

Queally Pig Slaughtering Ltd. t/a Dawn Pork & Bacon
IPPCL Reg. No. P0175-02

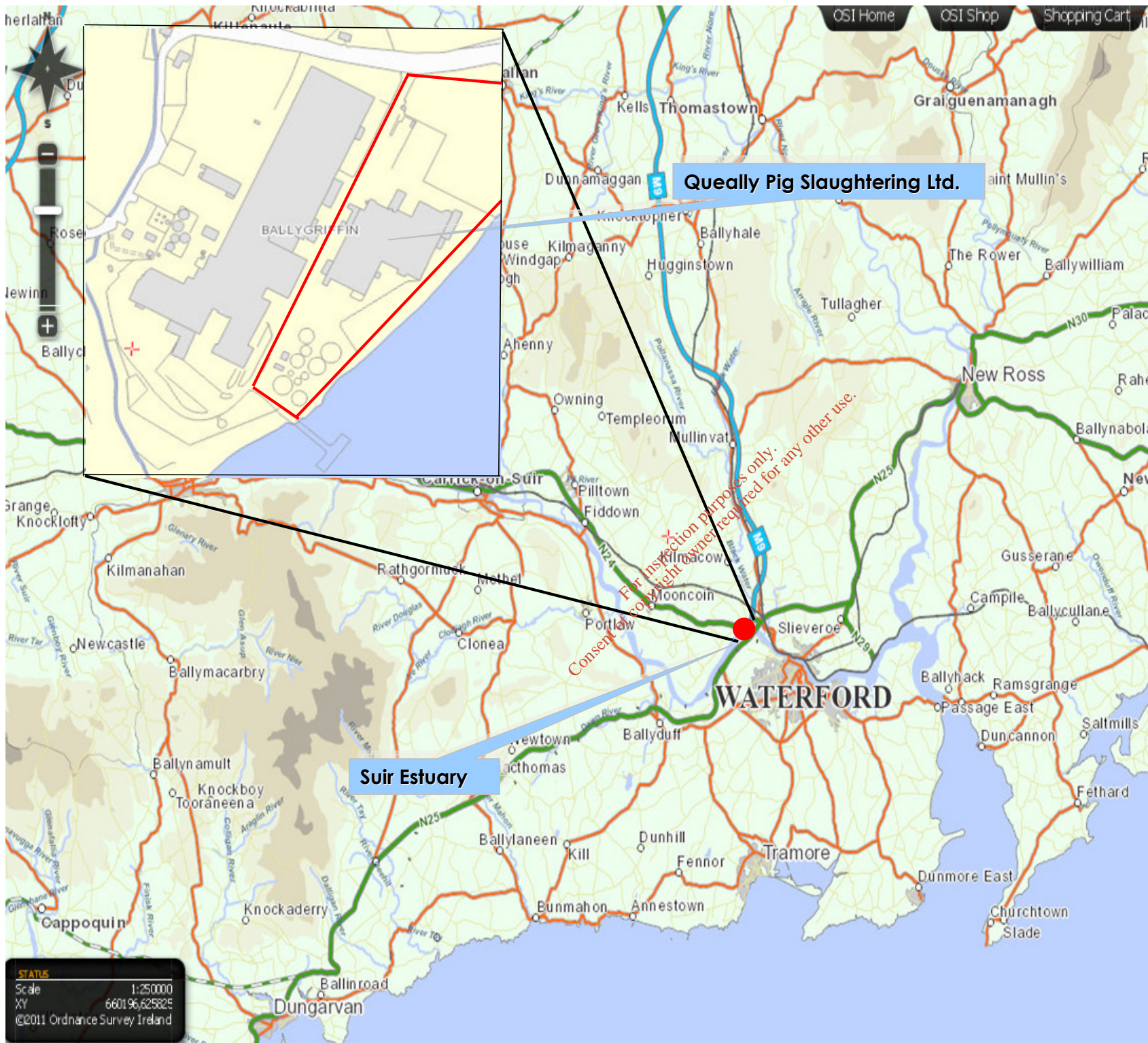
**Integrated Pollution Prevention and Control (IPPC) Licence Review for
the purposes of EC Environmental Objectives (Surface Waters)
Regulations 2009**

*For inspection purposes only.
Consent of copyright owner required for any other use.*

Attachments

For inspection purposes only.
Consent of copyright owner required for any other use.

