Glenrath Farms Ltd
Reard Roadend Hallmanor

Operator Initiated Substantial Variation

PPC/A/1133602 VAR02

CONTENTS

1 NON TECHNICAL SUMMARY OF DETERMINATION

Glossary of terms

BAT	-	Best Available Techniques
CO	-	Coordinating Officer
ELV	-	Emission Limit Value
PPC		Pollution Prevention and Control (Scotland) Regulations 2012
BAT		Best Available Techniques
CO		Coordinating Officer
IA		Intensive Agriculture
ELV		Emission Limit Value
SCAIL		Simple Calculation of Atmospheric Impact Limits
BRef		Best Available Techniques Reference Document for the Intensive Rearing of Poultry or Pigs (2017)
NatureScot		(Scotland's nature conservation agency formerly known as SNH or Scottish Natural Heritage)
SSSI		Site of Special Scientific Interest
SAC		Special Area of Conservation
SPA		Special Protected Area
EAL		Environmental Assessment Level
PPD		Public Participation Directive
PM10		Concentration of particles that are less than or equal to 10 µm in diameter
PEPFAA		Prevention of Environmental Pollution from Agricultural Activity
APHA		Animal and Plant Health Agency
DAA		Directly Associated Activity
GBR 18		General Binding Rule 18 of the Water Environment (Controlled Activities) (Scotland) Regulations 2011
IED		Industrial Emissions Directive
SuDS		Sustainable Drainage System
CREW		CREW Rural Suds Design and Build Guide' means the Duffy, A. Moir, S. Berwick, N. Shabashow, J. D'Arcy, B. Wade R. (2016). Rural Sustainable Drainage Systems: A Practical Design and Build Guide for Scotland's Farmers and Landowners, CRW2015/2.2, available online at www.crew.ac.uk/publications

2 EXTERNAL CONSULTATION AND SEPA'S RESPONSE

***Is Public Consultation Required* - Yes**

Advertisements Check:	***Date***	***Compliance with advertising requirements***
Peebleshire News	26/11/21	Yes
Edinburgh Gazette	26/11/21	Yes

Officer checking advert: CO

No. of responses received: Zero

Summary of responses and how they were taken into account during the determination: N/A

Summary of responses withheld from the public register on request and how they were taken into account during the determination: None
***Is PPC Statutory Consultation* Required – Yes**
Borders Health Board No response
Scottish Borders Council No response
NatureScot (PPC Regs consultation): No response
Discretionary Consultation - No
Enhanced SEPA public consultation -No
'*Off-site' Consultation* - No
***Transboundary Consultation* - No**
Public Participation Consultation –
STATEMENT ON THE PUBLIC PARTICIPATION PROCESS **The Pollution Prevention and Control (Public participation)(Scotland) Regulations 2005 requires that SEPA's draft determination of this application be placed on SEPA's website and public register and be subject to 28 days' public consultation. The dates between which this consultation took place, the number of representations received and SEPA's response to these are outlined below.**

Date SEPA notified applicant of draft determination	
Date draft determination placed on SEPA's Website	14 October 2022
Details of any other 'appropriate means' used to advertise the draft*. Seek advice from the communication department*	
Date public consultation on draft permit opened	14 October 2022
Date public consultation on draft permit consultation closed	
Number of representations received to the consultation	
Date final determination placed on the SEPA's Website	

Summary of responses and how they were taken into account during the determination:
3 ADMINISTRATIVE DETERMINATIONS
Determination of the Schedule 1 activity
No Change
Determination of the stationary technical unit to be permitted:

As detailed in the application and supporting documentation.
Determination of directly associated activities:
As detailed in the application and supporting documentation.
Determination of 'site boundary'
As detailed in the application and supporting documentation.
Officer: CO

4 INTRODUCTION AND BACKGROUND

4.1 Historical Background to the activity and variation

The permitted installation lies in the bottom of the manor Valley on the east side of the Manor water, approx. 5.5km southwest of Peebles. The site is currently permitted (ref PPC/A/1133062) for 140 000 places for pullet rearing. The area around the farm is an upland landscape. This substantial variation is to increase bird numbers by 40,000 birds, Shed 2 increases in stocking from 6000 to 12,500. Shed 4 is new and has capacity 32,000.

