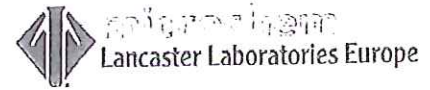


APPENDIX F

Certificates of Analysis

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Analysis Report



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Dungarvan
Co Waterford
Ireland

Tel: +353 (0)58 48300
Fax: +353 (0)58 42855

Email: info@microchem.ie
www.microchem.ie

Ms. Orla O'Connell
IE Consulting-GES Ltd
Innovation Centre
Green Road
Carlow

Ireland

PO Number N/A

Sample Type Water

Received Date : 15 Apr 2010

Analysis Start Date : 15-Apr-2010

Lab Number :	Batch Number :	Description	Test - Method	Result
210004315	14/04/10 IE565 (PROJECT NA) SITE WELL			
		<i>Sub Contracted Test</i>	*TPH Spec. - Subcontracted Laboratory Method	TPH>C10-C20_<10 µg/L
		<i>Sub Contracted Test</i>		TPH>C20-C40_<10 µg/L
		<i>Sub Contracted Test</i>		TPH>C6-C10_<10 µg/L
		<i>Sub Contracted Test</i>		TPH>C6-C40_<10 µg/L
		<i>Sub Contracted Test</i>	Ammonium -NH4 - SOP 2.1179	ND<0.02 mg/L
		<i>Sub Contracted Test</i>	*Calcium (as Ca) - Subcontracted Laboratory Method	36 mg/L
		<i>Sub Contracted Test</i>	Chloride - SOP 2.1179	24 mg/L
		<i>Sub Contracted Test</i>	*Conductivity - SOP 2.1015	419 µS/cm Temp 20.1°C
		<i>Sub Contracted Test</i>	*Iron - Sub-contracted	<30 µg/L
		<i>Sub Contracted Test</i>	*Magnesium (as Mg) - Subcontracted	18 mg/L
		<i>Sub Contracted Test</i>	*Manganese (as Mn) - Sub-contracted	12 µg/L
			*Nitrate (as N) - SOP 2.1179	8.78 mg/L
			Nitrite (as N) - SOP 2.1179	ND<0.02 mg/L
			*Orthophosphate (as P) - SOP 2.1179	0.06 mg/L
			pH - SOP 2.1025	6.93
		<i>Sub Contracted Test</i>	*Phosphorus (total as P) - SOP 2.1179	0.23 mg/L
		<i>Sub Contracted Test</i>	*Potassium (as K) - Sub-contracted	2.24 mg/L
		<i>Sub Contracted Test</i>	*Sodium (as Na) - Subcontracted	15 mg/L
			Sulphate - SOP 2.1179	16 mg/L
			*Total Alkalinity (as CaCO3) - SOP 2.1017	129 mg/L

Authorised By : Mary Cosgrave, Team Leader Chemistry Water

Authorised Date : 07 May 2010



Uncertainty of measurement has been calculated for all INAB accredited tests and is available upon request

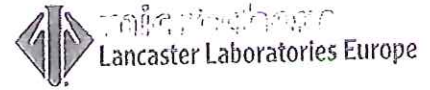
This report has been produced electronically

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A nalysis Report



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Email: info@microchem.ie
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PO Number N/A

Sample Type Water

Received Date : 15 Apr 2010

Analysis Start Date : 15-Apr-2010

Lab Number :	Batch Number :	Description	Test - Method	Result
210004315	14/04/10 IE565 (PROJECT NA) SITE WELL		*Total Nitrogen (asN) - SOP 2.1187	8.80mg/L
			*Total Organic Carbon - USP 32	4.76 ppm

ND - When shown indicates not detected.

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Authorised By : Mary Cosgrave, Team Leader Chemistry Water

Authorised Date : 07 May 2010



Uncertainty of measurement has been calculated for all INAB accredited tests and is available upon request

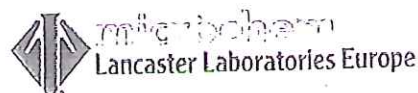
This report has been produced electronically

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Analysis Report



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Ms. Orla O'Connell
IE Consulting-GES Ltd
Innovation Centre
Green Road
Carlow

Ireland

PO Number n/a

Sample Type Water

Received Date : 15 Apr 2010
Analysis Start Date : 15-Apr-2010

Lab Number :	Batch Number :	Description	Test - Method	Result
100013704	IE565 Site well	Water	Coliforms - SOP 1.1051	<1 cfu/100ml
			Enterococci - SOP 1.1052	<1 cfu/100ml
			Faecal Coliforms - SOP 1.1059	<1 cfu/100ml

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Authorised By : Jean White, Analyst 3
Authorised Date : 17 Apr 2010



Uncertainty of measurement has been calculated for all INAB accredited tests and is available upon request

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FBA Laboratories Ltd.

