

Office of Environmental Sustainability,
Environmental Protection Agency,
P.O. Box 3000,
Johnstown Castle Estate,
Co. Wexford

15th December 2022

**Re: Ashleigh Farms (Waterford) Limited.
Licence Application
Ref. P0447-02**

Dear Sir/Madame,

I refer to your correspondence of 13th May last in relation to our client, Ashleigh Farms Ltd. Please find detailed below the response to the issues raised.

- 1. Having examined the documentation submitted, I am to advise that the Agency is of the view that the documentation does not comply with the above mentioned legislation. You are therefore requested, in accordance with the regulations, to supply the information detailed below. 1. Confirm the number of production pigs that it is proposed to accommodate onsite. The application references figures of both 9,900 and 5,500 production pigs. Please note a 'production' or 'fattening' pig is defined as one "reared from a live weight of 30 kg to slaughter or first service".**

The proposed number of production pigs is 5,500. Same is made up of 4,500 grower/finisher pigs, 100 Maiden gilts/boars and 900 weaners > 30 Kg)

- 2. If the proposed figure of 9,900 production pigs given is accurate provide confirmation that this is permitted under the planning permissions granted for this installation. Update any other components of the application if necessary to reflect this figure.**

The response to point No. 1 has clarified the applicable numbers.

- 3. Clarify the locations, including the grid references of any existing/proposed groundwater wells.**

Location including grid reference for existing groundwater wells is included in appendix 1 below (filename: 6.7 - Site Plan_V2.pdf) There are no new groundwater wells planned.

4. Provide an assessment of odour emissions from the proposed activity and the impact on local residents: a. The assessment should be supported by use of a model to predict odour concentrations at the sensitive receptors in the vicinity of the installation. The assessment should, as appropriate, identify odour reduction/mitigation measures. b. Ensure that the maximum number of each animal type and the proposed carcass incinerator are accounted for in the assessment. c. Reference should be made to the guidance document “Instruction note regarding Odour Emissions from Intensive Agriculture Pig Installations”.

An odour emissions assessment was completed using the E.P.A. guidance “Odour Emissions from Intensive Agriculture Pig Installations. Same has incorporated the stock numbers as proposed, existing ancillary storage tanks, and applicable mitigation measures incl. low protein diets, covering open storage tanks and slurry amendments, etc.

Table 1. Stock Numbers Under assessment

	Total Numbers
Farrowing	200
Weaners	2200
Dry sows	700
Growers	2200
Finishers	3300

- Served Gilts included as Sows (As per current E.P.A. licence)
- Maiden Gilts / Boars included as finishers inline with the parameters of the odour modelling tool referred to in point No. 2.
- Production pigs = (weaners >30kg, Growers + Finishers) = 5500

The odour modelling tool does not facilitate the inclusion of odour mitigation strategies. Low Protein diets are to be applied across the farm (30% reduction with frequent removal of slurry to the digester and additional pig manure amendments (Deodourase, etc.) used on the farm.

These additional odour mitigation strategies are expected to contribute an additional 25% reduction however in line with the E.P.A. guidance this is only given credit at 50% of that value, i.e. a 12.5% reduction, where low protein diets have already been allowed for.

These emission reductions have been accommodated by adjusting the pig numbers modelled as per the table below.

Slurry Storage Emissions					Check-box	Last
					OK	A
Sheet explanation						
For each building used to store slurry:						
a) [Optional] enter a name for the tank/lagoon in Column C.						
b) Specify the surface area of the emitting surface in Column D (metres squared).						
c) Identify any mitigation measures that may be present on the store (drop-down list).						
d) For tanks that are not used or do not exist, enter 0 for the Surface Area in Column D.						
	<i>Text entry</i>	<i>Input - numerical</i>	<i>Input - drop-down</i>	<i>Look up</i>	<i>Calculation</i>	
				Emission Factor		
	Tank/Lagoon	Surface Area (m²)	Mitigation	(OU_E/m²/s)	Total (OU_E/s)	
3	Tank 1	357	Rigid or floating cover	2	714	
4	Tank 2	21	Rigid or floating cover	2	42	
5	Tank 3	255	Rigid or floating cover	2	510	
6	Tank 4	55	Rigid or floating cover	2	110	
7	Tank 5		None	20	0	
8	Tank 6		None	20	0	
9	Tank 7		None	20	0	
0	Tank 8		None	20	0	
1	Tank 9		None	20	0	
2	Tank 10		None	20	0	
3	Tank 11		None	20	0	
4	Tank 12		None	20	0	
5	Tank 13		None	20	0	
6	Tank 14		None	20	0	
7	Tank 15		None	20	0	
8						
9				Total	1,376	
0						
1						
2						

Table 4 Model Output

Decay Curve

This chart displays the decay curve based on the selected dispersion characteristics.

