

Tradebe Healthcare National Limited Queenslie Healthcare Waste Treatment and Transfer Site

Permit Application

PPC/A/5002293

Draft for Consultation

Permit (Application) Number:	
Applicant:	OFFICIAL

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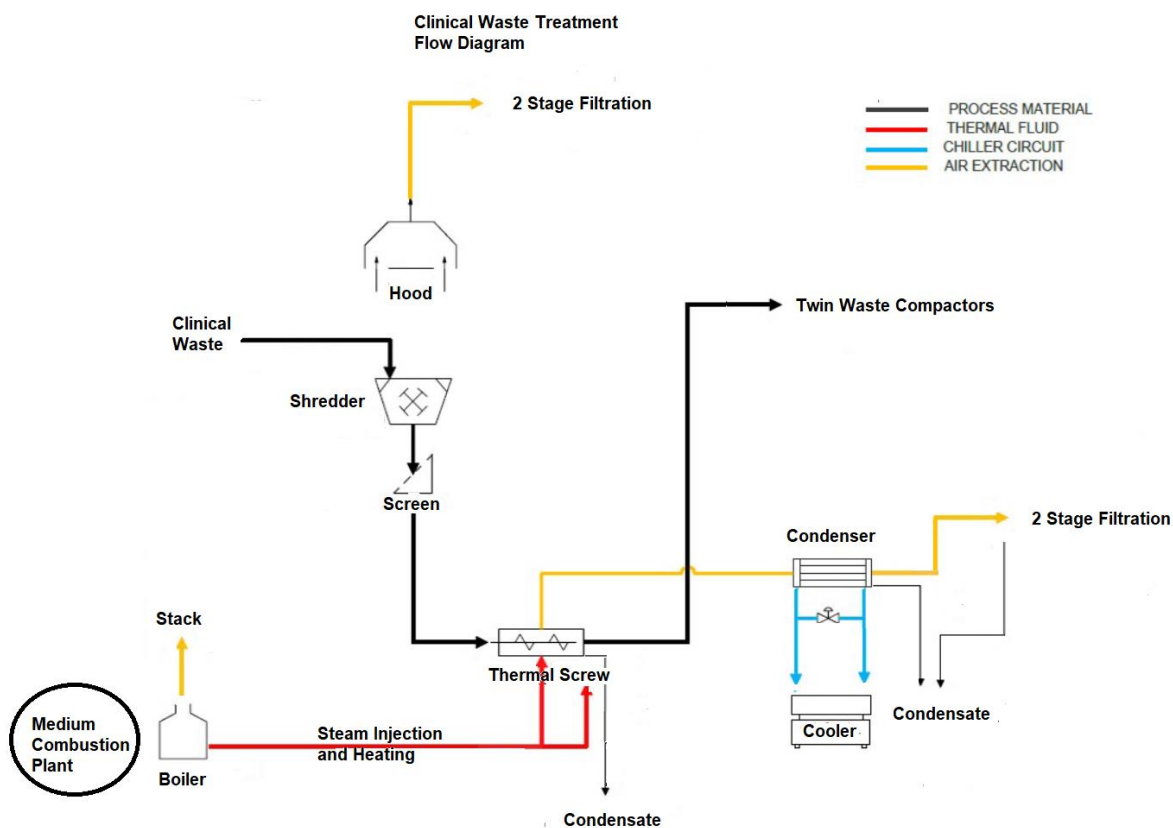
1 NON-TECHNICAL SUMMARY OF DETERMINATION

SEPA has received an application from Tradebe Healthcare National Limited (THNL) for a PPC Part A permit for the storage, transfer, and treatment, of clinical waste at a site on the Queenslie Industrial Estate, Glasgow, G33 4UN.

The permit will authorise Tradebe to operate a new treatment facility at Queenslie which replaces their former site at Bellshill which was destroyed in a major fire in July 2021. This will permit THNL to continue to treat and dispose of Clinical Waste produced in the 18 Scottish National Health Service Boards, along with a mixture of waste arising from private hospitals, pharmacies, care homes, beauticians, and veterinary practices within Scotland.

Tradebe has advised in the application that under normal operation the installation will handle 25,000 tonnes of waste per annum of which 21,000 Tonnes per annum will be subject to on site treatment with the remaining 4000 tonnes of waste per annum be subject to segregation bulking and transfer for off-site disposal or recovery. The waste is described as comprising a mix of solid Clinical waste, Hazardous waste, and non-hazardous waste although the applicant has stated that there is the potential for a small amount of liquid within the waste imported into the site. Where this occurs, any liquid wastes received at the site will be stored in containers within a bunded area, with different liquid wastes being kept segregated to ensure there is no cross contamination or reaction with other wastes accepted at the site.

Clinical Waste Treatment Flow Diagram



This waste will be transported to the Queenslie site where, it will be sorted and either, bulked up for off-site treatment or disposal at a relevant authorised facility, or treated on site using the following

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process (see diagram) which is designed to produce a clinically safe waste floc that meets a specification suitable for use in an Energy from Waste Plant. In addition to the waste activities at the site the regulations require that as Tradebe are to operate a combustion plant over 1 MW thermal output they require a Medium Combustion Plant licence and the requirements of this licence have been incorporated into the overall Site permit

All waste accepted at site will be inspected, weighed and documentation checked to ensure it is permitted for acceptance.

Clinical Waste Treatment Process

Waste for treatment will be tipped into a shredder hopper Once shredded the waste will pass through a screen into the rotating thermal screw auger. continuous feed process. Steam, at approximately 122oC is then introduced into the system in a way that ensures maximum contact with the waste as the waste travels through the auger system allowing a residence time (dependant on validation tests) adequate to disinfect the waste and render any potentially pathogenic organisms inactive.

From the thermal screw system, the waste is then routed to one of three compactors located within the process building on an impermeable surface constructed with a sealed drainage system to prevent run off. When full the compacted waste skips will be replaced and removed either temporarily into the main yard area to await transport offsite or moved directly offsite. Empty waste bins will be cleaned in a purpose built enclosed automatic bin washer which incorporates a water recycling system. Bins will then be temporarily stored before being sent offsite for re-use.

Waste Transfer

Some of the waste received at site will not be processed on-site but will be transferred offsite to another location (waste transfer operations), this will include both Hazardous and non-Hazardous waste. This waste will be stored within the building where possible, where this is not feasible waste will be stored either in trailers or on road vehicles in a designated external area with impermeable surfaces with a sealed drainage system. Empty clean containers and waste bins will be stored in the main yard area to await use/re-use. Any dirty bins will be identified and washed in the provided facilities. Dirty containers and waste bins will be stored indoors if they cannot be washed immediately.

Summary

Each activity has been considered in turn and proposed the measures are considered BAT for the activities being undertaken.

The applicant has provided sufficient detail in the application to justify the storage and transfer of clinical wastes, and the treatment of clinical waste using thermal screw auger(s) and is considered technically competent to operate and carry out these activities.

The provision of relevant training certification and the passing of the relevant conviction and financial checks, means the applicant is considered "Fit and Proper" to run a waste site.

The permit for these activities has been created in consultation with the applicant and includes conditions based on the guidance for this sector.

Glossary of terms

BAT	Best Available Techniques
CO	Co-ordinating Officer
EA	Environment Agency
ELV	Emission Limit Value
EWC	— European Waste Catalogue
IED	- Industrial Emissions Directive

SNH - Scottish Natural Heritage
 EPR 5.07 - How to comply with your environmental permit. Additional guidance for clinical waste
 EAL - Environmental Assessment Limit
 MCPD — Medium Combustion Plan Directive
 NHSS — National Health Service Scotland
 NRW - Natural Resources Wales
 PPC - The Pollution Prevention and Control (Scotland) Regulations 2012
 RHS — Relevant Hazardous Substance
 SSSI - Site of Special Scientific Interest
 SAC - Special Areas of Conservation
 SPA - Special Protection Areas

2 EXTERNAL CONSULTATION AND SEPA'S RESPONSE

Is Public Consultation Required - Yes

<i>Advertisements Check:</i>	<i>Date</i>	<i>Compliance with advertising requirements</i>
Edinburgh Gazette	08/06/22	Compliant
Glasgow Times	16/06/22	Compliant

Officer checking advert: MH

No. of responses received: 0

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

There were no responses, local or national from the advertisement of the application in the publications identified above.

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

Food Standards Agency: Consulted via e-mail 24/05/22

Consultees were initially provided with a copy of the main supporting document and advised that due to size of application and file transfer restriction further information and appendices would be provided on request.

Although not responsible for Queenslie Clinical Waste Site the Food Standards Agency were contacted primarily due to the proximity of a Food production unit at an adjacent site given that both sites could attract vermin and the potential to cross contaminate.

There was no response or follow up received from the FSA on the consultation

Health Board: Greater Glasgow and Clyde Consulted via e-mail 24/05/22

Consultees were initially provided with a copy of the main supporting document and advised that due to size of application and file transfer size restriction further information and appendices would be

provided on request. The health board requested several appendices linked to their area of interest and these were provided under their file transfer arrangements.

The GG&C Health board provided a proforma question and answer sheet style response in which they raised two points of interest:

List any inhabited areas and any potentially sensitive locations e.g., schools, recreation areas, hospitals, residential homes, hospices etc. near the installation (e.g., within 1 km radius):

GG&C HB Identified 2 receptors: a Primary and a Secondary school, these are located about 0.8 km to the South-Southwest of the proposed site.

Having no discharges to the water environment the key issue for these receptor sites will be the control of air emissions at the site, as such SEPA will look at the potential impact of the Queenslie site on these receptors through the air emissions studies which have been carried out in respect of the application

Has information been provided on: Improvement plan for accidents and their consequences?

The GG&C HB checked the answer as: - No

Best Available Techniques is an evolving ethos, and SEPA is required to review PPC Part A permits periodically to ensure sites are operated to the latest standards. Reviews may be carried out by SEPA following accidents or incidents and BAT requires the operator to undertake assessments when replacing equipment or introducing innovative technology or techniques at their site. SEPA will require the operator to produce an incident response plan. However, SEPA cannot include within the permit, conditions which would impact on the Health and Safety of those on the site

General assessment: Does the application provide an adequate indication that the operator is aware of any potential for the installation to generate adverse health impacts among the population living in the vicinity?

The GG&C HB checked the answer as: - No

The PPC regulations require the operator to carry out all activities on the site using Best Available Techniques this demands both the use of low emission technologies and careful operation of the site including design of buildings incorporation of containment and abatement systems and the siting and positioning of plant, storage, and reception facilities to give minimum impact.

Overall GG&C HB were satisfied that the site posed minimal health risk to the public.

Local Auth: Glasgow City Council Consulted via e-mail 24/05/22

Consultees were initially provided with a copy of the main supporting document and advised that due to size of application and file transfer restriction further information and appendices would be provided on request.

There was no response or follow up received from Glasgow City Council on the consultation

Scottish Water: Consulted via e-mail 24/05/22

Consultees were initially provided with a copy of the main supporting document and advised that due to size of application and file transfer restriction further information and appendices would be provided on request

Scottish Water returned two comments in their response

The emissions described in Section 6.3 would fall under the definition of trade effluent and, as such, the applicant should apply to Scottish Water (via the Licensed Provider for the site) for authorisation to discharge.

This is a requirement of other (e.g., Drainage Scotland) legislation and has been pointed out to the applicant, the limits set by SW for discharge to the foul sewer would be considered when setting the minimum discharge conditions for the site in the permit

Suitable measures should be in place on site to prevent any discharge of trade effluent to a surface water sewer.

As the application is for a PPC Part A site this is a standard issue which will be addressed and controlled through the conditions of the permit

Health and Safety Executive:

No consultation was required due to this being a non COMAH (Control of Major Accidents Hazards) Site.

Scottish Natural Heritage (PPC Regs consultation):

As there are No Designated Sites within the PPC Part A Screening Distance for the activities the Nature Conservation Protocol deems it unnecessary to consult SNH on the application.

Discretionary Consultation - No

Enhanced SEPA public consultation - No

'Off-site' Consultation - No

Transboundary Consultation - No

Public Participation Consultation - Yes

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

19 December 2022

Date draft determination placed on SEPA's Website

19 December 2022

Details of any other 'appropriate' means used to advertise the draft	
Date public consultation on draft permit opened	19 December 2022
Date public consultation on draft permit consultation closed	
Number of representations received to the consultation	
Date final determination placed on the SEPA's Website	
Summary of responses and how they were taken into account during the determination:	
Summary of responses withheld from the public register on request and how they were taken into account during the determination:	
Officer:	

3 ADMINISTRATIVE DETERMINATIONS

Determination of the Schedule 1 activity

As detailed in the original application subject to a change to the waste code types in the supporting documentation submitted by the applicant (Jun 2022) which removed from the application the request to store wastes falling within waste codes 180101, 180102, 180104 and 180201 as detailed in the European Waste Code Catalogue (EWC codes) The CO assessed that the removal of waste types from the lists supplied to consultees would not impact on the consultation stage and that only additions to the list would have necessitated further consultation.

Determination of the stationary technical unit to be permitted:

As detailed in the original application but subject to an amendment submitted (July 2022) concerning a temporary system to generate steam following a delay in the upgrading of the energy supply to the site by the service provider.

Determination of directly associated activities:

As detailed in the original application. Subject to any amendments due to the changes to waste types or STU referenced above In the Bellshill application Non-hazardous waste into the site was described as an activity however although the Queenslie site can treat up to 96 Tonnes per day with a maximum annual throughput for treatment of 21,000 Tonnes the process is designed for the treatment of clinical and hazardous wastes therefore within the constraints of the site SEPA determines that it is unlikely that the Queenslie Site would have the contractual capacity to allow non-hazardous waste treatment to be undertaken at a level exceeding 50 Tonnes per day or / 18,250 Tonnes annually such that it would require to be listed as an activity in its own right under Schedule 1 Section 5.4 Part A paragraph a. As a result, Non-Hazardous waste storage and any treatment under 50 Tonnes per day carried out at Queenslie would be more appropriately described as a Directly Associated Activity (DAA).

Determination of 'site boundary'

As detailed in the original Site and Location Plans submitted with the application

Officer: MH

4 INTRODUCTION AND BACKGROUND

4.1 Historical Background to the activity and application

Tradebe require to relocate their current activities to Queenslie following a major fire which destroyed their previous Premises at Bellshill. The new premises date from the early 2000's and being on an industrial estate, the site benefits from an existing infrastructure designed to support Industry, e.g., its proximity and direct links to major roads which will minimise the impact of vehicle movements on minor residential and commercial roads in the area.

Tradebe have a contract with NHS Scotland to collect, transport, treat and dispose of healthcare waste generated within the 18 NHS Health Boards in Scotland. The operating company Tradebe Healthcare National Limited (THNL), are a subsidiary of Tradebe Environmental Services Ltd, which is part of the Grupo Tradebe Medio Ambiente S.L. The parent company Tradebe Environmental Services Ltd manages 85 fixed plants in Europe (Spain, UK, and France), the United States and Oman.

THNL currently operate four other UK sites that are regulated under the Environmental Permitting Regulations (England and Wales). These sites are in Rochester, Avonmouth, Redditch and Wrexham (Wales). The new site at Queenslie will manage the disposal of clinical waste primarily from NHS Scotland (NHSS), but could also include waste arising from private hospitals, pharmacies, care homes, beauticians, and veterinary practices in Scotland. The service will include collecting, transporting, treating, and disposing of clinical and associated wastes.

To enable Tradebe to fulfil the Nationwide service they provide to NHS Scotland they have made an application to SEPA for a PPC Part A permit at a new site in Queenslie Glasgow to undertake the storage and treatment activities carried out at the former Bellshill Site

4.2 Description of activity

The applicant has applied for a Hazardous Waste Permit to Cover the Treatment, Storage and Transfer of Clinical waste collected from Health Boards Veterinary practices and a range of other health and beauty related establishments across Scotland. Under normal operation the quantities of waste permitted to be on site should not exceed the levels laid out in the permit conditions however SEPA recognises the key nature of the service provided and would look to work with Tradebe to ensure that waste removal services to the healthcare industry are maintained during any periods where incidents are occurring at the site. As the site uses combustion plant greater than 1MW then the requirements of the Medium Combustion Plant Directive apply

Clinical Waste Treatment

The primary objective of the treatment process at the Queenslie site is to disinfect clinical waste with heat to render it safe, and to produce a waste floc (processing residues) which can be sent for plastic recovery or alternatively, meets a specification suitable for mixing with Refuse Derived Fuel (RDF) for use in an Energy from Waste Plant.

As described in the non-technical summary section above, the applicant has applied to treat a maximum of 21,000 Tonnes of waste per annum in a process which involves the following activities

Clinical waste shredding

Treatment of clinical waste via thermal screw auger

Continuous flow drier system

Compaction of autoclaved waste.

Bin wash system

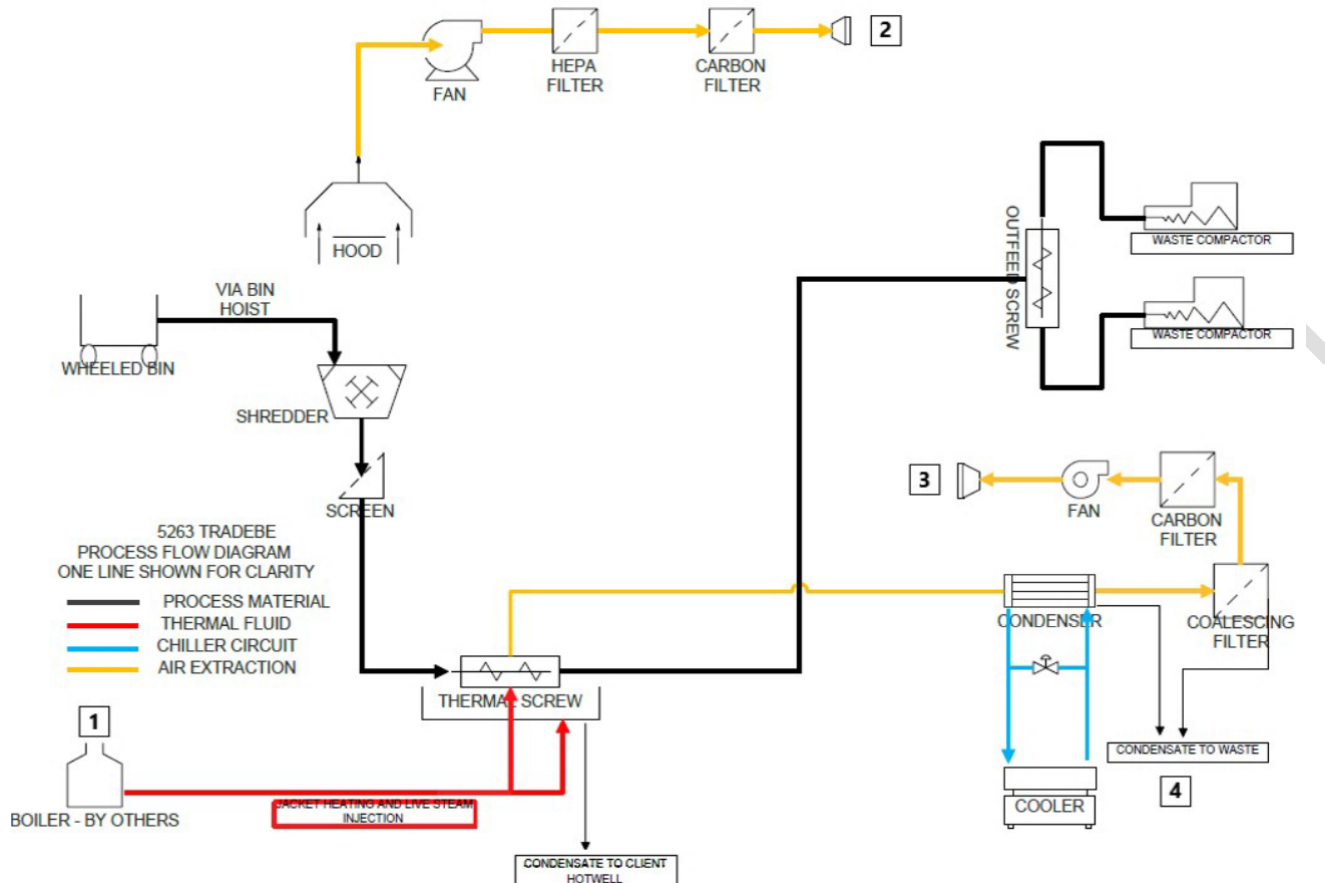
Waste accepted at site for treatment will be tipped into a shredder hopper. The shredder unit will fully enclose the waste. The shredded waste will then be routed via a screen into the thermal screw auger system. An air extraction system maintains a negative pressure in the shredder system with the exhaust air being treated to remove dust and odour prior to discharge at elevation outside the process building.

