dealt with, and any inconsequential non compliances with conditions were resolved positively, co-operatively, and quickly.

- **Improvement required (environmental)** or **improvement required (administrative compliance)** (as appropriate) indicates that the Council may have been obliged to record a verified unauthorised incident involving measurable environmental impacts, and/or, there were measurable environmental effects arising from activities and intervention by Council staff was required and there were matters that required urgent intervention, took some time to resolve, or remained unresolved at the end of the period under review, and/or, there were on-going issues around meeting resource consent conditions even in the absence of environmental effects. Abatement notices may have been issued.

- **Poor performance (environmental)** or **poor performance (administrative compliance)** indicates generally that the Council was obliged to record a verified unauthorised incident involving significant environmental impacts, or there were material failings to comply with resource consent conditions that required significant intervention by the Council even in the absence of environmental effects. Typically there were grounds for either a prosecution or an infringement notice.

For reference, in the 2013-2014 year, 60% of consent holders in Taranaki monitored through tailored compliance monitoring programmes achieved a high level of environmental performance and compliance with their consents, while another 29% demonstrated a good level of environmental performance and compliance with their consents.

1.2 Process description

Piggery wastewater is collected from various collection sumps situated around the piggery and passes through a separator screen which provides primary treatment by separation of the solid component from the waste. The solid waste is composted, bagged and sold as a garden fertiliser. The separator reduces solids from the wastewater stream, which reduces the biochemical oxygen demand (BOD_5) and some nutrients contained in the liquid wastewater, which is directed to the treatment pond system.

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 is discharged to the Rumkeg Creek or spray irrigated to the surrounding farmland, including a neighbouring property. Rumkeg Creek is a tributary of the Manganui River in the Waitara catchment and joins the Manganui River 750m 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. When low receiving water flow conditions preclude this discharge, treated wastewater is spray irrigated onto nearby farmland. There is insufficient land available for this purpose on the consent holder's property; agreements have been reached with neighbouring property owners to spray irrigate wastewater to their land.

Wastewater is spray irrigated onto the surrounding farmland from the second anaerobic treatment pond. Previously untreated wastewater was pumped directly from out of the separator sump which had contributed to odour issues during certain wind conditions. Spray irrigating partially treated effluent has reduced the odour effects which are sometimes associated with spray drift.

Figure 1 Piggery and disposal system of the NZ Pure Bred Genetics Limited site

1 Initial anaerobic pond; 2 Anaerobic pond; 3 Final aerobic pond; 4 Staff gauge at Denbigh Rd Bridge; 5 Offal disposal; 6 & 7 Showing spray irrigated areas

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.

NZ Pure Bred Genetics Ltd holds 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 Taranaki Regional Council on 5 September 2003 (change of conditions: 27 July 2009) as a resource consent under Section 87(e) of the RMA. It is due to expire on 1 June 2015.

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.

The permit 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.

NZ Pure Bred Genetics Ltd holds 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 Taranaki Regional 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.

The permit is attached to this report in Appendix I.

1.4 Monitoring programme

1.4.1 Introduction

Section 35 of the RMA sets out obligation/s upon the Taranaki Regional Council to gather information, monitor, and conduct research on the exercise of resource consents, and the effects arising, within the Taranaki region and report upon these. The Taranaki Regional 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 NZ Pure Bred Genetics Ltd consisted of four primary components.

1.4.2 Programme liaison and management

There is generally a significant investment of time and resources by the Taranaki Regional Council in ongoing liaison with resource consent holders over consent conditions and their interpretation and application, in discussion over monitoring requirements, preparation for any reviews, renewals, or new consents, advice on the Council's environmental management strategies and the content of regional plans, and consultation on associated matters.

1.4.3 Site inspections

NZ Pure Bred Genetics Ltd was visited four times during the monitoring period. With regard to consents for the discharge to water, the main points of interest were plant processes with potential or actual discharges to receiving watercourses, including contaminated stormwater and process wastewaters. Air inspections focused on plant processes with associated actual and potential emission sources and characteristics, including potential odour, dust, noxious or offensive emissions.

1.4.4 Chemical sampling

The Taranaki Regional Council undertook sampling of both the discharges from the site and the water quality upstream and downstream of the discharge point and mixing zone.