Select desired odour benchmarks to display on the chart out of: 1.5, 3, 5 and 6 OUE/m³ as 98th percentile 1-hour averages.

Dispersion selected:	Moderate dispersion
Benchmarks to display:	
1.5 OUE/m ³	Do not show
3 OUE/m ³	Show
5 OUE/m ³	Show
6 OUE/m ³	Show

Intersections

This section outlines if/where the decay curve crosses the relevant benchmark.

The intersection indicates the closest 'distance from centre' point in metres.

Benchmark	Intersection
1.5 OUE/m ³	657.2
3 OUE/m ³	401.3
5 OUE/m ³	280.9
6 OUE/m ³	250.8

As can be seen from the model output above the 6 OUE/m³ threshold (deemed applicable as this farm was licensed in 2000, and no increase in animal numbers is proposed) extends 250.8 m from the centre of the farm. The closest 3rd Party Residence is in excess of this distance, and also in excess of the 5 OUE/m³ threshold.



- The location 223.8 m north of the site belongs to a family member.
- The location 287m east belongs to the closest third party residence, who is a farmer who utilises organic fertiliser from this farm.
- Thereafter the next closest location is c. 345m from the centre of the farm.

5. Provide the quantity of animal feed consumed onsite annually.

7,000 – 7,500 tonnes

6. Regarding the use of fuel oil onsite: a. Confirm if the fuel oil boiler is to be retained; b. What is the thermal capacity in kW or MW of the fuel oil boiler; c. Provide the location and capacity of any existing or proposed fuel tanks onsite; and d. Indicate whether the tanks are or will be banded.

- The fuel oil boiler is to be retained as a back-up supply.
- The thermal capacity of the fuel oil boiler is 21 – 42kWh.
- The location of the existing fuel tanks are included in 6.7 - Site Plan_V2. Tank A capacity is 5,000 litres.
- Tank A is banded.

7. Is there a back-up generator onsite?

Yes, a back-up generator is located on-site, as per enclosed site plan

8. Clarify the large difference between the current and proposed electricity consumption onsite.

Average monthly electrical consumption is approximately 66,000kWh. There is no new proposal to increase consumption from these levels.

Previous AER Details 690000-740000/annum or 55000 (2021)-61,000 (2022).

Proposed usage up 20% on 2021, but only c. 8% on 2020. 2021 appears to be an outlier as 2018 & 2019 closer to 2020. No significant alteration in ESB consumption.

9. With regard to the anaerobic digester and associated infrastructure: a. Is there or is it intended to install a Combined Heat and Power (CHP) plant onsite? b. Provide the following information regarding the CHP plant: rated thermal input; expected number of annual operating hours of the CHP plant and average load in use; location (on site plan and grid reference); stack height; and maximum volume of emissions. c. If the CHP plant qualifies as a main emission point, in accordance with Agency guidance, all relevant application information is required to be submitted, including an assessment of the emission impacts. d. Is it intended to export electricity to the grid?

- a. The anaerobic digester is a boiler (hot water) only system. In time this may be upgraded to a CHP system, but there are no plans to do so at this time. The boiler heat generation is approx. 25kW at present. There is no renewable electricity generated on-site today.
- b. If the anaerobic digester was upgraded to a CHP in the future, it is anticipated that the rated thermal input would be between 50-70kWh. The standard operating hrs for a biogas CHP are typical 8,000hrs per year.
- c. Our understanding is that any potential future installation of a CHP with 50-70kWh of rated thermal input would be categorised a minor emissions point.
- d. Should a CHP ever be installed, it is not intended to export electricity to the grid.

10. With regard to the proposed onsite carcass incinerator: a. How will odour from the incinerator be mitigated? b. How will bottom ash from the incinerator be disposed of?

