Whiteshore Cockles Limited

Whiteshore
Kyles, Paible
Isle Of North Uist
HS6 5DY

New Permit Application
PPC/A/5001983

CONTENTS

1 NON TECHNICAL SUMMARY OF DETERMINATION

Glossary of terms

BAT - Best Available Techniques
CO - Coordinating Officer
ELV - Emission Limit Value

2 EXTERNAL CONSULTATION AND SEPA'S RESPONSE

***Is Public Consultation Required* - YES**

Advertisements Check:	***Date***	***Compliance with advertising requirements***
Stornoway Gazette	21/04/2022	Standard text provided to operator. Confirmation received of arrangement to advertise the letter on 21/04/2022.
Edinburgh Gazette	12/05/2022	Standard text provided to operator. Confirmation received of arrangement to advertise the letter on 12/05/2022.

Officer checking advert: AW/AS

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:

N/A

***Is PPC Statutory Consultation* Required – Yes (all contacted on 01/04/2022)**

Food Standards Agency: No response

Health Board: NHS Western Isles – No response

Local Auth: Council of the Western Isles
Response received 03/05/2022 Planning Officer for the Local Authority

The response lists a number of concerns with the information provided in the application, these include both environmental impacts and planning consent requirements that the application does not appear to consider.

13/05/2022 – AS provided a written response to Local Authority planning officer confirming SEPA's position on each of the comments and concerns within the application.

During the application process SEPA provided updates on the application and further information responses. The most notable being the management of liquid condensate waste and changes in the proposed methodology to manage this waste type from the initially indicated (at the planning stage) onsite treatment and discharge an effluent to marine waters, to offsite disposal and/ or land spreading under a WML Exemption.

Food Standards Scotland: No response

Nature Scot (PPC Regs consultation): No response

Justification: The site is situated within the relevant screening distance for the applied activities (15km – Section 6.8(b) / 2km (Section 1.1 combustion / MCPD.) of the following designated sites (note the SEP GIS screening tool was not fully functional at the time of assessment and the following is of the most prominent designated sites and not an exhaustive list).

Special Protection Areas:

- Aird and Borve, Benbecula PA_CODE 8,464 – 11km
- West Coast of the Outer Hebrides: – PA CODE 10,484 - locale

Sites of Special Scientific Interest:

- Mointeach Scadabhaigh – PA CODE 1,048 – 6.7km
- Machairs Robach and Newton – PA CODE 1,119 – 6.9km

Special Areas of Conservation:

- North Uist Machair – PA CODE 8,342 – 2.4 km
- Monach Islands – PA CODE 8,322 – 9.9 km

Response and Actions taken: No response

Discretionary Consultation:

03/05/2022 Decision made to contact local community and community representatives to make them aware of the application and provide an opportunity to make comment. SEPA Public Affairs staff member PF provided a list of contact details of representatives of the community, including MP, MSP's, Councillors and North Uist Community Council.

Response: No responses received.

Enhanced SEPA public consultation – N/A

'*Off-site' Consultation* – N/A

***Transboundary Consultation* – N/A**

***Public Participation Consultation* –** TBC

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	18 April 2023
Details of any other 'appropriate means' used to advertise the draft*. Seek advice from the communication department*	
Date public consultation on draft permit opened	18 April 2023
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: TBC	

3 ADMINISTRATIVE DETERMINATIONS
Determination of the Schedule 1 activity:
As detailed in the application
Determination of the stationary technical unit to be permitted:
As detailed in the application
Determination of directly associated activities:
As detailed in the application
Determination of 'site boundary':
As detailed in the application
Officer: AS/AW

4 INTRODUCTION AND BACKGROUND

4.1 Historical Background to the activity and new permit application

Whiteshore Cockles (the applicant) are applying for a PPC permit under Schedule 1, Section 6.8 Part A (b) of the Pollution Prevention and Control (Scotland) Regulations 2012. The application also includes operating a 1.4MW boiler (regulated under the requirements of the Medium Combustion Plant Directive/ PPC (Scotland) Amendment Regulations 2017, Schedule 1, Section 1.1 Part B (d) of the Regulations.

The applicant proposes to treat and recover putrescible fish farm mortality waste as an alternative to the historic burial of the same waste at the proposed site.

Odorous non condensable gasses from the treatment process will be used in the combustion air feed for the boiler. The boiler will be operating as an odour abatement method for these gasses in line Chapter V of the Animal by Product Regulations (ABPR). As a consequence the regulation of the boiler and its associated emissions will be included in the PPC Permit authorised by SEPA.

4.2 Description of activity

The proposed activity is an Animal Waste Rendering process with a maximum capacity of 48 tonnes / day and expected to operate 5 days per week. Seasonal variations in the volume of fish morts will affect daily processing rates.

Fish morts shall be transported to the site in sealed and covered skips where they are;

- Inspected for suitability in a **tipping trough**
- Size reduced in a **macerator pit**
- Dried for sterilisation and dehydration by a **rotating disc drier**.
- The drying process is by steam generated by a 1.4MW **biomass boiler**
- Separated into dry fish meal solids and fish oil liquid by **tricantor centrifuge separator**
- Gasses from the drying process are condensed to a liquid in an **air cooled condenser**

The inspection, maceration, drying and separation shall take place in two enclosed buildings;

- **Reception Building**
- **Main Processing Building**

Odorous air from these processes and buildings shall be captured and directed to two methods of odour abatement;

- Air from both buildings is extracted to a **wet chemical scrubber odour abatement system**.
- Odorous non condensable gasses from drying processes are used as **combustion air for the boiler**.

Energy & Fuel;

- **Diesel generator(s)** & fuel storage tank (plus standby generator) will be located at the site for electrical production.
- **Fish meal** solids produced by the process shall be used in the boiler as a fuel source. The Animal By-Products Regulations has provision for the combustion of meat and bone meal as a fuel and APHA have agreed that the regulation of the boiler will fall under SEPA's PPC remit as the boiler also serves as abatement for process odours.

Primary Wastes & Products;

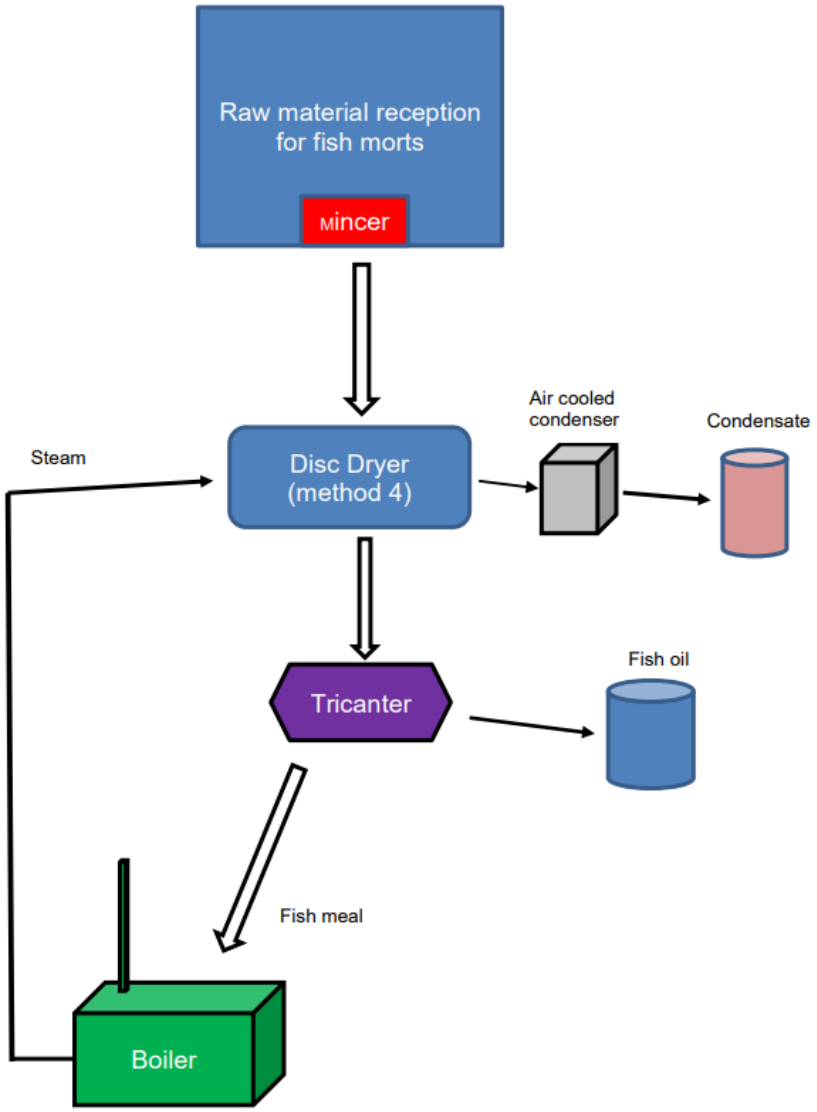
- **Fish meal** solids not required for fuel in the boiler shall be stored on site in sealed bags and removed for offsite treatment by Anaerobic Digestion.
- **Fish oil** liquid from the separation process shall be stored on site and removed by road tanker for further processing in bio-diesel production.
- **Liquid Condensate** shall initially be removed offsite for appropriate disposal. The applicant has however indicated that the waste could be permittable to be applied to land as a waste with benefit to agriculture, if the necessary Waste Management Licensing requirements can be met.

Environmental Air Emissions;

- **Air emissions** from the **boiler** which involves the combustion of odorous gas emissions.
- Air emissions from the **wet chemical scrubber**, serving the process buildings and extracted air from waste storage tanks (which included activated carbon filtration).

Environmental Water Emissions;

- There are **no process effluents proposed to be emitted to the water environment** or to fowl sewer.
- **Surface water runoff** shall be directed to a soakaway via a full retention oil and silt separator.
- **Domestic effluent** produced in onsite amenities shall remain as per the existing septic and soakaway arrangement and emitted to the water environment. These will be regulated under SEPA's Controlled Activity Regulations and are not included within the scope of the PPC permit.



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

Residential & Others:
The closest residential properties have been identified as being the village of Balemore/Knokintorran (0.6km North) and Knockline (1.2km NW), Bayhead School (1.9km NW).

Designated Sites:
Air Emissions: The site is situated within the relevant Nature Conservation screening distance(s) of a number of SAC's, SCA's & SSSI's, see public consultation section for Nature Scot consultation information and any response. Emissions from the installation are proposed to only be potentially polluting air emissions from the associated activities.

Water Emissions: The application does not propose to treat or emit direct to the environment any waste water emissions from the rendering process.

5 KEY ENVIRONMENTAL ISSUES

5.1 Summary of significant environmental impacts

Emissions to Air: Source: Boiler
Emissions: Products of combustion (NOx, SOx, PM, CO), Odorous Compounds (Ammonia, TVOC's,).

Source Wet Chemical Scrubber:
Emissions: Odorous compounds (Ammonia, TVOC's,).

Emissions to Land* Air Emission Deposition from known emission sources (NOx, SOx & Ammonia).

Waste to land spreading (Condensate & Scrubber Wash Down Water), note this would not be part of permitted process but is considered within the installation's BAT appraisal. This is an activity that requires to be registered as a waste management licensing 'exempt' activity or licensed under the WML Regulations. (inc. but not limited to ammonia, copper, mercury, zinc & trans-permethrin).

Spillage of fuel, oils, lubricants, detergents.

*Emissions to Land covers all aspects of the discharge of potential pollutants to ground; whether direct or indirect, and includes but is not restricted to spills, escapes of waste and disposal of waste on site. Specifically those that would impact on soil and groundwater monitoring within the permitted site boundary, and site surrender.

Emissions to Water The application does not list any effluent emissions to the water environment.
Process liquid wastes are proposed to be contained in storage vessels and transported offsite for disposal / treatment at licensed facilities. Risk of fugitive emissions to water is governed by appropriate drainage arrangements and discussed in detail later in the decision document.

Other Impacts Noise (onsite vehicle movements, internal factory noise breakout, condenser unit, fan motors, pumps / mechanical treatment / steam venting)
External to site: High Frequency Vehicle Movements, deliveries, loading / unloading.

Animal by Products: Due to the process accepting and treating ABP Category 2 waste, there is a cross over between SEPA regulation of the waste treatment activity, and APHA (Animal and Plant Health Agency) regulation controlling the management of relevant ABP waste and materials.

APHA authorisation (separate to the PPC permit) will govern the necessary hygiene and management requirements associated with the ABP handling at the installation.

SEPA authorisation will govern the combustion of ABP fish meal (MBM) as it is being utilised as a fuel in the boiler. PPC permit conditions will regulate the operation of the boiler and emissions from it. SEPA authorisation will also govern the management of non ABP wastes from the installation.

5.2 Point Sources to Air

(section refers to air quality pollutants / some overlap with odorous emissions to air as discussed below)

The proposed installation has the following listed point source emissions to air release points:

1. The Biomass Boiler Stack (combustion) – stack height of 12.7m
2. Wet Scrubber Tower (odour abatement) – stack height of 12.0m.

3. Diesel Generators (60kv & 2 x 300kV) – primary and standby. Due to each having a net rated thermal input of <1MW, the generators do not fall under the PPC/MCPD emissions monitoring requirements and are not discussed in detail in this decision document.

The air quality effects from the proposed installation at nearby sensitive receptors to the Whiteshore installation were assessed as part of an Air Quality and Odour Impact Assessment.