NZ Pure Bred Genetics Ltd piggery discharge was sampled on one occasion, and the sample analysed for carbonaceous biochemical oxygen demand ($CBOD_5$), chloride, conductivity, suspended solids, and dissolved reactive phosphate (DRP), un-ionised ammonia, pH, turbidity and temperature.

Rumkeg Creek was sampled on the same occasion, upstream and downstream of the treated discharge. The samples were analysed for filtered carbonaceous biochemical oxygen demand ($FCBOD_5$), chloride, conductivity, suspended solids, dissolved reactive phosphate (DRP), un-ionised ammonia, pH, turbidity and temperature.

The monitoring programme allows for the discharge and receiving water to be sampled on two occasions, however due to the limited discharge opportunities sampling on two separate occasions did not eventuate.

1.4.5 Biomonitoring survey

No bio-monitoring survey for the piggery was undertaken in the 2013-2014 monitoring period, as none was scheduled within the baseline monitoring programme. Because of the reduction of treated piggery effluent discharge periods including the reduction of pig numbers a biomonitoring survey was not required on this occasion.

2. Results

2.1 Water

2.1.1 Inspections

23 August 2013
This initial inspection for the monitoring period was carried out during calm weather conditions. Piggery production numbers had not been significantly increased and very little effluent was being generated from the piggery. The oxidation ponds were relatively clear (light green in colour) and were not discharging into the Rumkeg Creek. No effluent was being spray irrigated to land. The piggery operation was producing very little in the way of odour and no odour was emanating beyond the boundary.

22 November 2013
This inspection was carried out during very calm weather conditions. The solids separator area was well maintained with very little odour being produced. The first and second oxidation pond levels were low, showing adequate freeboard. All discharge flows from the first to second pond and into the final aerobic pond were relatively clear. The final pond level was low with no discharge found to be occurring into the Rumkeg Creek. Washing down the piggery occurs only when deemed necessary (approximately once per week) which helps with less wastewater being produced. Calci lime is mixed in with the feed which helps to reduce odour issues. Overall the system appeared to be well managed.

24 March 2014
A slight south easterly breeze was blowing at the time of inspection. Minimal odour was found to be emanating at any downwind sites. No effluent was discharging throughout the ponds system. The final pond was light green in colour and it appeared to be mainly rainwater. Minimal effluent was being generated and the solids separation area was found to be satisfactory.

21 May 2014
This inspection was carried out during fine, calm weather conditions. No odours were detected at the solids separation area. It has taken approximately one year to fill a single solids bin. Very little effluent is being produced from the piggery and discharged into the pond treatment system. The discharge from the second to final pond looked relatively clear. The consent holders records show that there had been no discharges into the Rumkeg Creek since January 2014. No odour was detected at any site around the piggery including downwind of the offal hole. In general the piggery was found to well managed.

26 June 2014 (water quality sampling)
A very slight NW breeze was blowing at the time water quality samples were collected. Rumkeg Creek was running in a recession flow, slightly turbid brown in colour. Rumkeg Creek staff gauge (below Denbigh Road Bridge) was reading 0.46m. Samples were collected at the discharge and upstream and downstream monitoring sites. The piggery discharge flow rate was estimated at 3 litres per second.
No visual environmental impact from the discharge was noted at the lower downstream monitoring site.

In discussion with the consent holder the piggery production numbers had increased throughout the year from 105 sows to 140 sows (includes mated & unmated gilts). Future expansion plans are to increase the production numbers up to 180 sows.

Upgrades to the piggery buildings are on hold.