ANALYSTS: Agricultural and Environmental
CONSULTANTS: Agricultural and Nutritional

Cappoquin,
Co. Waterford.

Tel: 058-52861
Fax: 058-52865
tom@fba-labs.com

CERTIFICATE OF ANALYSIS

MS Farm Services,
Mooresfort,
Lattin,
Co. Tipperary.

Sample Ref: W1
Date Received: 21.09.2007
Lab Ref: 10776

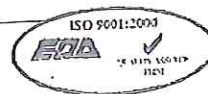
Parameter	Units of analysis	Result
Total Ammonia	mg/l NH ₃ -N	<0.01
Nitrate	mg/l NO ₃ -N	12.3
Total Coliforms	MPN/100mls	0
Faecal Coliforms	MPN/100mls	0

Signed [Signature]

Date 2/10/07

DIRECTORS: T.M. BUTLER M.AGR.SC., PHD
C.M. BUTLER DIP SCI.

Co. Reg. No: 250639



FBA Laboratories Ltd.

Cappoquin,
Co. Waterford.

ANALYSTS: Agricultural and Environmental
CONSULTANTS: Agricultural and Nutritional

Tel: 058-52861
Fax: 058-52865
admin@fba-labs.com

CERTIFICATE OF ANALYSIS

MS Farm Services,
Moorestort,
Lattin,
Co. Tipperary,

Sample Ref: W1
Date Received: 21.03.2007
Lab Ref: 10565

Parameter	Units of analysis	Result
Total Ammonia	mg/l NH ₄ -N	0
Nitrate	mg/l NO ₃ -N	4.1
Total Coliforms	MPN/100mls	ND
Faecal Coliforms	MPN/100mls	ND

ND Not Detected

Signed *[Signature]*

22/3/07

DIRECTORS: T.M. BUTLER M.AGR.SC., PHD
C.M. BUTLER DIP SCI.

Co. REG. No: 250639





Client ID : DGMIT
MR JIM FLYNN
DAIRYGOLD MITCHELSTOWN
MITCHELSTOWN
CO. CORK.

No Of Samples : 1
Sample Type : Water
Order Number : 3085-04391

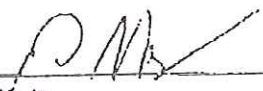
Report No : 5784D
Date of Receipt : 30/05/01
Delivery Mode : Hand
Date testing Initiated : 30/05/01
Date of Report : 05/06/01

CERTIFICATE OF ANALYSIS

Sample No : 5784D1
Client Reference : WATER EX KILLEAGH PIGGERIES

Test	Test Description	Test Result	Unit	Method
067	CHEMICAL OXYGEN DEMAND (COD)	<10	mg/l	ET0672/APHA98 5220:C
038	AMMONIA NITROGEN as N	<0.1	mg N/l	ET0382/APHA98 4500NH3:G
044	NITRATE NITROGEN (NO3 as N)	16	mg N/l	ET0442/APHA98 4500NO3:D
624	TOTAL COLIFORM COUNT (m-ENDO)	0	CFU/100m ³ s	MT6241/APHA 9222 B
625	FAECAL COLIFORM COUNT (M-FC)	0	CFU/100m ³ s	M16251/APHA 9222 D

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Authorised By: 
Dan Healy
Technical Director

FBA Laboratories Ltd.

Cappoquin,
Co. Waterford.

ANALYSTS: Agricultural and Environmental
CONSULTANTS: Agricultural and Nutritional

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Fax: 058-52865
tom@fba-labs.com

CERTIFICATE OF ANALYSIS

MS Farm Services,
Mooresfort,
Lattin,
Co. Tipperary.

Client:
Sample Ref: W1
Date Received: 20.09.05
Lab Ref: 10047

Parameter	Units of analysis	Result
Total Ammonia	mg/l NH ₃ -N	0.07
Nitrate	mg/l NO ₃ -N	8.9
Total Coliforms	MPN/100mls	29
Faecal Coliforms	MPN/100mls	Absent

Signed [Signature]

Date 22/9/05

DIRECTORS: T.M. BUTLER M.AGR.SC., FID
C.M. BUTLER DIP SCI.

Co. Reg. No: 250639



FBA Laboratories Ltd.

ANALYSTS: Agricultural and Environmental
CONSULTANTS: Agricultural and Nutritional

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CERTIFICATE OF ANALYSIS

MS Farm Services,
Moorestort,
Lattin,
Co. Tipperary.

Client:
Sample Ref: W1
Date Received: 20.09.05
Lab Ref: 10047

Parameter	Units of analysis	Result
Total Ammonia	mg/l NH ₃ -N	0.07
Nitrate	mg/l NO ₃ -N	8.9
Total Coliforms	MPN/100mls	29
Faecal Coliforms	MPN/100mls	Absent

Signed [Signature]

Date 22/9/05

RECTORS: T.M. BUTLER M.AGR.SC., PHD
C.M. BUTLER DIP SCI.

