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Environmental Protection Agency,
Office of Environmental Sustainability
Inniscarra,
Co. Cork

30/05/2024

RE: Response to Regulation 10(2)(b)(ii) of the EPA (Industrial Emissions) (Licensing) Regulations 2013, in respect of a licence review from Carhue Piggeries Ltd for an installation located at Cooligboy, Timoleague, Bandon, County Cork, P72 HD61.

Dear Philip,

NRGE on behalf of Carhue Piggeries Ltd, Cooligboy, Timoleague, Bandon, Co. Cork (P0621-02) herein provide the information requested by the agency on the 31st of January 2024 in relation to the licence review submitted on the 15th of November 2023.

1. Stormwater:

- a. Clarify what controls (i.e. silt traps) it is intended to install on the stormwater discharge points.

There is a silt trap currently installed in the southwest corner of the old unit (for SW2). The licensee will be installing a silt trap on SW1 and SW3 also.

2. Site plan:

- a. There are discrepancies (i.e. the number of buildings) between the site plans used in the NIS and those submitted as part of the application. Confirm which version of the site plan aligns with the installation as built/proposed to be built, and if necessary, resubmit an updated site plan.

The NIS has been updated to include an updated site plan.

All structures have been built, and the table below refers to the new buildings built as can be seen on the attached site map. Every other structure is in relation to the existing unit.



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20	Fattening
21a	Second Stage
21b	Fattening
22a	Service/Farrowing
22b	First Stage
23a	Second Stage
23b	Dry Sow House
23b	Gilt

Table 1: Represents new Buildings built at the North of the Pig Farm

- b. Update the site plan such that all buildings are uniquely identified. It is noted that there are both new and old buildings labelled as Houses 1-4.

Please see updated site map attached which shows that the numbering sequence follows on from the old unit where it finished with Dry sow 19 & Gilt 19a to the new unit (Built) starting with Fattening 20 at the north of the pig farm.

3. Animal Numbers:

The number of pigs it is proposed to keep on the installation vary between documents submitted in support of the application. Confirm the number and type (i.e. dry sow, production pig, etc.) of pigs it is proposed to keep in each house at the installation by filling in Table 1 below. Ensure that all documents submitted in support of the application have assessed this number of animals or higher.



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Old Unit		
House No.	Pig Type(s)	Capacity (by type)
1	Second stage	450
2	First Stage	200
4	Dry Sow House	250
4a	Dry Sow House	40
5	Second stage	300
6	First Stage	400
7a	Farrowing	55
7b	Farrowing	55
7c	Farrowing	55
8a	Fattening	300
8b	Fattening	315
8c	Farrowing	60
8d	Second Stage	240
9a	Fattening	300
9b	Fattening	300
10a	Fattening	520
10b	Fattening	320
11	Fattening	770
11a	Fattening	100
12	Dry Sow House	125
13	First Stage	250
14	Second Stage	400
15	First Stage	100
16	Farrowing	55
17	Fattening	1225
18	Second Stage	750
19	Dry Sow House	335
19a	Gilt	160
Note	3 Boars housed in house 12 in addition to the 125 sows	
New unit (Built)		



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House No.	Pig Type(s)	Capacity (by type)
20	Fattening	2950
21a	Second Stage	1700
21b	Fattening	1900
22a	Service/Farrowing	240
22b	First Stage	1700
23a	Second Stage	510
23b	Dry Sow House	480
23b	Gilt	130
Note	3 Boars housed in house 23b in addition to the 480 sows	

Summary of Entire Unit

Pig Type	Capacity
Farrowing Sows	520
Dry Sows	1230
Gilts	290
Boars	5
Weaners	7000
Fatteners	9000

4. Sanitary Effluent:

Disposal of sanitary effluent via septic tank or percolation area is considered an emission to ground. If there are sanitary facilities at the installation, indicate how this effluent is being managed. Update the site plan to include any treatment infrastructure as necessary.

All staff facilities are provided at the existing lower unit with showers, canteen and wash facilities with sanitary effluent directed to onsite septic tank.



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5. Ammonia and odour modelling:

- a. An error has been made in the selection of the emission factor for production pigs used in the submitted ammonia modelling report.

The BAT-AEL for production pigs takes into account the variation of emissions throughout the lifecycle of a production pig, i.e. from 30 kg to slaughter, and has already been weighted to account for the ratio of growers to finishers. Rerun the model with the correct emission factor (2.6 kg-NH₃ animal⁻¹ year⁻¹) and resubmit the ammonia modelling report.

Please see attached updated Ammonia Modelling Report by Katestone.

- b. Submit documentation (i.e. feed analyses) for each pig category supporting the claim that reduced protein diets are used onsite.

Note: The below response is from Michael Fogarty of Katestone in conjunction with Carhue piggeries Nutritionist.

Please see attachment A-H feed Analysis. The feed analysis shows that the weighted average crude protein (CP) level in each category of diet meets the limits for low protein diets as adopted in the odour and ammonia impact assessment completed by Katestone.

The feed analysis shows Crude Protein levels as per the Table 1 (Supplied by the Feed Providers)

Table 1: Weighted average crude protein level for each pig category

Growth Stage	Average protein (%)
Weaner Avg Protein	17.23
Finisher Avg Protein	15.00
Sow Avg Protein	14.45

These values were calculated based on:

- The feed analysis provided in the Table 2 for each pig sub-category (Supplied by the Feed Providers)



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- A weighted average calculation of the amount of each category of feed used per sub-category (Supplied by the Feed Providers)

Table 2: Average crude protein level for each pig sub-category as analysed.