All houses are fan ventilated with fully littered floor and non-leaking drinkers. The additional land to be added to the installation on which house 4 will sit is green field, previously used for grazing sheep.

The site consists of two separate units' approximately 400m apart, 'Rear Roadend' and 'Glenrath Farm'. Rear Roadend comprises five sheds (6 to 10) for rearing pullets and Glenrath Farm currently comprises three sheds for rearing pullets(1 to 3). The new poultry shed (House 4) will house pullets on litter the same as all other houses at this site.

Day old chicks are introduced into the poultry house and reared to point of lay at about 16 -18 weeks when they are transferred to laying farms. On average there are 2.5 crops per annum. This means that for approximately 12 weeks of the year the poultry house will be empty.

At the start of the cycle, wood shavings are spread on a solid floor to a depth of around 2cm and the sheds are pre-warmed to 33 - 34°C using LPG, at day one, as birds grow and the temperature is gradually reduced to 20 -22°C by days 28 – 35 and ventilation requirements increase.

At the end of the cycle, approximately 120t litter per flock is taken off site in covered trailers to be used as organic fertiliser. Spreading to land is not controlled by the PPC permit.

When empty, the houses are washed down and disinfected. Disinfectant is sprayed directly onto contact surfaces, the resulting contaminated wash water (approximately 2,000 litres per cycle) will be collected in a sealed water collection tank and removed by tanker and taken off site to be used as organic fertiliser.

Feed from a UFAS accredited mill is delivered and stored on-site in sealed bins. Three different diets are fed over the rearing cycle dependant on the requirements of the bird to minimise nutrient losses. Water is supplied to the site via a spring water supply. Nipple drinkers will be used which reduce wastage of water and maintain dry litter. Water consumption is monitored and recorded daily.

4.2 Description of activity

Rearing poultry intensively in an installation with more than 40,000 places is described in Part A of Section 6.9 (a) of Schedule 1 of the Regulations. Other Directly Associated Activities include:

- Feed storage;
- Fuel storage;
- Water storage:
- Chemical storage;
- Manure handling;
- Dirty water storage;
- Storage of fallen stock for disposal;
- Management of lightly contaminated surface water.
- Ancillary power generation by diesel generators

4.3 Guidance/directions issued to SEPA by the Scottish Ministers under Reg.60 or 61.

None

4.4 Identification of important and sensitive receptors

The proposed pullet rearing shed is within 10km of 3 NatureScot designated sites, River Tweed SSSi, River Tweed SAC and Tweedsmuir Hills SSSI (please see Sections 5.2 and 6 of this Main Decision Document).

There is one human health receptor identified within 100 metres as part of the required screening of PM10 emissions from this site.

5 KEY ENVIRONMENTAL ISSUES

5.1 Summary of significant environmental impacts

SEPA have identified several environmental impacts (not necessarily significant) as follows:

Emissions to Air	Ammonia, dust (PM10) and odour
Emissions to Land	Waste, faecal material and nutrient inputs to land
Emissions to Water	Surface water discharge to surface water and indirect to groundwater
Other Emissions	Noise
Associated risks	Fuel and chemical storage

SEPA aims to control these through the conditions contained in the permit and by the requirement on the operator to comply with BAT as indicated in the SFIR and the 2017 BAT Conclusions.

5.2 Implications of the Variation on - Point Sources to Air

AMMONIA

Ammonia can be carried on the air and deposited in lochs and ponds causing eutrophication. The main point source of ammonia will be from the housing and ventilation. In order to quantify the amount of ammonia which will be emitted, SEPA use DEFRA-approved emission factors. The emission factors are specific to each housing system. The standard pullet emission factor is 0.06 kg NH3/place/year, which assumes 365 day occupancy and an average weight of 1 kg.

Under the Habitats Regulations (Conservation (Natural Habitats, &c.) Regulations 1994 and the Nature Conservation (Scotland) Act 2004 there are duties placed on SEPA for the protection of designated sites. Rear Roadend is within 10km of 3 NatureScot designated sites, River Tweed SSSi, River Tweed SAC and Tweedsmuir Hills SSSI

In order to screen the potential impact of ammonia from the proposal, the applicant and SEPA use SCAIL screening tool (Simple Calculation of Atmospheric Impact Limits).