Co. REG. No: 250639



1. NON-TECHNICAL SUMMARY

- 1.1 This pig farm currently has full planning permission to operate as a 600 sow integrated pig farm is owned and operated by Mr Tom O'Brien, who recently purchased this pig farm from Dairygold. This report supports an IPPC License application to the EPA as Reg No P0790-02. This pig farm is being developed by Tom O'Brien to ensure the future viability of this pig farm, while improving on the environmental performance of the facility. The primary goal set at the preparatory stage of this proposal was to develop this site to a viable scale. The facility will conform to the highest standards.
- 1.2 The development will occupy a landscaped site of approximately 3.86 hectares, (9.526 acres) The proposed development will comply with the E.C. Regulations on Animal Welfare, and incorporates emission reduction measures, which are currently BAT for the pig production sector.
- 1.3. The buildings and their layout are state of the art for the industry. All clean water from the site, is collected via the stormwater collection system (See Site Layout Plan, in Attached report), and directed into the monitoring point identified as SW1, and marked on said drawing. This monitoring point will be visually inspected weekly, and sampled quarterly. All soiled water will be diverted into the adjacent pig manure storage tanks.
- 1.4 The main components of this proposal are;
- (i) Increasing the scale of this site to ensure future viability
 - (ii) Provision of new housing designs and areas to comply with Animal Welfare Regulations.
 - (iii) Decommissioning of the existing open concrete storage tank.
 - (iv) Covering of all passageways and open areas including loading ramp used by pigs.
 - (v) Removal of pig manure from under pig houses fresh to separate storage.
 - (vi) Bunding of all liquid feed tanks and fuel tanks on site.
 - (viii) Installation of an engineered geo-membrane lined, covered storage system .
- 1.5 The estimated annual production of pig manure from this proposed unit will be 10651 M3. The volume of storage capacity for the site will be 12165 M3. This equates to 59 weeks storage, which is well in excess of the 26 week requirement, but prudent given the fact that most of the customer farms are tillage farms.
- 1.6 IE Consulting/GES Ltd were engaged to undertake a groundwater assessment at the pig unit, to support the IPPC License application. The scope of the work included a desk based study to review all relevant documentation, to assess existing data, to undertake a site visit, to obtain groundwater level measurements, from on site well, and to identify risk sources at the site, and to make recommendations for future groundwater assessment or monitoring works at the site. The report concluded that the risk sources at the site are the pig manure tanks and channels at the site, and the soak away for domestic effluent. It proposed the monitoring of new leak detection systems on site, and the bunding of all fuel tanks on site, as well as the determining the zone of contribution of the onsite well, to assess the integrity of all tank, channels, soak ways, and pipelines on site. In addition it recommended the provision of a well head cover and surface seal for the onsite well. This report is attached in full.
- 1.7 This pig farm will give direct employment to 3 staff members, and a trained manager. It will also give rise indirectly to another 18 jobs in the pig meat processing, milling and service sectors.
- 1.8 The pig manure will be applied as fertiliser on 673 hectares (1663 acres) after deductions of well drained productive farmland, at an average rate of 25 m3 per hectare, (2226 gallons per acre). These customer farms are already approved by the Environmental Protection Agency for the use of pig manure under IPC licence 316 in their previous nutrient Management Plan for 2005. An Individual fertiliser plan has been produced by each farmer, in compliance with S.I. No 101 of 2009. The fertiliser plan has taken into account the phosphorus level in the soil, the phosphorus produced on the farm, the phosphorus in pig manure and the limit to the amount of nitrogen that can be spread from organic manure (i.e. 250 kgs per hectare; and 170 Kgs per hectare for REPS farms). Spreading during the growing season only, will further protect against nitrate-nitrogen

contamination of groundwater. Each customer farmer proposing to use pig manure as fertiliser on his lands will be advised to apply same in compliance with the "Code of good Practice for landspreading", and the required Buffer Zones.

1.9 These farmers, with a total of 673 hectares (1663 acres), are customers for pig manure, as a fertiliser for their farming enterprises. These customer farms who are included in the fertiliser plan, for this facility, currently have a requirement for over 14,000 Kgs of phosphorus after accounting for home produced cattle manure. The proposed development will generate 9586 Kgs P approx based on the Department of Agriculture and Food, (REPS) Recommendations. An independent assessment of the customers lands whereupon it is proposed to use the pig manure generated at this site is available on site for inspection. By the Agency, and Cork County Council, and Dept of Agriculture officials at all reasonable times, in accordance with the requirements of S.I. No 101 of 2009, and IPPC Licence conditions. An Environmental Impact Assessment was carried out in support of this application. This included a review of customer farms to ensure their suitability, and requirement for recovery of pig manure. Surveys of water for quality analyses, and geohydrological surveys, were also prepared. Flora & Fauna, archaeological monuments and traffic levels were also noted. The following statements may be made.