The thermal screw auger system consists of a rotating screw system to move the shredded waste through on a continuous basis. Steam is supplied via the boiler plant in a steam jacket on the thermal screw auger and via "live" steam injection to disinfect the waste. Steam is provided at a temperature of approximately 122°C for a set time to disinfect the waste and 'render safe'. Steam will be injected both direct into the waste at the bottom of the steam auger and into the auger shaft at the top to ensure exposure to heat as the waste travels. The steam auger length is 19m long to ensure sufficient residence time. Again, air extraction fans maintain a negative pressure in the system to prevent fugitive emissions. The exhaust air is treated to remove moisture, dust, and odour prior to being discharged at elevation outside the building.

From the thermal screw system the waste is transported by conveyor/screw into deep push waste compactors located on impermeable surface and sealed drainage system within the process building.

Empty waste bins will be cleaned in a purpose built enclosed automatic bin washer which incorporates a water recycling system. Bins will then be temporarily stored before being sent offsite for re-use. The bin wash will be connected directly to the foul sewer.

Schematic of the Treatment Process



Hazardous Waste Transfer

The application provides for the handling and storage of hazardous waste for onward transport to a disposal facility i.e., “Hazardous Waste Transfer” which is a separate schedule 1 activity within the Regulations

All Waste accepted on site for storage and transfer without treatment will be inspected and screened to ensure incompatible waste types are segregated prior to bulking and or storage. Any Liquid waste stored on site will be stored in trays or bunds to contain liquids in the event of a spill, leakage, or breakage of a container.

All wastes will be required to be stored in suitable containers with lids, stoppers, or tops securely in place. Sited on impermeable surface with sealed drainage. This waste will be bulked up and sent for final disposal elsewhere.

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

Aside from the general guidance issued to SEPA by Scottish Ministers and applicable to all PPC Part A applications they have not issued any guidance under Regulation 60 & 61 which is specifically applicable to this application.

4.4 Identification of important and sensitive receptors

The closest residential housing is located approximately 300m from the northern boundary of the site (Coxton Place) and 586m south of the site (Bartiebeith Road). The closest point of the Fort Shopping Centre is 346m to the northeast of the site. The Greater Glasgow & Clyde Health Board identified that

there were two schools within 1km radius site located about 0.8 km to the South-Southwest of the proposed site. There were no designated nature conservation sites (Ramsar wetlands, Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSIs)) within 2km of the site (the screening distance relevant to the activities applied for). An ecology survey of the Queenslie site found fossorial water voles burrows and as a result Tradebe and their consultants are liaising with Glasgow City Council and Nature Scot with a view to translocating the voles in order that the site can be further developed to increase the hardstanding area, install an interceptor and additional drainage to foul sewer.



5 KEY ENVIRONMENTAL ISSUES

5.1 Summary of significant environmental impacts

Those linked to the general storage of Hazardous Waste and the Steam treatment of Clinical waste are identified, as follows.

Emissions to Air:

SO_x, NO_x, CO, CO₂ (from combustion) Diesel fume particulates, Dust VOCs (volatile organic compounds) odour trace acidic or alkali gasses trace metal fume bioaerosol

Emissions to Land:

Trace VOC's, TOC (Total Organic Carbon), Oils and lubricants, fuel, pH particulates fibre plastic Detergents, acids, Alkalis metals pharmaceuticals fire water

Emissions to Water:

Trace VOC's, BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), pH, Copper, Oils, and lubricants, fuel, Enzymes, Detergents, Anti foaming agent, Organic acids, Alkalis pharmaceuticals fire water

Other Emissions:
Noise, Heat vibration

SEPA aims to control these impacts through both the conditions contained in the Permit and by the requirement on the Operator to use BAT as indicated in the relevant guidance for the activities being undertaken. (See BAT section 5.21 below)

5.2 Implications of the Application on - Point Sources to Air

The main point source emissions to air are:

1. the 2 stacks from the steam raising boilers;
2. the local exhaust ventilation from the steam augers and shredder units;
3. the 1 temporary steam raising boiler; and
4. the backup electrical generator.

5.2.1 Medium Combustion Plant

The operation of a combustion unit between 1MW and 20MW brought into service after the appointed day requires to comply with the requirements for Medium Combustion Plant in Schedule 1 B of the PPC 2012 Regulations. As the Boilers have been recovered from the former site at Bellshill an assessment was made as to whether they constituted "New" or "Existing Plant" The regulations describe an Existing Plant as -:

"a medium combustion plant put into operation before 20th December 2018 or for which a permit was granted before 19th December 2017 provided that the plant is put into operation no later than 20th December 2018"

and a new plant as -:

"a medium combustion plant which is not an existing medium combustion plant"

The datasheet provided for the twin Cochran ST28 Low NOx Package Steam Boilers has a date of March 2019 and as result the boilers fall to be regulated as a "New" Medium Combustion Plant and as such are subject to the full requirements of the MCP (Medium Combustion Plant) regulations from the date of operation such that the MCP has been permitted accordingly.

Permanent Steam Generation System

The permanent boilers at the Queenslie are gas fired boilers described as *"of a horizontal three pass wet back design and constructed in accordance with BS EN 12953."* and *"is designed to meet the latest European environmental legislation and anticipated Medium Combustion Plant Directive (MCPD) requirements"* and as a result is deemed BAT compliant

MCP Stack

The flues from each boiler will be separate, contrary to what has been stated in the original application.

The vents are specified as being 10.3m above ground level and, as recommended, is 3m above roof ridge height, with an efflux velocity of 9.1m/s this is assessed as providing adequate dispersion of the combustion gasses. A screening exercise has been carried out, which identified that there were No environmentally sensitive or designated sites within the 2km of the site, as a result the specification of

the boilers and the design of the venting system indicate that the combustion gasses produced because of the activities carried out at Queenslie Site pose a minimal pollution risk.

In the initial stages of operation and for a temporary period thereafter, these boilers are unable to be utilised.

5.2.3 Availability of Gas supply

SEPA has been advised by the applicant that the gas supply to the site requires upgrading and that on contacting the gas network service provider has been informed that there is a backlog of applications for upgrades and that a delay is likely (before an adequate gas supply can be provided).

As a result, the applicant proposes to install a temporary system to generate steam for the steam augers. SEPA has been informed that the unit will only be used until the Gas service provider makes the necessary modifications to increase gas capacity to the site at which point steam will be generated using the Cochran ST28 Low NOx Package Steam Boiler.

5.2.4 Temporary Steam Generation system

Description

Details supplied by the applicant during the determination process, identified the replacement unit as a Cochran "Wee Chieftain" portable diesel steam boiler.

The "Wee Chieftain" is described as a fully enclosed unit, with internal water and diesel tanks, safety and steam vents are located at high level out of reach of pedestrians and comes Complete with interconnecting pipework. Manufacturers data sheets indicate it has a total input of 1.567 MW with a Steam Capacity of 2000kg/hr. The NOx emission rate is rated to be < 200 mg/Nm³ @3% O₂

This boiler unit is a mobile plant, manufactured prior to 2016 and has been in operation elsewhere...It is therefore classed under MCP as an "existing plant" and would not currently subject the Medium Combustion Plant emissions and control requirements (SEPA's Medium Combustion Plant webpage advises that existing plant between 1 and 5 MW thermal Input must comply with the relevant regulations (including ELVs) by the 01 January 2030).

BAT Assessment

Although the requirements of Schedule 1B (Medium Combustion Plant) do not apply to the mobile MCP it is still deemed a Medium Combustion Plant under Part B Section 1.2 paragraph (d) being used on a PPC Part A permitted site and therefore the requirements of the installation permit take precedence which require emissions from activities and directly associated activities to be controlled.

SEPA is therefore required to assess whether the use of an existing MCP within the wider context of the Queenslie PPC Part A permitted Site would constitute BAT.

The starting point for this assessment is to ask the question-: If this Plant were to be used at the site in 2030 it would be required to meet the emissions standards in Table 1 of the MCPD reproduced in schedule 1B in the PPC 2012 Regulations (as amended)? Table 1 and the accompanying text state

1. 2) The emissions into air from an existing medium combustion plant with a rated thermal input less than or equal to 5 megawatts must not exceed the emission limit values set out in—
(a) Table 1, if the plant is not an engine or gas turbine,

This would mean the boiler would need to comply with emissions standards of

Table 1

Emission Limit values for existing medium combustion plant with a rated thermal input less than or equal to 5 megawatts (other than engines or gas turbines)

Pollutant	Solid Biomass	Other solid fuels	Gas oil	Liquid fuels other than gas oil	Natural gas	Gaseous fuels other than gas oil
SO ₂ (mg/Nm ³)	200 ⁽¹⁾ (2)	1100	–	350	–	200 ⁽³⁾
NO _x (mg/Nm ³)	650	650	200	650	250	250
Dust (mg/Nm ³)	50	50	–	50	–	–

(1) This value does not apply in the case of plant firing exclusively woody solid biomass.

(2) 300 mg/Nm³ in the case of plants firing straw.

(3) 400 mg/Nm³ in the case of low calorific gases from coke ovens in the iron and steel industry.

An operator operating under the MCP regulations is also allowed to apply for a derogation from the Sulphur emission limit values for liquid fuels other than Gas oil as indicated in paragraph 3 1 of Schedule 1B

3.— (1) A medium combustion plant may be exempted for a maximum period of 6 months from the requirements in paragraphs 1(1) and (2) and 2(1) to comply with an emission limit value for SO₂ where the plant—

(a) normally uses low-sulphur fuel, and

(b) the operator is unable to comply with an emission limit value due to an interruption in the supply of low-sulphur fuel resulting from a serious shortage.

From the details supplied by the manufacturer the Plant can achieve the ELV for NO_x required under the MCPD (under 200mg/Nm³). Regarding Sulphur Emissions -: The supply and use of Gas oil (described by many suppliers as “red diesel”) has altered with many industries now prohibited from using red diesel (changes in taxation rules for certain Industrial users of the fuel). As a result, the use of alternative liquid or gaseous fuels would generate a requirement under the Table 1 schedule to monitor for SO₂.

As stated, while the plant is not regulated as an the MCP, at present, it is being used as a temporary steam generator would forms a directly associated activity within the Part A site

As The temporary plant complies with the requirements for NO_x under MCPD (even though it is “exempted from the MCPD requirements) then the only consideration for SEPA is the potential to need to comply with a Sulphur ELV, in that whilst Gas Oil carries no Sulphur monitoring requirement the alternative liquid or Gaseous fuels do, However, If the regulations applied to the plant now then the operator would be entitled to ask for a 6 month derogation from SO₂ compliance when using Low Sulphur Fuels

To ascertain the correct operating requirements for this plant if regulated through the MCP the CO asked the applicant to provide confirmation of the fuel type the boiler would be run on. The operator confirmed it would be run on “gas oil” therefore SEPA is content to treat the replacement plant as BAT on the understanding the plant will be operated in accordance with the manufacturer's instructions.

5.2.5 Process Emissions

The setting of Process Emission Limit Values (ELVs)

The Waste Treatment BREF sets ELVs for various compounds which are linked to the type of treatment carried out and the nature of the end-product produced (See Section 5.21 Consideration of BAT below)

As a result, a review of the Waste Treatment BAT Conclusions and the BAT Reference document identified that although Clinical waste (described in the BREF as Healthcare waste) is mentioned under Section 5.8.5 that section contains only a brief description of the purpose of healthcare waste treatment and links to other sections of the BREF covering treatment options for more general waste types (see section 5.21 below)

In their process description Tradebe has indicated that:

“The objective of the waste treatment process proposed for Queenslie is to disinfect clinical waste with heat to render it safe and unrecognisable, and to produce a waste floc suitable for plastic recycling or blending with RDF for use in an Energy from Waste Plant”

The BAT Conclusions (BATC) for Waste Treatment indicate that Volatile Organic Compounds and Dust require to be assessed if contained within waste gasses collected and vented and if the conditions of the BATC are met then appropriate ELVs need to be applied (See BAT section 5.21 below). The potential presence of both Volatile Organic Compounds (VOC's) and Particulates (Dust) are confirmed by Tradebe in their application, and they have put in place abatement measures to control these potential pollutants (H13 HEPA filters and carbon filters) on Channelled sources.

A review of the literature regarding heat treatment of plastics below 150 C suggests that although deformation of plastic occurs breakdown of polymers and the release of VOCs is low (PVC is recorded to have the lowest melting point 75C and usually results in HCl release). However, it was mentioned in Scientific papers that some types of thermoplastics can breakdown with repeated heat sterilisation to produce category 1a or 1b VOCs, those which are designated Carcinogenic Mutagenic or Reproductive (CMR) then irrespective of the level of Total VOCs ELVs must be applied. Source segregation of waste should allow these to be removed prior to disposal however it is incumbent on Tradebe to identify if any waste gasses produced are likely contain CMRs (Carcinogenic, Mutagenic, Reprotoxic). BATC 3 requires the company to undertake an Inventory of emissions to identify if these category 1a and 1b emissions are present and take steps to eliminate them. The inventory of waste gasses has not been provided above the statement that they are present as TVOC and dust.

Having reviewed other permits in the clinical waste sector it is apparent that VOC limits have not been applied however Under Reg.25(2) of the PPC 2012 Regulations, the permit must include an ELV for TVOC and dust (as listed in Schedule.5)

“Where it is emitted in significant quantities, or supplement or replace this with an equivalent parameter or technical measure that ensures an equivalent level of protection for the environment,”

with the guidance on setting emission limits cautioning that

” The releases below these mass emission rates may not be trivial, and so may still require controls and the setting of appropriate emission limit values”

The BATC extends the scope of these requirements to include ELVs where those TVOC discharges specifically contain CMRs.

In the case of the Queenslie plant, the scientific reports indicate that at the temperature the process is operated at, VOCs are not predicted to be produced in significant quantities and therefore the primary environmental concern would be the potential for the generation of CMRs during the process for which there is a lack of data under “Normal Operating Conditions” an as result will require the operator to undertake an assessment of waste gasses to more fully assess the waste gas produced from the

process and therefore SEPA has included conditions requiring the site to undertake a more full waste gas inventory to both assess the waste gasses produced and the effectiveness of the abatement system in removing them under "Normal Operating Conditions" as has been done at other sites. With Dust the use of enclosed equipment housed inside a process building is deemed to be BAT (BATC 14d) and is combined with a multi layered fabric filter and a carbon filter in sequence (complies with BATC 25) Dust monitoring is required as the activity carried out falls within the scope of BATC 25) SEE Section 5.18 monitoring below)

Abatement

The supporting information details that the abatement system consists of the use of High Efficiency Particulate Air (HEPA) filters followed by a Carbon filtration unit (the BAT Issues surrounding the choice of abatement installed will be discussed in Section 5.21 below)

Having looked at the original Technical Specifications supplied with the application the CO has a few clarification issues which have been raised and clarified with the operator

The use of a medical grade (H13) HEPA filter is fine for taking out spores and other small particles and is preceded by a prefilter to take out larger particulates and protect the HEPA filter from "blinding" by larger particulates which will be present in the process gas stream. These will need replacing and disposal and a procedure for handling this will be put in place

The main concern is that the carbon filter appears to be alkali impregnated (KOH) which although suitable for removing acidic gasses (organic and mineral acid vapours) is liable to be poor at removing alkali gasses such as ammonia. This is especially relevant in that body fluids such as urine and blood etc contain a lot of protein derived amines and ammonia itself, whilst these are highly soluble and likely to be "washed out" during the condensing/coalescing process (and discharged to sewer) there is a potential for residual amines and ammonia to pass to the Carbon filter at which point the strongly alkali treated filter would have the effect of further volatilising the amines or ammonia (given that the pKa value for these compounds is between pH8 and pH11) and as such there is a potential for ammonia and other "alkali" gasses to pass through the filter and be released. As a result, further information has been requested from the operator as follows

Q. The carbon filter appears to be alkali impregnated (KOH) suitable for removing acidic gasses (organic and mineral acid vapours) is liable to be poor at removing alkali gasses such as ammonia, amines and volatile compounds with a pKa value of 8-11. How does this perform with respect to Ammonia and amine odour control?

A. SEPA required that the activated carbon be suitable for RH up to 90%. Camfil supplier of the activated carbon confirmed the following details:

For a type of media which is suitable for a RH up to 90%, I can confirm that we can now offer a media called CEX003A3. This uses chemisorption, with the bonus of using adsorption as well, so it will work well at higher RH levels. The impregnated media will capture any acidic gases and the main pores will capture all other VOC or odours.

CEX003A3 has been used by Tradebe at the Bellshill site from start of Q2/2020 until end of Q2/2021 without any odour issues or complaints.

Monitoring results for EP3 (final emission point) highlights:

VOC levels 27.5 to 42.9 mg(N)m⁻³

Odour levels 1503 to 1644 OuEm⁻³

As the site is not liable to impact on any designated site the CO is content to accept the response from the applicant on the use of the specified filter but would expect the applicant to take measures to address any odour issues through the Odour Management Plan

Although Tradebe are using a commercially designed filter system from an experienced manufacturer, the application did not provide details as to whether the design of ducting fans pipework seals etc were made or fabricated from materials resistant to steam heat acid and alkali.