Background conditions for air quality at sensitive and ecological receptors were predicted as being significantly lower than all Air Quality objective pollutant thresholds for both long- and short-term averages for modelled pollutants. There are no Air Quality Management Areas in the vicinity of the proposed installation.

A predictive atmospheric dispersion model was used to assess the risk of predicted emissions to air pollutants from the proposed emission points. The model considers emissions rates, emission characteristics, (location, height of emissions, velocity, temperature, odour type / concentration) and deposition rates along with meteorological data and terrain modelling information.

The outcome of the modelling predicts that process contributions at draft*BAT AEL levels (as per BAT 15 & 25) for both short and long term environmental standards will cause no significant pollution at nearby human receptor locations. See section 5.20 below for detailed determination of applicable ELV's for the process. Note Ammonia is considered for both air quality pollution and also odorous air emissions (discussed later).

The modelling methodology considers worst case scenario meteorological conditions to determine the significance of any effects from the process emissions. Predictions show combined environmental concentrations for both emission points are less than the relevant air quality standard percentages (for short and long term averages) and screened out for most impact assessing requirements.

The model includes consideration of system failures or abnormal operation of the boiler which is predicted as contributing the majority of potentially polluting emissions. Particulate emissions under abnormal operating were predicted to not be affecting any listed receptors where concentrations would be highest (for particulate matter).

Stack Height

The application included a specific Stack Height Assessment, completed by air quality specialists Ensafe in January 2021. The report was intended to inform the separate Air Quality and Odour Impact assessment completed by Riccardo Energy and Environment.

The assessment modelled process contributions from only one point source emission to air at the Whiteshore site, boiler stack. This was revised under the resubmitted stack heigh assessment required by Further Information Notice – point 5 whereby consideration was given to varying stacks heights >12m. supplemented by an updated assessment which included the wet scrubber stack emissions to represent both emission points.

The assessments for air quality and odour impact consider Predicted Environmental Contributions (PEC) for annual, 24 hour mean and 1 hour means for NO_x & NO_2 emissions over 5 assessment years

(representing the variances in meteorological conditions and impacts on atmospheric dispersion) to give a worst case scenario value to the assessment.

NO_x / NO_2 was predicted to be the maximum pollutant concentration from the intended operational plant, and most beneficial for the purpose of measuring stack height variability and its impact on dispersion and concentrations at sensitive receptors.

PEC were modelled for identified sensitive human receptors for air quality and odour impacts, and a separate ecological receptor a known SSSI in the vicinity of the Whiteshore site. The assessment considered possible stack heights between 12m, 13m, 14m and 15m.

The outcome of the stack height assessments was that variations in stack height options did not result in significant variations to the impacts or provide any significant environmental benefits. This conclusion was accepted by SEPA Air Mod staff who were asked to comment on the model.

"The odour impact assessment
that accompanied the permit application demonstrated that if the odour control
system complied with that of the BAT-AEL for odour then the odour impact:
• at the point of maximum impact which lies in the wake of the nearby building (within the site boundary) may exceed the odour
benchmark of 1.5 OUE/m3 as a 98th %ile, however no receptors have access to that location
• at the nearest receptor the odour impact is predicted to be about 10% of the benchmark."

Air Mod comments (16Sept'22) *'Increasing the stack heights shows a significant reduction in risk of odour nuisance in and around the site, but there is very small differences predicted at nearby receptors'.*
Concluding that the proposed stack heights of 12.7m & 12m is acceptable to ensure appropriate dispersion of odorous compounds at nearby receptors from the scrubber process.

SEPA Comment:

1. Combustion Emissions. The proposed emissions to air from the boiler are a result of the combustion of fuel and non condensable malodorous gases in the boiler process. This method of abatement is BAT and the combustion of MBM fish meal is BAT for energy supply for the process and permitted as a fuel exempt from waste incineration standards.
   As required by BAT 15 the emissions from the boiler permitted by PPC authorisation shall include ELV's for CO, NOx, SOx and PM.

2. Odorous Emission – Wet Chemical Stack & Boiler Emissions. The proposed wet (chemical) scrubber system is recognised as BAT under the listed techniques in BAT 25 to "*reduce emissions to air of organic compounds and malodorous compounds*" .
   (See *Consideration of BAT* – BAT 25, section below for justification of this method of BAT for the process).

   The ELV's set out in BAT 25 for (Odour Concentration, Total Volatile Organic Compounds, NH3 (Ammonia) and H2S have been included in the permit for both emission points.

   Monitoring to ensure compliance with ELV's has been applied in the permit (see section 5.15 below).

5.3 Point Source Emissions to Surface Water and Sewer

To Surface Water:

There are no proposed point source emissions direct to surface water from the Whiteshore installation.

To Sewer:
There are no proposed point source emissions to sewer from the Whiteshore installation. Due to the rural location there is no sewer infrastructure serving the site. SEPA are not aware of any local sewage treatment processes on North Uist that could accept the process effluents.

5.4 Point Source Emissions to Groundwater

There will be no point source emissions of waste water or effluent to Groundwater from permitted installation.

The only emissions to groundwater is the discharge of uncontaminated external surface runoff from the roofed buildings and concrete working surfaces to a soakaway drainage system via full retention interceptor.

The drainage system is designed to deal with uncontaminated run off water and is considered a low risk activity for surface water management. No process emissions or wash waters will be permitted to discharge to the system. Waste water will be collected and stored separately using appropriate BAT.

The surface runoff system has been designed in line with the relevant guidance and techniques listed within the SUDS manual, industrial best practice reference document. Detailed drainage drawings were provided with the application to demonstrate the sizing and location of drainage pathways including subsurface drainage. Periphery drainage shall contain potential spillages on the impermeable working surfaces.

Any contaminated liquids from an unforeseen spillage of a polluting liquid is mitigated by way of a full retention oil and silt separator equipped with a visible and audible alarm in the event of overfill. The system also includes an automatic closure system (that can be closed manually in an emergency or during emptying and maintenance.

SEPA Comment:
The system has been designed in line with BAT and should offer a high level of protection to the water environment when taking into account the liquid waste collection and containment measures also in place at the installation.

As a measure to reassure that the drainage system is operating correctly and no polluting emissions escaping to the water environment, the PPC permit has included visual inspection requirements for emissions to the water environment via the soakaway system for *free of solids, oils, fats, or greases"* which should be undertaken daily.

5.5 Odour & Fugitive Emissions to Air

The primary risk of fugitive emissions to air are from odour due to the process receiving and processing large volumes of putrescible fish waste. Offensive odour risk could be significant if not managed appropriately and a number of measures are in place to ensure compliance with regulatory requirements through the application of BAT.

Sources of odour are as follows:

- **Waste Transport, Reception and Storage:**
- **Waste Treatment Processes inc. Hygiene and Emissions to Air:**

The application and accompanying documents justify the proposed techniques that will be used to ensure BAT is complied with and the risks of odour and fugitive emissions from the process are suitably mitigated.

The applicant lists the following techniques to reduce risk of fugitive odorous emissions from the waste treatment process and associated activities:

Waste Transport, Reception and Storage:

- Only 'fresh' fish morts shall be accepted at the installation for treatment. No ensiled fish waste shall be accepted for treatment. A fortnightly collection round is normal practice and the applicant does not indicate any concern with the waste odour from this frequency of collection.
- The site is not designed to handle mass mortality events and is restricted by the maximum processing capacity of the plant.
- Fish morts brought to the site are within sealed / and or covered containers. These are to ensure containment and do not emit odour.
- The building door will only be open for as short a time as possible during the tipping cycle from skip to trough & washdown the skip (approx. 120 seconds, electrically operated).
- Estimation is that there would be no more than 5 skips per day (i.e. 5 door openings) during peak summer months, with less during off season.
- Hygiene practice will be in place to ensure frequent washing (& disinfection) of vehicles and skip containers to reduce odour generation.
- Any wastes not immediately available for acceptance into the process (due to the storage pit being full) shall be stored internally for as short a period as possible.
- All odorous process wastes, including fish meal and liquid wastes shall be stored in sealed bags indoors or in sealed tanks.
- Odorous gasses from storage are directed to the odour abatement system(s).
- Breathing losses from the loading of waste to tanker vehicles shall be directed to a deoderiser filled IBC.

Waste Treatment Processes inc. Hygiene and Emissions to Air:

- Sealed Roller Door(s).
- Building Fabric (walls and ceilings) are Sealed and constructed to a High Quality. Openings where conveyors and pipework pass through walls are sealed.
- Personnel Doors are sealed (tight fitting) and self closing.
- The building shall be kept under negative pressure (other than during deliveries), a sensor shall be installed within the building to evidence this state of containment.
- On commissioning of the process a smoke test shall be completed on the buildings to visually confirm negative pressure and containment. This shall also be a permit requirement to reassess.
- The applicant proposes to maintain high standard of house keeping to ensure areas are clean and free from odorous materials not being treated by the rendering process. This shall include a comprehensive cleaning protocol for the installation and spill protocol, including the following:
    - All structures, Equipment, Internal Surfaces, Non Disposable Containers, Drainage, Collection Tanks, External Yard, Roadways, Abatement Plant.
      Odour Management Plan & EMS Procedures for Waste Management & ABP processing.
- Process air in the buildings shall be extracted to a Wet Scrubber Odour abatement system (see below) and air shall be managed to allow a minimum of four air changes per hour.
- A lid or cover shall be kept on the above ground Raw Fish Pit when deliveries are not being received.
- Outputs from the Pit to the Mincer (Macerator) shall be by a sealed conveyor system.

- Destruction of odorous gasses as combustion air for the boiler, from the higher intensity processes including: air cooled condenser and fish meal cooling and storage.
- The odour abatement systems shall be served by a balanced local exhaust ventilation & extraction system to ensure efficient collection of odorous air and the control of odours at source where possible (see below).
- Condensate is filtered through a carbon filter during the collection process, to reduce the volatile compounds in the waste during storage.

SEPA Discussion; Techniques to Reduce Risk of Fugitive Odorous Emissions:

The techniques listed above had have been included in the design and operation of the process to ensure odorous emissions to air form the process are controlled and line with the applicable BAT & SEPA Odour Guidance 2010.

The proposed methods meet BAT requirements. The PPC permit has included a number of permit conditions to ensure these techniques are in place, monitored and complied with, including;

- Standard permit odour conditions specifying no offensive odour outside the site boundary.
- Ensuring specific control over the waste types at the installation, including prescriptive quantities, locations and storage conditions (including timescales) to ensure risk of odour is minimised and controlled.
- The requirement for an Odour Management Plan as per BAT, Environmental Management System.
- Requirements on the operation of the Odour Abatement Systems, including their operation, building enclosure, negative pressure monitoring and measurement of system performance / efficiency.
- Environmental Critical Items, register to record and understand the ECI equipment on site, many of which will be odour control equipment.
- The monitoring of air emissions and specifically odorous air emissions, the inclusion of emission limit values related to odour and highly odorous substances such as VOC's and Ammonia.
- Requirements for maintenance and inspection of all plant and instrumentation to ensure correct operation, calibration and risk with loss of containment, including air handling systems and other odour control equipment.
- Hygiene and housekeeping conditions to ensure no putrescible waste causes contamination, is degrading or causing uncontrolled odours. These requirements integrate with ABP regulation requirements and address these issues, including the requirement for suitable inspection and cleaning procedures and high level of hygiene control.

5.6 Odour Abatement Systems(s)

The application has included specific technical information relating to the proposed odour abatement systems, justifying their selection, design, and operation.

There are two main odour abatement measures proposed in the application to treat odorous gasses.

- **Wet Scrubbing** in an Acid Irrigating Scrubber.
- **Thermal Oxidation** by way of the biomass combustion boiler.

Wet Chemical Scrubber:

- The wet scrubber shall abate building air from both the Raw Material Reception Building and the Main Process Building.
- The wet scrubber utilises dilute sulphuric acid as a scrubbing fluid to ensure absorption of the soluble odorous substances within the extracted process air.

- The scrubbing liquor is appropriate for the odour compounds produced in the process, with the acid pH absorbing Ammonia and Amines most associated with the fish waste odours.
- These air streams have been characterised as being low intensity (odour concentration), ambient temperature, low moisture, moderate to high volume and shall be kept separated from the intense higher intensity odours from the non-condensable gases from the drier and fishmeal cooling off-gasses.
- Extraction shall be positioned to ensure high capture efficiency at sources of most odour, including extraction closest to or direct from the;
    - Tipping Trough & Macerator Pit in the Raw Material Reception building.
    - Drier, centrifuge separator and fish meal Bagging area in the Main Process building.
    - Condensate storage tank, condensate interceptor tank and fish oil tank storage tank.
- Expected odour compounds are listed as Ammonia and Amines.
- The wet scrubber design is a single stage, packed bed scrubber, with a circulating pump, flow sensor and transmitter. Process monitoring shall include differential pressure, scrubber liquor level and pH. The system shall also include a dosing pump, blow down tank (for spent liquor) and a make up water tank (for new irrigation water).
- The control panel will be fitted with visual & audible alarms to warn operatives of faults.
- The liquor distribution system is removable for periodic inspection.
- The system will be installed by the supplier and will include balancing of the extraction system and confirmation of air change per hour rates in the served buildings.