2.1.2 Results of discharge monitoring

2.1.2.1 Receiving waters physicochemical monitoring

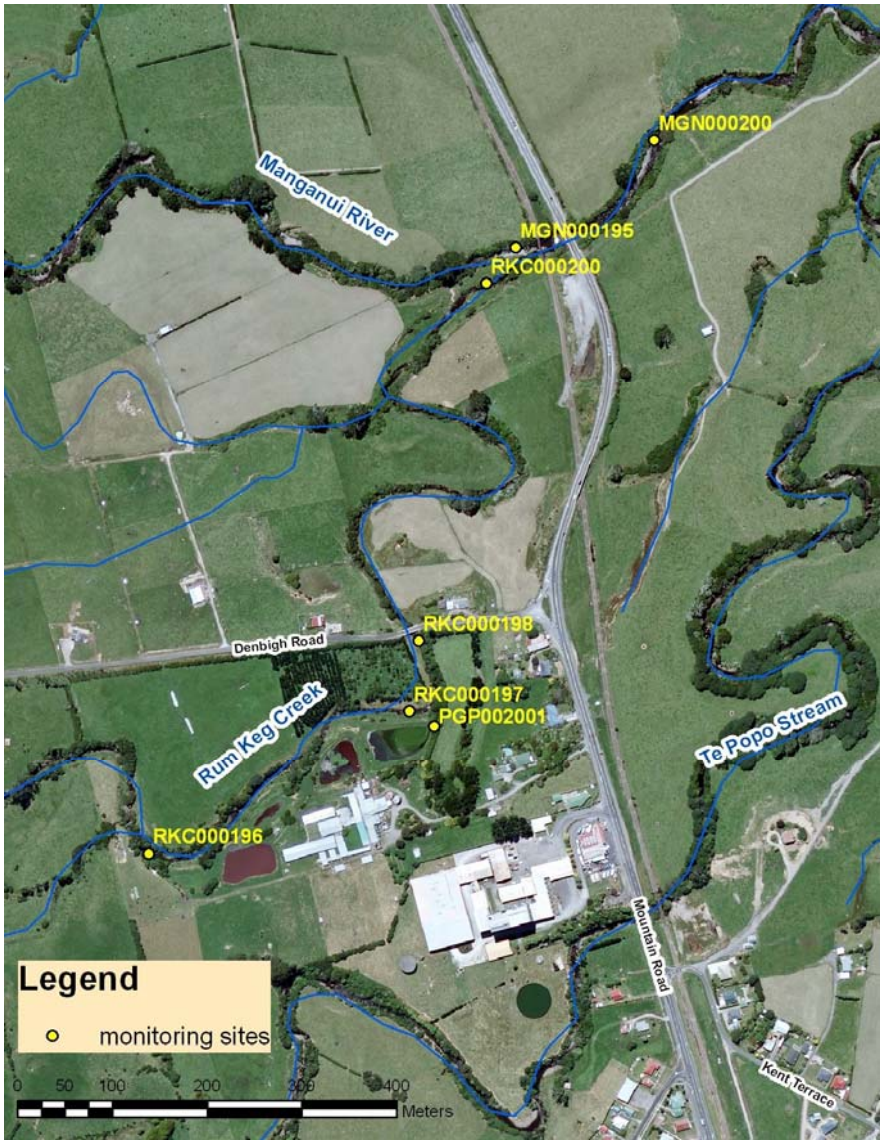

Figure 2 Aerial photograph of monitoring sites

Figure 2 shows the piggery site in relation to the receiving waters of 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 1 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 pond
Rumkeg Creek	RCK000198	E1708769 N5650864	Denbigh Road Bridge (75m d/s of discharge)

2.1.2.1 June 2014 survey

Results of the survey performed on 26 June 2014 are presented in Table 2. On this occasion the stream was on a fresh and the ponds' treated wastewater discharge was estimated at about 3.0 L/sec.

Table 2 Results from NZ Pure Bred Genetics Ltd and Rumkeg Creek sampled on 26 June 2014

Site location Site code		Rumkeg Creek u/s RKC000197	Piggery final effluent PGP002001	Rumkeg Creek d/s RKC000198
Parameter	Unit			
Time		1010	1015	1025
Temperature	°C	11.6	11.6	11.6
Conductivity @ 20°C	mS/m	8.3	82.6	8.4
Chloride	g/m^3	9.0	36.8	8.8
pH		7.3	7.6	7.3
Total carbonaceous BOD_5	g/m^3	-	56	-
Filtered carbonaceous BOD_5	g/m^3	<0.5	-	<0.5
Ammoniacal nitrogen	g/m^3N	0.222	65.2	0.407
Unionised ammonia	g/m^3NH_3	0.0001	0.6700	0.0021
Dissolved reactive phosphorus	g/m^3P	0.053	18	0.107
Turbidity	NTU	3.7	48	3.6
Suspended solids	g/m^3	5	81	6
Appearance		Turbid brown	Green brown	Turbid brown

These results indicate that the treated wastewater discharge dilution ratio in the stream at the time of sampling was well above the minimum ratio of 1:250 as required by Special Condition 6 of the consent.