Attachment N^o A.2
Site Location Map



Legend

- Location of Site
- ▭ Site Boundary

Ordnance Survey of Ireland
 Licence No. EN0095410
 Ordnance Survey of Ireland
 Government of Ireland.

Client: Queally Pig Slaughtering
 Project Code: 1199_01
 Title: Site Location

Drawing No: 2
 Issue Date: 30/9/11
 Revision: 1
 Scale: Not to Scale

OES
 FBD House, Fels Point,
 Tralee, Co. Kerry Ireland
 P: 066-712 83 21 W: oes.ie

Energy, Environment & Safety

STATUS
 Scale 1:250000
 XY 660196,62532E
 ©2011 Ordnance Survey Ireland

For inspection purposes only.
Consent of copyright owner required for any other use.

Attachment N^o B.1
Emissions to Surface Waters

Attachment N^o B.1

Emissions to Surface Waters

INTRODUCTION

Waste water arising from processing activities at the Queally Pig Slaughtering Limited (QPS) facility discharges to the River Suir at emission point ref. EW-1 , following treatment at the on-site waste water treatment plant.

Process waste water from the adjacent Dawn Meats (Exports) Ltd site is treated in combination with the discharge from QPS and this is addressed as part of the IPPC Licenses for both facilities.

SOURCES OF EFFLUENT

Process Waste Water

Waste water on site is primarily generated through washdown activities in the various process and handling areas throughout the plant.

Washdown activities at the animal intake, lairage and slaughtering hall generate the largest quantities of effluent. In addition, large volumes of wash water are generated during truck cleaning operations.

Wash water generated on site can be characterised as having a high organic loading. Arising from the nature of activities on site, the presence of List I or List II substances is not anticipated.

Process waste water is treated at the on-site biological wastewater treatment plant prior to discharge via pipeline approximately 20m long to the River Suir.

Surface Water

Surface (storm) water run-off from roof and clean yard areas is diverted to storm water drains and discharges to the River Suir during periods of rainfall at ref. point EW-3.

Locations of discharge points is Tabulated on Table B.2.

B.2 Tabular Data on Emission Points to surface water

Point Code	Easting	Northing	Verified	Emission
EW-1	256851	114197	No	Flow, Temperature, pH, BOD, COD, SS, Nitrates, Total Ammonia, Total Phosphorous, Ortho P, detergents, OFG.
EW-3			No	Conductivity, COD, Total Ammonia, Suspended Solids, Chloride, OFG, Visual Inspection

For inspection purposes only.
Consent of copyright owner required for any other use.

Attachment N^o C.1
Treatment, Abatement and Control Systems

Attachment N^o C.1

Treatment, Abatement and Control Systems

Effluent arising from production activities at Queally Pig Slaughtering Ltd. discharges under licence from Kilkenny County Council to the Suir Estuary, following treatment at an activated sludge effluent treatment plant. The effluent treatment plant is located on the site.

Effluent on site is primarily generated through washdown activities in the various process and handling areas throughout the plant.

Washdown activities at the animal intake, lairage and slaughtering hall generate the largest quantities of effluent. In addition, large volumes of wash water are generated during truck cleaning operations.

Wash water generated on site can be characterised as having a high organic loading. Arising from the nature of activities on site, the presence of List 1 or List 11 substances is not anticipated.

All wash water generated throughout the plant, including effluent from the two septic tanks is centrally collected at the secondary treatment system located on the Dawn Pork and Bacon site.

The treatment plant has been designed to treat a maximum average day's production from each factory: ie.