Carbon Absorber:
The Odour Abatement BAT assessment provided in the application also discusses the potential use of a 'Carbon Absorber' – the following statement is included:
"If it is found in future operation of the plant that the emission levels of VOCs are greater than the limit (permitted ELV's)*, it is proposed that a secondary system is installed consisting of a steam heat exchanger and carbon adsorber. The steam heater which would be located after the exhaust fan, is used to reduce the Relative Humidity (RH) of the exhaust air entering the carbon adsorber to prevent saturation of the carbon media with water. The carbon adsorber, which would be of the annular design, will have a residence period of 2 seconds to maximise the period between changeouts of the carbon media".*

SEPA discussed this eventually with the applicant and had reassurances that the design for the Wet Scrubber will include the arrangements and infrastructure to allow the installation of a Carbon Adsorber if it is found that the emissions from the scrubber are not compliant with permit requirements.
For clarity, a carbon absorber will not be installed at the time of permitting or be listed in the permit as part of the stationary technical unit.

A permit condition has been included to require the operator to undertake appropriate monitoring of the abatement system and to report the findings of this monitoring to justify if a Carbon Adsorber will or will not be required to meet permit ELVs and odour destruction efficiency requirements set out in the permit.

Thermal Oxidation

Non condensable malodourous gasses from the Drier process are considered the highest risk of odour from the rendering process.

Under the hierarchy of odour control as per SEPA Odour Guidance 2010, these gasses shall be contained within the sealed system they are produced and not escape to the wider building space. They are extracted by a dedicated ventilation system for odour destruction in the Boiler.

- The drier gasses are very high in moisture and particulate due to the drying process and concentrated with Ammonia / Amine compounds.

- A cyclone filter will remove particulate from the drier gas stream before passing the moisture laden air to the air cooled Condenser.
- Odour compounds soluble in water shall be captured in the condensate removal.
- Non condensable compounds shall remain in the dried gas streams from the boiler and will be directed to the Biomass Boiler by the combustion air fan as part of the combustion air feed to the boiler.
- The system has also been designed to extract warm malodorous air from the headspace in sealed fish meal conveyor unit to the boiler.
- Within the boiler, thermal oxidation of the remaining odorous compounds shall take place with the resultant emissions from the boiler required to comply with (amongst other substances) draft*BAT-AELs for Odour concentration, TVOCs and Ammonia.
- Emissions from the boiler shall be by via 12.7m exhaust stack to ensure dispersal of any residual trace odours.
- Consideration has been given to the potential for the generation of chemical NOx from the combustion of odorous non condensable gasses in the boiler. The proportion of these gasses in the air feed for the boiler is very low and not foreseen to result in excessive NOx formation from the combustion. If upon emissions monitoring the boiler emissions cannot comply with NOx ELVs within the permit, secondary abatement will be required in the form of catalytic reduction or non catalytic measures to abate NOx.

Ventilation Design:

- The volume of the buildings has been calculated as follows:
  - Reception Building - 2287m^3
  - Processing Building - 3119 m^3
- A minimum air change rate of 4 air changes per hour is set for the building ventilation, the extraction rate for the ventilation system must have a minimum extraction rate of:
  - Total Extraction - 21,624 m^3 /hour
- Allowing for a safety factor in terms of exhaust flow and to allow for extraction from the storage tanks the system has been designed to handle;
  - Maximum flow of - 24,000 m^3 /hour
- Make up air for both buildings will be provided via the installation of appropriately sized air inlet louvres complete with volume control dampers within the building fabric.
- Air shall be extracted to the scrubber by enclosed ductwork constructed of UPVC or GRP material and the use of variable control dampers (VCD) and extract grilles located strategically within the building to balance the air flow.
- Extraction shall be positioned and balanced to ensure high capture efficiency at sources of most odour and provide point source extraction as per BAT where possible.
- As the Boiler is not expected to operate continuously the extraction system for the scrubber has been sized to achieve x 4 air changes per hour without factoring extraction to the boiler (which is additional extraction).

Emissions:

- The emissions from the Wet Scrubber will be optimised to comply with industry required draft*BAT AELs for odour abatement.
- The emissions from Boiler are required to comply with ELV's associated with the combustion of fuel and due to the boiler being utilised to destroy odorous gasses, draft*ELVs have been prescribed in the permit to cover odorous compounds also.
- The application references the combustion of MBM material within a similar boiler with indicative emission monitoring results demonstrating compliance with draft*SA BREF ELV's without the requirement for further abatement such as acid gas scrubbing. The assessment however did not consider the additional input of odorous compounds for thermal destruction and the implications of elevated Nitrogen within the combustion air. Upon discussion with the applicant, the technology provider is confident the boiler will achieve ELVs set within the permit without the need for secondary abatement such catalytic reduction for nitrogen emissions.

- The Scrubber System is reported to achieve an odour reduction efficiency of over 95%.
- Scrubber Emissions are via a 12m high discharge exhaust stack, including mist eliminator.
- Inlet and outlet duct connections will be included to allow monitoring and sampling of air streams to measure odour destruction efficiency.

SEPA Discussion; Odour Abatement Systems(s):

The techniques listed above had have been included in the design and operation of the process to ensure odorous emissions to air form the process are controlled and line with the applicable BAT & SEPA Odour Guidance 2010.

The proposed methods meet BAT requirements and are recognised techniques. The PPC permit has included a number of permit conditions to ensure these techniques and other measures are in place, monitored and complied with, including;

- No offensive odour outwith the site boundary condition.
- Requirement during normal operation for containment within the process buildings, including negative pressure and the odour abatement systems to be in operation.
- Smoke testing requirements for both buildings to ensure containment is to a high standard.
- The monitoring of point source emissions to air and specifically odorous air compounds, including necessary frequencies & parameters.
- The inclusion of emission limit values related to odour and highly odorous substances such as VOC's, Ammonia and Odour Concentration (OUe).
- Sampling requirements relating to the efficacy of the odour abatement system(s) to ensure they are operating to an appropriate standard and achieving BAT.

Dust Emissions:
The likelihood of dust emissions from the process activities within the buildings are considered to be low due to the nature of the raw materials being processed and the process being a wet process.
The exception to this will be in the production and storage of Fish Meal (a dried powder).

Emissions from dust should be managed by the storage of fish meal within the main process building, fish meal being bagged and sealed, to ensure containment and no loss of material when transported either to the main boiler as a fuel or to HGV for offsite disposal.

General dust emissions from external working surfaces should be prevented by hygiene and housekeeping requirements – see 'comprehensive cleaning protocol' above.

5.7 Fugitive Emissions to Water

Surface Water from the site infrastructure will be managed as follows;

- Roof run off from both the Raw Material Building and Main Process building shall be captured by roof guttering and down pipes and directed to a 72,000 litre rain water harvesting tank. The harvesting system will include a 'Vortex' filter system to remove debris and other surface contaminants such as bird droppings prior to filling the tank. The filter system screenings and excess rainwater from the system will be directed to the surface water collection & soakaway system.

- Surface run off from the main concrete pad will be directed to permitter boundary drainage channels to the surface water collection & soakaway system including a full retention single chamber silt and oil separator before field drain soakaway system,

See section 5.4 emissions to groundwater.

5.8 Management

The application details the Whiteshore Management structure and responsibilities of each appointed position within the structure.

Staff are reported as being professionally qualified, trained and experienced for the senior roles of manager. All staff are intended to receive comprehensive training and instruction covering all areas of the staff responsibility, with training to include formal training and operational experience supervised by senior staff. The company also include the use of external experts and consultants to provide advice and support with relation to technical projects.

The application states that the installation will operate under an Environmental Management System (which is referenced as BAT 1) and includes appendices such as an Odour Management Plan and other related systems including Safety Management System, Accident Management System, management/organisation structure with a comprehensive training matrix and training procedure to cover all staff and role requirements.

Written procedures will be in place for the majority of the installation operations and emergency plans. The procedures are in place to ensure that compliance with all obligations and standards is achieved. Safe and efficient operation of plant which will include maintenance and financial functions and provide clear standards for all site personnel to follow and ensure consistency in the operation and the products produces.

5.9 Raw Materials & Selection

The Whiteshore process is a rendering process that will allow the recovery of material that has historically been disposed of as animal waste by burial to land. In order to achieve this recovery a number of raw materials will be required to provide feedstock, energy and water to the process.
Fish Morts: The primary input to the process is Fish Morts with the installation designed for a maximum capacity of 48 tonnes per day (this is the limit of the dryer being 2 tonnes per hour).
The plant estimates initially to accept no more than 10 tonnes per day in the low season (January to April) and 30 tonnes per day in the high season (August to September).
The application states for the first year an estimated throughput of 7500 tonnes of fish morts,(average of 30 tonnes per day) with potential to increase over time in line with the maximum processing capacity.
Projected throughput longer term is estimated at 14,000 tonnes per year, allowing for downtime for washing, maintenance and fluctuations in seasonal.

Mass Mortality Events: The application states that the plant has not been designed to be able to deal with mass mortality events from salmon farms. The permit has been drafted to limit the storage and processing volume of fish morts that would not permit quantities relevant to mass mortalities volumes.

- Mains Water: Due to the rural location of the installation, only a small mains water supply is available. Mains water will be used for the welfare facilities and also in the steam generating boiler. The water will be stored in a 5000 litre header tank for potable (mains) water.

- Rainwater Harvesting: Will be used to provide water for the production process, primarily for washing down, cleaning working surfaces, delivery vehicles and vessels (skips).

  A capture and filter system from the roof surfaces will ensure efficient capture and use of water which would be suitable for the majority of cleaning duties.

  Rainwater will be stored in a 72,000 litre header tank.

- Diesel: The primary supply of energy at the installation will by use of electrical generators and standby emergency generator, 60kv and two 250kVa all fuelled by diesel which will be stored in two 10,000 litre bunded tanks.

In addition to the primary raw materials of fish morts, diesel and water the application includes information for a relatively small amount of other raw materials and consumable associated with the process, these include the following:

- Caustic Soda: Is required for boiler water conditioning.

- Boiler Corrosion Inhibitor: Is required for appropriate maintenance and operation of the boiler.

- Sulphuric Acid: Is required as a scrubbing liquid in the chemical wet scrubber for odour abatement. The acid will be used in the scrubber unit by mixing with irrigation water. Spent liquid will be contained and removed from site for safe disposal.

  Scrubbing liquor shall be recirculated in the wet scrubber and occasionally emptied and refreshed when required.

- Hydraulic Gear Oil: Will be required for the operation and maintenance of the various mechanical items and plant at the site.

- Disinfectant: Will be used for the regular cleaning of fish mort transport skips and process equipment such as the inspection trough and raw material pit.

- Deodoriser Liquid: Is planned to be used of abating odorous breathing losses back vented from HGV tankers when loading fish oil and condensate waste from the process. Deodoriser will be mixed with water into a solution and used in IBC's containers for this purpose.
  Deodoriser is also planned to be used alongside the disinfecting of fish mort transport skips (tubs) prior to leaving site.

  SEPA Discussion
  Selection of these materials is somewhat limited due to the prescriptive nature of the process and restrictions with regard to power supply and the requirement for diesel fuel. All other ancillary materials are low volume and are in most cases essential to operation and maintenance of the associated equipment.

  In line with BAT the applicant has confirmed that a systematic assessment and monitoring of resource use and efficiency shall be in place including the assessment and selection of harmful substances. The PPC permit has conditions in place that require monitoring and reduction of raw material usage for the process, including the requirements to assess resource utilisation.

5.10 Waste Minimisation Requirements

Permit conditions will require monitoring and periodic reviewing a of resources used at the installation. This includes material losses and the generation of waste. Assessments will require consideration of methods to reduce material losses and waste and improve resource efficiency.

See Waste and Waste Handling for more information.

5.11 Water Use

Water usage at the site will primarily be by that of mains water for steam generation in the main boiler and use of harvested rainwater for cleaning and general hygiene tasks in the process.

Hygiene and effective cleanliness and maintenance of all equipment and infrastructure is an essential requirement for putrescible material processing under ABPR. This includes the risks associated with animal by product materials and their potential for odour generation. Thorough and frequent washing of affected areas will be covered by cleaning procedures at the site and detailed in the application documentation, including a weekly 'major' clean of all high risk areas and plant.

The rainwater harvesting system will be from the two main roofed buildings at the site and not from the ground due to risk of cross contamination with animal by product waste. The system will include a 'Vortex' filter system to remove debris and other surface contaminants such as bird droppings prior to filling the 72,000 litre storage tank. The natural filter system screenings will be directed to the surface water soakaway system. Excess rainwater (overflow) from the storage tank will be directed to the soakaway system.

This methodology complies with the requirements of BAT where rain water is being captured and reused within the process in replacement for mains water where possible. Specific tasks which do not require potable mains water have been identified for this purpose.

Efficiency of the consumption of mains water has been limited to the necessary welfare facilities and cleanliness requirements for the steam generation in the boiler. Recovered rainwater will not be suitable for steam generation in the boiler due to manufacturer specifications to protect the life of the boiler.

The application states that a water meter will be in place for monitoring mains water usage at the site.

The application indicates that as part of the Environmental Management System for the process, monitoring and measurement procedures will be in place to monitor all resource use including water management plan will be in place, this is an essential requirement of any EMS.

Water Recycling and Reuse: The internal drainage system of the building is designed so that wash waters in the raw material reception building and main process building will be by captured in an indoor sealed drainage system and fed to the drier instead of disposed of as liquid waste.