- a. Odour: The proposed on-site animal by product thermal treatment system falls under the low capacity <50kg / hour regulations set down on a European Union level. No odour

is emitted directly from the thermal treatment process. Appropriate measures and working plan must be implemented with relation to fallen stock storage, loading and burn cycle standpoints to ensure that stock is disposed of in a timely manner to eradicate odour issues on the wide usage of the plant. Good housekeeping of the system will be maintained.

One must also understand that the animal by product thermal treatment system is considered by the applicant to be an potential odour mitigation strategy in itself. This arises due to the fact that any fallen stock on the farm are to be disposed of a number of times per week (C. 3), rather than awaiting weekly / fortnightly disposal. This will mean a smaller volume of fallen stock on the farm at any one time and will facilitate more frequent cleaning of storage bins etc., thus reducing potential odours, flies, vermin and other potential nuisances.

- b. Bottom ash: In line with the directive, bottom ash is to be spread upon agricultural land due to the fact that the fallen stock is 100% organic matter and has been treated at the required temperatures set down within the legislation. Previously Incineration plants handling waste materials within the EU fell under the Waste incineration Directive (WID). This directive has now been superseded and integrated into the newly reformed Industrial Emission Directive (Integrated Pollution Prevention and Control Directive). Specific animal by-product waste is exempt from this newly reformed directive and falls under regulation EC No. 1774/2002 of the EU which lays down health rules concerning animal by-products not intended for human consumption.

11. Regarding the treatment of sanitary effluent: a. Confirm, the type of system to be provided for the treatment of sanitary effluent arising onsite; and b. Submit a revised site plan that clearly depicts the location of any proposed sanitary facilities within the installation boundary, where applicable.

- a. Per file (7.6.2 Sanitary Effluent Compliance.pdf) in the application: Ashleigh Farms Ltd, Ashleigh House, Ballinameela, Cappagh, Waterford have operated on the subject site (P0447-01) for 20+ years and prior to the implementation of the 2009 EPA Code of Practice Wastewater Treatment and Disposal Systems Serving Single Houses (p.e. < 10) or Wastewater treatment manuals - treatment systems for Small Communities, Business, Leisure centres and Hotels. The sanitary effluent unit has been in place and servicing staff accommodation/office buildings during this time.
- b. There is no proposed new sanitary facilities per response a above.

- 12. It is noted that the documentation regarding BAT (Best Available Techniques) has not been fully completed. Provide clarification on aspects of the BAT conclusions from the CID document for the Intensive Rearing of Poultry or pigs (2010/75/EU, Feb 2017): a. Regarding BAT 30, clarify which techniques are or will be implemented to reduce ammonia emissions to air from each pig house. b. Provide further information on the proposed slurry acidification system. c. Conflicting information has been provided as to whether it is intended to cover the external slurry storage tanks. Clarify if these tanks will be covered, and if so, when.**

Note all pig housing and slurry storage structures are considered to be existing structures constructed pre 2017.

- a. Regarding BAT 30, clarify which techniques are or will be implemented to reduce ammonia emissions to air from each pig house.

A0) Nutritional management techniques: A low protein diet is /is to be implemented on the farm in line with CID Requirements. The specifics of the diet are included in the appendix.

While no additional pig housing mitigation measures are deemed to be required as per the CID, the applicant is implementing/investigation a number of additional measures/procedures on this farm currently.

Additional Mitigation Measures

A4) A protocol has been developed to improve the frequency of slurry removal by flushing. This is advantageous for two reasons a) reduces the build-up of ammonia emissions to air from each house and b) the anaerobic digester performance (biogas production) is significantly improved when slurry is not aged. This protocol has resulted in detectable improvement in gas production (for heating requirements) at the anaerobic digester.

A14) It is strict protocol to clean all pens between batches. This not only reduces ammonia build up but is of the utmost importance for animal health.

A15) All channels are designed for gravity feed to overground storage and flushing is preformed regularly.

A18) See attached information on Deodourise, slurry odour abatement which is used in all slurry tanks on-site

A19) All manure is tankered offsite in sealed tankers during the slurry spreading season (generally, Oct-Jan each year)

D) Slurry acidification: See response b below detailing the work Ashleigh Farms are doing in collaboration with GlasPortBio.

b. Provide further information on the proposed slurry acidification system.