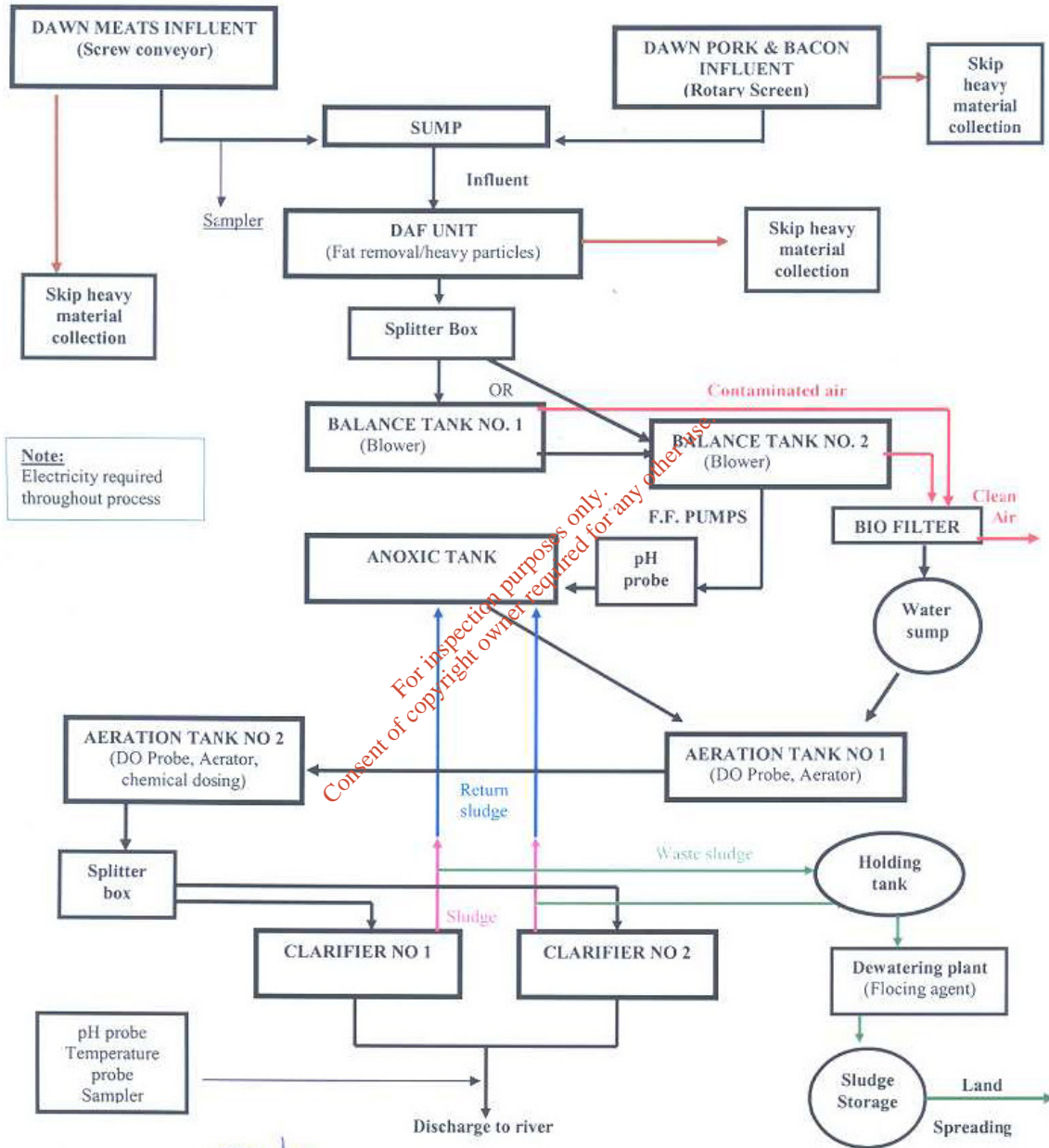
- The pig slaughtering plant has capacity to slaughter 10,000 pigs per week.
- The beef slaughtering plant has capacity to slaughter 450 animals per day but maximum normal production is 450 animals per day or 2,000 per week.

The treatment plant operates continuously over 7 days, whereas the factories are in production over 5 days.

While the plant operates continuously over 7 days, it is assumed to operate over 6 days for design purposes, i.e. balance tank empty - Monday a.m., full - Friday p.m. Thus, the daily load is flow 1800 m³ and BOD - 3240 kgs.



DAWN PORK AND BACON
FLOW DIAGRAM FOR THE EFFLUENT PLANT (upgraded)



Note:
 Electricity required
 throughout process

For inspection purposes only.
 Consent of copyright owner required for any other use.

ISSUED BY: ANN-MARIE DANAHER
 APPROVED BY: ALAN WALL

DATE: 22.08.11 REF: DWI 33
 DATE: 22.08.11 REV: 01

Discharges of treated wastewater from the site, and accordingly assessment of impact on surface waters is based on emissions which are at maximum flow and at ELV throughout the year (i.e maximum mass emissions over 24/7/365).