Cleaning of Equipment as soon as possible: The application details that frequent cleaning will be in place by a detailed cleaning procedure to ensure water usage from the requirement of thorough hardened residual materials is not necessary. End of day cleaning and weekly in depth cleaning will take place.

The operator has indicated the use of BAT to minimise the use of water when carrying out the process activities. The process design includes segregation and containment of all higher risk wash areas and activities. Skip wash waters will be captured and included in the indoor sealed system for contaminated waters. Internal wash areas such as the inspection pit, will drain water to the drying process alongside the fish morts.

The process will include a structured cleaning process with maintenance and cleaning operations taking place. The plant has a daily cleaning schedule as well as a weekly major clean which takes place during production down time. Skips are cleaned immediately after emptying into the inspection trough.

SEPA Discussion:
The application states a number of design and plan methods that will be in place to ensure water resource is used efficiently, waste minimised and consumption measured and understood. Due to the nature of the process and waste type, hygiene and housekeeping will be a priority to manage both environmental and health and safety requirements.

SEPA will require the operator to use BAT to minimise the use of water when carrying out permitted activities.

The PPC permit has included standard conditions to monitor and record resource efficiency which includes water. The permit has also included Hygiene related conditions to ensure the requirements for animal by products for the boiler operation are met and regular efficient cleaning and disinfection procedures will be in place.

The permit has included the requirement for a Water Management Plan in order to define and calculate the specific energy consumption of the process, setting key performance indicators on an annual basis and planning periodic improvement targets and related actions.

5.12 Waste & Waste Handling

The application lists in detail a number of waste streams associated with the process.

Some of these have been covered in detail above with relation to liquids wastes from the process as additional Liquid Waste Management section 5.13, below.

- Raw Fish Morts (awaiting processing): The application states that fish morts accepted by the process are Category 2 ABP wastes. Under the requirements of the ABP Regulations and the known environmental risks associated, there are strict controls on the handling and storage of fish morts. All must be transported in sealed containers, not stored outside or on permeable surfaces. The duration of storage (prior to processing) is also important to reduce environmental impact and infection risk.

  The plant has been designed to handle up to 48 tonnes per day, but overall volumes are estimated to be much lower, 30 tonnes per day (peak season), 10 tonnes per day (low season) in the first year of operation.

- General Plant Waste: from maintenance activities and welfare facilities, such as waste oils, metals, electrical items and office wastes (i.e. packaging) are considered. The applicant intends to segregate, document and label each waste stream, identifying recyclable and non recyclable materials. All shall be stored appropriately in some cases in sealed containers or in bunded areas where necessary.

  Estimated to be no more than 1.5 tonnes per year.

- Oily Water: from the maintenance and annual cleaning of the boiler will be stored in a sealed container within a bunded area and require disposal under special waste requirements.

  Estimated to be 25 litres per clean down.

- Condensate: including plant and equipment wash waters directed into the fish mort drying process (and condenser) will be the major source of liquid waste on site. With no proposals from the operator to undertake onsite treatment of the liquid condensate the intention is to transport the

waste offsite for treatment or disposal at a licenced facility, or apply the waste to land under the authorisation of a Waste Management Licence 'exemption'.

Condensate will be produced at an estimated 97500 litres per week (peak season) and stored in two 45,000 litre bunded tanks, with vapours linked to the odour abatement system. Tanker uplift would be by 25,000 litre capacity HGV and estimated to be at least a twice per week requirement on average (peak season), or more frequently if being moved by tractor and bowser for land application.

- Fish Oil: liquid from the separation process despite the resale value of the material (i.e. a product for further processing in bio-diesel production), is regarded as a waste due the CAT 2 ABP status of source waste.

  Fish oil is estimated to be produced at 18,000 litres per week and shall be stored in four 15,000 litre bunded tanks, with vapours linked to the odour abatement system. Tanker uplift is to be by 25,000 litre capacity HGV and estimated to be at least every 10 days on average (peak season).

  Fish Meal: will be produced from the drying and oil separation process of the fish morts to a 5% moisture content and has been calculated as being approximately 37.5 tonnes per week (peak season), 12.5 tonnes per week (low season). As this material originates from a Category 2 ABP waste, the resultant fish meal will remain a Category 2 APB and require appropriate management.

  The boiler will use the dried fish meal solids as a fuel source at an estimated 250kg/hr, approximately 10 tonnes per week. This organic waste is permitted to be exempt from Waste Framework Directive waste incineration requirements, as it is being utilised in boiler combustion as fuel with non condensable malodorous gases.

  Excess Fish Meal: solids not required for fuel in the boiler shall be stored on site in bags and removed for offsite treatment by Anaerobic Digestion (estimated to be 27.5 tonnes per week (peak season).

  All produced fish meal shall remain stored indoors other than those being loaded for offsite loading on a trailer. All excess meal is sealed in one tonne bags for offsite disposal.

  Fish meal used for fuel is loaded direct to a meal fuel storage hopper to feed the boiler. All fish meal stored indoors will be served by the odour abatement system(s).

  Boiler Ash: boiler bottom ash from the combustion of fish meal is collected in an ash box and shall be disposed of offsite to a licenced contractor.

  Estimates are for 10kg ash / hour (= approx. 80kg / day - 400kg / week).

  SEPA Discussion:
  The PPC permit has included a number of conditions to ensure waste handling is controlled and to a high standard, with environmental and ABP contamination risk minimised.

  These conditions include specific 'waste storage requirements' such as waste type, requirements (*segregated, sealed containers, indoors* etc), maximum quantity and maximum duration of storage. Further protection is afforded by the prescriptive liquid storage and bunding requirements specified in the permit, which cover the large majority of produced wastes from the process. Furthermore, the odour abatement systems(s) are designed to ensure breathing losses from the waste storage tanks (fish oil and condensate) are captured and treated.

  Duty of care and special waste regulatory requirements will apply to the applicant and the process, something which is recognised in the application documentation.

With regard to the management of liquid condensate waste, a number of conditions have been included in the permit to ensure that it is not treated or disposed of onsite and that it is handled in a manner to reduce risk of odour from the waste at the site.

5.13 Liquid Waste Management:

Wash water is the only liquid waste that will be captured and treated on site. All other liquid wastes are proposed to be tankered off the island, with the exception of Condensate with the primary outlet proposed to be the application of waste to land for agricultural or ecological benefit.

These movements will be classified as waste transfers and Whiteshore' Duty of Care obligations would require compliance with all relevant waste management legislation namely, waste transfer notes, any potential special waste consignments, waste carrier authorisation and waste acceptance at appropriately licenced installations.

- **Wash Water** produced by the cleaning is fed into the dryer for processing. Cleaning wash water captured from inside the raw material reception via the internal floor surface drain (Ako) is collected in a tank via a sump and a pump. The tank contents are then pumped through a sealed polypropylene pipe to the main processing building where it will be processed through the dryer and will be separated as part of the condenser process.

  The management of this type of ABP contaminated wash water waste is BAT for this type of liquid waste. Incorporation into the drier sterilisation and separation process will ensure the ABP risks are managed safely. The heat treatment method will be controlled under a by-products processing licence issued by the Animal and Plant Agency. The dryer is monitored for temperatures and throughput ensuring the method 4 treatment conditions are met in accordance with the Animal and Plant Health Agency (APHA) Process Method 4 (EU Regulation EU 142/2011, Annex IV, Chapter III, Section D).

- **Boiler 'blow down / bleed water',** these waters amount to about 50 litres per day and will contain residual quantities of boiler conditioning chemicals and traces of metals from the boiler tubes and heat exchangers. Boiler blow down water will be captured in a 2000-litre tank located inside the processing building. The contents of the tank can be removed by road tanker and taken away for treatment at a suitable wastewater treatment facility.
  - Analysis of the blow down water will be undertaken when the process is operational to ascertain the blow down water chemical content and whether there is any possibility of the water being safe and suitable to be added to the condensate for potential ground deployment upon approval by SEPA.

- **Wet Scrubber blow down / bleed water'** will be contained in a 2000 litre tank within the wet scrubber unit pad and removed from site for use in an anaerobic digester due to its ammonium sulphate content which could be suitable for the AD process. This water may also be useful for ground deployment with the condensate as ammonium sulphate (part of the chemical absorption process for the odour abatement) is a recognised agricultural fertiliser.
  - Once the fish morts drying process is in operation a sample of bleed water will be sent for analysis and assessment made whether it would be suitable to add to the condensate for ground deployment.

- **Welfare Facilities** unit is served by an existing septic tank and regulated under the Controlled Activities (Scotland) Regulations and not considered as part of the PPC permit for the installation.

- **Fish oil** shall be stored in dedicated four 15,000 litre bunded tanks and removed from site via tanker for further processing into biodiesel.

- **Condensate** from the drying process is the largest volume of liquid waste that requires management from the process and the applicant proposing to apply this waste to land for agricultural or ecological benefit. Justification to the proposed management of this waste is given below.

As part of the assessment of the most appropriate methodologies to manage the processes liquid wastes, the applicant was required to complete an Effluent treatment and Management BAT Review in order to justify the selected techniques in the application.

The document considers all liquid wastes listed above, however the primary focus is the management of Condensate.

"Rendering condensate arises from the drying process (effectively the condensed dryer vapours). The condensate is a concentrated liquid which can have a high COD and ammonia concentration. The condensate will be collected via two 45,000l bunded tanks with level indicators and high level alarms."

The BAT Review considered three possible options for the management of the condensate – these are summarised in the table below;

Options	Capital Cost	Running costs	Daily operational & maintenance costs	Regulatory requirements	Monitoring	Environmental benefit	Factors influencing application of BAT
Option 1 – ETP	High - £326,000 for ETP	High Electricity costs high due to no grid connection. Chemicals and maintenance costs	Moderate	High – SA BREF BAT AEL's and WAT-SG-53. Marine water modelling. Planning approval	High – ETP requires real time monitoring of operational processes including a sampling and analysis programme for discharge parameters	None	Advantages Cheaper annual running costs than tanker removal and treatment off-site Disadvantages: - High capital cost - High running costs (electricity, chemicals, spares, maintenance) - High regulatory controls (AEL's) - Impact on marine environment (discharge)
Option 2 – Ground deployment	Low - £35,000 for tanker and ground injection equipment	Low	Low	Moderate - Paragraph 7 Exemption, SEPA	Moderate Soil analysis for ground deployment capacities and volumes and deployment programme to land	Yes	Advantages - Low capital cost - Low running cost - Agricultural benefit to environment as nitrate fertiliser to land Disadvantages - Can be seasonal restrictions to deployment due to weather - Availability of suitable land
Option 3 – Removal from site	Low – Road tanker provided by third party	High – daily treatment cost and transportation cost. £260,000 per year	Low	Low – regulatory requirements passed to re-processing/treatment company	Low	Minimal (use in AD)	Advantages - low capital costs - low operational costs - low regulatory cost/monitoring Disadvantages - Very high annual costs for removal and treatment - Reliability of removal (ferry crossings/weather)

For each option consideration was given to the capital & running costs, operational & maintenance, regulatory requirements, monitoring and environmental benefits of each;

Most significantly was the capital costs associated with to the design, construction and operation of an **Effluent Treatment Plant**. Further logistical challenges with providing power and services to such a plant and the regulatory requirements of eventual discharge to the water environment of treated effluent resulted in this being a least practical option for the time being. Seasonal variability of the process volumes of waste and resultant effluents requiring treatment would also pose challenges to certain effluent treatment plant options and biological treatment processes.

With regard to the simplest option, which would be '**removal from site**' by tankering the waste to another installation for treatment/disposal. Consideration was given to the large volumes of condensate anticipated to be produced, and as a consequence the high frequency of vehicle movements. There are no local facilities on the island that would be able to accept the waste and so large volumes would require carriage to the nearest facilities on the main land. Transportation costs were calculated as being the most significant challenges of the remote island location and considered a barrier to the regular movement of the waste. When coupled with logistical uncertainties due to the remote location and gate fees for the waste treatment/disposal this method is not regarded as the primary best available technique. The assessment does consider "*Removal by tanker from site is an option which must be available to cover very short term periods as a contingency"* – when other preferred techniques options are not viable or available.

The assessment states that *'**Deployment to land (agricultural benefit)'*** is proposed as the most sustainable and environmentally beneficial technique for the management of Condensate. The primary driver for this option is that the condensate is anticipated to contain a usable volume of nitrogen to provide biological benefit to soils if applied to land. The other benefits are the relatively straightforward regulatory requirements to undertake this activity (as opposed to discharging to the water or marine environment), and the comparatively low capital and operational costs of the activity. Also the activity would not rely on third parties or uncertainties in transport or other logistical challenges.

This type of activity is authorised under the Waste Management Licensing (Scotland) Regulations 2011 and would regarded as an activity that would be 'exempt from the licensing requirements under Paragraph 7 – "*the treatment of land for agricultural benefit or ecological improvement*". Applicants are required to apply to SEPA under these regulations for consent to undertake this activity – this would not be covered by the PPC permit that this decision document considers.

As part of this consideration SEPA has had several discussions with the applicant regarding it's proposal and provided further information on the regulatory requirements of a Paragraph 7 Exemption. Discussed the guidance on these requirements (Technical Guidance note, Paragraph 7 Exemption). SEPA staff have also consulted with SEPAs soil scientists that are involved in the assessment process.

At the time of writing there continues to be a number of uncertainties that may affect the 'Exemption' authorisation the applicant intends to apply for.