Ashleigh farms are collaborating with GlasPort Bio (Galway, Ire) (GPB), who have developed a novel slurry additive, hereafter referred to as GasAbate, which has successfully been used to reduce GHG and ammonia emissions from stored cattle slurry (Thorn et al., 2022) and was tested on pig weaner slurry under an ERA Net Smart Energy Systems (ERA Net SES 2018) research grant (2019-2022). Research aims (ERA Net SES 2018) included:

- i) Testing the efficacy of the additive when scaling up in terms of inhibition of gaseous emissions, including odorous compounds, at both ambient temperature (~10°C) and 22°C (housing temperature);
- ii) Determining the effect of the additive on biomethane and nutrient value of slurry, as relevant to biomethane potential and fertilizer replacement value and;
- iii) Ascertaining the best mode of delivery of the additive.

Due to the success of this reach, Ashleigh Farms are collaborating with GPB and University of Galway on a 3 year (2022-2025) SEAI Research Development & Demonstration grant at the site (P0447). GPB have been on-site at Ashleigh Farms, Ballinameela since Q1 2022 and have setup a containerised validation system using slurry for the farm. This allows them to exemplify the use of the GasAbate additive for the large-scale treatment of stored slurry from 500 pigs initially, and then a larger sample.

The additive acts to target specific microorganisms in the slurry, temporarily suppressing their activity, with slurry degradation occurring as normal. This process does not affect other microbes in the slurry. The chemical ingredients are GRAS (generally regarded as safe) and have been extensively studied with their safety proven for humans, animals and the environment, with no environmental concerns over residues remaining in the

slurry. The Department of Agriculture, Food and the Marine reviewed the product and they have stated that this does not fall under a biocidal categorisation and that the product can be used in Ireland without further regulatory hurdles. An EU wide decision confirming this finding has also been secured.

The fully containerised testing unit setup at Ashleigh Farms (P0447) houses 4 identical IBC units – two operated statically and two being operated under dynamic chamber conditions so as to satisfy verification protocols. Two micro anaerobic digesters are located alongside the IBC unit to allow for biogas testing of treated vs untreated slurry. Continuous monitoring in the IBCs involves: headspace biogas (CO₂, N₂O, CH₄, NH₃, H₂S), biogas volume, ORP and temperature. Periodic monitoring will look at the following at the start and end of each trial: ammoniacal nitrogen, total nitrogen, potassium, phosphorous, sulphur, total & volatile solids.

The test plan for use at Ashleigh Farms has been devised internally with consideration to the various European protocols and standards (i.e. DIN 4360 for AD testing, VERA (Verification of Environmental Technologies for Agricultural Production) test protocol for Covers and other mitigation technologies for reduction of gaseous emissions from stored manure, as guidance documents. The GPB project team have established a strong relationship with an independent VERA verification testing institute – Danish Technical Institute (DTI) – who are liaising with us in establishing a testing regime which will generate concrete trial data to allow for verification under VERA. These test protocols are designed to investigate the environmental performance and operational stability of a technology, thus providing reliable and comparable information about the performance of technologies to farmers, authorities and other stakeholders.

In addition, the second half of the project will demonstrate the efficacy of the methane inhibition in the on-site anaerobic digester.

Upon successful trial, Ashleigh Farm is firmly committed to implementing the GasAbate technology at the site.

Extensive scientific evidence from previous projects and this current SEAI project are available for presentation to the EPA. Ashleigh Farms and GlasPort Bio would very much welcome the opportunity to present the project and its emission mitigation potential for the site.

- c. External slurry stores to be covered within 24 months of the date of grant of the licence.



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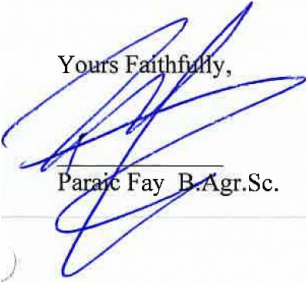
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13. A screening for Appropriate Assessment was undertaken on 02 February 2022 and the Agency determined that an Appropriate Assessment of the activity is required. A Natura Impact Statement (NIS) was requested on 02 February 2022 under separate cover. a. You are thereby required to submit a Natura Impact Statement, as defined in Regulation 2(1) of the European Communities (Birds and Natural Habitats) Regulations 2011 as amended. You are furthermore advised to refer to the document 'Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities', issued in 2009 by the Department of the Environment, Heritage and Local Government, and revised in 2010. This document is available on the National Parks & Wildlife Survive website at: http://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf

Please refer to NIS Attached.

If you require any additional information please contact this office.

Yours faithfully,

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Parat Fay B.Agr.Sc.