A review of the site AER for 2010 shows that actual emissions are significantly lower as shown below.

Table C.2 Comparison of annual emissions against Licence

<u>Parameter</u>	<u>2010 Mass emission (Kg/year)</u>	<u>Licensed Mass emissions (Kg/year)</u>
Volume Discharged (m ³)	555,895	657,000
COD	38,912	65,700
Suspended solids	6,670	39,420
Nitrates	1,806	13,140
BOD	8,727	26,280
Total Phosphorus	300	1,314
Orthophosphate	100	657
Detergents	198	3,285
Oils, Fats and Grease	711	9,855
Ammonia	1,589	6,570

Source: 2010 AER

For inspection purposes only.
 Consent of copyright owner required for any other use.

For inspection purposes only.
Consent of copyright owner required for any other use.

Attachment N^o C.2
Monitoring and Sampling Points

Attachment N^o C.2

Monitoring and Sampling Points

Information on Monitoring and Sampling Points is tabulated below for the monitoring locations specified in Schedule 1 and 3 of the site IPPC Licence.

Point Code	Easting	Northing	Verified	Emission
EW-1	256851	114197	No	Flow, Temperature, pH, BOD, COD, SS, Nitrates, Total Ammonia, Total Phosphorous, Ortho P, detergents, OFG.
EW-3			No	Conductivity, COD, Total Ammonia, Suspended Solids, Chloride, OFG, Visual Inspection

*For inspection purposes only.
Consent of copyright owner required for any other use.*

For inspection purposes only.
Consent of copyright owner required for any other use.

Attachment N^o D.1.1
Assessment of Impact on Receiving Surface Water

Attachment N^o D.1.1

Assessment of Impact on Receiving Surface Water

RECEIVING WATERS - FLOW DATA

Discharges of treated process wastewater are made to the River Suir at emission point EW-1.

The River Suir at the point of discharge is tidal with a total water volume upstream of approximately 6,000,000 m³. The flow rate at the point of discharge would have a tidal range with an average flow of 277 m³/s

RECEIVING WATERS – WATER QUALITY

The River Suir is a Transitional Water body.

Physico-chemical data collected by QPS has been used to determine the mean upstream water quality values for the SI 272 parameters as follows:

Parameter	Long Term Upstream Value (Mean)(mg/l)
BOD	2.315
Ortho P (est)	0.0818
Salinity	12.25 psu

ASSIMILATIVE CAPACITY & IMPACT ASSESSMENT

The assimilative capacity of the River Suir to accept discharges of treated waste water from the plant has been calculated based on an Assimilative Capacity Model for Transitional Waters (EPA, 2011)

The Model used to determine the assimilative capacity is done by determining two values. The available dilution water (Q_d) which is then used to determine the concentration (C) of a given discharge substance in the receiving waters. This concentration is then used to establish if these parameters are within the limits set out in S.I No. 272 of 2009.

The model formula for calculating the flow of available dilution water (Q_d) is as follows:

$$Q_d = (Q_e + Q_f) S_o / (S_o - S)$$

Q_e is the flow rate of licensed discharge (m³/s)

Q_f is the flow rate of the river (m³/s)

S_o is the salinity of the open water

S is the salinity of the water in the vicinity of licensed discharge

Once the value for Q_d is established it can be substituted into the following formula to calculate the concentration (C) of a given discharged substance in the receiving water:

$$C = C_b + (C_e - C_b) / (1 + (Q_d / Q_L))$$

Q_L is the maximum flow of the discharged substance allowable under the licence.

C_b is the background concentration.

C_e is the effluent discharge concentration.

MODEL FOR ORTHOPHOSPHATE & BOD:

Firstly the available dilution water (Q_d) was calculated using the following input parameters.

Parameter	Units	Descriptor	Value
Q_e	m ³ /s	Flow Rate of Licenced Discharge	0.025
Q_f	m ³ /s	Flow Rate of the River	277
S_o	psu	Salinity of Open Water	35
S	psu	Salinity of the water in the vicinity of licenced discharge	12.25

Using the above formula it is established that the flow of available dilution water (Q_d) is 426m³/s.