- Condensate analyses – the applicant has not produced actual representative samples of the waste that the activity will produce. Representative samples are necessary in order to assess the chemical properties of the waste and justify the viability of the waste to land process. The applicant has however indicative information from early test runs of the plant and which the justifications are based upon. This information may however dictate restrictions in application rates or potential accumulations in soils conditions over time limiting the lifespan of this option.
- Odour from the spreading activities and failure to meet the *Relevant Objectives* for waste management– set out in the WML Regulations i.e. '*causing nuisance through noise or odours'* or '*adversely affecting the countryside or places of special interest'*. Odour from the waste treatment process of fish morts is a primary concern and is discussed at length in the management techniques of this document. However, the spreading of odorous waste is not governed by the PPC permit and the management techniques of the plant. The BAT assessment provided does however consider the risks of odour and propose methodologies to minimise risk. Initially all condensate is filtered through a carbon filter during the collection process, to reduce the volatile compounds in the waste during storage and eventual application. Tanker loading will involve the malodorous displaced air from the tanker during loading being directed to odour abatement. Another activated carbon filter will be used to treat condensate the prior to it being stored. The company have also invested in a specialist subsoil / injection tanker for the spreading activity. This method of application should reduce volatilisation of compounds in the waste during the spreading to land and minimise risk of odour from the activity.

- Seasonal variations; *any fertiliser (including waste derived materials) applied to land must be done so in accordance with General Binding Rule (GBR) 18 of The Water Environment (Controlled Activities) (Scotland) Amendment Regulations 2013. Rule 18 requires that nutrient is only applied where there is a crop requirement and that the amount applied matches the need of the following crop.* The process and production of condensate waste will be a year round process, although volumes are to reduce significantly in the winter. Restrictions of the suitable conditions in which deployment to land is permitted would include frozen or waterlogged ground whereby spreading could not take place at certain times of year. Similarly the waste application can only be justified when there is nutrient requirement for the crop as per Rule 18. Over the winter months, grass growth and nutrient requirements reduce and so application of waste at this time would not be justified under this restriction. The applicant recognises in the assessment "*Removal by tanker from site is an option which must be available to cover very short term periods as a contingency if deployment to land is not possible due to weather conditions and restricted application rates."*

  Separate to the PPC Permit, an application will be required to provide a methodology and risk assessment for the waste spreading activity under Para 7 process.

  Permit conditions have been included to clearly stipulate that no waste water treatment activities shall take place at the permitted installation.

5.14 Energy & Resource Efficiency

The applicant states that the process has been designed to operate using only heat generated from the combustion of fuel as outputs from the process itself. The use of fish meal as the primary fuel for the boiler will minimise carbon emissions from fossil fuels or virgin biomass as the fuel for boiler combustion. Both with regard to the combustion of and transport impacts on importing fuel.

The plant and equipment will be powered down when not in use or process ceases, this will minimise electrical consumption and fuel consumption (diesel) from the onsite generator.

Start up of the boiler will be by use of diesel fuel to ensure a quicker operational temperature for efficient combustion of fish meal at 850'C. At this point diesel feed is switched off.

Maintenance of the generator is reported to be undertaken frequently in line with manufacturer requirements to ensure correct and efficient operation, minimising fuel consumption.

Similarly the boiler will be continuously monitored to ensure maximum efficiency by an onboard plc system (programmable logic controller). The combustion process is controlled to meter fuel and air on a continuous basis to maximise efficiency.

The plc system monitors, combustion air flow, combustion chamber temperatures, water temperature, flow rate and levels, steam production. The maximum fuel burn rate of the boiler is 250kg/hr and steam output of 1500kg / hour. Any deviation from these parameters and the system can alert operators for necessary action.

Current electrical supplies to the installation are not to an appropriate industrial scale and onsite power by diesel generator is the only viable option. The application does however state that the company are exploring the options to install an appropriately sized 3 phase mains electricity supply to the site in the future.

Lighting inside each of the buildings and external lighting at site is provided by low energy LED light fittings and applications. Standard resource utilisation permit conditions will be included to require appropriate monitoring, recording and review of energy consumption where applicable, to ensure efficient operation and recognising opportunities to reduce consumption where possible.

A permit condition has been inserted into the permit requiring the operator to implement and maintain and Energy Management Plan a required BAT for the industry.

5.15 Accidents and their Consequences

The applicant has outlined a number of measures to implement, identify, assess and minimise environmental risks and to prevent/minimise the occurrence and consequences of accidents.

These are to be incorporated into the EMS and are part of a wider accident management system. Documents will include; *Emergency response procedure*, *Incident & Corrective Action Reporting, Environmental Improvement Log* etc.

The documented procedures form part of the Environmental Management Systems, the applicant is confident the measures proposed and documented will enable a quick response to any emergency, ensuring that the situation is handled in the best practicable way to minimise both safety and environmental risks, and that communication protocols, reporting mechanisms and investigation structures are clearly defined.

The applicant has considered in detail potential risks and the hazards associated from the process, with 'source', 'pathway' and 'receptor' scenarios specific to the process and locus. The process has identified potential operating issues which may lead to emergency situations resulting in an incident or have an impact on the environment. The applicant explains how the process reviews are part of a Risk Assessment for the process activities and include not only a description of the potential risk and consequences, but also the mitigation methods that shall be in place to reduce each risk.

The applicant has also confirmed that the process will be managed by a planned preventative maintenance (PPM) schedule for all plant and equipment on site in an attempt minimise the risk from breakdown or failure of critical plant.

Permit conditions have been included in the permit requiring the applicant have in place maintenance requirements for environmental critical items, inspection and maintenance programmes for bunds and containment and a wider ppm schedule for all plant, instrumentation and buildings.

Standard PPC incident reporting requirements conditions have also been included in the permit to ensure incidents are recognised, reported and reviewed to reduce risk from the processes.

5.16 Noise

The application has included a Noise Impact Assessment (Atmos Consulting, June 2021). The assessment includes the identification of noise sensitive receptors, predicted operational sound levels from the installation operations and equipment and input this data into 3D Noise modelling software where sound levels at sensitive receptors were predicted. (This was completed on a worst case scenario basis due to the effects of Covid-19 restrictions at the time of assessment, with a surrogate background noise level from a similar locus and data. Uncertainty in the methodology is recognised in the assessment due to the very nature of predictive modelling at the pre-operational phase of any process).

SEPA recommended BS4142:2014, methodology for rating and assessing industrial and commercial sound was applied as part of the assessment. The outcome of the assessment was that; Night time specific noise levels would not exceed background levels at nearby receptors. Day time noise levels were predicted as exceeding background levels by 1.1dB and 0.7dB at two of the six nearby receptor sites.

Dominant noise contributions from the installation are predicted as being the use of telehandlers and tractors operating on the site. Other sources include an exhaust stack from the boiler, pumps and fans and general breakout from inside both main site buildings. The assessment also considers the potential for tonal, intermittent and impulsive noise from process plant and the likelihood of offsite effects at nearby receptors due to the increased perception of noise from such characteristics.

BS4142:2014 considers that exceedances of +10dB over background are indicative of significant adverse impact, with +5dB indicative of adverse impact. In this case a predictive impact of +1.1 dB / +0.7dB during daytime hours would appear low.

The assessment states that: "*the installation sound levels are considered acceptable due to their low absolute levels at the receptors which result in the internal sound levels in the properties being acceptable.*" .

The report recommends Best Available Techniques to mitigate against potential offsite noise where possible, i.e. quieter mobile plant and machinery, routing or roadways and working areas away from nearby receptors where possible. The assessment also suggests that a noise barrier (acoustic close boarded timber fence) on the western edge of the installation boundary could reduce specific noise levels at the closest nearby receptor by -3dB if found to be a requirement.

SEPA Discussion:
The general layout and operation of the installation will achieve BAT for the reduction of noise emissions. This has included the location of the majority of production processes internally within suitably contained buildings. The permanent closure of doors for odour control applicable to reducing noise breakout.

Permit condition has been included to require that all buildings are to be fully enclosed during normal operation.

The application states that the process will typically operate between 7am to 9pm, 5 days per week. Waste deliveries and uplifts are restricted by planning consent condition to the same time. With no overnight activities resulting in avoiding overnight noise.

The noise impact assessment has not included the location and operation of the Wet Scrubber system. Indicative layout of the plant has the unit located behind process buildings where emissions from the unit and fan motors will be shielded from nearby receptors.

Potentially noisy plant which is located outside includes the condenser unit, located to the rear of the main process building (away from nearby receptors).

Operation of the plant will require that process doors remain closed when not in use, however vehicle movements external to the building will require assessment if nuisance noise is established.

The applicant has confirmed that a Noise Management Plan shall be incorporated within the wider EMS for the process and this will be a permit requirement.

The application states that site staff will have access to sound level monitoring equipment to monitor and measure sound levels both internally and external to the site and also to assist in response to any potential noise complaints.

The result from the agreed Noise modelling suggest that the site will have a negligible impact on the NSRs, as a result what is proposed by the applicant conforms to the requirements for noise and vibration under PPC.

Furthermore, as a new site, the predicted Noise assessments should be confirmed through further modelling once the site is operating normally (post optimisation). The PPC permit has included a alongside

periodic noise and vibration monitoring, a requirement to assess broadband and tonal noise, in line with BS4142 requirements, at nearby sensitive receptors within 6 months of the completion of commissioning. The outcome of this assessment can confirm if further measures to mitigate against offsite noise are necessary.

5.17 Monitoring

(See also the relevant sections of this decision document as indicated next to the headings below)

PPC permit conditions will require emissions monitoring requirements in line with BAT from the Boiler and Chemical Scrubber emissions. The permit has included appropriate draft*BAT AELs for the processes and the minimum monitoring frequency will be once every year for combustion emissions and quarterly for the first year for odorous emissions.

Quarterly monitoring of odour emissions will allow a higher frequency of assessment for the odour abatement systems to validate performance in line with permit requirements. Odour issues have been deemed as the primary risk of environmental impact form the process. This approach has been deemed best practice and to allow the operator to demonstrate compliance as soon as possible.

NOTE: Medium Combustion Plant Directive (MCPD):
Emission limit values as required by medium combustion plant directive (MCPD) would normally apply to a boiler of 1.4MW capacity. However due to the boiler air feed including gasses for the purposes of combustion of odorous compounds, from the drying and condensing process, the ELVs set out in the BREF (BAT 15) supersede the MCPD prescribed ELV's. A higher level of environmental protection is in place as the draft*BREF ELV's limits are lower than the MCPD equivalent.

NOTE: Combustion of Animal Waste – Chapter V ABPR
The requirements of the Chapter IV IED 'Waste Incineration Plants' do not apply to the Boiler, despite the combustion of fish meal derived from fish morts (waste).
Animal By Products (ABP) Regulations EU Commission Regulation amendment No 142/2011 (effective 02/06/2020) allows the use of meat and bone meal (MBM) in combustion plants (<50MW in capacity) for the purposes of a fuel.

Animal by Products Regulations:
The combustion process must comply with the requirements of Chapters IV and V of the ABP Regulations for the burning of MBM products, whereby combustion gasses must be heated to a temperature of at least 850'C for at least 2 seconds. Documents in the application validate achievement of these requirements by use of a 'plug flow calculation' in line with *Environment Agency – Industrial Waste Management – Guidelines for SWIPS Combustions Assessment*. The primary application of these guidelines being for small incineration plant with a throughput of less than 3 tonnes per hour for non-hazardous wastes.

Whiteshore boiler is rated as a maximum rate of 250kg per hour and is applicable to the requirements. Documentation confirms a residence time of 3 seconds at 850'C. The boiler will continuously monitor by an onboard plc system (programmable logic controller selected emissions and parameters (Oxygen, CO and Particulate and pressure) to ensure maximum efficiency and ensure compliance with ABP and draft*BAT ELVs requirements as listed above.

Air emissions monitoring also includes the requirement to for odour related monitoring for VOC and NH3 for the boiler and chemical scrubber. Odour unit sampling is also listed under BAT, at the time of writing logistical challenges have meant that EN 13725 standards may not be possible to comply with. Permit condition has been included as part of the Odour Management Plan to provide an alternative methodology and procedure for odour sampling.

With regard to combustion emissions indicative monitoring (e.g. temperature, oxygen and pressure monitoring) is being used as equivalent technical parameters (ETP) for its operation alongside periodic stack testing required in the permit.

For more details see;
Odour , Water Emissions Monitoring, Water use, Energy use and Noise.

The application states that site staff will have access to sound level monitoring equipment to monitor and measure sound levels both internally and external to the site and also to assist in response to any potential noise complaints.

Groundwater & Soil Monitoring conditions have been included in the permit as requirements set out in the Industrial Emissions Directive.

5.18 Closure

The applicant has provided as part of the EMS procedures and documentation a detailed closure plan from the installation outlining the measures taken to avoid pollution risks and to return the site to a satisfactory state. The site will be decommissioned to avoid any pollution risk and return it site to a satisfactory state, this plan will be included within the site's Environmental Management System (EMS) and will address issues such as: pollution testing of soil, the need for any remediation, procedures for either the emptying, cleaning (and or where necessary) the removal / of all pipelines and vessels; the provision of plans of all underground pipes and vessels ; clearing the attenuation pond (the pond has been designed with a view to eventual clean-up or surrender and the dismantling demolition and removal of plant.
The applicant has stated that the Site Closure plan will be maintained as a live document within the EMS and will be routinely updated to reflect any changes to the nature of the site's activities. The applicant has advised that any changes to the condition of the site will be recorded and used to inform the decommissioning plan. (SEPA will be informed of any changes to the site condition in a timely manner).