SCAIL screening passed for the River Tweed SSSI and SAC therefore, no further habitat impact assessment was required. Damage to the notified features of the River Tweed SSSI and/or a significant effect to the site integrity of River Tweed SAC as a consequence of the proposed variation are unlikely to occur. However, screening thresholds were breached for Tweedsmuir Hills SSSI. The potential for damage to the notified features of the SSSI due to the proposed variation could not be ruled out and therefore a schedule 4 notice was served to require dispersion modelling to inform a detailed assessment of the risk posed to Tweedsmuir Hills' notified features.

Detailed Assessment.

NatureScot were consulted to clarify the relevant notified features to consider. Tweedsmuir Hills SSSI is notified for the following features: bryophyte assemblage, upland assemblage, vascular plant assemblage and breeding bird assemblage. The bryophyte and upland assemblages are particularly sensitive to ammonia concentration (critical level of 1 ug NH3/m3).

Using detailed modelling software, the Process contribution (PC) and Predicted Environmental Concentration (PEC) were modelled at 12 receptor locations in Tweedsmuir Hills SSSI. The locations were chosen to reflect areas of greatest sensitivity based on habitat mapping.

The modelling was conducted using an emission factor 0.032 kg NH3/place/year, scaled from the 0.06 kg NH3/place/year standard pullet emission factor to account for 281 day occupancy and 695g average weight, and on the assumption that exhaust fans for ventilation are in continuous operation, providing a precautionary worst case scenario.

The maximum process contribution at any of the 12 modelled receptor points in Tweedsmuir Hills SSSI was 0.2% of the critical level for ammonia concentration, 0.2% of the critical load for nutrient nitrogen deposition and 0.2% of the critical load function for acid deposition.

These values are well below the threshold of 1% of the benchmark, below which it can be concluded that it is unlikely that there will be a significant effect on the designated features at Tweedsmuir Hills as a result of this proposal.

PM10

There is a requirement for detailed modelling when the closest receptor is within 100 m of the installation and this applies in this case. SCAIL is designed to be conservative. And it is unlikely to adequately represent the PC when the receptor is so close to the source. The application relied on previous detailed PM10 modelling results for previous applications in 2015 and 2018, but the information supplied in the application did not include model outputs from the previous exercises and this was requested as part of the determination.

The applicant provided background concentrations produced under the Scottish Air Quality Database project which indicated that the background at the site is 8 µg m-3 which indicates a reduction between 2018 and 2021 suggesting that the poultry operations are not affecting the air quality in the area. This may be true, however the data cannot be readily interpreted in this way as the background figures provided are averaged over a 1 km grid square.

The 2018 modelling scenario was in relation to increasing pullet numbers by 80,000 and the results indicated no exceedances of the standards. Even if the PC from the 80,000 birds were doubled the air quality standards would not be exceeded. The planned increase for this variation is 38,000 birds.

There have also been some changes in the way that the house 2 fans are exhausted further away from the Farmhouse to the east which may also mitigate the impact on the receptor.

The modelling report from 2018 indicated a PC of 1.75 ug/m3 at the closest receptor/worst year and a background of 8.4 ug/m3, less than 70% of the annual average 18 µg/m3. Calculations are similar for the daily average at 50 µg/m3 for the 7 and 35 exceedances, therefore it is reasonable to accept the 2018 data to support the expansion and no further assessment is required,

5.3 Implications of the Variation on - Point Source Emissions to Surface Water and Sewer

Roof and yard drainage from House 4 will join the drainage from the other three houses and discharge to the SUDS system (pond), some 340 north of the poultry buildings. The existing SUDS pond has been resized and redesigned to CREW criteria and a drawing is attached in Appendix 1_Plans; Glenrath Farm_SUDS Pond Drawing. The outfall from the pond will be directed to a field drain at NT 21116 34187, which discharges to the Manor Water at NT 21043 34355. Refer to the SUDS drawing for further details on the proposed SUDS treatment (Appendix 1_Plans; Glenrath Farm_SUDS Pond Drawing).