Diet Name	Analysed Protein Level	Pig Sub-category
Diet 8821	15.4	Creep
Diet 8840	18	Link
Diet 6631	17.1	Weaner
Diet 8197	16.3	Finisher 1
Diet 8199	14.8	Finisher 2
Lact Sow	18.2	Lact Sow
Dry Sow	12.2	Dry Sow

Important additional information

There are complexities associated with the regulation of CP levels based on a single feed analysis of dietary CP levels being below the specific level that a diet was formulated to achieve, as has been undertaken as part of this response. Enforcement around crude protein level in diets by EPA needs to account for the following:

- Pig diets are made up of natural food components (e.g. wheat, barley, soya bean meal) that are subject to natural variations in nutritional components (such as fat, protein, carbohydrate, vitamin, mineral content) and synthetic components (e.g. synthetic amino acids such as lysine, synthetic vitamins, synthetic minerals).
- The standard practice of animal feed suppliers when generating a diet with a specific crude protein (CP) content is to formulate the diet based on the weighted average CP content of each food component that goes into the diet.
- The CP content of each food component is the average CP content as determined from hundreds of historical individual tests of each food component (i.e. Nutritional companies hold databases containing the results of CP analysis on hundreds of samples of wheat; The



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average CP level of wheat samples in the database is used in the formulation of a diet produced by that nutritional company that contains wheat).

- As a result, the CP level of a formulated diet is subject to normal variations due to natural CP variations in nutritional components.
- Over time it would be expected that analytical testing of a formulated diet would show a distributed range of CP levels with the average CP level of that distribution being at the level targeted when the diet was formulated.

Importantly, historical research linking CP levels to odour and ammonia emission rates was based on diets formulated to specific CP levels and not diets that were analytically tested to ensure that they were at a specific CP level. These diets were therefore subject to the same natural variations in CP levels around the CP levels to which the diet was formulated.

The approach to the enforcement of CP levels in diets:

- Should therefore not be based on a single feed analysis of dietary CP levels being below the specific level that a diet was formulated to achieve.
- Needs to account for the natural variation of CP of the feed components that make up a diet.
- Should be based on the results of analytical CP testing of a diet being within the typical range of CP levels that would be expected within a diet formulated with a specific level of CP with typical range of CP levels being informed by a database of historical analytical tests of CP in feed components.

The determination of the typical range of CP levels in a diet formulated to a specific level requires a level of work to be undertaken as there may be some variances in the databases held by researchers and nutritional companies.

- c. Provide confirmation a letter from the Anaerobic Digestion facility to which pig slurry is exported. Confirming the quantity of pig slurry that they will take on a daily/weekly basis and a commitment that they will continue to do so exclusively from the licensee.

See attached 5.C_AD Confirmation letter.

- d. It is not credible that a third odour mitigation technique would have a significant effect on odour reduction. Furthermore, frequent removal of slurry is a necessary part of the successful operation of a slurry cooling system and will already be accounted for in the ammonia/odour reduction associated with



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the technique. It is necessary to rerun the odour model with an appropriate level of odour mitigation (i.e. 42.5%) and resubmit an updated odour modelling report.

See updated Ammonia and Odour reports attached from Katestone.

6. **Water supply:** Attachment 4.6.1 “Water and Energy Usage” of the application form does not provide the total supply of water for the installation.
- Clarify the proposed sources of water to be used for the activity and the quantity of water usage expected per annum from each source.

There are eight wells on site as noted on the updated site map. Each well will supply Approx 4,500m³ per annum for site activity. These Wells will also be utilised for Tank and Pipeline Assessments.

- The site plan contains two wells marked as AGW-7. Clarify which is to be referred to as AGW-7, provide a label for the other well, and update the site plan accordingly.

See attached updated Site Plan.

7. **Organic Fertiliser:** Conflicting information has been provided in the application with regards to slurry storage and management:
- Clarify the number of slurry storage/wash water tanks proposed.

There are 27 slurry storage tanks in total on the entire pig farm. 5 of these tanks are in relation to the buildings at the North of the unit which are built.

- Clarify whether the slurry store named ‘Reception Pit 1’ in Attachment 7.6.2(a) *Landspreading Controls* is associated with the AD plant at Timoleague AgriGen (P0986-01) or with the installation. Note that only slurry storage directly under the applicant’s control should be considered for the purpose of calculating the available slurry storage capacity onsite.



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'Reception Pit 1' in 7.6.2(a) Landspreading Controls is the storage tank on the SE of the new unit. This has been changed to correspond to site map labelling. See updated 7.6.2(a) Landspreading Controls Agri.

No slurry storage of any kind is associated with Timoleague Agri Gen Ltd P0986-01.

- c. In light of the above, clarify the total storage capacity that will be available (total capacity minus the freeboard) and whether 26 weeks' storage capacity will be available onsite.

The total storage capacity minus freeboard available on site is 28,273.80 m³ and over a 26-week period the calculated slurry produced will be 11,195.03m³ which demonstrates there is significant storage on site.

Also, please see attached updated non-technical summary.

Kind Regards,

A handwritten signature in blue ink that reads 'David Wynne'.

David Wynne BSc.(EnvSc)
Operations Manager