5.19 Site Condition Report (and where relevant the baseline report)

SEPA PPC Technical Guidance Note 2 (Site Reports) is relevant to applications for a permit made after 7th January 2013 or for permit variation after 7th January 2014. The Pollution Prevention and Control (Scotland) Regulations require operators of Part A installations to include a site report describing the condition of the installation as part of the application for a permit.

Following feedback from SEPA a revised and final site condition report dated 03 Jan 2023, was provided to incorporate SEPA's recommendations. This report was provided to SEPA Contaminated Land Specialist for comment.

SEPA Contaminated Land Specialist Comments:

> Site Condition report and Baseline
> The initial site condition report identifies potential relevant hazardous substances already in groundwater namely ammonia but does not identify these as a substance requiring baseline investigation. Other substances particularly pesticides associated with the fish farming processes may be present in the fish morts and these have not been quantified. Potential risk associated with the presence of Fish Oil have not been adequately characterised.
>
> - As such we do not agree that the report presented is an accurate statement of site condition.

- In stating that no pollution incident and no risk, the operator is accepting liability for any contamination associated with the substances on site. This includes ammonia in ground on site.

- We do not agree that sufficient information has been presented to confirm that characterisation of the site is not required.

A site investigation is always necessary where: a baseline report is required to satisfy the requirements of Schedule 4, Part 1, Paragraph 1(3) in respect of relevant hazardous substances; and existing soil and groundwater measurements are not available, and, no waiver from the requirement has been agreed by SEPA.

- The existing soil and groundwater measurements for ammonia have not been presented as baseline concentrations.

- On the basis of the review of this report, it is recommended that an upgrade condition is placed on the permit requiring review the report to address the points raised above including baseline investigation and resubmission of the report.

Conditions have been provided in the draft permit as to facilitate this.

The comments on the report should be provided to the operator for further discussion (provided in email to applicant on 28/03/2023).

Soil and Groundwater Monitoring
An assessment of the soil and groundwater monitoring requirements has been undertaken in line with TG-42 guidance and this has been incorporated into the draft permit conditions.

- Groundwater monitoring is recommended every 5 years,
- Soil Monitoring is recommended every 10 years.

A minimum list of RHS has been identified which may be added to on submission of the monitoring plan and baseline investigation. Draft conditions have been provided

Proposed conditions have been inserted into the draft permit.

The following **relevant hazardous substances** are identified and have been included in the permit:

Diesel, Ammonia, Sulphate, pH:

Other Substances:
Although not identified as hazardous substances, due to the volumes stored and the potential for environmental effects from loss of containment the following substances (in addition to the hazardous substances listed above) are also considered

Fish Oil: *although fish oil was not classified as hazardous to the environment, a large spill could present an environmental risk. It is acknowledged that the safety data identified does not specifically relate to fish oil produced for the manufacture of biodiesel. However, it is expected that the physical properties of the fish oil product produced by Whiteshore Cockles will be very similar to fish oil produced for animal feed manufacturing.*

Given uncertainties over the composition of fish oil and the quantities stored on site (total circa 50,000 litres), for the purpose of this ISCR fish oil will be included as a RHS. The chemical

composition of the fish oil will be analysed once the site is operational and the SCR will be reviewed in the light of this information.

A permit condition has been included requiring the sampling and analyses of processed fish oil to determine the chemical composition of the oil and its physical properties.

Pesticides (such as Emmactin Benzoate); a pesticide used in fish farms to treat juvenile fish was also discussed as a potential RHS. The SCR states – '*as pesticide slice is not used at the site, existing levels (if any) cannot be added to by this installation and are not considered in this initial site condition report.'*

After discussion with Whiteshore it was advised that Whiteshore undertake sampling of the adjacent burial site to test for the presence of EB. Pending the outcome of the results the SCR shall be reviewed as necessary to further sample for slice or otherwise.

A permit condition has been included with the requirement to include in a Baseline Report details of substances with pollution potential including potential pesticides associated with the fish farming process.

5.20 Consideration of BAT

1.BAT Reference Documents

Under the requirements of Regulation 5 (1) of the PPC Regulations 2012, SEPA must ensure that it follows or is informed of developments in BAT and the publication of any new or updated BAT conclusions be followed.

At the time of application, the most up to date benchmark for BAT was the "BAT Reference document was the *Best Available Techniques (BAT) Reference Document for the Slaughterhouses, Animal By-products and Edible Co-products Industries" (SA BREF).* The content of this, and in particular its BAT Conclusions, have been used to inform the decision making process, including applicable BAT and BAT-AELs, for the Whiteshore Cockles process. This document of June 2021 was in draft status at the time and was more reflective of industry practice and standards that the issued *Integrated Pollution Prevention and Control Reference Document on Best Available Techniques in the Slaughterhouses and Animal By-products Industries* dated May 2005.

During pre-application engagement with the operator, SEPA discussed the status of the June 2021 draft BREF and informed that this was deemed the most up to date and a benchmark for BAT for the industry and the Whiteshore application would need to consider it in order for SEPA to meet its obligations under PPC Regulation 5. Whiteshore were invited during the permit application and assessment to raise any intentions to deviate from the requirements of the draft BREF, including whether its draft*BAT-AELs were appropriate ELVs for their process. The application does not contain any proposals that would not align with what has been proposed in the draft*SA BATC.

2. Other legislation

The fishmeal boiler falls under the scope of three requirements that influence the ELV determination and the application of BAT;

- Meat and Bone Meal Combustion Plant as defined in Chapter V, Section D of the Animal By-Products Regulations (as amended) which contains operating requirements and emission limits (Chapter V, Section B(4) and B(5)).
- Medium Combustion Plant Directive (implemented by PPC 20012 Regulations (as amended) which sets our various operating requirements and emissions limits. The boiler falls under the following MCPD definitions:
    - >1 MW thermal but <50MW.
    - Fishmeal is considered as a "other solid fuel" as it is not considered to be Biomass as defined in the Directive.
- IED and PPC activity as defined in Schedule 1 of the PPC 2012 Regulations (as amended) and, as noted above, it has to consider the draft BAT-AELs in the SA BREF.

Tables X and Y below provides a comparison between the various emission limits contained by the above legislation and corrects the ABPR and MCPD ELVs to the reference conditions set out in the draft SA BREF.

The comparisons show that for combustion related pollutants that the ABPR has the tightest ELVs and provides the highest level of environmental protection.

Table X: Equivalency of ABPR ELVs to draft SA BREF BAT-AELs .

Regime	(O2 Ref Cond)	NOx	SO2	PM
ABPR	11	200	50	10
SA BATC	18	95	19	**3**
ABPR	18	**60**	**15**	**3**

Table Y: Equivalency of MCPD 'Other Solid Fuels ELVs' to draft SA BREF BAT-AELs

Regime	(O2 Ref Cond)	NOx	SO2	PM
MCPD	6	500	400	50
SA BATC	18	95	19	3
MCPD	18	100	80	10

3. SA BREF BAT Conclusions – log.

BATC reference	Status	Compliance evidence	Permit Consideration
SECTION 1 – GENERAL BAT CONCLUSIONS			
BAT 1 – Environmental Management systems	Narrative	See Section: 5.5, 5.8, 5.11, 5.15 & 5.18 *BAT is to elaborate and implement an environmental management system (EMS) that incorporates all of the following features;* The application states that the installation will operate under an Environmental Management System EMS which meets the requirements of BAT1: i – EMS has commitment of the management and directors of the company. ii – EMS and environmental policy includes considerations of all interested parties and legal obligations. iii – Whiteshore has an environmental policy including a commitment to continuous improvement. iv – Whiteshore has environmental objectives and targets. These objectives and targets along with environmental compliance form part of financial objectives and staff responsibilities. v – Whiteshore EMS details plans and procedures related to corrective and preventative actions in relation to environmental objectives. vi – EMS details the key organisational structure, designated environmental responsibilities and necessary resources.	EMS related requirements are managed through the application of BAT requirement in the PPC 2012 regulations. Implementation will be verified through inspection. Specific permit conditions have been included for OTNOC and Chemical Management System requirements. Permit will require a Chemical Management.

		vii – EMS includes details of roles and responsibilities and training matrix including competencies and training requirements including focus on environmental performance, monitoring, operational control and compliance. viii – EMS considers internal and external communication relating to staff involvement and understanding, and public communication policy. ix – WEMS details involvement of all staff in good environmental practice through training and awareness of roles, responsibilities at all levels of staff. x – Whiteshores EMS is governed by an EMS Manual that defines in detail the purpose of the EMS and the specific methods and procedures that ensure a high level of environmental protection, monitoring and compliance from the process. xi – Whiteshores EMS includes consideration of operational and process control, including management reviews to recognise changes that would affect the environment. Process control procedures include liquid storage and handling, maintenance, ABP processing and emergency response. xii – Whiteshores EMS includes a detailed procedure specific to planned maintenance, detailing the responsible staff and ranging from hygiene and cleanliness requirements to calibration and service record keeping. xiii – Emergency preparedness is covered in detail as part of the EMS with consideration for environmental impacts and their mitigation. The procedure includes planning for identified emergency situations and accidents and testing of emergency preparedness procedures. xiv – As part of the EMS procedures and documentation, includes a detailed closure plan from the installation outlining the measures taken to avoid pollution risks and to return the site to a satisfactory state. xv – Monitoring and measurement procedures are considered as part of the EMS and will ensure requirements of the PPC Permit are met which will include emissions to air and water environment where relevant. xvi – *application of sectoral benchmarking on a regular basis* xvii – Periodic review by an internal auditing process is detailed in the EMS audit procedure to ensure the requirements of the EMS are being met. xviii – EMS Manual details the process by which monitoring and auditing identifies corrective actions or non compliances shall be reported and actioned including continual improvement. xix – EMS Management Review procedure sets out the roles and responsibility of senior management with regard to the EMS review and assessment of suitability, adequacy, effectiveness and improvements. xx – EMS Management Review procedure details the roles of the senior management in regard to continuous improvement which would include the use of cleaner techniques within the ABP industry. xxi – The EMS includes an odour management plan to control odorous emissions from the process, including detail on managerial and operational responsibilities. xxii – Raw material consumption and record keeping is a permit requirement and the recording and auditing of environmental performance indicators and objectives, defined by the permit is identified as part of the senior management responsibilities within the EMS. xxiii – The process consumes a relatively low volume of process chemicals for routine tasks where the environmental controls are deemed such that a dedicated chemicals management system is not justified. As part of managerial review the senior management team should review this position as part of the EMS process.	Permit will require an Odour Management Plan. Resource Utilisation Permit Conditions included. Permit will require the preparation of a Water Management Plan

		xxiv – Energy efficiency and key performance indicators are listed as part of the management review process within the EMS. Resource utilisation monitoring requirements set out within the PPC permit require the monitoring of energy consumption as part of the review process. xxv – Water management and key performance indicators are listed as part of the management review process within the EMS. Resource utilisation monitoring requirements set out within the PPC permit require the monitoring of energy consumption as part of the review process. A specific water management plan will also be required in line with BAT. xxvi – The EMS includes a detailed noise management plan. Permit requirements will also include routine noise monitoring and review. xxxvii – OTNOC (other than normal operating conditions) are considered under the abnormal operating conditions as part of the EMS evaluation of environmental aspects and their significance.	
BAT 2 – Inventory of Water, energy and Process Chemical Consumption, as well as Waste Water and Waste Gas Streams.	Narrative	See Section: 5.8, 5.9, 5.10, 5.13 & 5.14 *BAT is to establish, maintain and regularly review (including when a significant change occurs) an inventory of water, energy and process chemicals consumption as well as of waste water and waste gas streams, as part of the environmental management system that incorporates;* I*. Information about the production process(es):* Process flow diagrams and key emission points have been included in the application. EMS and recording systems will cover production all relevant process information such as raw material consumption and various waste type production. *II. Information about energy consumption and usage.* EMS and recording requirements will cover production all relevant process information such as raw material consumption. Resource Utilisation requirements are also specific to energy consumption. *III. Information about water consumption and usage (e.g. flow diagrams and water mass balances).* EMS and recording requirements will include water use and water metering will be in place to measure mains water consumption. *IV. Information about the quantity and characteristics of the waste water streams, such as:* *V. Information about the characteristics of the waste gas streams, such as:* *VI. information about the quantity and characteristics of the process chemicals used:* EMS and recording requirements will include water use and process chemical consumption. Permit condition has been included to require a site specific Waster Management Plan to ensure detailed consideration of these requirements. Environmental monitoring requirements set out in the permit will ensure appropriate monitoring of emissions to air for listed parameters. The application lists all process chemicals and their properties, their anticipated use and location.	Standard Resource Utilisation permit requirements have been included in the Permit to monitor and report these consumption figures. Environmental monitoring requirements within the permit as required by BAT. Water Management Condition Air emissions Monitoring Condition.
BAT 3 – Chemical Management System.	Narrative	*BAT is to elaborate and implement a chemicals management system (CMS) as part of the EMS (see BAT 1) that incorporates all of the following features*; Relatively small amounts of chemicals and oils which are needed as part of the rendering process but mainly as maintenance and conditioning for ancillary plant or processes. The materials are selected on the basis of their suitability for use, whilst minimising the quantity required. An upgrade condition requiring the implementation of a chemical management system has been included in the permit.	Upgrade condition in permit to prepare a CMS. Standard Introduction of New Raw Materials conditions have been included.