Compliance with Special Condition 2 was well achieved with downstream un-ionised ammonia (8% of limit) and filtered BOD_5 (no measurable increase) well within requisite standards. The turbidity (no measurable increase) was well within the limit imposed by Special Condition 3 of the consent, under stream fresh conditions at the time of the sampling survey.

Rumkeg Creek staff gauge reading was recorded 0.46m at the time of sampling equating to a river flow of 1939 litres per second.

The consent holder's discharge records received by Council for 26 June 2014 (as required by Special Condition 7 of the consent) show that the treated wastewater discharge was started at 0900 hours when the Rumkeg Creek staff gauge reading was 0.51m equating to a River flow of 2959 litres per second and finishing some two hours later, once the water quality samples had been collected.

Table 3 Summary of treated wastewater analyses from the NZ Pure Bred Genetics Ltd for the period July 2013 to June 2014

Parameter	unit	Median 2012-2013	20 June 2014
Conductivity @ 20°C	mS/m	110	82.6
Chloride	g/m^3	33.6	36.8
pH	pH	7.8	7.6
Total carbonaceous BOD_5	g/m^3	77	56
Ammoniacal nitrogen	g/m^3N	109	65.2
Dissolved reactive phosphorus	g/m^3P	24.5	18
Turbidity	NTU	74	48
Suspended solids	g/m^3	155	81

Monitoring of wastewater on one occasion during the 2013-2014 year indicated a well treated wastewater typical of past median wastewater quality in terms of BOD_5, suspended solids, and turbidity, with nutrient levels within range (Table 4).

2.1.3 Gauging water flow

To determine flow rates in the Rumkeg Creek a rating curve is maintained by Council. This enables the consent holder to assess treated wastewater discharge compliance with the minimum dilution ratio of 1:250 (one part effluent to two part hundred and fifty parts receiving water flow).

The staff gauge installed on the Denbigh Road Bridge provides the consent holder with the stream level (or height) and a rating chart produced by Council shows stream flow rates at any given time. It was not considered necessary to review the rating curve during the 2013-2014 year but it may be reviewed again in the 2014-2015 monitoring period if required.

2.1.4 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 discharge 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.

During the 2013-2014 monitoring period the Council received from NZ Pure Bred Genetics Ltd records showing 7 daily discharges (30 hours total discharge time) to the Rumkeg Creek.

These records indicate that the consent holder maintained a minimum dilution rate of 1 part effluent to 250 parts receiving water at the point of discharge on all occasions. In comparison 5 daily discharges were recorded for the 2012-2013 monitoring period and 51 daily discharges were recorded by Meadowvale piggery during the previous 2011-2012 monitoring period.

Discharge to land

Special condition 14 of Consent **0351-3** requires that the consent holder shall monitor and maintain records of discharge, including date, application area, rate and duration of discharge. These records are to be supplied to the Council quarterly or as requested.

Special condition 15 of consent **0351-3** requires the consent holder to maximise discharge to land in preference to discharge to water. No discharge to land was carried out during the 2013-2014 monitoring period due to minimal volume of effluent being produced.

Effluent application rates to land are required to ensure that the effluent application rate does not exceed the recommended 200 kg nitrogen/ha/year.

The Council strongly encourages pork producers to use systems that discharge pig manure to land in preference to discharging to water. The nitrogen and potassium content of piggery manure is usually the major determinant of land area required.

2.1.5 Liaison with consent holder

During the 2013-2014 monitoring period, the Taranaki Regional Council liaised with the consent holder (J Cooley) regarding several operational issues, additional to those required in the monitoring programme. These included matters such as odour management, annual draft report, pond maintenance, piggery operations, discharge effluent record keeping and discharging piggery wastewater to land in preference to water as per the proposed RFWP.