SEPA will require that the operator operates and carry out operational and maintenance checks as per the manufacturer's instruction. Although the Carbon Filter has a relative humidity specification of 40-90% it is operating as abatement for part of a pressurised steam process and therefore the efficiency of the condenser and coalescing filter in removing steam is going to be important in preventing water vapor passing forward as a result SEPA will require the operator to monitor the performance of these filtration systems to prevent filter breakthrough or deactivation of the carbon filter an event which could give rise to fugitive emissions. This may require the carbon packing to be replaced sooner If evidence of any effects of humidity or moisture become evident and a review as to whether any additional water removal system is required.

The odour management plan required to be prepared must list all of the monitoring and maintenance activities to ensure the filters are changed before odour breakthrough.

Process Stack height

The process stack has been modelled and sized for the dispersion of odour from the process this is discussed in more detail in Section 5.7 below.

There is one discharge of extracted process air outlined in the application providing dispersion of combined and abated extract air from the two shredders and two steam screws this will be discharged vertically, from a single point, 3m above the roof height

In the Section 2.5 of the original D1 Technical guidance (referred to in the Environment Agency H1 guidance withdrawn 2016) it stated that the method was not suitable in its original form for odour dispersion. In the current application the stack has been modelled to provide dispersion of the abated odour rather than any pollutant following SEPA's Odour Guidance and the EA H4 guidance that that document refers to.

This may need to be revisited should the requested Waste gas emissions inventory identify the presence of significant levels of VOC (volatile organic compounds) and in CMR (Carcinogenic, Mutagenic, Reprotoxic) causing VOCs.

Process Stack exit velocity

BAT (Best Available Techniques) guidance where emissions may contain water vapour unacceptable emissions of water droplets can occur where the linear velocity in the stack exceeds 9m/s. The supporting documentation suggests that based on a flow of 1.6m³/s and a diameter of 0.32m that the efflux velocity falls within the range of 18-19 m/s. This was clarified with the operator

Q. Unacceptable emissions of water droplets can occur where the linear velocity in the stack exceeds 9m/s. The supporting documentation suggests that based on a flow of 1.6m³/s and a diameter of 0.32m that the efflux velocity falls within the range of 18-19 m/s. How will this be controlled

A. The new design is to avoid a common flue and install two individual stacks (both at 320mm diameter) from the boilers. Both boiler stacks will vent 3m above the roofline. The efflux velocity will be 10.947 m/s, the boiler supplier Cochran advise will be acceptable (i.e., will not produce unacceptable emissions of water droplets).

SEPA is content to accept the assurance of the applicant and the manufacturer that there will be no unacceptable emissions of water droplets

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

There are to be no discharges of process effluent from the site directly to the Water Environment or the Surface water collection system

5.3.1 Surface Water System

Tradebe are proposing to install additional hardstanding to the west and north of the Queenslie site to provide parking to the west for collection vehicles and trailers and improve access for collection vehicles to enter the building.

Issues

In September 2022 SEPA was informed by Tradebe that following discussions with their consultants it is understood that Scottish Water would more than likely refuse an application to discharge rainwater from external storage areas to the foul sewer and that the conditions attached to the permit issued by SEPA at the former Bellshill site (requirement that trailers and compactor skips containing waste must be stored on an impermeable surface served by a sealed foul drainage system) would be unworkable at the Queenslie site

Proposed measures

In the documents provided Tradebe are proposing to store vehicles/trailers with the rear of the vehicle stored on impervious surface and the remainder of the parking area on a SUDS system. They have advised that the vehicles/trailers parked in this area will be empty, contain healthcare waste awaiting transfer for high-temperature incineration or contain healthcare waste awaiting processing in the alternative treatment plant.

The rainwater run-off from the impervious surface directed to the surface water system, this discharge would be controlled by a pen stock valve which could be closed in the event of spillage or other incident, with kerbing and slope providing containment and spill kits providing additional abatement. The company has provided detailed descriptions of the surface construction of the of the storage areas including the proposed drainage plans and cross section of the parking areas. Further supporting information outlining the mitigation measures has also been provided

In their supporting statement Tradebe advise they have adopted a risk-based approach to determine the drainage requirements for the temporary storage of healthcare waste at the site and having received healthcare waste from NHS Scotland for over 2 years now have concluded that the risk of liquid spillage from healthcare waste that is solid is extremely low. Advising that during those two years of operation there were no instances reported of liquid spillages entering the surface water drainage system.

Tradebe advise that wheeled bins containing healthcare waste are to be stored inside the process buildings and that all unloading and loading activities are to take place under cover in areas served by a sealed drainage system discharging to foul sewer.

Waste Treatment BAT - Drainage

The Waste Treatment BAT Reference document (BREF) is a large document covering several Specific Waste treatment activities as a result not all BAT Conclusions apply to all activities

Drainage is primarily concerned with control of three wastewater streams Bundwater, Surface water run-off (termed "rainwater" in the BREF) and Process effluents

Several sections within the BREF look at drainage issues in relation to activities (Section 2.3 Outlines what is the General BAT for Waste Treatment Installations (particularly 2.3.11 *Techniques for the prevention and reduction of soil and water contamination*) The main points from the BREF relevant to the application are given below

BAT Applying specifically to the Applied for Activities

Waste Reception 2.3.2.3

(xxiv) The reception area is equipped with a suitably sealed drainage system to prevent contaminated run-off, and a separate collection system for spills which is separated from rainwater collection drains (see Section 2.3.11).

(xxv) The offloading, sampling point/reception and quarantine areas have an impervious surface with self-contained drainage, to prevent any spillage entering the storage systems or escaping off site.

Mechanical Treatment of Waste 3.1.2.2.1

Emissions to water Rainwater run-off is collected and drained, as is any water released by processes on site, including water for damping down for dust suppression or process water releases. Surface water run-off also includes those waters which percolate through the stored waste input and output. During percolation, it is possible for the waters to leach soluble components and to suspend and carry insoluble materials into the drainage system.

These are already in place and complied with in the application as they refer to off-loading the Mechanical treatment of waste is directed to the fragmentation of metals which often takes place outside and where rainwater ingress into the waste is likely

General BAT, Technical considerations, and applicability

The drainage infrastructure and the segregation of water streams are applicable to new plants and are applicable to existing plants within the constraints associated with the configuration of the water drainage system.

Depending on the risks posed by the waste in terms of soil and/or water contamination, making the surface of the whole waste treatment areas (e.g., waste reception, handling, storage, treatment, and dispatch areas) impermeable to the liquids concerned. This impermeable surface and internal site drainage systems lead to storage tanks or to interceptors that can collect rainwater and any spillages. Interceptors with an overflow to the sewer usually need automatic monitoring systems, such as a pH check, which can shut down the overflow.

Ensuring that the drainage infrastructure can collect and discharging all runoff water in case of heavy rains. Applying separate drainage systems and sumps to enable the isolation of specific areas of the site where waste is stored, handled, and bulked, to contain all spills.

Systems already applied for the prevention of fugitive emissions are relevant to drainage systems too having procedures in place to ensure that the composition of the contents of a bund sump, or sump connected to a drainage system, are checked before treatment or disposal, inspecting pavements, drainage, and bunds daily. Particular attention is paid to signs of damage, deterioration, and leakage. Damages and deterioration are repaired as soon as practicable. If the containment capacity or the capability of the bund, sump or pavement is compromised the waste is immediately removed until the repair is completed (unless repairing is quicker than waste removal and working with wastes in proximity does not compromise safety).

Emissions in case of accident

Ensuring that process waters, site drainage waters, emergency firefighting water, chemically contaminated waters and spillages of chemicals are, where appropriate, contained and, where necessary, routed to the effluent system, with a provision to contain surges and storm water flows. Sufficient buffer storage capacity needs to be provided to ensure that this can be achieved. This capacity is defined using a risk-based approach (e.g., considering the nature of the pollutants, the effects of downstream wastewater treatment, and the receiving environment). The discharge of wastewater from this buffer storage is only possible after appropriate measures are taken (e.g., control, treat, reuse).

Environmental performance and operational data Most sites have a full concrete base, with falls to internal site drainage systems leading to storage tanks or to interceptors that collect rainwater and any spillages. Interceptors with overflows to sewers usually have

BAT Conclusions

BAT 19. To optimise water consumption, to reduce the volume of wastewater generated and to prevent or, where that is not practicable, to reduce emissions to soil and water, BAT is to use an appropriate combination of the techniques given below.

c.	Impermeable surface	Depending on the risks posed by the waste in terms of soil and/or water contamination, the surface of the whole waste treatment area (e.g. waste reception, handling, storage, treatment and dispatch areas) is made impermeable to the liquids concerned.	Generally applicable.
d.	Techniques to reduce the likelihood and impact of overflows and failures from tanks and vessels	Depending on the risks posed by the liquids contained in tanks and vessels in terms of soil and/or water contamination, this includes techniques such as: <ul style="list-style-type: none"> • overflow detectors; • overflow pipes that are directed to a contained drainage system (i.e. the relevant secondary containment or another vessel); • tanks for liquids that are located in a suitable secondary containment; the volume is normally sized to accommodate the loss of containment of the largest tank within the secondary containment; • isolation of tanks, vessels and secondary containment (e.g. closing of valves). 	Generally applicable.
e.	Roofing of waste storage and treatment areas	Depending on the risks posed by the waste in terms of soil and/or water contamination, waste is stored and treated in covered areas to prevent contact with rainwater and thus minimise the volume of contaminated run-off water.	Applicability may be constrained when high volumes of waste are stored or treated (e.g. mechanical treatment in shredders of metal waste).

f.	Segregation of water streams	Each water stream (e.g. surface run-off water, process water) is collected and treated separately, based on the pollutant content and on the combination of treatment techniques. In particular, uncontaminated waste water streams are segregated from waste water streams that require treatment.	Generally applicable to new plants. Generally applicable to existing plants within the constraints associated with the layout of the water collection system.
g.	Adequate drainage infrastructure	The waste treatment area is connected to drainage infrastructure. Rainwater falling on the treatment and storage areas is collected in the drainage infrastructure along with washing water, occasional spillages, etc. and, depending on the pollutant content, recirculated or sent for further treatment.	Generally applicable to new plants. Generally applicable to existing plants within the constraints associated with the layout of the water drainage system.
h.	Design and maintenance provisions to allow detection and repair of leaks	Regular monitoring for potential leakages is risk-based, and, when necessary, equipment is repaired. The use of underground components is minimised. When underground components are used, and depending on the risks posed by the waste contained in those components in terms of soil and/or water contamination, secondary containment of underground components is put in place.	The use of above-ground components is generally applicable to new plants. It may be limited however by the risk of freezing. The installation of secondary containment may be limited in the case of existing plants.
i.	Appropriate buffer storage capacity	Appropriate buffer storage capacity is provided for waste water generated during other than normal operating conditions using a risk-based approach (e.g. taking into account the nature of the pollutants, the effects of downstream waste water treatment, and the receiving environment). The discharge of waste water from this buffer storage is only possible after appropriate measures are taken (e.g. monitor, treat, reuse).	Generally applicable to new plants. For existing plants, applicability may be limited by space availability and by the layout of the water collection system.

Current Permit Conditions

Discussion

The proposal by Tradebe not to employ a sealed drainage system for the areas used for the parking of vehicles conflicts with the standard licence condition. In determining whether to include a condition within the permit SEPA must take cognisance of regulation 21 of the 2012 Regulations and take account of the general principles that “*all the appropriate preventative measures are taken against pollution, through application of the best available techniques*”, and that “*no significant pollution is caused*”.

And in addition, as a permit issued under the 2012 Regulations a PPC Part A permit is a Relevant Authorisation under the Controlled Activities Regulation 2011 SEPA is required, if they grant the application,

“*To ensure that the relevant authorisation complies with the requirements of [the 2011] Regulations.*”

In so doing, SEPA must, when considering an application for a PPC Part A Permit]—

- (a) *assess the risk to the water environment posed by the carrying on of the authorised activity.*
- (b) *where the application is in respect of an activity that it considers has or is likely to have a significant adverse impact on the water environment—*
 - (i) assess the indirect effects of that impact on any other aspects of the environment likely to be significantly affected.*
 - (ii) consider any adverse social and economic effects of that impact and of any indirect environmental effects identified in accordance with sub-paragraph (i); and*
 - (iii) consider the environmental, social and economic benefits of the activity.*
- (c) *assess the impact of the controlled activity on the interests of other users of the water environment.*
- (d) *assess what steps may be taken to ensure efficient and sustainable water use;*

The WT BREF identifies that it may not always be possible apply specific water control measures to existing sites due to the *“constraints associated with the configuration of the water drainage system”* and that the measures applied should be commensurate with the activities being carried out at the site and the types of wastes involved.

The Emissions from Storage BREF [113, COM 2006]. Advises that rainwater disposal is controlled by regime in place adding that the General BAT principle is to is to abate emissions from storage, transfer and handling that have a significant negative environmental effect.

Tradebe has identified that reception, storage, unloading and treatment of wastes requires to be undertaken in the process areas served by drainage to the foul drainage system. The areas under discussion are outside surface areas which do not have waste directly stored in them, unlike a lot of other waste activities which have waste directly emptied or stored in open areas. The reluctance of the sewerage provider to accept run off water from the open areas is not surprising given that it would give a hydraulic loading to the downstream wastewater treatment plant but add little in the way of biological load which could affect downstream treatment and trigger the operation of storm overflows. The WT BREF recognises the effect on downstream treatment as a constraint and advises risk-based assessments to design containment systems, and control spills and discharges.

Rainwater collection, monitoring and discharge is a matter of routine at industrial sites, characterised both by the low potential chemical pollution of the runoff water and the low EHS risks associated with it Run off is General controlled by SEPA through General Binding Rules under the Controlled Activities Regulations 2011 albeit for larger industrial parks can be controlled through a licence and usually includes an appropriately designed SUD system adds that the drainage system need to incorporate measures that minimise the risk of unintentional discharges of process liquids to the Water Environment following accidents spills or other incidents from storage areas

The WT BREF advises that a specific technique for the prevention and reduction of soil and water contamination is

“Collecting rainwater falling on the storage and processing areas along with tanker wash water, occasional spillages, drum wash water, etc. Rainwater is returned to the processing plant or collected for further treatment if it is found to be contaminated”

This suggests that some form of monitoring of the discharge is required and where it is found to be contaminated sent for further treatment. Otherwise, it is acceptable to be discharged to Surface Water drainage system. The difficulty comes in assessing what parameters would need to be exceeded for the rainwater to be defined as “contaminated”

A report to from WCA Environment Limited (December 2013) to DEFRA “Assessing the Scale and Impact of Urban Run-Off on Water Quality” which was based on research by

Mitchell G, Lockyer J and McDonald A. 2001. Pollution hazard from urban non-point sources: a GIS model to support strategic environmental planning in the UK. School of Geography, University of Leeds.

(A study which SEPA contributed to)

Contained estimated EMC values for pollutants contained within surface water from industrial sites quoted in Table 6.1 of

Limits for Parameters from Emission Source	Basis of Limit	Event Mean Concentration (EMC) mg/l
	Volume	
	Biochemical Oxygen Demand	10
	Chemical Oxygen Demand	150
	Total Suspended Solids	50
	Ammoniacal Nitrogen	1
	Total Phosphate	1
	pH	5 - 9
	Fats Oils and Grease	The potential discharge shall not include significant traces of visible oil or grease
	Emissions	Compliance with Any Disposal Site Requirements

The report identified that the parameters an operator should be required to be monitor and the pollution prevention techniques to be applied, at any given site, will depend on the activities carried out at the site and their significance to any receiving water, considering the rainfall intensity and duration.

It outlines that the typical parameters that may be monitored rapidly during periods of rainfall are, for example, pH, turbidity, TOC, colour, and floating material and explains that Continuous monitoring may not be economically viable at small installations with small volumes of rainwater. The report adds that *“these installations may choose to systematically send rainwater to treatment irrespective of whether it is contaminated or not.”*

Conclusion

The determination relates to the storage of solid wastes in vehicles an activity which would on the face of it seem to present minimal risk to the environment. To cause a pollution event would require the waste to be subject to wetting at a level sufficient to elicit leaching of pollutants and outflow from the waste. It would seem to suggest that as a minimum timeous cleaning up of the waste and checking of vehicles for leaks should be sufficient to control solid waste spills to the area and egress of the pollutants from the site the ability to close the penstock should allow the areas identified to be isolated whilst the clean-up is in progress. Following a significant or major spill, then dependant on the pollutant content the rainwater could be discharged to the SUDS basin, indeed a BAT assessment carried out at a site in England for disposal of rainwater collecting in a bund determined that where there was no reason to suspect the

rainwater had been contaminated due to leak or spill then it was permitted for it to be discharged to the water environment.

In response to the climate crisis SEPA (Scottish Environment Protection Agency) should be looking to allow disposal of “uncontaminated” rainwater to surface water, **where suitable**, rather than requiring its transport to a disposal point. The transport off site by tanker is a method which impacts in other areas and on environmental media (it increases traffic, increases air emissions, and impacts on the local community), furthermore an increased volume of low strength effluent can adversely impact the operation of biological and other treatment plant.

In accepting that collected rainwater run-off from external surfaces will never be devoid of contaminants or contain zero pollutants (it will pick up a certain level of organics from non-process sources simply by contact e.g., road film, bird or animal droppings, dead animals, wind-blown rubbish, mosses lichens etc a methodology is needed to determine what is contaminated and what is uncontaminated. However, where measures are taken to control the storage on and in vehicles then run-off should be of a similar quality to other rainwater run-off and be considered suitable to discharge to the SUD system.

Summary

Where low hazard solid wastes are stored at Tradebe in sealed containers or road vehicles then given the constraints regarding the current drainage system, the inability to discharge to foul sewer the control measures above should be appropriate to control run off from these areas to the SUDS pond. The procedure for responding to spills in these areas will require to be documented as part of the EMS for the site which should include a method of Isolating the area and appropriate testing (in line with the Mitchell et al study in 2001) should be undertaken, in all cases where significant volumes of liquid are seen to be seeping from any parked waste carrying vehicle or trailer.

5.3.2 Process Effluent Discharge

On the 29th of November 2022 SEPA were advised that there may be a delay of up to 3 months (or more) in getting a Trade Effluent agreement in place with Scottish Water. The operator has suggested a temporary solution whereby all effluents will be collected and conveyed to a temporary discharge tank where it will tankered off site to a suitably licensed disposal site. As this is not what has been proposed in the initial application SEPA has had to determine what measures would be needed to satisfy the BAT requirements withing the BREF for Waste Treatment and the ‘all sector’ “Emissions from Storage BREF” these are detailed below and further recorded in the assessment of BAT under Section 5.21 below.

Discharge to Sewer (Once a Trade Effluent agreement is in place)

The operator will be required to furnish a copy of that agreement to SEPA this will form the basis of any Emission Limit Values imposed by SEPA for discharges to sewer as a minimum SEPA will require the operator to comply with the limits set out in that agreement.