BAT 4 – OTNOC	Narrative	*In order to reduce the frequency of the occurrence of OTNOC and to reduce emissions during OTNOC, BAT is to set up and implement a risk-based OTNOC management plan as part of the EMS (see BAT 1) that includes all of the following elements:* OTNOC (other than normal operating conditions) are considered under the abnormal operating conditions as part of the EMS evaluation of environmental aspects and their significance. Permit conditions specific to OTNOC requirements have been included as it has been identified that situation could arise to justify OTNOC.	Permit conditions specific to OTNOC to be included.
BAT 5 – Waste Water Monitoring	Narrative	*BAT is to monitor key process parameters (e.g. continuous monitoring of waste water flow, pH and temperature) at key locations (e.g. the inlet and outlet of the pre-treatment, the inlet to the final treatment, the point where the emission leaves the installation)* Not applicable: There are no waste water streams emitted to the environment from the process.	As a precaution the permit includes visual monitoring (solids, oils, fats and grease) requirements from surface water drainage to ensure the system is operating effectively.
BAT 6 – Energy, Water and Waste Monitoring	Narrative	*BAT is to monitor at least once per year:, the yearly consumption of water and energy; the yearly amount of waste water generated;* As per BAT 1 & 2 key process consumption and production parameters including energy and water consumption and waste production (including liquids) will be recorded as part of the process. A Water Management Plan has been required by permit condition 3.13.2	Standard resource utilisation and waste data reporting requirements included in the permit. Permit condition requiring a Water Management Plan.
BAT 7 – Waste Water Monitoring - frequencies	Narrative	*BAT is to monitor emissions to water with at least the frequency given below and in accordance with EN standards;* Not applicable: There are no waste water streams emitted to the environment from the process. Permit has required a daily visual monitoring of the SW discharge to ensure the system is operating correctly.	Permit includes Table 5.6 for visual monitoring and condition 5.2.1 clearly stating only uncontaminated surface water shall be discharged from the permitted installation.
BAT 8 – Emissions to Air Monitoring	Narrative & BAT-AEL.	*BAT is to monitor channelled emissions to air with at least the frequency given below and in accordance with EN standards;* Point source emissions to air from the process shall be monitored as per BAT the permit takes consideration of the overlapping requirements between the regulatory requirements applicable to the activities - the Medium Combustion Plant directive, Animal By Product Regulations and the draft Slaughter House and Animal by products BAT Conclusions. ABPR align with SA BATC for NOx, SO2, PM = annual monitoring = greater frequency than MCPD. MCPD specifies 3 year frequency but SA BATC requires annual for CO. H2S discounted as it is not a pollutant emitted by fishmeal processing. Monitoring of odorous air emissions are also included in the permit such as TVOC and Ammonia. The permit also required a higher initial frequency of testing during 1st year to ensure specific high risk emissions such as odour are controlled and understood in a timely manner.	Permit includes applicable parameters and monitoring frequencies for emissions to air from the listed emission points.
BAT 9 – Energy Efficiency	Narrative	*BAT is to use technique (a) and an appropriate combination of the general energy-saving techniques listed in technique (b) below;*	Inserted upgrade condition requiring an Energy Management Plan.

		a – *Energy efficiency plan and energy audits;* Energy efficiency and key performance indicators are listed as part of the management review and audit process within the EMS, however no energy Management Plan has been included as part of the application. b – *Use of general energy-saving techniques*; Energy saving techniques such as process control systems, ensuring powering down when not in operation, the capture and use of heat from the combustion process for drying and planned maintenance, low energy lighting are all listed within the application. The process plant consists of new equipment and designed in line with the latest technology and methods such as energy efficiency motors and modern process control systems.	The energy efficiency improvements noted will be followed up through inspection and as part of the resource utilisation assessment submission required by the permit.
BAT 10 – Water Consumption and Waste Water Generation	Narrative	*BAT is to use techniques (a) and (b) and one or a combination of the techniques (c) to (k) given below;* a – *Water Management Plan and Water Audits*; Water management and key performance indicators are listed as part of the management review process within the EMS. Monitoring and measurement procedures will be in place to monitor all resource use including a water management plan will be in place b – *Segregation of Water Streams*; the process involves segregated and sealed draining systems to ensure uncontaminated surface water is directed away from process areas and remains uncontaminated. Wash down waters are captured in internal areas and directed into the drying process for consumption and treatment. c – *Water Recycling and/or reuse; Cleaning and Process;* Water is provided by the rainwater harvesting system where possible to reduce mains consumption. Recovered rainwater will not be suitable for steam generation in the boiler due to manufacturer specifications to protect the life of the boiler. d – *Optimisation of Water Flow*; primary consumption of water will be by the steam generating boiler and the use of water for washing. e – *Use and Optimisation of Water Nozzles and Hoses*; Use of water and optimisation will be covered by the water management plan, cleaning activities will be undertaken by use of high mobile pressure cleaners. <u>Techniques Related to Cleaning:</u> f – *Dry Cleaning*; A high maintenance of house keeping should ensure wet washing requirements only be undertaking where essential. g – *High Pressure Cleaning*; cleaning activities will be undertaken by use of high mobile pressure cleaners. h – *Optimisation of Chemical Dosing / Cleaning In-place*; Controlled dosing of chemicals will be in place to ensure correct use and volume of various cleaning and maintenance chemicals. i – *Low Pressure foam and/or gel cleaning*; Method described not to be used or considered in the application. j – *Optimised Design & Construction of Equipment and Process areas*; The process design includes segregation and containment of all higher risk wash areas and activities. Skip and process plant wash water will be captured and included in the indoor sealed system for contaminated waters. Internal wash areas such as the inspection pit, will drain water to the drying process alongside the fish morts. k – *Cleaning of Equipment as Soon as Possible*; The process will include a structured cleaning process with maintenance and cleaning operations taking place. The plant has a daily cleaning schedule as well as a weekly major clean which takes place during production down time. Skips are cleaned immediately after emptying into the inspection trough. This programmes in in place to ensure both hygiene and odour management requirements are met.	Compliance be assessed through inspection. Permit condition requiring a Water Management Plan. Permit condition specifying the segregation of contaminated wash waters into a sealed system have been included. Permit condition requiring regular cleaning of all waste handling, storage and treatment areas.

BAT 11 – Harmful Substances	Narrative	In order to prevent or, where that is not practicable, to reduce the use of harmful substances, e.g. in cleaning and disinfection, BAT is to use one or a combination of the techniques given below; a – *Proper selection of cleaning chemical / and or disinfectants*; Cleaning and maintenance chemicals have been kept to a minimum with anticipated usage for disinfectant as low a 7 litres / week. There are no PHS or PS in the cleaning agents. b – *Reuse of Cleaning Chemicals*; Cleaning in place of chemicals is not applicable for the process due to the open nature of the surfaces requiring disinfection and also the hygiene concerns with dealing with animal by product materials. c – Dry Cleaning; not applicable. d – *Optimised Design and Construction of Equipment and Process Areas*; Risk from process areas with regard to chemicals is reduced the internal process areas, impermeable working surfaces and sealed drainage systems in these area.	Permit conditions to monitor chemical use include Resource Utilisation requirements. Permit conditions including liquid bunding requirements and protection of soil and groundwater conditions ensure appropriate design an operation of the process. Upgrade condition in permit to prepare a Chemical Management System.
BAT 12 – Resource Efficiency	Narrative	*In order to increase resource efficiency, BAT is to use one or a combination of the techniques given below;* a – *Anaerobic Digestion*; surplus fish meal shall be transferred to AD process for further recovery of the waste. b – *Prevention of biological degradation of annual by-products and/ or edible co-products*; Whiteshore indicate that putrescible fish morts will only be accepted in sealed containers and processed immediately upon arrival at the installation and not stored for any duration. c – *Recycling / recovery of separated residues*; Fish meal will be used as fuel for the boiler. d – Use of animal fat as a fuel; Fish meal will be used as fuel in the boiler to replace fossil fuel consumption. It has not been considered as a usable fuel on site in the process. e – Phosphorous recovery as struvite – not applicable, Phosphorous is not considered to be present in the liquid waste from the process.	Permit will require fish morts to be processed immediately upon arrival and not stored in external areas. Permit conditions included to control the disposal or use of liquid condensate waste.
BAT 13 – Emissions to Water	Narrative	*In order to prevent uncontrolled emissions to water, BAT is to provide an appropriate buffer storage capacity for generated waste water;* Not Applicable; No generated waste water is proposed to be emitted to the water environment.	n/a
BAT 14 – Reducing emission to Water	Narrative	*In order to reduce emissions to water, BAT is to use an appropriate combination of the techniques given below;* Not Applicable; No generated waste water is proposed to be emitted to the water environment and the applicant does not propose to undertake any water treatment processes and the installation.	n/a
BAT 15 – Emissions to Air (Combustion)	Narrative & BAT-AEL	*In order to reduce emissions to air of CO, dust, NOX and SOX from the combustion of malodorous gases (e.g. in thermal oxidisers or steam boilers) including non condensable gases, BAT is to pretreat the waste gases using technique (a) when necessary, and to use one or a combination of techniques (b) to (d) given below.* a – *Removal of high levels of dust, NOx and SOx precursors*; Condensation of dryer air emissions prior to combustion of non condensable malodorous gasses in the boiler. b – *Fuel Choice*; not optional due to the process design to use fish meal as a fuel in line with BAT (excluding start up fuel). The nitrogen content of the fuel may result in elevated NOx emissions, that if not compliant with the permit, further NOx abatement may be required. This will not be fully understood until the fish meal has been produced onsite and combusted in the boiler.	Permit conditions including appropriate draft*BAT AEL's and monitoring for emissions to ensure compliance with CO, Dust, NOx and SOx and minimum combustion temperature and residence time (850'C).

		c – *Low-NOx burner;* not applicable, although the fluidised bed design within the boiler has low NOx potential. d – *Optimised thermal Oxidation*; oxidation of malodorous gasses within the boiler. The boiler operates at temperatures greater than normal thermal oxidisers, due to ABPR requirements. This offers higher level of oxidization but beneath thermal NOx formation temperatures. This minimises CO and non-chemical NOx formation. ELV's have been set based on the highest level of environmental protection – the ABP Regulations which are the equivalent of the IED Chapter IV requirements. These have been converted to an oxygen reference condition of 18% dry volume in line the draft SA BREF document.	
BAT 16 – Noise	Narrative	*BAT is to set up, implement and regularly review a noise management plan, as part of the environmental management system*; Noise management plan included as part of the Whiteshore EMS (see BAT 1) to regularly monitoring and review noise emissions from the process. The permit has includes a requirement to assess broadband and tonal noise at nearby sensitive receptors within 6 months of the completion of commissioning. The outcome of this assessment can confirm if further measures to mitigate against offsite noise are necessary.	Permit condition requiring Noise and Vibration Management Plan and periodic review. A permit condition requiring broadband and tonal noise assessment within 6 months of commissioning.
BAT 17 – Noise Reduction Techniques;	Narrative	*In order to prevent or, where that is not practicable, to reduce noise emissions, BAT is to use one or a combination of the techniques given below;* a – *Appropriate location of equipment and buildings*; The location of the majority of production processes internally within suitably contained buildings. Potentially noisy plant which is located outside includes the condenser unit, the condenser unit is located to the rear of the main process building (away from nearby receptors). b – *Operational measures*; Process will typically operate between 7am to 9pm, 5 days per week. The permanent closure of doors reducing noise breakout for the primary process noise. Regular cleaning and maintenance of process equipment will mitigate against excessive operational noise with major works undertaken during normal working day hours. c – Low-noise equipment; not discussed directly other than normal operational equipment. Performance of equipment will be captured under the broadband and tonal noise assessment under condition 3.7.4. d – *Noise control equipment*; Staff will have access to sound level monitoring equipment to monitor and measure sound levels both internally and external to the site and inform if noise control is effective or require attention. e – Noise abatement; A noise barrier (acoustic close boarded timber fence) on the western edge of the installation boundary could reduce specific noise levels at the closest nearby receptor by -3dB – as reported. Application has indicated this may be necessary and this will be reviewed once an operational noise survey has been completed.	Permit condition requiring Noise and Vibration Management Plan and periodic review.
BAT 18 – Odour	Narrative	*In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to set up, implement and regularly review an odour management plan, as part of the environmental management system (see BAT 1), that includes all of the following elements:* Odour Management Plan included as part of the Whiteshore EMS includes odour monitoring methods, complaint response procedure, odour prevention, control and reduction measures.	Permit condition requiring Odour Management Plan and periodic review.