5.4 Implications of the Variation on - Point Source Emissions to Groundwater

No Change

5.5 Implications of the Variation on - Fugitive Emissions to Air

No change

5.6 Implications of the Variation on - Fugitive Emissions to Water

No Change

5.7 Implications of the Variation on – Odour

No Change

5.8 Implications of the Variation on – Management

No Change

5.9 Implications of the Variation on - Raw Materials

No Change

5.10 Implications of the Variation on - Raw Materials Selection

No Change

5.11 Implications of the Variation on - Waste Minimisation Requirements

No Change

5.12 Implications of the Variation on - Water Use

No Change

5.13 Implications of the Variation on - Waste Handling

No Change

5.14 Implications of the Variation on - Waste Recovery or Disposal

No Change

5.15 Implications of the Variation on – Energy

No Change

5.16 Implications of the Variation for - Accidents and their Consequences

No Change

5.17 Implications of the Variation for – Noise

No Change

5.18 Implications of the Variation for – Monitoring

No Change

5.19 Implications of the Variation for – Closure

No Change

5.20 Implications of the Variation for - Site Condition Report (and where relevant the baseline report)

The baseline report has been supplemented by soil and groundwater samples taken from the green field land prior to construction.

5.21 Implications of the Variation for - Consideration of BAT

1. Housing System

Rearing on manure belts is not an option for the existing sheds at Glenrath Farms due to space limitations.

The site has 8 poultry houses already operating as litter rearing sheds. Requesting that all poultry houses are refurbished to belt rearing would involve significant financial investment to reconfigure the poultry houses and their ventilation systems, as well as changes to daily site operations

It would be illogical to have 8 poultry houses on the same site on litter rearing production systems and one poultry house on belt rearing production.

2. Diet

Three diets are fed over the rearing cycle, chick starter which is fed until the chicks reach around 170g body weight, a second starter diet is then fed until the birds reach at least 620g body weight, then a grower diet is fed until the birds are transferred to a laying site at 16 weeks of age. Birds weigh approximately 1,352 grams at 16 weeks of age. This maximise efficiency and minimises nutrient loss

3. Dry Content Matter

A high dry matter content of the manure / litter is maintained (minimum 50 – 60%).

4. Heat exchangers

Heat exchangers can be used for ammonia reduction (40 – 60%) based on heating and drying the litter/manure in combination with ventilators. Incoming air is warmed up in a heat exchanger using the heat recovered from the indoor air. Ventilators then spread the warm air throughout the poultry house maintaining an event temperature and dry litter conditions.

Glenrath Farms Ltd engaged with Big Dutchman with a view to installing a heat exchanger/s on House 4. Energy costs for one poultry house (the equivalent of House 4) for a year were supplied. Big Dutchman have advised that Glenrath Farm Ltd energy costs are currently very low and a break-even point would only be achieved after 17 years with the installation of a heat exchanger. Heat exchangers have therefore not been considered further in this application.

5. Bioscrubber

Bio scrubbers can achieve very high reductions for ammonia (70 – 90). Retro-fitting to existing buildings is costly as the ventilation systems are rarely adequate to support a scrubber and the design and capacity of the installed fans are unlikely to meet the increased capacity required to overcome the extra flow resistance created by a scrubber.

The high dust and feather load of the ventilation air increases the risk of blockage of the packing bed, which decreases the efficiency of the scrubber and increases maintenance costs.' A dust filter can be applied to overcome this, but it will also result in a drop in pressure and increased energy use.

Energy usage will increase to operate the pumps for water circulation and overcome the increased flow resistance for ventilation as will water consumption. Glenrath Farm is not on mains water but is serviced by a spring. Bioscrubbers also produce a waste water discharge. As there is no sewer system at Glenrath Farm, the waste will have to be treated prior to discharge to the Manor Water or to land.

At a pullet rearing facility there will be low levels of contaminated air (both when the house is empty for a number of weeks and also because the pullets are so small and ammonia levels very low) therefore, the microbes of the biolayer will be left without nutrients for extended periods and would fail.

6. Wet Acid Scrubber

Wet Acid Scrubbers can achieve reductions for ammonia (70 – 90%) and for dust approximately 35%. Similar issues exist around increased energy use for ventilation due to counter pressure plus power for water and acid pumps and a dust filter will be required which will further increase pressure in the system and increase the energy use.