All aqueous emissions from the process activities carried out on the permitted site will be discharged via the drainage system into the adjacent public sewer network systems. Tradebe has advised that a full survey of the site drainage systems has been carried out and that all necessary cleaning and repairs will be made prior to start up.

Scottish Water in their consultee's response have advised that this would need to be agreed with Scottish Water under a trade effluent agreement and SEPA will use this to form the basis of the emissions to sewer from the site. Tradebe has advised that discussions with Scottish water are currently being undertaken through a wastewater services provider and that the results of any agreement reached will be passed to SEPA once these are concluded.

Tradebe has provided SEPA with a full drainage plan and has identified that the main sources of discharge will be from the following sources.

1. The Condenser: Installed on the air extraction system from the thermal screw auger. This discharge will be continuous when treatment is being carried out and will; comprise small quantities of condensed water. No additional treatment is deemed necessary for this discharge and the flowrate will not be directly monitored.
2. The Coalescing filter: Installed on the air extraction system from the thermal screw auger. This discharge will be continuous when treatment is being carried out and will; comprise small quantities of condensed water. No additional treatment is deemed necessary for this discharge and the flowrate will not be directly monitored.
3. Boiler blowdown: Correct operation of the boiler necessitates that the boiler water feed needs replacing to remove impurities. This discharge contains traces of boiler treatment chemicals and other components from the waste in the thermal screw auger system this will be discharged under to the trade effluent drainage system on-site. This discharge will be periodic as and when required. No additional treatment is required, and the flowrate will not be directly monitored.
4. Bin washing units. The nature of the operations on the site requires that the incoming waste bins be washed once waste is transferred to the shredder. This is carried out in self-contained units which will ensure that the water used for washing is recycled as far as practicable until it becomes "dirty" and needs to be replaced. This discharge contains traces of boiler treatment chemicals and other components from the waste in the thermal screw auger system this will be discharged direct to the trade effluent drainage system within the process building. This discharge will be periodic as and when bins require washing. No additional treatment is required, and the flowrate will not be directly monitored.
5. General Site cleaning. As a site handling clinical waste, it will be necessary to periodically wash the external and internal floor areas via hose, sweeper. This will be discharged directly to nearest sealed foul drainage system. This will be a periodic discharge.
6. External Waste Storage Pad. Full compactor skips and trailers are to be stored in an area of the site provided with an impermeable surface and served by a sealed foul drainage system, to minimise any runoff.

Scottish Water in their consultation response raised the issue of the potential for process run off to enter surface water drains on the site as Tradebe has identified in their application that some drains in the existing yard area are routed into the surface water drainage system. Tradebe has advised that although no isolation of the drainage systems is currently available (penstock valves or similar), portable drainage covers (which can be manually installed) will be available on-site to isolate drainage entry points (open grates) as necessary internally and externally and when required.

SEPA will require to Tradebe to plan the storage of materials on site such that surface water sewers are protected from any potential release of pollutants.

The domestic drainage from the site and the surface water drains serving the roof drainage system, and any designated staff visitor's car parking area, will not be considered part of the permitted installation.

As there are no discharges direct to the Water Environment from the proposed installation and the effluents listed in the application appear such that any downstream municipal wastewater treatment plant should provide a sufficient level of treatment to protect the receiving water then no further treatment is considered necessary and no further AELs are to be applied over and above the conditions required in the Trade Effluent agreement with agreed with the Trade Effluent provider. As details of the Trade effluent conditions applied to the Queenslie site had not been supplied a request was made to the Applicant for details of the limits placed on the discharge of process waters to the sewerage system.

Q. SEPA requires details of the trade effluent discharge consent to Sewer, being an emission from the Permitted site, SEPA requires to include these within the permit

A. An application for a discharge consent is awaiting confirmation of the final drainage plan. The application will include the following details:

Trade effluent will arise from the following processes:

1. Condenser on the air extraction from the thermal screw auger
2. Coalescing filter on the air extraction from the thermal screw auger
3. Boiler blow down
4. Bin washing in automated bin washer with a water recirculation system

Chemicals/substances to be discharged includes:

1. Disinfectant/detergent for bin wash
2. Boiler treatment chemicals
3. Oils and greases for plant maintenance
4. Transformer oil
5. Diesel for back-up generator

The nature, composition and temperature of the Trade Effluent draining to public sewer:

1. Temperature not greater than 43.3 deg C
2. pH range 6 - 10
3. COD max 800 mg/l
4. Oil and greases max 200 mg/l
5. Suspended solids max 0.4 mg/l

Maximum quantity to be discharged 30m³/24 hours

Maximum rate of discharge 0.3 Litres/s

In an e-mail of 27/09/22 Tradebe advised SEPA that the limits had not yet been finalised and accepted by the TE provider. An update provided to SEPA in late November 2022 advised that there had been a delay in the issue of the TE discharge consent application, and that Tradebe's water services provider had indicated it could take up to 3 months to receive a discharge consent from Scottish Water.

As an interim measure Tradebe had advised they propose to collect any discharge in a temporary tank and dispose of the effluent by tanker to a suitably licenced site. and that a temporary storage and tankering arrangement would need to be installed

Temporary Process Effluent Disposal Measures

In November 2022 SEPA were advised in an e-mail that there has been a delay in the issue of the TE discharge consent application, Tradebe's water services provider, have indicated it could take up to 3 months to receive a discharge consent from Scottish Water.

As an interim measure Tradebe had advised they propose to collect any discharge in a temporary tank and dispose of the effluent by tanker to a suitably licenced site.

The lack of a Trade effluent discharge authorisation means that any discharge to the public sewerage system would be an offence under the Drainage Scotland Act and an unauthorised discharge under the PPC Regulations.

The current set up will have connections directly to the process drains on site these require to be temporarily closed off with process effluents diverted into the effluent storage tank for removal for offsite treatment. This raises several control issues for SEPA, in that SEPA cannot approve any measure which would allow a discharge to sewer even in an emergency, this means the interim system put in place requires to be robust enough to prevent any fugitive emission. The Emissions from storage BREF advises that as a minimum tank should be fitted with high level alarms with both audible and visual warnings and advise that these are telemetry linked, and that they are sited in a suitably constructed bund. As this is an interim measure and a temporary system is proposed SEPA will look for any temporary tanks installed on site to be bunded to the satisfaction of SEPA and fitted with an audible

visual high-level alarm, should space allow the operator is advised to consider whether there is a requirement for an overflow tank, which could be used as an emergency buffer.

Summary

The Emissions from Storage BREF (see 5.21 below) identifies the need for suitable and appropriate control measures to be put in place regarding level monitoring, bunding, and overflow protection. SEPA are inclined to accept what has been proposed as a temporary measure and as such will require a method statement to be submitted to and agreed by SEPA showing that the requirements for design outlined in the BREF have been met (listed in Section 5.21 below). In addition, the operator will be required to regularly update SEPA on the progress of the trade effluent authorisation application. The operator will be advised that any discharge of process effluent to sewer whilst the temporary arrangements are in place should be treated as a reportable incident.

SEPA considers BAT for this Site to be a discharge to a sealed drainage system connected to the public Sewerage system.

Once a Trade effluent authorisation is in place the details of that authorisation should be notified to the SEPA local Regulatory team for an assessment as to whether, any further on-site reduction of pollutants is necessary and whether there is a need to apply any additional ELVs on the discharge for any determinands which could have an impact on downstream treatment and disposal i.e., those which are produced on site but not covered under the TE authorisation.

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

The applicant has advised that there will be no direct discharge to ground water or disposal of waste to land carried out at the site.

Site configuration

The site comprises the main industrial unit with hardstanding (to south, east, and north of the building) with areas of vegetation to west and north of the building, the applicant has advised that they are proposing to extend this area of hardstanding to accommodate additional parking and allow for the manoeuvring of waste delivery vehicles and introduction of a one-way traffic management system.

The applicant has indicated that they have designed the site to minimise entry of pollutants to land and groundwater with all potentially polluting activities being carried out on impermeable surfaces and controlled to ensure any spillages do not enter the ground/groundwater or surface water drainage systems in the vicinity. The applicant has advised that they are to undertake a survey of the current hardstanding areas to ensure their structural integrity and has advised that where repairs are deemed necessary these will be repaired and any defects or cracks sealed prior to commencement of operations. Routine inspections will be carried out during the operation of the site to ensure the integrity of the surfaces in the operational areas is maintained.

As discussed in 5.3 above the applicant has undertaken an inspection of the existing drainage system to identify and remedy any current defects and to ensure its structural integrity prior to operations and has advised this will be routinely inspected, cleaned, and repaired where necessary. During the operational phase of the site there should therefore be no discharge to ground/groundwater. However, if evidence of any discharge were identified it would be appropriately remediated to ensure no spread of contamination occurred

SEPA requires that all liquid wastes stored on site will be bunded to the appropriate current standards, and that all surfaces where liquids are being handled or stored are sealed to prevent fugitive emissions to groundwater and or land contamination. These requirements will be specified through standard permit condition where necessary to prevent groundwater or land contamination

5.5 Implications of the Application on - Fugitive Emissions to Air

Most of the process related activity is carried out inside the treatment facility and as a result the containment afforded by the buildings together with the building cleaning regime described in the application. Once operational, the operator is required to undertake visual and olfactory assessment of the process, and should any issues be identified with building containment then they are to implement measures to minimise fugitive emissions releases these could include (where necessary and achievable) diverting air extracted through the Local exhaust Ventilation systems to the process air emissions abatement system or the boiler unit. Fugitive emissions from the process are due to leaks from the enclosed system and as a result those pieces of plant key to the prevention of pollution and the correct treatment of waste are required to be identified in a list of critical plant and covered by a routine inspection maintenance and repair schedule as part of the overall Environmental Management System EMS for the site.

Hazardous Waste transfer operations

These are required to be carried out in a controlled manner such that fugitive emissions releases are minimised these controls include the use of compatibility checks on incoming wastes to ensure that wastes which are “antagonistic” or could produce odour, vapour, fume, or mist if mixed are segregated and stored separately prior to transfer and conveyance to the disposal site. SEPA requires that where possible decant and bulking up operations are kept to a minimum and that all containers are stored securely with liquids wastes stored in appropriately sized bunds. All containers storing waste should be lidded where possible. The permit requires as Part of the EMS that an accident and emergency procedure is in place and that spill kits should be available and accessible for use when required. Emissions of volatile organic compounds from handling liquids, other than diesel, are not envisaged as these materials are not held in significant quantity at the installation.

External roadways and transport

All roadways and delivery areas should be inspected to ensure integrity of the road surface especially where containers are stored or unloaded, and any defects suitably and sufficiently repaired and sealed to prevent fugitive emissions to land and groundwater. The operator has outlined in the application that they are to introduce an on-site speed limit and one way system which should both reduce “dust kick” due to speed or the need for excessive manoeuvring on site. Should dust generation from vehicle movements on the site become a problem then the operator will be required to clean the roadway and employ a suitable dust suppression measure (e.g., wetting the roadway) where necessary whilst internal vehicle and container cleaning is carried out in designated areas on the site (a necessary part of the hygiene and cleaning procedure), SEPA would advise that vehicle cleaning for Road Traffic regulations should be carried out off site or in a suitably licensed washbay with interceptor. The vehicle and trailer storage area will require to be checked to maintain the integrity of both the surface and the kerbing and to ensure the penstock is able to be operated and forms a water seal

Fuel Storage

Fugitive emissions to air from diesel storage may occur during filling and from venting of tanks during pressure release (particularly during warm weather). Releases to air should be minimised through careful operation of the tank and controlled delivery, such that there should be no significant fugitive releases to air. All tanks holding fuel require to be contained with some degree of bunding to prevent release to soil and groundwater. All bunds, tanks, pumps seals and other associated infrastructure for the conveyance of fuels should be routinely checked for leaks and drips to prevent build-up of pollutants over time and any spills outside of the bunded area require to be cleaned up investigated and recorded under the Incident procedure. Any rainwater collecting in bunds requires to be removed and disposed of in a manner which prevents pollution surface water, groundwater, and land. Inspection of tank

Clinical waste treatment via thermal screw

The shredders are fully enclosed (e.g., doors with no gaps) and under negative pressure such that any dust or particulates generated in the process are maintained within the shredder. In the thermal auger steam under pressure is brought into contact with the waste and as a result any leaks will affect the

ability to reach the required process treatment temperature. As a result, fugitive emissions are few and are identifiable and rare rectified quickly these are usually due to leaks at seals joints and welds, which are the weak points in the pressurised equipment

The use of High Efficiency Particulate Air (HEPA) filters followed by a Carbon filtration unit requires the operator to monitor the performance of these filtration systems to prevent filter breakthrough or deactivation of the carbon filter an event which could give rise to fugitive emissions. As part of the Critical Plant list, conditions are placed in the permit to ensure these units are subject to monitoring and inspection followed by replacement where and when necessary.

Bioaerosols

There is potential for fugitive microbial emissions from activities carried out at the Queenslie site these can be generated through the shredding of healthcare waste, the washing of bins and receptacles and following spills or breakages the carriage spaces of the vehicles the waste arrives in. The use of enclosed treatment systems minimises the risk of aerosol generation from the shredding process, as does the use of automated and enclosed bin washing units. Should the carriage space of vehicles require to be washed down or bins require to be manually cleaned, then best practice must be followed, such that the generation of aerosols is kept to a minimum, this can be achieved using manual cleaning brush and low-pressure water delivery system rather than a "Jetter style" spray from a high-pressure hose, bin washing should only be undertaken in the process buildings and over the process drains to minimise fugitive emissions to the surface water drains.

There is also a requirement to undertake microbial emissions monitoring at key areas on and off site as part of commissioning and periodically thereafter.

5.6 Implications of the Application on - Fugitive Emissions to Water

Site and Location plans provided with the application detail that the nearest classified surface watercourse is located approximately 430m to the south of the site. Given the amount of liquid stored on site it is deemed unlikely that a direct fugitive release will cause a pollution incident in the Surface water body and that the main conduit for any pollution incident would be the surface water drainage system on the site.

The main cause of fugitive emissions to water are assessed as being likely to be from be run off during manual washing of bins, (during a breakdown, fault, or maintenance of the automated bin washing system) the washing of the carriage space of vehicles, washing of equipment or plant, leakages from the drainage system, spills of waste on the outside areas, rainwater wash-off of contaminants, accidents, and spills. The minimisation of these fugitive emissions is a key element in the design and operation of the site.

Fugitive emissions to water are addressed through the design and operation of the installation, which specifies the use of bunds for liquid storage; impervious paving resistant to the materials stored for areas where wastes or process materials are received; stored or handled and a maintenance system requiring routine planned inspection of civil engineering and mechanical assets such as bunds, drains, floors, and hard standing areas as well as pumps, valves and penstocks etc.

The lack of an initial Trade effluent discharge authorisation has implication for Fugitive emissions to water the operator must ensure that any temporary wastewater collection tank and bunding installed is sufficient to collect and store the amounts of process wastewater produced in any closed system the timeous disposal of wastewater is key in preventing overtopping The Emissions from Storage BREF identifies that high level alarms are fitted to the tank to warn the operator that the level in the tank is near to the top and that it requires emptying, the provision of an emergency overflow tank should be considered however where fitted this should not be routinely relied upon to provide extra capacity As with all tanks SEPA will require any tank to be positioned within a bund...Where temporary bunding is provided this must be both correctly sized and provide a satisfactory level of containment.

As a Specified Waste Management Activity handling clinical and Hazardous wastes SEPA will require a high level of housekeeping to be maintained on the site and for the operator to ensure activities are carried out sufficiently away from the entry points to Surface water sewers to minimise potential releases of pollutants to the Water environment.

5.7 Implications of the Application on – Odour

Sources

The following activities are identified as potential point sources of odour on the site. The Process stack PRVs (Pressure Relief Valves) on fuel tanks, emissions from the operation of the back-up diesel generators and the temporary mobile diesel fired boiler., Fugitive odours are likely to be released during unloading and storage of wastes, filling of fuel tanks, leaks, spills, breakthrough of abatement systems and the discharge of condensate to sewer or in the initial phase of operation due to the operation of the wastewater collection tank (filling/emptying).

Odorous Compounds

From the waste types accepted on site it is expected that the odours generated will be at the high end of the offensive scale as they are derived from the breakdown of human and animal bodily fluids and the subsequent heating to render them biologically safe. It is predicted these odours could be a mix of Volatile Organic compounds e.g. (Skatoles, Organic acids), Ammonia and amines envisage that these odours will be of Organic Acids and Ammonia and Hydrogen sulphide and other sulphhydryl compounds

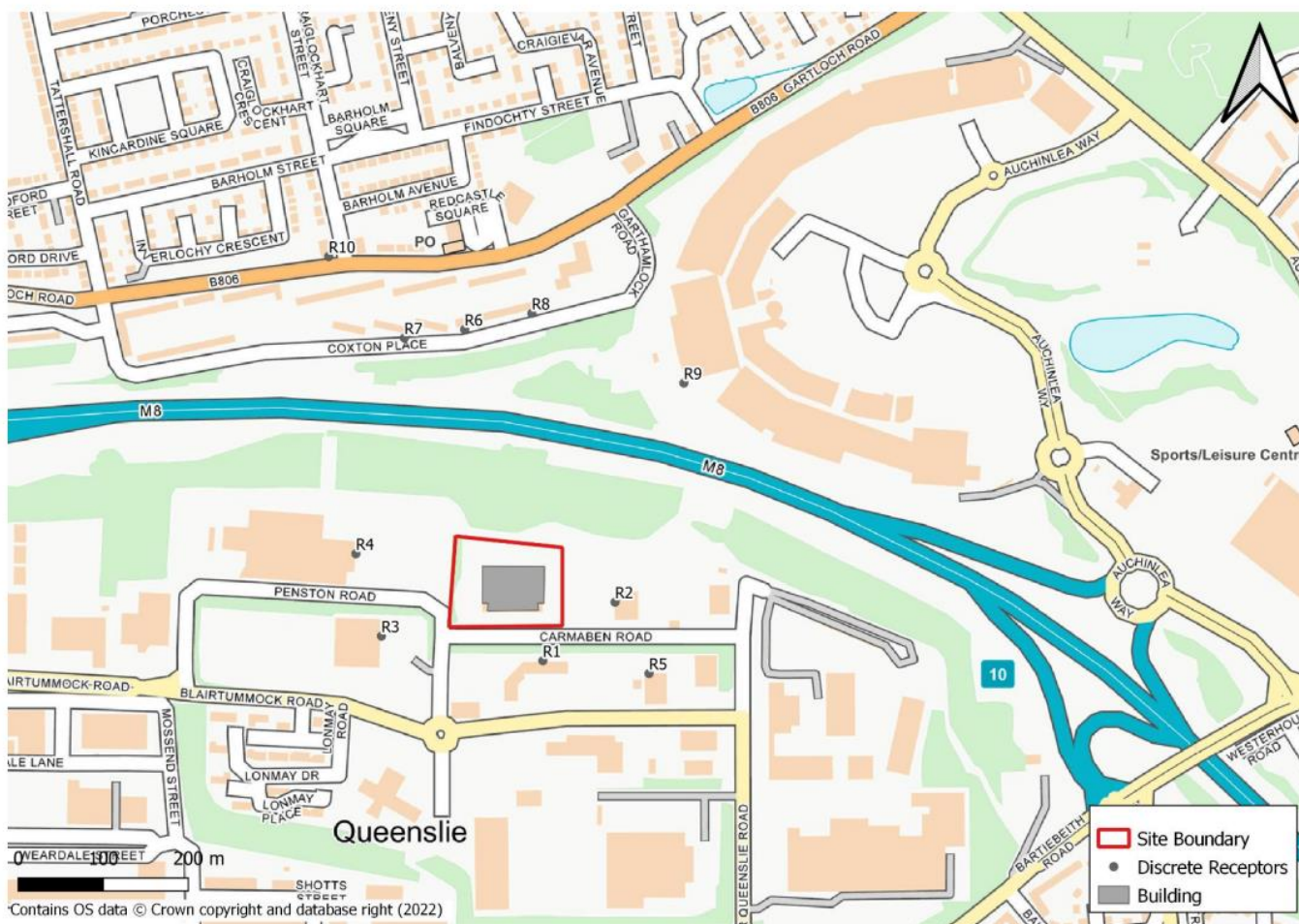
Receptors

The following locations were used as receptors to model the predicted odour concentration from the site and assess the impact at each receptor. The Greater Glasgow and Clyde Health Board proforma for recording their response to the statutory consultation on the PPC Application contained the following instruction

List any inhabited areas and any potentially sensitive locations e.g., schools, recreation areas, hospitals, residential homes, hospices etc. near the installation (e.g., within 1 km radius).