Q_d	m ³ /s	Flow of Available Dilution Water	426
-------	-------------------	----------------------------------	-----

We now use this flow to determine the concentration of Ortho P and BOD in the receiving waters.

Orthophosphate:

Parameter	Units	Descriptor	Value
C_b	mg/l	Background Concentration	0.0818
C_e	mg/l	Effluent Discharge Concentration	1
Q_L	m ³ /s	Maximum Flow of the Discharged substance allowable under the licence	0.025

Using the above formula it is established that the concentration of Ortho P (C) in the receiving waters is 0.000058685 mg/l.

C	mg/l	Concentration of Ortho P in the receiving waters	0.000058685
---	------	--	-------------

The Ortho P limit for a transitional water body set out in the S.I No. 272 of 2009 for a salinity range of 0-17psu is ≤0.06mg/l.

As it can be seen above, the concentration of Ortho P is well within the limits set out in the standards thus complying with regulations.

BOD:

Parameter	Units	Descriptor	Value
C_b	mg/l	Background Concentration	2.135
C_e	mg/l	Effluent Discharge Concentration	40
Q_L	m ³ /s	Maximum Flow of the Discharged substance allowable under the licence	0.025

Using the above formula it is established that the concentration of BOD (C) in the receiving waters is 0.002346 mg/l.

C	mg/l	Concentration of BOD in the receiving waters	0.002346
---	------	--	----------

The BOD limit (95%ile) for a transitional water body set out in the S.I No. 272 of 2009 is ≤ 4 mg/l.

As it can be seen above, the concentration of BOD is well within the limits set out in the standards thus complying with regulations.

*For inspection purposes only.
Consent of copyright owner required for any other use.*

For inspection purposes only.
Consent of copyright owner required for any other use.

Attachment N^o D.1.2
Proposals to Comply with the requirements of SI 272

Attachment N^o D.1.2

Proposals to comply with the requirements of SI 272

Discharges from the site currently comply with the requirements of SI 272.

*For inspection purposes only.
Consent of copyright owner required for any other use.*

Attachment N^o D2
Environmental Considerations and Best Available Techniques (BAT)

For inspection purposes only.
Consent of copyright owner required for any other use.

Attachment N^o D2

Environmental Considerations and Best Available Techniques (BAT)

Describe, in outline, the main alternatives, if any, to the proposals contained in the Review Form.

Not Applicable

Describe any environmental considerations which were made with respect to the use of cleaner technologies, waste minimisation and raw material substitution.

The facility at Grannagh is located on a site of approximately 30 acres on the main Waterford to Limerick Road, approximately 4 miles outside Waterford City. The River Suir is located to the east of the plant and runs into Waterford Harbour.

The on-site Waste Water Treatment Plant, referred to hereafter as WWTP, is located on the banks of the River Suir, slightly upstream from the main factory. The WWTP is also used by Dawn Meats Exports Ltd. to treat wastewater however, the day to day operation and monitoring of the WWTP is under the control of QPS.

Operations at Grannagh have the capacity to slaughter 10,000 pigs per week. In addition to slaughtering, there are facilities for cutting, boning, curing, chilling and freezing of pork and bacon products.

Normal hours of production at the plant are 6.00am to 6.00pm, Monday to Friday. Cleaning operations, which are vital component of daily activity, continue until 11.00 p.m. The refrigeration plant operates continuously and controls the temperature of the chill rooms and the cold store.

The current workforce including management, administrative, maintenance and production staff stands at 270 people. Markets currently being served by QPS include Europe, Japan, Korea, USA, Russian and the Irish Domestic Market.

The plant is both EU and USDA approved. The plant participates in Bord Bia pig meat quality assurance scheme and the BRC standard.

Groundwater is used as a water supply to the plant, with boreholes located off-site to the south east of the plant. The water is chlorinated, prior to on-site storage and use.

The energy supply for the plant is derived from electricity, natural gas and oil combustion, with two hot water boilers and one heating boiler present on the site.

Following a comprehensive identification and evaluation process it was concluded that the significant environmental aspects due to site activities for 2010 are as follows:

- 1. Effluent discharge*
- 2. Energy consumption*
- 3. Waste management*
- 4. Odour management*

Describe the measures proposed or in place to ensure that:

- (a) the best available techniques are or will be used to prevent or eliminate or, where that is not practicable, generally reduce an emission from the activity;

Best Available Techniques (BAT) are adopted throughout the processing plant and at the WWTP.