2.2 Air

2.2.1 Inspections

Air inspections were carried out in conjunction with all the general compliance monitoring inspections at NZ Pure Bred Genetics Ltd Farm. Inspections found that only minimal piggery odours were present during one site inspection and no objectionable or offensive odours were recorded beyond the boundary. No dust, smoke or other issues were noted during the inspections of the site.

2.2.2 Results of air monitoring

Special condition 5 of consent 5249-2 requires that discharges shall not give rise to an odour at or beyond the property boundary that is offensive or objectionable

Odours emitted from normal piggery operations are influenced mainly by weather conditions (i.e. wind direction), effluent treatment areas, solids storage & disposal, irrigating to land and general piggery hygiene operations.

The offensiveness of odour on any particular occasion is reliant on individual perception, Council methods of measurement, and management 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 areas of the piggery.

The routine compliance monitoring inspections found that minimal piggery odour were emanating from around the piggery, solids separator, and oxidation treatment ponds system.

2.3 Investigations, interventions, and incidents

The monitoring programme for the year was based on what was considered to be an appropriate level of monitoring, review of data, and liaison with the consent holder. During the year matters may arise which require additional activity by the Council for example provision of advice and information, or investigation of potential or actual 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 Taranaki Regional 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 Unauthorised Incident Register (UIR) 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 2013-2014 period, there were no recorded incidents that was associated with NZ Pure Bred Genetics Ltd Farm. However, the offensiveness of unpleasant odour is reliant on individual perception. There will always be varying degrees of odour strength associated with intensive pig, cattle or poultry farming which can not be entirely eliminated.

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

All Council Inspecting Officers undergo an olfactory calibration which determines their odour perception.

3. Discussion

3.1 Discussion of site performance

During the year NZ Pure Bred Genetics Ltd demonstrated that a high level of environmental performance and compliance relating to the consents.

There has been no change to the monitoring programme (which was originally designed for Meadowvale Piggery). The NZ Pure Bred Genetics Ltd piggery is operating on a smaller scale compared to Meadowvale Piggery. At this stage four regularly three monthly inspections of the piggery will continue including water quality sampling of the piggery wastewater discharge and receiving waters sampled twice yearly.

Biomonitoring, a component of the previous monitoring programme, will be put on hold until such time it may be deemed necessary to continue. This would be dependant on any future expansion of the piggery and the frequency of discharging treated wastewater to the receiving waters.

Improvements carried out at the piggery have also been put on hold until such time a lease agreement is formalized.

NZ Pure Bred Genetics were recently audited by AsureQuality. They successfully achieved accreditation with the 'Pig Care Animal Welfare Programme' complying with the Animal Welfare (Pigs) Code of Welfare 2011. The purpose of this code is to inform the owners of pigs and persons who are in charge of them about the minimum standards they must achieve in order to meet their obligations under the *Animal Welfare Act 1999*. The achievement of high standards of animal welfare in any pig production system requires skill and good judgment. Unless the pigs are managed and handled well, their welfare cannot be adequately protected. This code also stresses the importance of good stockmanship, husbandry and management of pigs.

A high level of environmental performance and compliance was achieved over the monitoring year. It should be noted that the piggery and ponds, are located in close proximity to residential properties, and people's perceptions and attitudes towards environmental issues over time have changed with the expectation that existing farmers such as pig and poultry growers must adapt to new regulatory conditions. What was once regarded as acceptable now may be challenged when referring to odour compliance.

Odour emissions from the anaerobic ponds are generally stronger than odours from the anaerobic pond. The proliferation of aerobic bacteria can lead to an increase in hydrogen sulphide (i.e. "rotten egg" gas) and increased pH (i.e. increased alkalinity). Oxidation ponds treating pig effluent can produce up to 5,000ppm hydrogen sulphide, and this potent-smelling gas is one of the main causes for odour complaints. Weather conditions, especially wind direction have been the main trigger for residents to register an odour complaint with the Council.

The dietary feed for the pigs is mainly made up from barley, ground meat and bone, milk powder, soya bean, calci lime and minerals and salts. The grower uses less meat meal and dried blood, which may otherwise contribute to odour issues.