The GG&C reviewer Identified 2 potentially sensitive locations falling into this category: These are a Primary School and a Secondary school, located about 0.8 km to the South-Southwest of the proposed site (In the direction of, and beyond, R1 and R5 on the map).

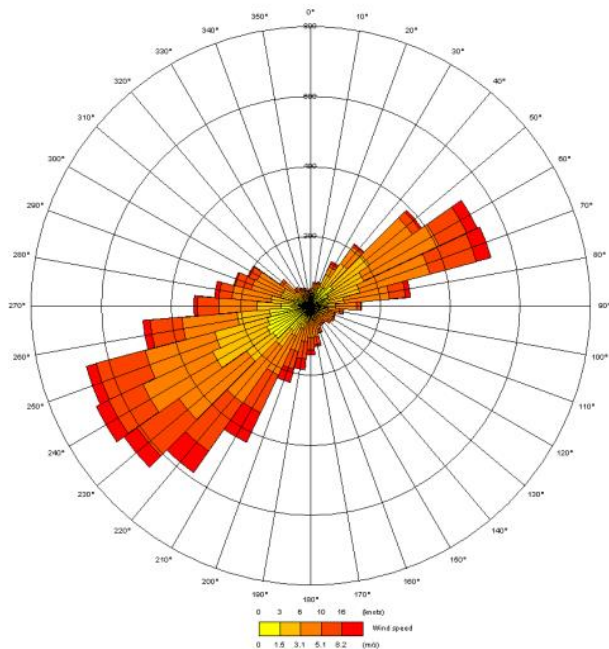
Figure 3-1: Receptors and Building Included in Model



Wind direction

The consultants provided data on wind direction from the Glasgow (Abbotsinch) weather station data monitoring data from a 5-year period indicated that the wind was consistently coming from a bearing of 215° – 270° (most frequently a bearing of 240°) as indicated in the 2021 Windrose in the application (reproduced below)

Figure A.5: Glasgow Windrose 2021



Modelling

The model used was BREEZE AERMOD with a Geographical Information System (GIS) capability (v10.0.0.15) using an assumed odour concentration of 500 OUE/m³ (Based on the 2005 Statutory Code of Practice on Assessment and Control of Odour Nuisance from Wastewater Treatment Works issued by the Scottish Government)

SEPA were consulted by the Tradebe's Air emission consultants prior to the modelling being undertaken and asked for a method statement to be agreed before modelling commenced. During the formulation of that method statement SEPA requested that the consultants include both sensitivity and uncertainty analysis to better assess the risks of potential odour nuisance.

In response the consultants in their modelling report included modelling results for not only the standard 98th percentile commonly used in odour modelling but also the 99th and 100th percentiles as well.

SEPA raised a few issues with the report which were addressed by the Consultants (in italics) as follows Table 4.1 states a five-year average has been used. The model should be run for each year individually and results presented for each year.

(Included in Appendix C).

The values in Table 4.3 were in the wrong column.

(Corrected)

A minimum Monin-Obhukov length should be included in the report.

(AERMOD does not include an input section for Monin-Obhukov length).

Surface roughness is likely to be different between the met site and the actual site and should be accounted for. *(A value 0.5 has been used in the modelling for surface roughness to suit the dispersion site, together with 1.2875 Bowen ratio and 0.23 albedo).*

SEPA commented that the risk of an exceedance of the 98th percentile is low (model would have to be underestimating by a factor of ten for the 98th percentile, and 100th percentiles are a factor of 3 below the threshold). Resolving the issues above is therefore unlikely to change the conclusions, however they

are technically incorrect. We also need to bear in mind that modelling odour is tricky due to its subjective nature, and there are occasions when modelling suggests there may not be a nuisance when there is. Therefore, it is important to minimise the risk as much as possible.

Stack Height

Initially Tradebe were proposing a 1m above ridge height stack at which point SEPA pointed out that ideally the stack should be a minimum of 3m above the building height as the airflow at the top of the stack will be less influenced by building effects adding that, the uncertainty in the modelling will be also greater at stack heights below 3m.

SEPA carried out rough assessment using ADMS, which indicated that increasing the stack from 9.8m to 12m (~3m above building height) would theoretically reduce the 98%ile concentrations by around 50% (from 0.38 to 0.2). Adding that although the risk of exceeding the 1.5 odour unit threshold may not be that great, there is a significant reduction in risk. reminding the applicant that BAT requires emissions to be minimised as far as possible and as a result a stack height optimisation exercise should be included if modelling is carried out.

In its response to the question regarding whether SEPA would accept a stack height of 1 or 2 m rather than 3 m:

In its initial response SEPA stated that the minimum 3m rule of thumb for stack heights came from the old D1 technical guidance for dispersion method for calculating stack heights. adding that the calculation would never return a stack height less than 3m for two reasons. Firstly, dispersion may be compromised by building effects at stack heights lower than 3m above the roof ridge. The Institute for Air Quality Management (IAQM) 'Guidance on Assessment of Odour for Planning' supports this. Secondly, there is a health and safety risk where the discharge from stacks emitting potentially harmful substances is less than 3m for anyone working on the roof.

As such SEPA would therefore generally seek to ensure stacks are a minimum of 3m above roof ridge.

It must be recognised that Section 2.5 of the original D1 Technical guidance (referred to in the Environment Agency H1 guidance withdrawn 2016) stated that the method was not suitable in its original form for odour dispersion and that in the current application the stack has been modelled to provide dispersion of the abated odour rather than any pollutant, following SEPA's Odour Guidance and the EA H4 guidance that that document refers to.

The primary objective though is to ensure that the measures proposed by an applicant, in this case stack height, is sufficient (under normal conditions) to ensure adequate dispersion of pollutants("odour"). In the case of stack height determination, SEPA takes a precautionary approach, however, it does not stipulate which assessment methodology is to be used.

Where an assessment is requested; the guidance states, that other methodology can be used with the approval of the regulator... this is true both in the H1 Assessment and in the "Process Guidance Notes" (covering assessment of BAT for PPC Part B installations), where it states "*The calculation procedure D1 is usually used to calculate the required stack height but alternative dispersion models may be used in agreement with the regulator*"

The IPPC H1 (2003) "H1" guidance was endorsed by SEPA in 2003 The adoption of this approach was in line with SEPA's Odour Guidance 2010 which advises that the H1 model can be used "*for screening out insignificant impacts such as those contained in Part 1 of the H1 methodology*". Cautioning that where there is a high potential for release of odorous substances, a detailed assessment of the impact may be required which may need to include the use of predictive impact models such as ADMS or AERMOD

Regarding the height assessment itself, the Odour Guidance advises that "as a rule of thumb" the stack should be at least 2.5 times the height of adjacent buildings within a radius of "five stack heights" at

which point the operator should consider the “exit velocity” ... as increasing it will increase the effective stack height. Finally, it is worth mentioning that the current Environment Agency guidance includes a more detailed indicative assessment procedure.

Modelling Results

Table 4.2: Significance of Estimated Odour Emissions at Surrounding Receptors

Receptor ID	Max 98 th %ile Hourly Mean Odour Concentration	Receptor Sensitivity	IAQM Odour Effects for ‘Most’ Offensiveness Categories
R1	0.08	Medium	Negligible
R2	0.13	Medium	Negligible
R3	0.09	Medium	Negligible
R4	0.05	Medium	Negligible
R5	0.05	Medium	Negligible
R6	0.02	High	Negligible
R7	0.02	High	Negligible
R8	0.02	High	Negligible
R9	0.08	Medium	Negligible
R10	0.01	High	Negligible

As the results in the table show, the model predicts no exceedance of the C98 1-hour 1.5 ouE/m³ at any discrete receptor included in the model, nor within the modelled domain. Additional modelling at C99 1-hour and C100 1-hour predicts no exceedance of the 1.5ouE/m³ at any discrete receptor, nor anywhere within the model grid.

Therefore, the effect is considered likely to be ‘negligible’ at all assessed discrete receptors.

The IAQM guidance suggests that a ‘negligible’ effect is likely, and it is considered that the proposed medical waste facility is unlikely to lead to significant odour issues or disamenity, and complaints would not be anticipated. Although not directly modelled the direction of the wind and any odour plume, when the modelling results for R1 and R5 and the dispersion over the 08km distance suggest that there would be negligible impact on the two potentially sensitive locations identified by GG&C Health Board in their consultation response.

Stack Height Assessment Modelling

Following the discussion with SEPA the applicant agreed to raise the stack to 3m above the building apex and advised they would include a stack height assessment.

results from the stack height assessment are reproduced in Table 4.3.

Table 4.3: Predicted Odour Concentrations from Stack Height Assessment

Stack Height above roof (m)	Maximum 98 th %ile off-site gridded odourant concentration (ou _E /m ³)	Maximum 98 th %ile receptor odourant concentration (ou _E /m ³)
1	0.15	0.58
2	0.14	0.55
3	0.13	0.51
4	0.12	0.47
5	0.11	0.43

There are no predicted exceedances of the C98, 1-hour 1.5ou_E/m³ at any modelled discrete receptors, nor anywhere within the model grid, for any of the stack heights assessed. Increasing the stack height further than the proposed 3m provides further reduction in predicted odour intensities, however the 3m stack provides sufficient dispersion to render the overall significance of odour effects from the facility as 'negligible' within the modelled grid, and it is therefore considered that 3m stack is suitable for this site.

Monitoring

The application contains an odour management plant which will include daily checks on site and around its perimeter to identify any sources of odour and establish if any odours are noticeable. These are to be recorded either in a site diary or on a specifically designed form. The checks are to record the prevailing wind direction and strength, and the weather condition at the time. SEPA will also require any OMP (Odour Management Plan) to contain a procedure for responding to odour complaints

Abatement Techniques

The application advises that all healthcare waste accepted at the site will be stored within the building wherever possible. Waste will only be stored outdoors in appropriate containers or trailers awaiting either waste reception of waste transfer. Unprocessed hazardous and non-hazardous waste awaiting unloading and processing, or direct onward transfer shall be stored in sealed and secure trailers or containers on impermeable surface served by a sealed foul drainage system for up to 3 days. Waste which has been processed and compacted at the permitted installation and contained within a sealed compactor skip shall be stored on impermeable surface served by a sealed foul drainage system for up to 5 days. Anatomical waste shall be stored in a refrigerated unit at -5 °C Unless properly controlled and managed odours from wastes stored, handled, and processed at the facility if generated would have the potential to become a nuisance with consequent adverse impacts on nearby residential properties. Measures are in place however as described earlier to prevent fugitive emissions from process operations and to treat via H13 HEPA and carbon filters (where installed) any potentially contaminated air extracted from the process.

Waste pre-acceptance and acceptance procedures will include identifying any malodorous waste streams. Should it be necessary these will be rejected and redirected to a suitable facility for alternative treatment or disposal. • If any malodorous wastes are accepted onto site they will be quarantined and stored in a sealed container. This waste will then be removed as soon as practical and no later than 72 hours after receipt. • For clinical waste accepted onto site in sealed colour coded bags, within lockable yellow carts the lids of the carts will remain closed (unless inspecting contents, transferring contents onto trailers, or tipping contents into shredder hopper) to prevent any odour emissions. • Storage time will be considered when managing waste on site and it will be ensured that the oldest wastes are treated or transferred off site in advance of more recent deposits. • Doors to the main waste treatment building will

remain closed wherever possible to minimise any odour emissions from within the building. However, during busy periods of the day the doors will need to remain open to allow the movement of wastes. • A rapid turnaround of waste is expected at the site. This will prevent the development of odours due to excessive storage times. • Regular disinfection of surfaces, containers and vehicles will be undertaken on site to reduce any risk of odour from such sources. Bin and vehicle washing is to be included within the permit to allow this should it be required. • All plant will be regularly maintained and cleaned to remove any residual waste that could result in odour. Steps have been taken to ensure that all emissions to air from the activities on site are free of offensive odours. The proposed abatement methods (carbon filter/H13 HEPA filter) are expected to eliminate any odours. In addition, in ensuring that the emission points are via an elevated vents there is expected to be better dispersal and as a result less risk of any odour impacting on the closest residential properties

Discussion

Tradebe do not believe that there will be any noticeable odours associated with the storage of waste either indoors or outdoors, or with the waste treatment operations. Overall, it is considered that the current measures in place to manage and control odour issues are appropriate.

The one-point SEPA are aware of at other sites is the use of cleaning agent which have the capability of becoming an odour issue e.g., Widespread use of chlorox for example can give rise to chlorine which can be irritating or offensive

BAT

BAT Conclusion 14 in the Waste Treatment BATC document advises that *“Depending on the risk posed by the waste in terms of diffuse emissions to air, BAT 14d is especially relevant.”* BAT 14d in the Waste Treatment BAT Conclusions refers to the use of containment as a result SEPA will require the operator to keep doors into process areas closed wherever possible and skips bottle or other containers lidded the current application has addressed all the requirement in BAT 14 to reduce emissions into air BAT 2 and 33 have also been addressed under Waste acceptance and sorting to prevent incompatible wastes from reacting or being sent for inappropriate treatment. The BATC 12 for Waste treatment requires that an Odour Management Plan be created for the Tradebe Queenslie site, this plan will cover.

1. a protocol containing actions and timelines.
2. a protocol for conducting odour monitoring as set out in BAT 10.
3. a protocol for response to identified odour incidents, e.g., complaints.
4. an odour prevention and reduction programme designed to identify the source(s); to characterise the contributions of the sources; and to implement prevention and/or reduction measures.

5.8 Implications of the Application on – Management

Environmental Management System (EMS)

The management system Tradebe propose to use achieves certification from SGS (UKAS Accredited Certification Body) for:

ISO 9001:2015 Quality Management;
 ISO 14001:2015 Environmental Management.
 OHSAS 18001: 2007 Occupational Health and Safety.

ISO14001 is an international standard which define a set of criteria which make up an effective environmental management system and is a voluntary undertaking. It requires a documented system of procedures to be developed according to the ISO14001 criteria and in line with existing accredited schemes. The introduction of this should ensure that all necessary procedures and controls are developed and are in place, including operating procedures for plant and equipment which encompass both normal and abnormal operation. This Environmental Management System requires the operator to introduce documented Maintenance systems for what are termed “Critical Items of Plant” i.e., those which should they fail, may have an impact on the environment and places an onus on the operator

develop a preventative maintenance scheme to ensure these items are effectively monitored and maintained.

Finally National accreditation schemes such as those listed are subject to regular auditing and review to ensure the systems are functioning as intended and delivering the necessary control.

The Waste Treatment BAT conclusions require an operator to have an environmental management system in place when carrying out Waste Treatment Activities, holding internationally recognised EMS accreditations such as those listed when considered with the formulation of Noise and Odour management plans the like the ones listed demonstrates the use of BAT in the management of the site.

Standard permit and regulatory reporting conditions relating to record keeping and reporting of information and are considered sufficient to ensure robust records are maintained.

Fit and Proper Person

For an application for a permit for a 'specified waste management activity' SEPA is required under the Regulations to carry out checks to ensure the installation will be operated by a 'fit and proper person'.

This involves four key checks on the suitability of an applicant and considers whether The applicant or a relevant person has been convicted of an environmental offence, that there is adequate financial provision made to ensure that all obligations, including after-care and closure provisions arising from the permit in relation to the activity are met, and that the operations at the site are carried out by trained staff under the direction of technically competent management. This is in addition to the requirement by SEPA to consider whether an applicant will ensure that the installation is operated to comply with the conditions which would be included in the permit.

The applicant is proposing to carry out 2 specified waste management activities: hazardous waste transfer and the thermal treatment of clinical waste and several Directly associated activities relating to the handling and storage of wastes prior to off-site disposal

Having previously operated a PPC permitted site at Bellshill the applicant is aware that operating a SWMA (Specified Waste Management Activity) requires both management and operatives to be trained and competent such that the waste is handled and treated in a manner which renders it safe for disposal and protects the wider public and the environment whilst the Waste Management activities are being undertaken. Both the regulations and the standard conditions within the permit (including the BAT condition), require that the operation of SWMA is under the overall control of a technically competent person. The applicant has demonstrated that they have the level of technical competency required to operate the applied for waste transfer activities in accordance with SEPA WST-G-002: Guidance - provision and assessment of technical competent management at licensed waste management facilities and has passed the necessary credit and relevant conviction checks to demonstrate they are a Fit and Proper person

Under the heading Permits: fit and proper person Regulation 18) (1) (b) in the 2012 Regulations states that

18.— (1) SEPA may grant a permit in respect of a specified waste management activity only if it is satisfied— (b)planning permission is in force under the 1997 Act where the use of the site for the activity requires such permission.

(2) A certificate under section 150 of the 1997 Act in relation to such use of the site is to be treated as if it were planning permission for that use.

Planning Permission was not in force at the time of the application, and it was made clear that as an SWMA (Specified Waste Management Activity) SEPA would be unable to issue a draft determination and thereby a PPC Part A permit unless Planning permission was in place. SEPA has been in regular

contact with the applicant regarding the importance of holding planning permission for the site. Correspondence in early September 2022 requested the following information

Q. SEPA requires Confirmation of the Planning Permission prior to submission to Public Participation and details of any restrictions or conditions which would impact on the operation of the Site

A. Yet planning permission has not been approved. Our consultants have advised that approval is likely to be gained in the next 2-3 weeks.

This was updated in late September 2022 advising that the applicant expected a decision from the planning Authority by end of September 2022.