Addition of sulphuric acid / hydrochloric acid is required for ammonia removal. This requires specific safety measures for storage and handling of acids and chemical substances as well as training of staff on acid management to minimise risks to human health and the environment.

Wet acid scrubbers also generate a waste water discharge, although smaller quantities in comparison with bioscrubbers. Due to the use of sulphuric acid, the discharge effluent contains ammonium sulphate. This will need further treatment before possible disposal to land.

The site is small and compact with limited space for equipment and safe storage of acids and waste water treatment required.

The BREF is not clear on the suitability of wet acid scrubbers in pullet houses. A pullet will only reach 900g at around 75 days old, day 75 would then be when the emissions are significant enough to justify cleaning of the exhaust waste air. Pullets are transferred to the laying shed at 16 weeks (day 112), this would equate to 37 days per rearing.

Together with the high implementation cost and limited time they would operate the applicant has ruled out the use of both acid and bioscrubbers.

7. Shelter Belt

A tree shelter belt will be planted along the boundary of the field. The UK Centre for Ecology and Hydrology offer shelter belt guidance which will be used as a guide. Ammonia capture by trees ranges from 15 – 25 % for housing emissions.

6 OTHER LEGISLATION CONSIDERED

Nature Conservation (Scotland) Act 2004 & Conservation (Natural Habitats &c.) Regulations 1994

Is there any possibility that the proposal will have any impact on site designated under the above legislation? No

Justification: Refer to section 5.2 above

Screening distance(s) used –10km

Officer: CO

7 ENVIRONMENTAL IMPACT ASSESSMENT AND COMAH

How has any relevant information obtained or conclusion arrived at pursuant to Articles 5, 6 and 7 of Council Directive 85/337/EEC on the assessment of the effects certain public and private projects on the environment been taken into account? No

How has any information contained within a safety report within the meaning of Regulation 7 (safety report) of the Control of Major Accident Hazards Regulations 1999 been taken into account? No

Officer: CO

8 DETAILS OF PERMIT

Do you propose placing any non standard conditions in the Permit NO

Do you propose making changes to existing text, tables or diagrams within the permit? Yes

Table 3.2 will be updated to reflect the diesel generator emission points. Table 3.3 will be updated to reflect the SIDs arrangements.

Site plans have been replaced with updated detailed layout plans.

Determination of this application has highlighted an error in the schedule 1 description, manure arrangement and underground wash tanks were not included and so have been inserted by paragraph 1.1.5.7

Condition 3.3.5 has been deleted as it is not relevant as there is no receiving water.

9 EMISSION LIMIT VALUES OR EQUIVALENT TECHNICAL PARAMETERS/ MEASURES

Are you are dealing with either a permit application, or a permit variation which would involve a review of existing ELVs or equivalent technical parameters? NO

10 PEER REVIEW

Has the determination and draft permit been Peer Reviewed?

Name of Peer Reviewer and comments made:

11 FINAL DETERMINATION

Issue of a Permit - Based on the information available at the time

Issue a Permit – Based on the information available at the time of the determination SEPA is satisfied that

- The applicant will be the person who will have control over the operation of the installation/mobile plant,
- The applicant will ensure that the installation/mobile plant is operated so as to comply with the conditions of the Permit,
- The applicant is a fit and proper person (specified waste management activities only),
- Planning permission for the activity is in force (specified waste management activities only),
- That the operator is in a position to use all appropriate preventative measures against pollution, in particular through the application of best available techniques.
- That no significant pollution should be caused.

Officer: CO

12 REFERENCES AND GUIDANCE

Guidance Notes – Identify key references, guidance (BREF, UK Technical Guidance, etc) used in determination

Standard Farming Installation Rules (SEPA's general sector Guidance)
Nature Conservation Procedure NCP-P-01
The assessment of potential impacts on designated sites of atmospheric emissions of ammonia from PPC intensive agriculture installations NCP-P-02
Sniffer ER26: Final Report on the update of the Simple Calculation of Atmospheric Impact Limits (SCAIL) (2014)
BAT Reference Document (BREF) BAT Conclusions for the Intensive Rearing of Poultry or Pigs (2017)
Rural Sustainable Drainage Systems – A practical design and build guide for Scotland's farmers and landowners (2016)
SEPA Guidance on Consultation under PPC (IED-PG-01-04)