Consent **0351-3** expires June 2015 with no further review date. The consent holder will need to consider the proposed changes in the Regional Fresh Water Plan which relates to managing diffuse source discharges to land and water in the Taranaki Region when a new consent is applied for.

3.2 Exercise of air consent

Operations at the piggery had previously (Meadowvale Piggery) resulted in some odour emanating off site from time to time. Odour has been the result of general operations and adverse weather conditions. As the piggery is located on a small site within a residential area in Midhirst there is no real buffer zone.

The Council uses FIDOL factors and scales to rate odour observations. The five FIDOL factors used are frequency, intensity, duration, offensiveness and location.

Frequency:

- How many times the odour is detected during the investigation.

Intensity:

- Perceived strength or concentration of the odour.
- Does not relate to degree of pleasantness or unpleasantness.
- Assessed subjectively using 0-6 scale (ambient):

0. Not detectable – no odour
1. Very weak – odour detected but may not be recognisable
2. Weak – odour recognisable (i.e., discernible)
3. Distinct – odour very distinct and clearly distinguishable
4. Strong – odour causes a person to try to avoid it
5. Very strong – odour overpowering and intolerable
6. Extremely Strong – pungent, highly offensive, overpowering and intolerable

Duration:

- The lengths of time people are exposed to odour.
- During an investigation how long does the odour persist

Offensiveness:

- A rating of an odour's pleasantness or unpleasantness ("hedonic tone").
- This does not necessarily have the same meaning as offensiveness in the RMA or consent conditions.
- A subjective assessment which can vary between individuals, but which must also be based on a 'typical 'response.

Location:

- Where the odour is detected from.

- Note type of area (for example, agricultural, residential, or industrial).

The RMA (1991) requires that there should be no offensive or objectionable odour beyond the boundary of the farm.

The pork industries guide to managing environmental effects, deals with management practices ensuring the effect of odour is taken into account when undertaking activities relating to farm operations.

No complaints concerning piggery odour emissions was received by the Council during the 2013-2014 monitoring period.

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 4 and 5.

Table 4 Summary of performance for Consent **0351-3** discharge of treated piggery effluent to 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. Maximum concentrations in receiving water after mixing	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 waters	Yes
5. Operation and maintenance of treatment and discharge system	Monitoring inspection	Yes
6. Minimum dilution rate in receiving waters	Discharge records and monitoring	Yes
7. Records of discharge	Discharge records received by Council	Yes
8. Riparian fencing and planting	Monitoring inspections and liaison with the consent holder	N/A
9. Maximum total nitrogen application rate to land	Not yet accessed by Council	N/A
10. Maximum total potassium application rate 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

Condition requirement	Means of monitoring during period under review	Compliance achieved?
13. Extended surface ponding not permitted	Monitoring inspections	Yes
14. Discharge to land	Liaison with consent holder	N/A
15. Maximum discharge to land over water	Records and monitoring inspections	N/A
16. Optional review provision	Consent expires June 2015	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		High

N/A = not applicable

Table 5 Summary of performance for Consent **5249-2** discharge of emissions into the air and waste management activities

Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Total number of pigs allowed	Liaison with the 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	N/A
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	Next review June 2015	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		High

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

3.4 Recommendations from the 2012-2013 Annual Report

In the 2012-2013 Annual Report, it was recommended:

1. THAT monitoring of air emissions from NZ Pure Bred Genetics Ltd piggery in the 2013-2014 year continue at the same level as in the 2012-2013 period and that the consent holder minimise the impact of discharges to air by adopting the appropriate odour management and odour control practices.

2. THAT monitoring of wastewater discharges from NZ Pure Bred Genetics Ltd piggery in the 2013-2014 year continues as in the 2012-2013 period with provision for an extra sampling run to be undertaken if the downstream receiving waters are showing signs of adverse environmental effects.

3. THAT the piggery inspections in the 2013-2014 period remain at four inspections as in the 2012-2013 period and these inspections to be carried out tri-monthly and when consents are transferred to the NZ Pure Bred Genetics Ltd piggery the frequency of inspections may be increased in the interim.

4. THAT the consent holder continues to desludge the anaerobic ponds and final ponds as required thereby providing the necessary retention time in the system for adequate waste treatment.