SEPA were advised that Planning Permission 22/01505/FUL was granted on the 24 November 2022 subject to certain planning conditions attached to the Permission. None of the planning conditions impacted on the determination of the permit

5.9 Implications of the Application on - Raw Materials

As an SWMA the main Raw material is the various waste types that the applicant has identified through the list of European Waste Catalogue (EWC) codes of waste types submitted in the application. Only those waste types included within the permit are allowed to be treated handled or stored on site. The current application limits the maximum annual throughput of all waste to a total of 25,000 tonnes (of which 21,000 tonnes is to be treated on site). The applicant has requested storage of up to 200 tonnes of pre-treated waste to cover any breakdown in treatment process and up to 250 Tonnes of post treated floc and Special Waste collected and stored prior to onward disposal only.

All other chemicals and raw materials used on site require to be selected in a way that minimises harm to human health or the environment as described in section 5.10 below

5.10 Implications of the Application on - Raw Materials Selection

As an SWMA the main Raw material is the various waste types that the applicant has identified through the list of European Waste Catalogue (EWC) codes of waste types submitted in the application. This list was subject to revision during the application process and a few waste categories were deemed unnecessary for the operations undertaken on the site. As a waste Treatment and Transfer facility the operator will be required to assess all incoming wastes to ensure that it meets their Waste acceptance criteria and determine whether, they can safely treat, handle, and store the materials arriving on site. The operator will be required to have a procedure in place to safely deal with non-conforming waste types to ensure their safe handling and storage prior to determining its fate. Other raw materials used at the installation are limited to those used in the operation, servicing, and cleaning of the installation (e.g., disinfectants, fuels, test kits, lubricants water etc) all are described within the application.

The permit requires the operator to routinely review the raw materials selected for use and periodic waste efficiency audits are a required to be carried out. Where non-conforming wastes are identified, the operator is required to inform SEPA and log the information regarding producer details and discuss the best and most appropriate disposal option which may include return to producer, treatment n site or disposal at a suitably licensed facility

5.11 Implications of the Application on - Waste Minimisation Requirements

The site uses little in the way of raw materials on the site and has introduced several reuse initiatives to ensure raw materials are fully used on site and only when they become unusable are they discarded as waste materials

5.12 Implications of the Application on - Water Use

The Queenslie site will source water from the Mains supply. Overall use is currently unknown but will be closely monitored and recorded.

Tradebe are considering and implementing new technologies that are more efficient and will have less impact on the environment. They have determined that one of the steam augers to be installed on site is estimated to use around 800kg of water per hour to treat 48 tonnes of clinical waste per day, whereas the autoclaves that Tradebe use on other sites use around 2 tonnes of water per hour to treat approximately 22 tonnes of waste per day. In the meantime, the applicant has advised that they will implement a range of measures to reduce water use at the Queenslie site e.g., the use of enclosed automated bin washers which to reuse water and detergents, ensuring any power washers used on site are turned off and that all hoses are routinely checked for leaks. A water use review will be periodically carried out steps will be taken where appropriate to minimise water use as water supply to the site is metered the effectiveness of any measures taken can be determined and water use can be closely monitored. Tradebe have advised they are keen to look for opportunities to re-use water on site and are keen to investigate the potential for • Rainwater harvesting for use across the site for both cleaning and domestic use on site

5.13 Implications of the Application on - Waste Handling

The list of European Waste Code Catalogue (EWC) codes permitted to be accepted on site are detailed in the relevant table in the permit applied for is included in Table 5 of the permit. The waste types detailed in the original application were subject to a change following deliberation with SEPA's Clinical Waste steering group such that the applicant submitted an amendment to remove certain clinical wastes falling within waste codes 180101, 180102, 180104 and 180201 of the EWC. Source segregation of Clinical waste into colour coded bags enables the operator to quickly determine the level of treatment required such that manual sorting and handling of clinical waste on site is kept to a minimum of waste is eliminated or significantly reduced waste determines which stream. The technical guidance requires operators to have systems in place to track the waste whilst it is on site. The applicant has advised that an electronic tracking system will be put in place like its other sites which it proposes to use to track waste and ensure the site remains within its operational limits

Waste acceptance and rejection

Waste acceptance criteria are in place to ensure that only permitted wastes are allowed to be received at the installation. The operator is only permitted to accept waste that falls within the list of EWC codes, and at a level which does not exceed the relevant quantity and throughput limits laid out in the permit Waste arriving at the site which does not conform to the specification or quantity described in the permit require the operator to treat it as non-conforming waste and to hold it in a quarantine area pending removal from the site to another appropriate waste management installation.

Waste removal for Maintenance and cleaning

The Operator has outlined that the site will be subject to periodic emptying for cleaning purposes this will involve the removal of all waste from that part of the site to ensure hygienic conditions are maintained and waste is processed in a timely manner across the site. Thereby reducing the time waste is in storage at the installation as result potentially odorous wastes or wastes likely to cause nuisance will be turned over and only fresh waste will be stored on site.

Hazardous waste

Hazardous wastes in Glass bottles or fragile containers will need to be handled and stored safely with liquids being conveyed to the correct banded storage areas such that incompatible wastes are segregated to prevent any unwanted reactions. Combustible wastes should be stored away from sources of ignition and inflammable solvents which could act as accelerants

5.14 Implications of the Application on - Waste Recovery or Disposal

As an SWMA, Clinical Waste treatment at the site will be through exposure to high-temperature steam in a steam augur, this will be carried out to a nationally agreed standard such that the treated waste materials are rendered safe for conventional waste disposal. The hazardous waste collected, in line with the waste hierarchy, will be transported for recovery or disposal at a suitably licensed facility.

5.15 Implications of the Application on – Energy

The Tradebe has advised that the consumption of gas and electricity at the site will be closely monitored and given the state of the energy market in 2022 it seems reasonable to assume that will be the case. Tradebe outlined in the application that they planned to source energy from the public supply networks. In July 2022, Tradebe advised that that they had been notified by the Gas Network company that there could be a delay of up to 36 months in the uprating of the gas supply to the site and as a result proposed an alternative temporary system to supplement the energy, they required to generate steam necessary to treat the clinical waste to a sufficiently safe standard

Temporary Steam Generation system

SEPA will require the operator to comply with upgrade conditions within the permit which will allow them to use a temporary system to supplement or replace the gas deficit at the site whilst the Supply Network company upgrades the gas delivery infrastructure to the site. The upgrade conditions will limit the use of temporary plant and will require the operator to update SEPA as to the progress with connection to the mains gas grid.

SEPA reserves the right during operation of any temporary plant to include such conditions as necessary to achieve a satisfactory level of control on emissions from the site during the use of any temporary plant, these may include appropriate emissions monitoring requirements or additional measure where it is deemed a potential for odour or pollutants to be released is determined

Energy Efficiency

It is a requirement under BAT that all sites use energy efficiently and minimise usage where possible the application details that Tradebe has assessed that energy use and has incorporated several measures to use gas and electricity on the site efficiently. S

The application details that Tradebe has considered the processes available to treat the clinical waste at the site and has elected to install a steam augur system rather than an autoclave system as this allows a continuous process to be operated, the two benefits of this are that there is reduced heat loss within the system is reduced and steam pressure is maintained. This reduces the quantity of steam required to be produced to maintain optimum treatment conditions and result in a significant reduction in energy usage on site.

Tradebe has also indicated that by operating two separate and smaller capacity treatment lines (rather than one larger unit) they have the option of switching to a single line use for when waste throughput “drops off.” A smaller unit requires less steam as it will heat and pressurise faster thereby reducing both energy and water use on the site.

The identification of the steam augur and generation units as critical plant places the onus on the operator to routinely inspect and maintain the plant to a satisfactory standard.

Routine maintenance to ensure correct operation of motors and drives and the checking and replacement of seals and any lagging will ensure that the plant operates as efficiently as possible.

Other measures to drive energy efficiency are to maintain heat within the process building by ensuring all doors to the process building are closed to ensure heat generated is retained where possible. Tradebe has identified that training in the correct operation of the system is essential and has retained operational staff from the former site at Bellshill who it is envisaged will be able to use the operational experience previously gained to ensure that the process will be optimised to become more effective and efficient. and it is hoped reduce gas, electricity, and water usage on site.

5.16 Implications of the Application for - Accidents and their Consequences

Tradebe has produced an emergency response plan for the site covering several potential types of incidents which could occur on the site and whilst most are concerned with the Health and Safety of employees' contractors and visitors to the site and are therefore not controlled through the permit, they do have a role in protecting the wider environment and those living and working outwith the site boundary. Of those of importance to the environment and wider community these include (but are not limited to): • Spillages; • Fires; • Litter; Complaints relating to odour, noise etc; • Flood; • Vandalism. And breakdown of Critical plant or abatement systems and any breach of a condition of the PPC permit; •

The application deals with the potential for accidents to occur and how they would be dealt with. The most significant event environmentally would be a fire on site. Adequate isolated firewater containment is provided should this happen. Permit conditions concerning fire detection specific to the drying system have been included in the permit involving continuous monitoring of temperature, the provision of alarms and fire suppression equipment. Following the fire at the Bellshill site, any recommendations from Scottish Fire and Rescue which would impact on waste operations at the site should be implemented e.g., locations of the storage of wastes, any recommendations regarding proximity to sources of ignition and waste compatibility issues raised would require to be implemented under BAT.

SEPA requires that should an incident occur on site that either does or potentially could have an impact upon the environment or human health, the operator should take all appropriate and necessary steps to prevent or minimise the impact of the incident. The general conditions within the Part A permit require the operator to inform SEPA, at the first available opportunity, that such an incident is taking place and requires them to undertake an investigation into the cause and such an incident and provide details of measures to be put in place to avoid any repeat the timescales and reporting requirements are described in the relevant conditions the permit.

5.17 Implications of the Application for – Vibration and Noise

5.17.1 Vibration

The SEPA endorsed Noise and vibration management: environmental permits guidance issued July 2021 states that modelling the guidance states that

“If the initial risk assessment indicates a risk of vibration outside the site boundary, [The operator/applicant] must submit a vibration impact assessment to [SEPA]. Where vibration impacts have been predicted, [The operator/applicant] should also provide calculations and modelling files.”

The applicant has carried out a risk assessment and has concluded that due to the equipment to be used vibration emissions will not be significant beyond the site boundary and as a result they do not consider an assessment of vibration effects as being necessary.

SEPA assumes that there have been no vibration issues at other sites run by the applicant which use, if not identical, then similar equipment, and draws the attention of the applicant to the paragraph in the guidance which states

“[The operator/applicant] must provide [SEPA] with a vibration management plan if there is a risk of vibration or, after getting a permit, vibration pollution impacts outside your site boundary. The vibration management plan should prevent or minimise vibration impacts at local receptors using BAT or appropriate measures. Adding...

It is important that you use a suitably qualified vibration specialist during this process.

5.17.2 Noise

(See Plans in Sections 4.4 and 5.7 above for proximity to sensitive receptors)

Sources of Noise

The Noise survey conducted Spring 2022 included an identification and assessment of the main sources of noise from activities carried out within the installation and provided data from other permitted sites in the UK run by Tradebe employing similar plant and equipment

Plant Item	Number of Units	Source Noise Level at 1m dB(A) ¹
Internal Activities		
Boiler	2	84
Shredder	2	83
Steam Auger	2	82
Bin Tipping	2	80
Auxiliary Equipment	6	81
Conveyor Belt	2	77
Compactor	2	80
External activities		
Boiler Flue (1m above eaves height)	1	85
HGV/ Van / Skip Hooklifts Pass-by	14 per hour (daytime)	
(Based on information provided by Tradebe)	1 per 15 minutes (night-time)	80 (at 10m) ²
Lorry Loading	5	72

¹ Noise level to be achieved through design.

² Drive-by maximum sound pressure level (L_{Amax}). Based on information provided in BS 5228.

Types of Noise anticipated

SEPA predicts that the main types of noise generated at the site are likely to be those associated with the operation of diesel motors, the release of steam from pressure release valves, the movement of road vehicles (including safety reversal alarms) and the loading and movement of containers (metal to metal and metal on concrete sounds)

Sensitive Receptors

The site is located within a busy industrial estate with the closest residential property (sensitive receptor) approximately 300m to the North across the M8 motorway (as shown on the aerial plan in Section 4.4 above) the next nearest Sensitive Receptor would be the residential properties, 500 metres to the South, across the Industrial estate and Bartiebeith Road.

Noise Modelling

In March 2022, the applicant and their consultants contacted SEPA to discuss and agree the details for a Noise modelling survey to be carried out in support of the application for the Queenslie site PPC permit. An assessment methodology was agreed which included baseline noise monitoring locations for the Noise assessment at the Queenslie Site based on the SEPA endorsed Noise and vibration management: environmental permits guidance issued July 2021. This guidance states that

If noise is audible at any of the following types of locations, they will regard it as 'possibly causing and impact': residential properties, schools, hospitals, offices, public recreation areas, other NSRs, or noise sensitive habitats. Where noise is causing an impact, the operator must carry out an assessment to

determine the level of impact, and how much work needs to be done to prevent or minimise noise pollution.

A review of the area identified that the residential properties at Coxton Place were the most likely to be affected by the operations carried out at the Queenslie Site and as a result a monitoring point was included to measure noise levels at that location. To verify the noise level from the site, SEPA requested that a second noise monitoring location (adjacent to the proposed site boundary), be included as part the noise modelling survey. Given that there were no other sensitive receptors where noise from the proposed site was audible, the two noise monitoring points were agreed to be sufficient to assess the impact of noise from the proposed in respect of this application.

To assess the impact of the site, the rated noise level predicted at the nearest noise sensitive receptors was assessed against the existing background noise levels in accordance with BS 4142. The background noise levels being recorded as follows

Background Noise Levels at Noise Sensitive Receptors

Noise Sensitive Receptor	Day time (07:00 – 23:00)	Night Time (23:00 – 07:00)
	L _{A90,T} dB	L _{A90,T} dB
31 – 33 Coxton Place	64	46
35 - 37 Coxton Place	64	46
39 – 41 Coxton Place	64	46
43 Coxton Place	64	46
45 Coxton Place	64	46
47 Coxton Place	64	46
49 Coxton Place	64	46
51 Coxton Place	64	46
Coxton Gardens	64	46

Note: Background noise levels are all given as free-field levels.

The report identified that both during the day and at night the predominant noise at Coxton Place was the road traffic from vehicles travelling on the M8 (main arterial route between Glasgow and Edinburgh) and (Coxton Place). Although Noise could be heard from the Queenslie Industrial Estate during lulls in traffic the exact source of the noise could not be specifically attributed to the activities at the proposed site. Other natural sounds wind-blown foliage on the trees either side of the motorway and birdsong were far more pronounced. Similarly, Noise picked up at the monitoring point at the site boundary identified road traffic noise from the M8 as being a major contributor of Noise at the site along with the commercial / industrial activities being carried out across the Queenslie Industrial Estate across the Industrial Estate and activities associated with the existing operations on the site. Other audible noise sources include birdsong.

The report concludes that based on the noise levels obtained, and the distance to the noise sensitive receptors, that the derived contribution from the existing operations is likely to be more than 40 dB below the measured ambient noise level at Coxton Place during the daytime. It is noted that the measured noise levels at the site boundary at night did not contain any contribution from the existing premises as the commercial unit was closed.

Receptor	Time Period	Representative Background Sound Level, LA90, 15min, dB(A)	Predicted Sound Level, dB	Rated Noise Level, L _{AR} dB	Difference, dB
31 – 33	Day	64	38	41	-23
Coxton Place	Night	46	36	39	-7
35 - 37	Day	64	38	41	-23
Coxton Place	Night	46	36	39	-7
39 – 41	Day	64	40	43	-21
Coxton Place	Night	46	38	41	-5
43 Coxton Place	Day	64	41	44	-20
	Night	46	39	42	-4
45 Coxton Place	Day	64	40	43	-21
	Night	46	37	40	-6
47 Coxton Place	Day	64	41	44	-20
	Night	46	37	40	-6
49 Coxton Place	Day	64	41	44	-20
	Night	46	37	40	-6
51 Coxton Place	Day	64	41	44	-20
	Night	46	38	41	-5
Coxton Gardens	Day	64	43	47	-17
	Night	46	39	42	-4

T10 BS 4142 night-time assessment

Following inclusion of a rating correction of +3 dB to the specific sound level to account for what is described as 'other' readily distinguishable industrial noise. (A correction applied in line with both BS 4142:2014+A1:2019 and the 'Noise and Vibration Management: Environmental Permit' requirements (Guidance adopted by SEPA) ...

The data from the modelling survey (Table above) indicates that the predicted levels of noise from the site are likely to be at least 4 dB below the existing background noise levels, and that the highest noise levels would be experienced at Coxton Gardens and 43 Coxton Place where a night-time noise level of 42 dB could be expected. The report also identifies that the highest specific noise levels were from vehicles accessing and departing the site, which would be indistinguishable from road traffic noise from the motorway.

Discussion

Tradebe has assessed the noise levels from the processing equipment that will be installed within the building (based on similar equipment at used at their other sites). Based on their experience of operating similar facilities at other locations (Rochester, Redditch, Wrexham, Avonmouth, Bellshill etc) they assert that the noise levels from this equipment when accounting for the containment provided by the building will not be significant and therefore will not lead to any noise complaints in the local area.

As the existing commercial operation was still being carried out at the proposed site there was some uncertainty surrounding the baseline noise survey. To reduce this uncertainty SEPA agreed with the consultants that additional monitoring would be undertaken at the boundary of the site, with the noise contribution from the site being calculated back to the noise sensitive receptors identified. A further uncertainty in the assessment was that the site was a daytime only operation, whereas the assessment also had to consider the night-time noise input. To reduce uncertainty within the quantification of the noise predictions, following identification of similar plant in use at other Tradebe facilities, source measurements were undertaken at those locations to determine noise emission levels. This allowed the consultants to present SEPA with data from in-situ and operational equipment being operated by Tradebe under similar operating conditions as the proposed installation. Not only did this

avoid the need to use manufacturer assumptions or file data (where manufacturer data was not available) it also covered both magnitude and spectral emissions.

The noise assessment, carried out under a protocol agreed by SEPA modelling staff, compared the predicted rated noise levels against the derived background noise level for residential dwellings in Coxtan place. When compared to the derived background noise levels, the rated predicted noise levels were calculated to be -4 dB below the existing ambient noise levels and therefore according to table 11 of BS4142 (see below) the site would be unlikely to contribute to the overall noise level at the noise sensitive receptors (returning an indication of no/low impact in the table).

Section 11 of BS 4142 provides the following guidance:

Excess of Rating Level over Background Level	Indicative Outcome
≥ 10 dB	Likely to be an indication of a significant adverse impact
≥ 5 dB	Likely to be an indication of an adverse impact
≥ 0 ≤ 5 dB	Some impact, but less likely to be an adverse impact
≤ 0 dB	Indication of no/low impact

The consultants advised that the report is based on the information provided at the time and was based on the indicative layout provided as the plans were still being formulated, they cautioned that

“Any major alternations to the plans suggested within this assessment will need to be readdressed in terms of the noise emissions they produce.”