The treatment plant has a high compliance rate and overall emissions are well within the Emission Limit Values (ELV's) specified in the IPPC Licence.

All discharges are below the relevant BAT ELV as specified in the Guidance Note for the Slaughtering Sector, both as actual values and in terms of treatment plant performance (as % removal efficiency).

- (b) no significant pollution is caused;

All wastewater treatment plant emissions are below the emission limit values set out in IPPC Licence Reg. No. P0175-02.

- (c) waste production is avoided in accordance with Council Directive 75/442/EEC of 15 July 1975 on waste; where waste is produced, it is recovered or, where that is technically and economically impossible, it is disposed of while avoiding or reducing any impact on the environment;

The principles of Prevention are applied to all resource use at the site in order to improve efficiency and reduce wastes at sources where practicable. Where waste generation is unavoidable, the site environmental management system sets out registers, procedures and recording systems to ensure that wastes are collected, transported and recycled or disposed of in accordance with waste legislation and the site IPPC Licence.

- (d) energy and other resources are used efficiently;

The facility has undertaken an energy audit for the facility and has put in place a programme for actioning the recommendations made in the study.

- (e) the necessary measures are taken to prevent accidents and limit their consequences; and,

There is a documented Accident Prevention and Emergency Response Plan in place at the site which addresses risk reduction at the facility and describes the measures which will be taken to reduce the consequences of a loss of control incident at the site.

The necessary measures are taken upon definitive cessation of activities to avoid any pollution risk and return the site of operation to a satisfactory state.

QPS has prepared a Decommissioning and Closure Plan for the site which describes the measures which will be taken in the event of closure of part or all of the facility.

This section should present a statement on energy efficiency at the site to include, where appropriate, an energy audit with reference to the *EPA Guidance document on Energy Audits*. Licensees should have regard to Section 5 of the *EPA Acts 1992 and 2003* in selecting BAT and in particular the following:

- The use of low-waste technology;
- The use of less hazardous substances;
- The furthering of recovery and recycling of substances generated and used in the process and of waste where appropriate;
- Comparable processes, facilities or methods of operation, which have been tried with success on an industrial scale;
- Technological advances and changes in scientific knowledge and understanding;
- The nature, effects and volume of the emissions concerned;
- The commissioning dates for new or existing facilities;
- The length of time needed to introduce the BAT;
- The consumption and nature of raw materials, including water, used in the process and their energy efficiency;
- The need to prevent or reduce to a minimum the overall impact of the emissions on the environment and the risks to it;
- The need to prevent accidents and to minimize the consequences for the Environment; and,
- The information published by the Agency in the form of sectoral BAT Guidance documents and the relevant BREF documents published by the EC (available for download at <http://eippcb.jrc.es/> and at www.epa.ie).

For inspection purposes only.
Consent of copyright owner required for any other use.

Attachment N^o E1
Statutory Requirements

Attachment N^o E1

Statutory Requirements

QPS operate best environmental practices to ensure that control of diffuse emissions from the installation eliminated or controlled in such a way as to prevent environmental impact. Compliance with the range of relevant legislation is detailed below.

Ref.	Legislation	Compliance
(a)A	A specification prepared by the Agency in accordance with Section 5 of the <i>Environmental Protection Agency Act 1992</i> as amended by Section 7 of the <i>Protection of the Environment Act 2003</i>	<p>QPS have applied BAT to the management of their processing operations at the Grannagh facility as follows:</p> <p>The site operates an Environmental Management System (EMS) which applies management control, through documented procedures over all aspects of site activities which may potentially interact with the environment.</p> <p>Specific projects for improvement are addressed through the Schedule of Objectives and Targets in the Environmental Management Programme. Progress in meeting targets is reported to the Agency on an annual basis in the AER. The EMS addresses BAT issues of training, process control to minimize waste and reduce water and energy consumption throughout the process.</p> <p>Specifically with respect to wastewater treatment, BAT is applied at the site as follows:</p> <ul style="list-style-type: none"> • Prevent stagnant waste water through the use of sufficient gradients in the collection system and in the waste water treatment plant (WWTP) (see BREF Section 4.1.43.3) • Pre-screen solids at the slaughterhouse (see BREF Sections 4.1.11 and 4.1.43.4), followed by a solids screen within the WWTP. • Remove fat from waste water, using a fat trap (see BREF Section 4.1.43.9) • Use of a flotation plant for fat and solids removal, such as dissolved air flotation (DAF), air flotation or mechanical flotation (see BREF Section 4.1.43.10) • Use of a waste water equalisation tank for the feed to the biological treatment system (see BREF Section 4.1.43.11) • Use of biological treatment systems to biodegrade organic substances, and in certain cases to remove nitrogen: <ul style="list-style-type: none"> ○ anaerobic pre-treatment (see BREF Section 4.1.43.14) ○ treatment of waste water and waste (• Use of tertiary treatment systems to remove phosphorus, such as addition of coagulants and precipitation (see BREF Section 2.3.1.3).
(b)	<i>Urban Waste Water</i>	The River Suir is not designated a Sensitive Area under the