5. THAT the consent holder be advised that maximisation of land discharge be complied with, and that close attention be given to maintenance of sufficient dilution of any discharge of treated wastes in the receiving waters to prevent the development of any 'undesirable biological growths' on the bed of Rumkeg Creek.

6. THAT the consent holder provides the Council with details of the location of areas to be irrigated with piggery wastes and provides records as required by special condition 14 of Consent **0351-3**.

7. THAT the biomonitoring survey for the 2013-2014 period in the Rumkeg Creek continues.

8. THAT the total number of pigs (equivalent 50 kg per pig) on the property at any one time shall not exceed 2500 pig equivalents.

9. THAT the consent holder seeks professional advice on the mitigation of odour issues and that an Odour Assessment Report and Implementation Plan be submitted to Council during this monitoring year ending June 2013.

Transfer of consents between the two parties became effective on 1 December 2012.

Meadowvale Piggery achieved most of the recommendations for their part of the monitoring period.

Recommendation 1- Was achieved during the routine compliance monitoring inspections. No odour complaints were received by the Council.

Recommendation 2 - Monitoring the wastewater and receiving waters was carried out on one occasion. The monitoring program allows for two sampling runs but due to the limited discharge opportunities this was not achieved. There was no requirement to undertake an additional sampling run.

Recommendation 3 - Four compliance monitoring inspections were carried out (including one visit to undertake monitoring of the wastewater and receiving water).

Recommendation 4 - Desludging of the anaerobic or aerobic pond was not required.

Recommendation 5 & 6 Spray irrigating effluent to land was not achieved due to the minimal volume of effluent being produced.

Recommendation 7 - The Council recommended a biomonitoring survey of the receiving waters was not required as discharge occasions were minimal and stock numbers were significantly decreased.

Recommendation 8 - Achieved – low stock numbers.

Recommendation 9 – Mitigation of odour issues and that an Odour Assessment Report and Implementation Plan be submitted to Council -not required (nil odour issues).

3.5 Alterations to monitoring programmes for 2014-2015

In designing and implementing the monitoring programmes for air/water discharges in the region, the Taranaki Regional Council has taken into account the extent of information made available by previous authorities, its relevance under the RMA, the obligations of the Act in terms of monitoring emissions/discharges and effects, and subsequently reporting to the regional community, the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki emitting to the atmosphere/discharging to the environment.

In consideration of the NZ Pure Bred Genetics Ltd environmental performance in regard to treated wastewater discharge and its effects, it is proposed that for 2014-2015 that the Council continues at four monitoring inspections of the piggery per year.

It is also recommended that provision be made for physicochemical impact monitoring to continue twice per year, under normal stream flow and wastewater discharge conditions with an extra sampling run to be undertaken if the downstream receiving waters are showing signs of adverse effects, (i.e. presence of sewage fungus in Rumkeg Creek or high waste loadings from the treatment pond system).

It is also recommended that a biomonitoring survey of the Rumkeg Creek is discontinued for the 2014-2015 monitoring period but may again be reinstated depending on the future expansion of the piggery and also the frequency of wastewater discharges to the receiving water.

3.6 Exercise of optional review of consent

Resource consent **0351-3** (discharge to water and land) was last reviewed in July 2009 and does not provide for any further optional review of the consent. Consent **0351-3** expires in June 2015.

Resource consent **5249-2** - to discharge emissions into the air from a pig farming activity and associated activities, was last reviewed in July 2009 with the next review dates June 2015 & June 2021. Consent **5249-2** expires in June 2027.

4. Recommendations

1. THAT monitoring of air emissions from the NZ Pure Bred Genetics Ltd piggery in the 2014-2015 year continue at the same level as in the 2013-2014 period and that the consent holder minimises the impact of discharges to air by adopting the appropriate odour management and odour control practices.

2. THAT monitoring of wastewater discharges from the NZ Pure Bred Genetics Ltd piggery in the 2014-2015 year continues as in the 2013-2014 period with provision for an extra sampling run to be undertaken if the downstream receiving waters are showing signs of adverse environmental effects.

3. THAT the piggery inspections in the 2014-2015 period remain at four inspections as in the 2013-2014 period and these inspections to be carried out tri-monthly.