BAT 19 – Odour Reduction Techniques	Narrative	a – *Regular cleaning of installations and equipment*; Hygiene practice will be in place to ensure frequent washing (& disinfection) of vehicles, skip containers and process plant. b – *Cleaning and disinfection of vehicles and equipment use to deliver ABPs*; as above. c – *Enclose ABP's during transport / storage*; Fish morts brought to the site are within sealed / and or covered containers. All odorous process wastes, including fish meal and liquid wastes shall be stored indoors in sealed bags or in sealed tanks with odorous gasses directed to the odour abatement system(s). d – *Prevention of biological degradation of ABP's*; Only 'fresh' fish morts shall be accepted at the installation for treatment. Maximum duration of waste storage limiting risk of degradation.	Permit conditions controlling waste acceptance and storage. Cleaning and disinfection. Permit conditions controlling offensive odour and the operation of the odour abatement system(s).
BAT 20, 21,22, 23 (Slaughterhouses)		Not applicable.	
BAT 24 – Energy Efficiency	Narrative & BAT-AEPLs	a – *Multistage Evaporators*; not applicable to drying technology of rotary disc drier for the process. *BAT Associated Performance Levels for specific energy consumption – fish meal and fish oil production;* BAT-AEPLs are considered indicative BAT and compliance is assessed during 4 yearly resource efficiency submission. *Water discharge BAT-AEPLs*: not applicable as there are no discharges of waste water to the water environment.	BAT -AEPLs no included in permit. Compliance assessed during normal regulatory inspection process of reporting requirements and data returns.
BAT 25 – Emissions to Air (Odour Abatement and ELVs).	Narrative & BAT-AEL	*To reduce emissions to air of organic compounds and malodorous compounds, including H2S and NH3, BAT is to use one or a combination of;* a. *Condensation;* Is used to pre-treat highly odorous gas streams, prior to combustion in the boiler. b. *Adsorption;* Not applicable to risk of rapid saturation of filter media from high concentrations of odour and humidity levels. c. *Biofilter;* Biological methods to not applicable to extreme seasonal variation in the process. d. *Combustion of Malodorous gases, including non-condensable gases, in a boiler;* Applicable for the highly odorous non condensable gasses from the drying process. e. *Thermal Oxidation;* Not economically viable for the primary odour abatement measure, due to running costs (no gas supply and would need to be run on diesel or other liquid fuel). The process also generated low levels of VOC's. Thermal Oxidation is the method employed to destroy non condensable and highly odorous gasses as combustion air in the boiler. f. *Wet Scrubber;* The wet scrubber technique is very efficient at the removal of Ammonia and Amines and is capable of removal efficiencies in excess of 99% for high volume/lower concentration waste gas streams. g. *Bioscrubber;* Biological methods to not applicable to extreme seasonal variation in the process. ELV's have been set based on the highest level of environmental protection – the ABP Regulations which are the equivalent of the IED Chapter IV requirements. These have been converted to an oxygen reference condition of 18% dry volume in line the draft SA BREF document.	Permit conditions will include the use of Thermal Oxidation and Wet (Chemical) scrubber as odour abatement methods. Permit including appropriate draft*BAT AEL's and monitoring for odorous emissions to ensure compliance with Odour Concentration, TVOC and NH3.

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 sites designated under the above legislation?
No.

Justification:
As no relevant Environmental Quality Standards will be breached as a result of the proposed activity and the conditions imposed by the permit, SEPA considers that the proposed activity will not have a likely significant effect in relation to the SAC's, SPA's & SSSI's identified in the vicinity of the site.

Screening Distance Used 2 & 15km:
Special Areas of Conservation:
North Uist Machair

Special Protection Areas:
West Coast of the Outer Hebrides
North Uist Machair and Islands
Mointeach Scadabhaigh
Monach Islands
Aird and Borve, Benbecula

Sites of Special Scientifi Interest:
Baleshare and Kirkibost

Screening distance(s) used – 2km for 6.8 Activities / 15km for 1.1 (20-50MW) Activities

Other legislation: Animal By-Products (Enforcement) (Scotland) Regulations 2013 (ABPER)

Due to the process accepting and treating ABP Category 2 waste, there is a cross over between SEPA regulation of the waste treatment activity, and APHA (Animal and Plant Health Agency) regulation controlling the management of relevant ABP waste and materials.

APHA authorisation (separate to the PPC permit) will govern the necessary hygiene and management requirements associated with the ABP handling at the installation.

SEPA authorisation will govern the combustion of ABP fish meal (MBM) as it is being utilised as a fuel in the boiler. PPC permit conditions will regulate the operation of the boiler and emissions from it. SEPA authorisation will also govern the management of non ABP wastes from the installation.

Officer: AS

7 ENVIRONMENTAL IMPACT ASSESSMENT AND COMAH

Guidance Notes – The PPC Regulations require that under certain circumstances SEPA take into consideration the information in any statutory Environmental Impact Assessment carried out as part of the planning process or a Safety Report produced under the Control of Major Accident Hazards Regulations.

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?

N/A

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?

N/A

Officer: AS

8 DETAILS OF PERMIT

Do you propose placing any non standard conditions in the Permit

Yes.

Condition Number(s)

Waste Handling

3.4.1 When liquid waste is being off-loaded from storage tanks into mobile tankers, any displaced air from the mobile tanker shall be vented back into the storage tank that is in turn vented to the Wet Chemical Scrubber as described in Condition 4.2.1 (b).

3.4.2 Where liquid waste is off-loaded into a mobile tanker it shall be removed from the Permitted Installation within 8 hours of it being off-loaded.

3.4.3 No liquid waste shall be treated or disposed of within the Permitted Installation.

Justification:
These conditions relate to the control of odour from the handling of liquid waste and ensure best practice is in place when dealing with a potentially odorous waste types.

Odour Abatement Systems

4.2.7 Within 6 months of the completion of commissioning the operator shall submit an assessment of the performance of the wet chemical scrubber including any justification for not requiring upgrading of the system to include the steam heat exchanger and carbon adsorber detailed in the permit application documentation; Simdean Report dated 30th August 2022.

Justification:
This condition relates to Whiteshores information (as per the Simdean Report) that the wet chemical scrubber system can be upgraded to include a chemical absorber polishing unit, if emission limit values from the system are not found to comply with permitted draft*ELV's from the emission point.

Air Emissions Conditions

5.1.10 In the event of a breakdown or malfunction with the Boiler, residual heat from the combustion chamber shall be permitted to be vented to the boiler emergency stack as listed in Table 5.1. The boiler emergency stack may be used for no longer than 30 minutes and the fuel feed to the boiler cease. Use of the emergency stack shall be treated as an incident.

Justification:
This condition allows short term use of the emergency stack in event of a breakdown with the boiler. Residual heat in the combustion chamber can be vented to atmosphere and emissions are predicted to be minimal as there is no fuel feed at these times.

Water Discharge Conditions

5.2.7 The inspection and unloading of vehicles delivering ABP's shall only take place within the designated area 'APB Inspection, Vehicles & Container Washing Area' identified on the Site Plan in Appendix 1.

5.2.8 All vehicles and containers used for the transport of ABP's shall be cleaned and disinfected immediately after delivery of fish morts within the designated APB Inspection, Vehicles & Container Washing Area'. Wash water from the designated area shall be directed to the raw material reception building sealed indoor drainage system and directed to the dryer for processing.

Justification:
These conditions ensure that any washing of ABP contaminated vehicles and equipment only take place within a designated area which is served by a contained drainage system and will not be discharged to the water environment via the surface water system.

Fishmeal Boiler Operation

5.3.1 The boiler shall only operate when the fish mort process is treating waste and not at any other time.

5.3.2 The boiler shall be operated such that:

a) no waste, other than fishmeal that has been produced by the Permitted Installation, shall be burned in the boiler;

b) fishmeal is fed to the boiler by an automatic or continuous fuel management system without further handling;

c) the temperature of the gas resulting from the co-incineration of waste is raised and maintained at no less than 850'C for not less than 2 seconds even under the most unfavourable operating conditions anticipated;

d) temperature measurement results shall be recorded automatically and presented in an appropriate fashion to verify compliance with condition 5.3.2 (c);

e) an automatic interlock system shall be in place to prevent fishmeal being fed to the combustion chamber until the necessary combustion temperature required by 5.3.2 (c) has been achieved; and

f) total organic content of the slags and bottom ashes as a result of the combustion of fuel is less than 5% total carbon content or their loss of ignition is less than 5% of the dry weight of the material.

5.3.3 No fuel other than diesel, shall be used for the start-up or shutdown of the boiler, or at any time when the temperature of the flue gases exiting the combustion chamber is less than the minimum temperature required by Condition 5.3.2(c).

5.3.4 Any incompletely combusted animal by-products must be combusted again or disposed of at an appropriately licenced installation.

Justification:
These conditions are required to ensure the operation of the boiler, which is combusting animal by products, meets the requirements of ABP Regulations, Chapter IV, Section 2 (*Operating conditions of combustion plants*), Section 3 (*Combustion residues*), and Section 4 (*Breakdown or abnormal operating conditions*) and also Chapter V - D (*Combustion Plants in which meat and bone meal is used as a fuel for combustion*).

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?

Yes

Substance(s): Odour Concentration, TVOC's & Ammonia.

Relevant emission benchmarks: draft SA BREF – BAT-AELs – BAT conclusion 25.

draft*ELVs:
BAT 25 – Table 5.12;
- Odour 1150 ouE/m^3
- TVOC – 14mg/m^3
- NH3 – 3.2mg/m^3

Emission point: Odour emissions from the boiler stack and from the chemical scrubber stack.

***Rationale*:** The site has been designed and modelled to meet the requirement that odorous emissions beyond the site boundary will not exceed 1.5ouE/m3 at nearby sensitive receptors. Modelled emissions were based on an emission concentration of 1150ouE/m3.
Justification from the application confirms that abated odorous emissions from the listed emission points are designed to meet as a minimum the top end of the ELV scale for the listed parameters. Monitoring of the emissions have been required as *Once every Quarter for the first 12 months of operation; and Annually thereafter*. This will allow for an accurate understanding of the process emissions during the commissioning phase and assurances that abatement is compliant throughout the collective year. See section 5.17.

Substance(s): Oxides of Nitrogen, Carbon Monoxide, Sulphur Dioxide, Particulate Matter,

Relevant emission benchmarks: draft SA BREF – BAT-AELs – BAT conclusion 15.

draft*ELVs:
BAT 15 – Table 5.3

- Particulate Matter 3mg/m^3
- NOx - 95mg/m^3
- SOx - 19mg/m^3

BAT 15 – Table 5.4

- CO – 30mg/m^3

Emission point: Combustion emissions from the boiler stack.

***Rationale*:** The combustion emissions ELVs from the boiler are based on the channelled emissions to air from the combustion of malodorous gases including non-condensable gases in thermal oxidisers as per the Whiteshore process design.
Monitoring of combustion emissions have been set in the permit as an annual requirement in line with BAT requirements for the process.
Continuous monitoring of specific combustion parameters (temperature and oxygen) are also a permit requirement. These are in line with the boiler manufacturers design specifications. These parameters are monitored to ensure efficient and clean combustion of the fuel, compliant emissions and the ABP regulation requirements for the combustion of animal by-products as a fuel. See section 5.17.

Substance(s): Emissions to GW.

Relevant emission benchmarks: no visible emissions.

draft*ELVs: *Visibly free of solids, oils, fats, or greases*

Emission point: S1 - surface water soakaway.

Rationale: With no direct process emissions to the water environment for the permitted installation requiring formal sampling, a visual inspection of the surface water system discharge has been included as measure to ensure no accidental release of pollutants from the site working surfaces are by passing the interceptor system.

Substance(s): Particulate Emissions / Smoke.

Relevant emission benchmarks: no visible emissions.

draft*ELVs: *Ringlemann Shade 1 at start-up/shutdown and no visible emission during normal operation.*

Emission point: A4 - **c**ombustion emissions from the diesel generators**.**

Rationale: Due to the onsite diesel generators not exceeding a rated thermal input of 1MW, they fall outwith the scope of the Medium Combustion Plant Directive and associated monitoring requirements for in scope combustion plant. This monitoring requirement and surrogate ELV has been included to ensure that normal operating emissions form the generators do not cause nuisance or other visually detectable emissions to air.

10 PEER REVIEW

Has the determination and draft permit been Peer Reviewed? **Yes**

Name of Peer Reviewer and comments made:

AW
General comments and assistance regarding all aspects of the application and most specifically the determination of permit ELVs, assessment of BAT and ABP permit requirements.

GF
Comments on the odour control conditions, including operation and monitoring of the odour abatement systems. Recommendation made to not include a permit condition requiring the odour destruction efficiency of the odour abatement systems require to be 95% or greater efficiency. Efficiency and effectiveness of the systems can be determined by periodic spot sampling of air emissions and offsite odour surveys completed by SEPA.

SM
Comments made on the storage, volumes and management of wastes associated with the installation.

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: AS

12 REFERENCES AND GUIDANCE

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

Best Available Techniques (BAT) Reference Document for the Slaughterhouses, Animal By-products and Edible Co-products Industries (DRAFT June 2021).

Animal By-Products (Enforcement) (Scotland) Regulations 2013 (ABPER) as amended.

Monitoring of Emissions to Air and Water from IED Installations REF (2018).

SEPA Technical Guidance Note: SEPA Guidance and Control of Noise at PPC Installations (April 2015).
SEPA Odour Guidance (January 2010).
SEPA Guidance: A practical guide for Part A activities IED-PPC-TG4.
SEPA PPC Technical Guidance Note 2 (Site Reports).

The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) A Practical Guide (The General Binding Rules Version 8.5) July 2021.

CIRIA Containment systems for the prevention of pollution Secondary, tertiary and other measures for industrial and commercial premises (C736).

CIRIA The SUDS Manual (C753).

Medium Combustion Plant Directive (MCPD).