Ref.	Legislation	Compliance
	<p><i>Treatment Regulations 2001 (S.I. No. 254 of 2001) as amended by the Urban Waste Water Treatment (Amendment) Regulations 2004 (S.I. No. 440 of 2004) or any future amendment thereof;</i></p>	<p>Urban Wastewater Treatment Regulations 2001 (S.I. 254 of 2001).</p>
(c)	<p><i>European Communities (Good Agricultural Practice for Protection of Waters) Regulations 2009 (S.I. No. 101 of 2009) or any future amendment thereof</i></p>	<p>The requirements of SI 101 of 2009 are addressed through the land spreading of activated sludge in accordance with the specifications of a Nutrient Management Plan (NMP).</p> <p>The NMP is updated on an annual basis and specifies the locations, rates of application (based on land soil values and nutrient content of the wastes) and defines all buffer zones and exclusion periods required for the protection of surface and ground water bodies during application of wastes.</p>
(d)	<p><i>Local Government (Water Pollution) Act, 1977 (Control of Cadmium Discharges) Regulations 1985 (S.I. No. 294 of 1985);</i></p>	<p>Cadmium is not used at the installation; therefore, there is no potential for discharges containing cadmium from the site.</p>
(e)	<p><i>Local Government (Water Pollution) Act, 1977 (Control of Hexachlorocyclohexane and Mercury Discharges) Regulations 1986 (S.I. No. 55 of 1986);</i></p>	<p>Hexachlorocyclohexane and mercury are not used at the QPS installation.</p>
(f)	<p><i>Local Government (Water Pollution) Acts, 1977 and 1990 (Control of Carbon Tetrachloride, DDT and Pentachlorophenol Discharges) Regulations 1994 (S.I. No. 43 of 1994)</i></p>	<p>These substances are not used and accordingly, would not form part of any discharge to the receiving watercourse.</p>
(g)	<p>Measures or controls identified in a pollution reduction plan for the river basin district prepared in accordance with Part V of the <i>EC Environmental Objectives (Surface Waters) Regulations 2009 S.I. No. 272 of 2009</i> for the reduction of pollution by priority substances or the ceasing or phasing out of emissions, discharges and losses of priority hazardous substances.</p>	<p>Management of WWTP to ensure that current emission limit values are not exceeded. Commitment to reducing water consumption at the facility which in turn reduces the process waste water generated at the facility.</p>

There are no direct emissions to groundwater and inadvertent indirect emissions will be prevented by bulk tanks, segregation, bunding and correct material handling protocols. These measures will ensure compliance with S.I. No. 271 of 1992.

Bunding of bulk storage tanks, of liquid material storage areas and procedures to ensure that bunding is adequate and of good integrity are in place at the site. Integrity testing of bunding structures is carried out on a 3-year cycle. Tank integrity testing is also carried out.

There is adequate designated space within the plant for storage of waste awaiting disposal off-site in areas that are suitably constructed to prevent a risk of surface and groundwater pollution.

*For inspection purposes only.
Consent of copyright owner required for any other use.*

For inspection purposes only.
Consent of copyright owner required for any other use.

Attachment N^o F1
Approved Adjustments & Conditions

Attachment N^o F1

Approved Adjustments & Conditions

There are no approved Adjustments or Conditions to this Licence.

*For inspection purposes only.
Consent of copyright owner required for any other use.*