4. THAT the consent holder be advised that maximisation of land discharge should be complied with, and that close attention be given to maintenance of sufficient dilution of any discharge of treated wastes in the receiving waters to prevent the development of any 'undesirable biological growths' on the bed of Rumkeg Creek.

5. THAT the consent holder provides the Council with details of the location of areas to be irrigated with piggery wastes and provides records as required by special condition 14 of Consent **0351-3**.

6. THAT the biomonitoring survey for the 2014-2015 period in the Rumkeg Creek discontinues but with provision for biomonitoring to be undertaken if the downstream receiving waters are showing signs of adverse environmental effects.

7. THAT the consent holder provides the Council with details on any future piggery production increase.

Glossary of common terms and abbreviations

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

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.
FCBOD	Filtered 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.
Condy	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 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.
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.
Fresh	Elevated flow in a stream, such as after heavy rainfall.
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.
l/s	litres per second.
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.
mS/m	Millisiemens per metre.
Mixing zone	The zone below a discharge point where the discharge is not fully mixed with the receiving environment. For a stream, conventionally taken as a

	length equivalent to 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).
NO_3	Nitrate, 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 environment.
Resource consent	Refer Section 87 of the RMA. Resource consents include land use consents (refer Sections 9 and 13 of the RMA), coastal permits (Sections 12, 14 and 15), water permits (Section 14) and discharge permits (Section 15).
RFWP	Regional Fresh Water Plan.
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.
UI	Unauthorised Incident.
UIR	Unauthorised Incident Register – contains a list of events recorded by the Council on the basis that they may have the potential or actual environmental consequences that may represent a breach of a consent or provision in a Regional Plan.

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

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Ministry for the Environment June 1992: Resource Management Water Quality Guidelines No.1. Guidelines for the Control of Undesirable Biological Growths in Water.

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

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Appendix I

Resource consents held by NZ Pure Bred Genetics Ltd Piggery

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.

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.

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

Appendix II

Flow rating for Rumkeg Creek

Rumkeg Creek above Confluence

River Height vs Flow Values Prepared for NZ Pure Bred Genetics Ltd piggery

A staff gauge has been installed on the Rumkeg Creek Denbigh Road Bridge for monitoring of the river level (or height).

Table 1 shows river levels at this bridge and the corresponding flow for each level. All flows are expressed in litres per second.

River Level	Flow (litres/second)	River Level	Flow (litres/second)
0.1	20	0.5	2,726
0.11	24	0.51	2,959
0.12	29	0.52	3,205
0.13	34	0.53	3,465
0.14	39	0.54	3,739
0.15	46	0.55	4,036
0.16	54	0.56	4,350
0.17	62	0.57	4,681
0.18	72	0.58	5,028
0.19	82	0.59	5,393
0.2	95	0.6	5,789
0.21	110	0.61	6,207
0.22	126	0.62	6,647
0.23	144	0.63	7,109
0.24	164	0.64	7,592
0.25	189	0.65	8,098
0.26	216	0.66	8,625
0.27	246	0.67	9,174
0.28	279	0.68	9,744
0.29	315	0.69	10,337
0.3	359	0.7	10,991
0.31	406	0.71	11,674
0.32	459	0.72	12,386
0.33	516	0.73	13,127
0.34	577	0.74	13,897
0.35	648	0.75	14,695
0.36	725	0.76	15,523
0.37	808	0.77	16,380
0.38	897	0.78	17,266
0.39	993	0.79	18,181
0.4	1,100	0.8	19,180
0.41	1,217	0.81	20,219
0.42	1,341	0.82	21,296
0.43	1,474	0.83	22,413
0.44	1,615	0.84	23,568
0.45	1,772	0.85	24,763
0.46	1,939	0.86	25,996
0.47	2,118	0.87	27,269
0.48	2,307	0.88	28,581
0.49	2,507	0.89	29,932

River Level	Flow (litres / second)
0.9	31,365
0.91	32,845
0.92	34,372
0.93	35,946
0.94	37,567
0.95	39,235
0.96	40,950
0.97	42,712
0.98	44,520
0.99	46,376
1.00	48,591