SEPA will check with the operator that the layout of the site has not altered significantly, such that noise or other emissions could be increased or require a further assessment.

Taking account of the context and location of the proposed site and the noise predictions from the modelling, the proposed development seems unlikely to give rise to any significant adverse impact.

Monitoring

Tradebe has advised that they will undertake further noise assessments on site both prior to and following the site becoming fully operational. The permit will require the operator to produce a noise Management Plan for the Queenslie site, this document will be required to be reviewed periodically and should Noise become a cause for complaint further modelling or abatement may need to be carried out.

Abatement

The building was previously used as a distribution warehouse and therefore the cladding may not be sufficient to provide complete sound proofing these along with other issues are detailed in the table below

*Source		Relative contribution of source to ambient (at the receptors)	Description of any screening	Description of Noise Control Measures
Steam Auger	General operations	Low	No specific screening is provided, however this source relates to internal process plant	The building enclosure provides some noise control measures for internal plant items, however the facade has weak points i.e. roller shutter doors/.
	Conveyor Belt	Low	No specific screening is provided, however this source relates to internal process plant	The building enclosure provides some noise control measures for internal plant items, however the facade has weak points i.e. roller shutter doors/.
Shredder		Low	No specific screening is provided, however this source relates to internal process plant	The building enclosure provides some noise control measures for internal plant items, however the facade has weak points i.e. roller shutter doors/.
Compactor	Low	No specific screening is provided, however this source relates to internal process plant	The building enclosure provides some noise control measures for internal plant items, however the facade has weak points i.e. roller shutter doors/.	No
Bin Wash	Low	No specific screening is provided, however this source relates to internal process plant	The building enclosure provides some noise control measures for internal plant items, however the facade has weak points i.e. roller shutter doors/.	No
Boiler	Boiler	Low	No specific screening is provided, however this source relates to internal process plant	The building enclosure provides some noise control measures for internal plant items, however the facade has weak points i.e. roller shutter doors/.
	Boiler Flue	Medium	No specific screening is provided.	-
Plant Emissions Flue		Medium	No specific screening is provided.	-
External site activities		Low	No specific screening is provided.	-

The site will be operational and vehicle movements will occur for 24 hours a day. All reasonable actions will be taken to ensure that noise from these operations outside of normal working hours are minimised. Actions that could be taken to limit noise include: • Ensuring all doors are closed (unless unloading/loading is occurring) wherever possible

Tradebe has assessed the noise levels from the processing equipment that will be installed within the building (based on similar equipment at other sites and trials) and determined that personal hearing protection will not be required when operating the equipment.

BAT

BAT has been considered in line with 'Noise and Vibration Management: Environmental Permits' (which supersedes the Horizontal Guidance Note H3)

The applicant advises that a full BAT assessment for equipment forming the Stationary Technical Unit has been carried out to identify any significant Noise emissions and address any issues raised as part of the overall Noise Impact assessment and following that assessment, the consultants have recommended that no extra abatement is required on site over and above what is already present with the details presented in a table in the Noise modelling report (excerpt below)

* Source	Relative contribution of source to ambient (at the receptors)	BAT Compliant	Potential BAT measures (in addition or in isolation)	** Possible operational benefits at receptor	*** Recommended for improvement programme?
Steam Auger	General operations	No	Use of steam diffusers with flow-resistant material would lower noise level generated.	< 1 dB(A) from plant item contribution	No
	Conveyor Belt	No	Inclusion of enclosure in the atmospheric air connections to the system. Subject to airflow calculations (or appropriate ventilation).	< 1 dB(A) from plant item contribution	No
Compactor	Shredder	No	Inclusion of enclosure in the atmospheric air connections to the system. Subject to airflow calculations (or appropriate ventilation).	< 1 dB(A) from plant item contribution	No
	Low	Inclusion of enclosure in the atmospheric air connections to the system. Subject to airflow calculations (or appropriate ventilation).	Inclusion of enclosure in the atmospheric air connections to the system. Subject to airflow calculations (or appropriate ventilation).	< 1 dB(A) from plant item contribution	No
Bin Wash	Low	No specific screening is provided, however this source relates to internal process plant	Inclusion of enclosure in the atmospheric air connections to the system. Subject to airflow calculations (or appropriate ventilation).	< 1 dB(A) from plant item contribution	To be included as part of the design to meet the noise limit specified in Section 4.4
Boiler	Boiler	No	Inclusion of enclosure in the atmospheric air connections to the system. Subject to airflow calculations (or appropriate ventilation).	< 1 dB(A) from plant item contribution	No
	Boiler Flue	No	Inclusion of attenuators in the atmospheric air connections to the system. Subject to airflow calculations.	< 1-3 dB(A) from plant item contribution	No
Plant Emissions Flue	Medium	No	Inclusion of attenuators in the atmospheric air connections to the system. Subject to airflow calculations.	> 3 dB(A) from plant item contribution	To be included as part of the design to meet the noise limit specified in Section 4.4.
External site activities	Low	No	Use of electric vehicles where possible on site.	< 1 dB(A) from plant item contribution	No



The requirements for noise control in the Waste Treatment BAT Conclusions are outlined in BAT 17 and BAT 18

Under BATC 17 “BAT is to set up, implement and regularly review a noise and vibration management plan”... but only “where a noise or vibration nuisance at sensitive receptors is expected and/or has been substantiated.” advise that a Noise Management Plan be put in place

Under BATC 18 “BAT is to use one or a combination of the techniques given below” in the words of the BATC 18 “In order to prevent or, where that is not practicable, to reduce noise and vibration emissions...” following which a table giving 5 Techniques is presented.

In assessing whether the site complies with BAT for noise to have evidence that a Noise Management Plan is being produced or in place and to determine if one or more of the 5 options listed under BATC 18 has been utilised

The applicant has acknowledged that a Noise Management Plan is required for the site and intimated that one will be produced (BAT 17), are to introduce Operational Measures (BAT 18 b.) to limit noise beyond the site boundary, and has demonstrated that they have assessed the plant for low noise impact BAT18 c (staff are not required to wear hearing protection)

As a result, SEPA deems the Noise control measures proposed BAT for the site

Technique		Description	Applicability
b.	Operational measures	This includes techniques such as: (i)inspection and maintenance of equipment; (ii)closing of doors and windows of enclosed areas, if possible; (iii)equipment operation by experienced staff; (iv)avoidance of noisy activities at night, if possible; (v)provisions for noise control during maintenance, traffic, handling and treatment activities.	Generally applicable.
c.	Low-noise equipment	This may include direct drive motors, compressors, pumps and flares.	

5.18 Implications of the Application for – Monitoring

Monitoring at the site can be broken down into those measures which require the operator to carry out checks and those which require the operator to undertake sampling of emission

5.18.1 Operator Checks

Waste

See Section 5.13 and 5.14 above as the operator is to carry out at least two Waste Management Activities, there are several Monitoring requirements associated with the acceptance and storage of Waste on the site. These require the operator to inspect incoming waste, log, and record where the waste came from assess whether it complies with the permitted waste types authorised to be accepted

on site and keep track of the weight or volume of Waste on site. The operator must also check that hazardous waste to be stored on site, is stored in a manner which ensures that incompatible wastes are separated and stored in a manner which prevents harm to human health and the wider environment

Noise

See Section 5.17 Noise above routine noise monitoring will be covered in the Noise Management Plan

Odour

See Section 5.7 Odour above routine monitoring, and monitoring in response to complaints will be covered in the Odour Management Plan for the site

Dust

See Sections 5.2 and 5.5 relating to Air emissions
The standard conditions for monitoring non channelled/ fugitive dust emissions are "No visible dust at the site boundary" and as a result the operator will be required to monitor for visible dust emissions from Local Exhaust Ventilation system and roadways at the site especially during dry and windy weather conditions.

Excavations on the site

As there are two assets on the site owned by utilities companies which are not Part of the permitted installation Then it is possible that the utility companies have wayleave rights across the permitted site to excavate or carry out repairs for cables/pipes. Should this be the case SEPA would look to the operator to be vigilant and monitor and record any spills from such activities and take steps to ensure that any permit to work agreed or issued for the Permitted site should include a requirement a that they need to be reported and remediated. To prevent a pathway for pollution to soil or groundwater, the operator should also ensure that any reinstatement work provides a similar level of environmental protection to the original site surface.

Process Controls

There are several monitoring requirements linked to the control of the installation and the treatment process. The operator is required to monitor the incoming wastes and the waste streams for treatment and transfer to ensure the correct level of treatment is applied to each waste stream of waste. Various stages of the treatment process require monitoring to show adequate treatment has been applied to the waste, and where these are critical to the operation then the permit contains details as to those monitoring requirements otherwise the operator is required to undertake monitoring to ensure the site and BAT compliant. One of the control strategies is the abatement system; the applicant has chosen a multistage filter system and as such each filter within the chain will require to be routinely monitored s to ensure the performance of the filter remains optimal, as part of the monitoring the operator will be required to keep records and monitor the filters such that they can identify any drop in performance and investigate poor performance and change the filters if necessary.

5.18.2 Channelled Emissions to Air

Dust

Where dust is collected and channelled to abatement then there is a requirement to implement a Dust monitoring programme under BAT8 this BATC requires that for an activity which falls under BATC then the limit for Dust... an AEL of 2–5 mg/Nm³ given in that BATC should be monitored every 6 months As discussed in Section 5.2 the regulations allow SEPA to supplement or replace an ELV with an equivalent technical measure. In the case of the current application an assessment of the likely dust generated from the process is likely to be low, extracted air form the shredders is mixed with moist air from post steam condensation and is followed by a multi-stage particle removal system removing particulates down to micron level such that there is a case for applying a filter monitoring regime as providing the filter system is maintained there will be minimal channelled emission of dust from the process certainly well below the AEL and probably below limit of detection after the Carbon Filter stage

SEPA will therefore require the operator to closely monitor the abatement system as Critical plant, and in that will require the operator to routinely monitor All the filters forming the abatement system and replace them as and when necessary. SEPA will also require the operator to keep a record of the date time and condition of the filters and record any readings from any filter pressure monitoring equipment (if fitted). Where filters have been replaced SEPA will require the operator to record which filters were replaced together with the time and date. These details will be recorded in a form agreed with SEPA.

Total Volatile Organic Carbon (TVOC)

See Sections 5.2 and 5.5 relating to Air emissions

BATC 31 states that a BAT-AEL only applies when organic compounds are identified as relevant in the waste gas stream, based on the inventory mentioned in BAT 3. and advises that if it is then the associated monitoring is given in BAT 8.

Section 5.2 and 5.5 describe how the primary environmental concern would be the potential for the generation of CMR VOCs (those causing Cancer Mutagenic Reproductive problems) and as a result SEPA will require the operator during the process for which there is a lack of data under "Normal Operating Conditions" an as result will require the operator to undertake an assessment "Inventory" of Waste Gasses under "Normal Operating Conditions" to more fully assess the waste gas produced from the process and the effectiveness of the abatement system in removing them'.

This fulfils the precautionary principle and allows Tradebe to demonstrate the true level of, and identify, the major pollutants, if any, present within the waste gas (which is a BAT requirement).

SEPA will include conditions within the permit that Tradebe must provide an emissions inventory to confirm the major pollutants within the waste Gas stream. As stated in the footnote to Table 6.5 in BATC 31

"The BAT-AEL only applies when organic compounds are identified as relevant in the waste gas stream, based on the inventory mentioned in BAT 3."

In the JRC Reference Report on *"Monitoring of Emissions to Air and Water from IED (Industrial Emissions Directive) Installations"* it outlines that depending on the nature of the waste gas, it might be necessary to measure Total Volatile Organic Carbon (TVOC), or Non-Methane Volatile Organic Carbon (NMVOC)... recording that some BAT-AELs defined in BAT conclusions refer to TVOC

The use of TVOC and NMVOC are determined to be Quantitative surrogate parameters which *"can substitute for direct measurements."* The use of these provides an equally good assessment of the actual emission compared to a direct measurement, TVOC can be used instead of individual organic compounds. This is a view which has been included in SEPA guidance both in TG4 with its reference to emission limits for *"groups of pollutants"* and the Monitoring Quick Guide *"SM-QG7 - Monitoring volatile organic compounds (VOCs)"*, which advises *"The permit may specify an ELV for TOC, rather than for individual VOCs"*.

Therefore, Should CMRs be identified in the Waste Inventory of Gasses then it is highly unlikely that SEPA would be looking to introduce individual ELVs for them... (certainly at the levels they are predicted to be produced at).

If an ELV is required to be imposed on the site then it would seem reasonable to encapsulate these VOCs in a Total VOC ELV, in line with SEPA TG4 "groups of pollutants" approach (The Non-Methane VOC measure is not applicable as Methane is not produced in the process). It is worth noting however, that this would not preclude the operator from having to comply with separate ELVs for any significant single VOCs present if required.

SEPA will include conditions like the specimen conditions below which were added at another site

3.7.8 By [18 months], the operator shall establish and maintain an inventory of waste gas streams being emitted from the Permitted Installation under normal operation

3.7.9 The inventory of waste gas streams required by condition 3.7.8 shall include information about the characteristics of the waste gas streams, such as:

- a) average values and variability of flow and temperature;
- b) average concentration and load values of relevant substances and their variability;
- c) flammability, lower and higher explosive limits, reactivity;
- d) presence of other substances that may affect the waste gas treatment system or plant safety (e.g., oxygen, nitrogen, water vapour, dust).

Entry in table 2.1: Assess, produce, and maintain an inventory of waste gas streams [under 3.7.8] Within 18 Months

Tradebe has advised that they are to undertake air monitoring during the commissioning and validation stage of the installation at the main process air emission release point. They have advised that Monitoring will be undertaken in accordance with the procedures set out in the healthcare sector guidance document 'Healthcare waste: appropriate measures for permitted facilities. And that should an alternative method be used then Tradebe will provide SEPA with details. Should the quantified emissions significantly vary from those predicted, negatively affecting the site's potential impact, a further evaluation of the impact of the emissions will be undertaken and submitted to SEPA.

5.18.3 Other Monitoring Requirements

Microbiological

As the site is handling clinical waste the operator is required to undertake periodic microbiological monitoring across the process to ensure both the waste is rendered microbiologically harmless and that the emissions produced do not pose any risk to human health or the environment. Monitoring plans require to be agreed with SEPA and are in line with current UK guidance for the handling and treatment of Clinical Waste. The permit contains strict monitoring conditions on the treatment of the waste and requires the operator to undertake additional monitoring if necessary

Soil and Groundwater

The operator will be required to undertake soil monitoring as part of the initial Site Condition Reporting requirement and, thereafter, every 10 years for the significant Relevant Hazardous Substances identified in the Site Condition Report (diesel, oil, and other hydrocarbons) these are included as conditions within the permit and are in line with current regulatory requirements. Although groundwater monitoring is not deemed necessary at the site, it has been advised that this is replaced by a technical requirement that the operator undertakes a CCTV survey every two years. There may be scope given the nature of the activities on the site to increase the time between surveys.

Baseline Monitoring is not thought necessary for the transfer activities at the site as the amounts of the individual RHS (Relevant Hazardous Substance) collected are not assessed to be significant.

5.19 Implications of the Application for – Closure

The Applicant has provided SEPA a draft closure plan with the permit application SEPA will expect this to evolve as the site and activities develop the regulations are clear that although no disposal activities are taking place on the site PPC sites are required to be returned to a satisfactory state, (usually the state it was prior to operations at the site) and that steps are taken to remove, control, contain or reduce any relevant hazardous substance in soil and groundwater. Any closure report should contain a description of the steps that have been taken to avoid pollution risks from the site, during its operation and outline any spills incidents or accidents which could impact on the environment at the site. The use of diesel on site and cleaning of:- drains, gulleys, interceptors, and sumps, will also be required as will a final

inspection of the drainage system both surface water and process collection system (the level to which this should be undertaken will be dictated by the subsequent way the site is operated)

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

Current Site Summary

The current site has only been operating since the early 2000s and has been subject to more vigorous environmental control than what was in place pre-1990's as a result the site shows little signs of contamination or pollution from its previous industrial and commercial use. Background monitoring is sparse and the applicant in the Site Condition Report has not identified any existing issues.

Photographs provided with the application identify a few spill areas on the concrete floor of the boiler room and the Site Condition report advises that during its use as a distribution warehouse, forklifts operated on the site. The pollution potential from Forklifts is analogous to that from road vehicle movements and would comprise brake and hydraulic fluids, oils, fuel etc).

There are two assets on the site owned by utilities companies which are not Part of the permitted installation, and which may contribute to historic pollution in those areas of the permitted installation adjacent to those installations and have the potential to affect ground conditions at the site going forward.

Relevant Hazardous Substances

Site investigation data provided for the site by Tradebe Identifies the main Relevant Hazardous Substances (RHS) from the treatment of Clinical Waste to be fuel, oils, and bin wash fluids.

Tradebe has also applied for a Hazardous Waste Transfer Activity as part of the permitted activities which involves the transfer of a wide range of RHS collected from customers. The company has undertaken a risk assessment of the potential of release to Land and Groundwater and has advised they believe that Baseline Monitoring is not necessary for transfer activities at the site on the grounds that the amounts of the individual RHS collected are not significant and that the abatement and operational control measures that will be put in place are sufficient to prevent their release

SEPA Assessment

A review of the Site Condition Report was carried out by SEPA's contaminated Land Unit which concluded that

In line with guidance IED - TG-42 soil and groundwater monitoring is not currently required at this site.

However, A CCTV survey of the drains is recommended every two years to ensure containment of the drains is adequate and compliant with BAT

Additionally, a baseline is required to be set for diesel, this could be done based on soil samples at the diesel storage location on the site and as identified and recommended under the initial SCR.

All other RHS used or present on site are subject to a baseline waiver (this includes those mixed RHS arriving on site for transfer to off-site recovery or disposal, and the Bin Wash Lemon and Quataclene Plus used in Bin washing) These are present either in small volumes or subject to additional technical measures

A further recommendation was made that Tradebe should ensure that repairs are carried out to seal any crack or gaps in the external hardstanding

The review advises that the following monitoring and testing of Soil and Groundwater be carried out

Groundwater monitoring recommended interval		In light of chemical testing restrictions, CCTV survey of the drainage every 2 years with requirement to maintain integrity/containment to demonstrate protection of soil and groundwater through the life of the permit.
Soil monitoring recommended interval	Ten yearly once permit granted. However, at the moment, baseline for the diesel generator and transformer area is required.	At or near the original locations used for setting baseline conditions near the diesel and transformer areas
Substances to monitor in soil	TPH CWG speciated aliphatic and aromatic fractions BTEX (Benzene, Toluene, Ethylbenzene and Xylenes) Polycyclic Aromatic Hydrocarbons (speciated PAH-16)	The chemical testing suite is based on the Relevant Hazardous Substances on the site and for which commercial testing is available.