- (a) The customers lands selected whereupon pig manure will be used, are well drained and are mostly deficient to low in phosphorus, one of the main plant nutrients supplied by pig manure. No contamination of surface waters with run-off waters containing high phosphorus content can be foreseen with the applied management. Neither will contamination of groundwater with nitrate-nitrogen take place.
- (b) The quality of the surface and groundwater leaving the area of customer farms is good.
- (c) The impacts from traffic, noise and odours at the pig unit are insignificant after all practical steps have been taken to mitigate them.
- (c) Pig manure will be applied using tankers equipped with low trajectory splash plate or the band spreading method

1.10 Proposals for monitoring surface and ground waters at the site are set down in the Environmental Impact Statement, in accordance with BAT for the sector. A register of pig manure quantities, date of delivery, name and farm code of landowner will be maintained for inspection by Cork County Council, and the EPA at all reasonable times. The flora, fauna and habitats of the site and lands were studied. Flora and fauna should not be affected by the development or proposed recovery of pig manure. Sensitive areas will be avoided in these lands. Suitable margins along watercourses and hedgerows will remain as zones to receive no applications, in accordance with S.I. No 101 of 2009. There will be no loss of habit.

1.11 There will be no damage to any site of archaeological or historic interest as a result of this development or pig manure applications. Disturbance of the landscape will be minimal during the construction period. The site will be suitably landscaped, with the planting of trees etc., in a manner sensitive to the environment in order to fully screen the site.

1.12 There will be no negative effects on tourism in the area.

1.13 The development will have a positive impact on human beings from the increased employment it will create, and the resultant reduction of existing impacts from emissions. The development is located in an agricultural area, the buildings will blend into the surrounding area. Also, the development will be landscaped with a screening of trees, shrubs and flowers. Thus, there will be no nuisance or loss of amenity.

1.14 Effects of the development on air are insignificant outside the buildings and adjoining yards. The ventilation system will ensure that foul air is dispelled high into the atmosphere where it will mix with fresher air and thus minimise odour. Mitigation measures taken will minimise the effects of odour on the days of pig manure application. Pig manure will also be moved fresh from under the new animal houses to separate covered storage, thereby greatly reducing emissions from the pig farm. The use of low protein diets on site is being developed, which can achieve a reduction of 30%, of emissions from the site. Inserting the slurry tankers armoured suction hose in a fixed pipe in the walls of the pig manure tanks will minimise the effects of odour as will the use of a low

trajectory splashplate and/or bandspreader, and adhering to the Code of Good Practice for Spreading of Slurry.

Noise levels from the development are unlikely to be a nuisance. The main sources of noise on the development will be at feeding time (10-15 minutes) and from feed delivery vehicles. However, at a distance of 100 metres from the development noise levels are not greatly above background noise levels.

The development will have an insignificant effect on the climate of the area.

Thus the measures that have been put in place will ensure that impact/effects of the Development on human beings, noise, air, climate and the interaction of human beings, Fauna, soils, air, water, climate, landscape and material assets will be minimised.

- 1.15 This proposed development has the potential to benefit all stakeholders adjacent to the proposed site and the customer farms. The neighbours adjacent to the site have been fully informed by Mr O'Brien of the type and extent of the development, and the nature of the design techniques used to minimise impacts from the site.
- 1.16 This proposed development has the potential to provide an organic fertiliser product for customer farms in the area, while at the same time providing a market for locally grown grain, which can in turn be fertilised by the pig manure resulting from this development.

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TABLE E.3(i): UNCONTAMINATED EMISSIONS TO GROUND (1 Page for each emission point)

Emission Point or Area:

Emission Point/Area Ref. N ^o :	Soakway 1
Emission Pathway: (borehole, well, percolation area, soakaway, landspreading, etc.)	Soakaway
Location :	South western corner of unit
Grid Ref. (10 digit, 5E,5N):	Grid Ref E97375 N76505
Aquifer classification for receiving groundwater body:	Locally Important Aquifer, which is moderately productive in local zones, as per attached report compiled by IE Consulting/GES Ltd (Section 6.7.1)
Groundwater vulnerability assessment (including vulnerability rating):	High (H), as per attached report compiled by IE Consulting/GES Ltd (Section 6.7.3)
Identity and proximity of groundwater sources at risk (wells, springs, etc):	Site water supply Groundwater beneath the site
Identity and proximity of surface water bodies at risk:	Dower River (Aughnasassonagh River) due west of soakway

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