Errata: Polycyclic in table should read Polycyclic

Adding that These aspects are likely to need to be addressed in support of the Site Condition Report (SCR), and for it to be accepted by SEPA as the Initial SCR for the site.

Conclusion

SEPA has addressed the issues with the operator and has permitted the site accordingly, the provision of the information is in the operator's best interest as the production of a comprehensive Initial Site Condition Report could impact on site surrender and increase remediation costs

5.21 Implications of the Application for - Consideration of BAT

Application of BAT

The Waste Treatment BREF covers a wide range of "Specified Waste Management Activities" and as a result The Waste Treatment BAT Conclusions contain references to individual activities which do not apply to the Tradebe operation at Queenslie.

Guidance states that facilities should benchmark against the current BATC for the activity being undertaken and undertake BAT assessments for any aspects of their process which do not meet the relevant BATC. Clinical waste although included within the Waste Treatment BAT Reference document is not specifically identified as an activity and therefore there are no specific BAT Conclusions directly applicable to Clinical Waste. The BAT Conclusions refer to the types of treatment the waste is subject to and or what those methods of treatment are designed to achieve. As a result, there have been discussion over which BAT Conclusions apply to Clinical Waste.

Tables within the WT BREF identify sites treating clinical waste as falling into Mechanical and Physico-Chemical treatment of waste with a calorific value (for sites where waste is mixed with Refuse Derived Fuel (RDF) and burnt in an "Energy from Waste" Plant), however where waste is sent for recovery this would be disappled and the BATC for the mechanical and/ or physico-chemical treatment of Solid and/or Pasty waste may apply.

Regulation 25 (10) of the 2012 Regulations states with respect to Schedule 1 conditions covering: emission limit values and environmental quality standards that: -

10) Where there are no BAT conclusions for an activity, an emission limit value must be based on the best available techniques in relation to the installation or mobile plant concerned, as determined by

giving special consideration to the matters specified in Schedule 3. [Schedule 3 covers BAT and lists the specified matters for Part A installations]

The application describes that the waste is shredded, and heat treated both Mechanical and Physico Chemical BAT C apply and that the waste is subject to either being sent for recovery of plastics and or suitable for mixing with RDF or other fuels. Given there are two potential waste disposal/recovery options then SEPA has applied the precautionary principle and apply the BAT Conclusions affording the highest level of protection. The number of AEL and ELVs this applies to is limited for a couple of reasons: There are common requirements for mechanical treatment of waste such as for dust under BATC 25 and 14d and the low-level complexity of the processes involved, TVOC being the only other AEL identified, this is covered in BATC 31, 41 and 45 a result SEPA has assessed the Queenslie site would require to comply with BAT 45 in that the lower limit is 5 mg/NM³ as opposed to 10mg/NM³ the upper limit is unchanged at 30mg/Nm³

The BAT Conclusions also Identify that the imposition of any TVOC AEL/ELV at the site is subject to certain exemptions given in the referenced footnotes under BAT45 this states that

The BAT-AEL does not apply when the emission load is below 2 kg/h at the emission point provided that no CMR substances are identified as relevant in the waste gas stream, based on the inventory mentioned in BAT 3.

The application as it currently stands is not predicted to produce TVOCs (Total Volatile Organic Carbon) in large enough quantities, to require monitoring, however there is a risk that CMRs may be contained in or on the Clinical Waste and that there is a potential for CMR release at which point the BATC requires TVOC to be measured irrespective of the level of release

More detailed information is required under BAT 3 "Waste Gas Inventory" "This information can only be provided once the Site is operating under Normal operating Conditions and as a result the operator will be required to undertake an emissions inventory monitoring exercise for each individual waste stream being treated (Orange bag and yellow bag waste streams) Appropriate conditions will be added to the permit to cover this issue

Dust AEL ELV this is given as 2-5mg Nm³ in the BATC 25, under Regulation 25 of the PPC 2012 Regulations, the permit must include an ELV for Dust (as it is listed in Schedule.5)

"Where it is emitted in significant quantities", OR "supplement or replace this with an equivalent parameter or technical measure that ensures an equivalent level of protection for the environment."

SEPA deliberations have taken place on whether an alternative technical measure is appropriate to controlling Dust emissions from the site. Given the site already has a requirement to monitor the level of bacteria and spores with a size range of 0.2 to 5 um from the discharge to air, it seems overburdensome to require the site to also comply with a dust monitoring requirement for particles between 1 and 400um and it makes no sense. SEPA has therefore decided to replace the ELV with alternative control measures, and these have been discussed under Section 5.2 under the sub-heading "The setting of Process Emission Limit Values (ELVs)" and 5.18 Monitoring

Site BAT Issues

Clinical Waste Treatment

The treatment of clinical wastes via thermal screw auger for a new installation requires that the installation meets relevant technical guidance, SEPA Clinical Waste Sector Unit has advised that the clinical Waste guidance adopted by SEPA (Environment Agency EPR5.07 guidance) is to be replaced with SEPAs own guidance (the consultation on which has been concluded).

EPR5.07 contained guidance regarding several issues specific to Clinical waste site including the following issues: commissioning, efficacy, minimum standard emissions for monitoring, what can be treated, how it should be treated, the management, assessment and tracking, and the handling of clinical wastes. It is unlikely that the detailed guidance provided is not likely to be discounted although standards and techniques/methods and technologies may be updated or replaced. In the absence of updated guidance, it is deemed a considered starting position for any assessment.

As stated in Regulation 25 (10) of the 2012 Regulations, with respect to Schedule 1 conditions covering: emission limit values and environmental quality standards...

10) Where there are no BAT conclusions for an activity, an emission limit value must be based on the best available techniques in relation to the installation or mobile plant concerned, as determined by giving special consideration to the matters specified in Schedule 3. [Schedule 3 covers BAT and lists the specified matters for Part A installations]

SEPA requires the operator to operate the site using Best Available Techniques and follow any technical guidance relevant to the activities being carried out on site. This would include the use of any specific guidance detailing industry best practice where applicable.

Temporary/Alternative Combustion Plant

Best Available Techniques has been to require that where the operator uses temporary plant then a BAT assessment should be made to consider the fuel source being used, taking account transport emissions due to the availability of fuel supply and the remoteness of the site.

BAT for any Temporary Medium Combustion Plant installed on a Part A permitted site should meet the highest Standard available which would be, as a minimum, those Emission limits applying a new Medium Combustion plant. As a result, whilst it should be open to the operator to use existing MCP plant on a Part A site, that plant should meet the emission standards for new MCP under the Regulations

Temporary Effluent collection and disposal

BAT for "emissions from storage" is covered in the Emissions from Storage BREF Document (denoted "EFS" and its applicability is described under the Scope of that document thus

The issue 'emissions from storage of bulk or dangerous materials' has been identified as a horizontal issue for all activities described in Annex I of the IPPC Directive. It means that this document covers the storage, transfer and handling of liquids, liquefied gases and solids, regardless of the sector or industry

The application of BAT for any temporary storage system should be no different from the requirement for permanent storage and that the operator should design the system properly.

The EFS BREF describes that a "proper" design must take the following factors into account including:

Physico-chemical properties of the substance being stored

How the storage is operated, what level of instrumentation is needed, how many operators are required, and what their workload will be

How the operators are informed of deviations from normal process conditions (alarms)

How the storage is protected against deviations from normal process conditions (safety instructions, interlock systems, pressure relief devices, leak detection and containment, etc.)

What equipment must be installed, taking account of experience of the effluent (construction materials, quality of valves, types of pumps, etc.)

Which maintenance and inspection plan needs to be implemented and how to ease the maintenance and inspection work (access, layout, etc.)

How to deal with emergency situations (distance to other tanks, facilities and to the boundary, fire protection, access for emergency services such as the fire brigade, etc.).

BAT Assessment

A complete BAT assessment looking at all the issues pertaining to the site has been carried out for the Queenslie application against the Waste treatment BAT Conclusions and taking into consideration the requirements in the BREF and addressing the issues raised in those BAT Conclusions. The application of which has considered the complexity and scale of the activities being carried out and the nature of both the emissions and control measures to be put in place at the site.

The proposed site at Queenslie, as described in the application, and subject to any changes or measures highlighted in the preceding sections of this document, the transfer of Hazardous Waste and general operations on the site are determined to be BAT compliant.

With respect to the highly Specific treatment of Clinical waste, Input from SEPAs Clinical Waste Section regarding Clinical Waste treatment and the technical guidance, indicates that the proposed technologies and processes for shredding and treating the Clinical waste (via thermal screw auger) and the abatement strategies employed, are acceptable and representative of BAT if operated correctly.

6	OTHER LEGISLATION CONSIDERED
<i>Nature Conservation (Scotland) Act 2004 & Conservation (Natural Habitats &c.) Regulations 1994</i>	
Is there any possibility that the proposal will have any impact on site designated under the above legislation? No	
Justification: There were no designated nature conservation sites (Ramsar wetlands, Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSIs)) within the screening distance given in the SEPA Nature Conservation protocol for the activities applied for.	
Screening distance(s) used – 2km for both Waste Treatment and the Directly Associated Medium Combustion Plant Activity	
Officer: MH	

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 considered? 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: MH

8 DETAILS OF PERMIT

Do you propose placing any non-standard conditions in the Permit: Yes

3.1.2 The requirements relevant to each authorised waste as detailed in Table 2 must be met

Change in wording agreed

Amended wording to fit with other changes identified below.

Template 3.1.3 & 3.1.4 deleted.

Deletion agreed

Not needed.

3.3 Storage of Waste within the Process Building

3.3.1 All wastes stored within the process building must:

- (a) Be stored according to authorised waste type and disposal or recovery route; and
- (b) Be stored in sealed containers or closed bulk containers.

3.3.2 All anatomical and animal tissue wastes must be either refrigerated at <8oC or frozen below -18oC.

3.4 Storage of Waste External to the Process Building

3.4.1 All waste stored external to the process building must be stored in either an enclosed trailer or enclosed skip, within the area outlined in blue on the plan in appendix 1.

3.4.2 All trailers and skips must be regularly inspected for leakage.

3.4.3 Should any leakage be identified; the following measures must be taken;

- (a) The penstock to the surface water drainage must be closed;
- (b) Any areas of contamination must be cleaned up and any contaminated cleaning water disposed of appropriately.

Additional Conditions agreed

Specific conditions included relating to internal and external storage requirements and designed to work in combination with revised Table 2.

<p>Revised layout of template table 2.</p> <p>Table 2 Has been Revised</p>	<p>Template Colum 3 deleted. This is now covered by condition 3.3 and 3.4</p> <p>Template Colum 4 (max storage tonnes) changed. Storage tonnes for waste types is restrictive and not necessary. Amended to "Activities which the waste can be subject to". The template as worded does not regulate waste types which can be shredded and or heat treated. This column seeks to address this issue.</p> <p>Max Duration Colum has been amended to include internal and external storage limits, something which the template did not include.</p> <p>Total storage limit has been included at the bottom for both internally stored waste and externally stored waste. The preference would have been to retain the two separate table that were in previous healthcare waste permits however this amended table, when taken in combination with the conditions in section 3 should achieve the same level of regulatory control.</p>
<p>4.2.1 slight wording change from template</p> <p>Further changes were made following Applicant Comments Condition now reads</p> <p>4.2.1 Calibrated weighing equipment must be used to weigh every consignment of waste on arrival and confirm the quantities against the accompanying paperwork.</p>	<p>Calibrated Platform Scales are used and there is No weighbridge</p> <p>This initial assessment was incorrect as pointed out by the applicant during the informal consultation</p>
<p>5.4.3 (b) a breakdown by location, of the type of waste and quantity being stored pending treatment or transfer;</p> <p>Condition agreed</p>	<p>Referenced the breakdown of storage quantities to the different storage locations.</p>
<p>5.5.1</p> <p>Amendment of the condition agreed</p>	<p>"to prevent odour and the spread of infectious disease" – has been deleted. If it is to limit the spread external of the installation then that may be appropriate however control of spread of infection within the installation is likely to fall under HSE authority.</p>
<p>5.7.1 The shredding of waste must only be carried out, in fully enclosed machines, operating under negative pressure.</p>	<p>The current condition 5.7.1 reads</p> <p>5.7.1 When the shredders are operating, all waste must be fully enclosed under negative pressure.</p> <p>This suggests all waste on site must be fully enclosed and under negative pressure when the shredders are operating, we propose to replace that condition with the following.</p>

<p>Replacement condition agreed</p>	<p>5.7.1 <i>The shredding of waste must only be carried out, in fully enclosed machines, operating under negative pressure.</i></p>
<p>5.7.2 All air from the shredders must be extracted under negative pressure and passed through a high efficiency particulate air (HEPA) filter and carbon filter, prior to release to atmosphere.</p> <p>Additional wording approved</p>	<p>Condition amended to include reference to carbon filter as per installation design.</p>
<p>5.9.2 The heat treatment process must ensure that the waste being treated is rendered safe as established by validation tests in accordance with condition 5.6.1.</p> <p>Condition agreed</p>	<p>This does not specify an ISTAAT level but rather refers to the requirement for waste to be rendered safe as demonstrated by the validation process. This should provide the operator flexibility but still ensure good regulatory oversight.</p>
<p>Table 3</p> <p>Further changes were made on review and an agreed Table 3 included</p>	<p>Template table replaced with that in the draft. The draft table is clearer.</p>
<p>Table 4</p> <p>Further changes were made on review and an agreed Table 4 included</p>	<p>Inserted to supplement the revised template table 3.</p>
<p>7.2.3 The authorised person must establish and maintain an inventory of all emissions to air from the authorised place within six months of commencing authorised activities.</p> <p>Condition agreed</p>	<p>An emissions inventory was not submitted with the application. This will require the operator to undertake a thorough assessment of their emissions and inform any future conditioning around ELVs. BAT3 requirement</p>
<p>7.3.3 In the first six months of operation, and each subsequent calendar year, if 5% or more of individual spore strips do not demonstrate the minimum microbial inactivation required to comply with condition 5.6.1 is being met, the heat treatment plant must be</p> <p>Condition changed at Review</p>	<p>Ties condition back to validation criteria therefore do not need to make specific reference to an ISTAAT level.</p>
<p>7.4.1 Bioaerosol emissions monitoring must be undertaken during commissioning and thereafter annually.</p>	<p>Monitoring period moved into wording of condition as Table 5 is being deleted.</p> <p>The operators site specific bioaerosol monitoring protocol will define sampling locations based on the</p>

Condition changed at review	installation. The table currently arbitrarily references locations which may or may not be appropriate.
8.2.5 Litter from the authorised activities, must not be emitted beyond the boundary of the authorised place. Additional condition at review	Given the nature of the waste waiting until the levels of litter reach a point where it could be regarded as having “a significant impact on the environment, people or property” seems too high a bar.
10.3.3 At least every four years, an assessment..... timescales for any remedial measures and/or Additional condition at review	Changed from every 2 years to every 4 years (also corresponding condition in Table 9) on the basis that the waste treatment process is unlikely to produce significant quantities of pollutants discharging to the public sewer, and none discharging to the surface water. A requirement to include remedial actions if required, as part of the assessment report.
Interpretation of terms: Bioaerosol emissions monitoring Change at review	Reference made to our healthcare waste guidance rather than include all the detail associated with in the permit.
Interpretation of terms: Heat Treatment Plant Change agreed	As per schedule 1.
Interpretation of terms: Heat treatment process Change agreed	As per schedule 1.
Interpretation of terms: ISTAATT, ISTAATT Level 3 and ISTAATT Change at review	All deleted as there is no reference to them in the draft permit.

9 EMISSION LIMIT VALUES OR EQUIVALENT TECHNICAL PARAMETERS/ MEASURES

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

10 PEER REVIEW

Has the determination and draft permit been Peer Reviewed? Yes

Name of Peer Reviewer and comments made:

References to Dryer were removed in Decision Document

Some wording and punctuation changes were made to document

Changes were made to the proposed Draft Permit following comments returned by the applicant by SEPA Permit Reform

Add transfer of waste to general info box

Section now reads “the treatment, storage and transfer of healthcare waste,

Advised that ‘Calibrated weighing equipment must be used to weigh every consignment of waste on arrival and confirm the quantities against the accompanying paperwork.’

Wording altered to read as above... this covers use of a weighbridge and any weighing scales or other weighing devices

Propose following changes In Table 3

Temporary Boiler:

- Row 1 Emission Point 5
- Row 4 EP5

Backup Generator:

- Row 1 Emission Point 4
- Row 4 EP4

This then follows the numbering used in the Site Plan.

Row 3, Columns 5 & 6. Additional information required:

- Wee Chieftain Back Up Boiler
- Stack diameter 300mm
- Stack height 2m above container height
- Container height 2.8m
- Wallace Power P135 Back-up Generator
- Stack diameter 100mm
- Stack height level with container height
- Container height 2.4m

Changes and inclusions made to Table 3

Table 4: Monitoring Emissions to Air

Column 2, Rows 2 – 6 are not consistent with the Site Plan.

Propose the following changes for:

Column 2, Row 1: EP1/EP2

Column 2, Row 2: EP1/EP2

Column 2, Row 3: EP3

Column 2, Row 4: EP3

Column 2, Row 5: EP3

Changes and inclusions made to Table 4

Table 9: Reporting and Notification Requirements
 Column 3, Row 7 Waste Data Return reporting frequency states 3 years rather than 3 months.
 Change to 3 months. This should be 3 months

**Errata: The entry for Waste Data Returns is found at Row 13 in the Table 9
 Reporting / notification frequency changed to read 3 Months**

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 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 can use all appropriate preventative measures against pollution, through the application of best available techniques.
- That no significant pollution should be caused.

Officer: MH

12 REFERENCES AND GUIDANCE

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

BAT Reference

BAT Reference Document for Waste Treatment (2018)
 BAT Conclusions for Waste Treatment (17/08/2018)
 BAT Reference Document Emissions from Storage (07/2006)

PG Note for Part B Combustion plant Process Guidance Note 1/03 Statutory Guidance for Boilers and Furnaces 20-50MW thermal input

SEPA Guidance

SEPA Technical Guidance Note: SEPA Guidance and Control of Noise at PPC Installations (April 2015)
 SEPA Noise: Summary Guidance for PPC Applicants (June 2015)
 SEPA Odour Guidance (January 2010)
 SEPA Guidance: The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) -A Practical Guide
 SEPA Guidance: A practical guide for Part A activities IED-PPC-TG4
 SEPA Monitoring Quick Guide: Monitoring volatile organic compounds (VOCs) SM-QG7
 SEPA Regulatory Method (WAT-RM-08) Sustainable Urban Drainage Systems (SUDS or SUD Systems)

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

Technical Report

DEFRA Technical Report: Assessing the Scale and Impact of Urban Run-Off on Water Quality WCA Environment Limited (December 2013) based on

Mitchell G, Lockyer J and McDonald A. 2001. Pollution hazard from urban non-point sources: a GIS model to support strategic environmental planning in the UK. School of Geography, University of Leeds.

Draft for Consultation