APPLICATION FOR AN ENVIRONMENTAL PERMIT VARIATION UNDER THE ENVIRONMENTAL PERMITTING (ENGLAND AND WALES) REGULATIONS 2016 (AS AMENDED)

ENVIRONMENTAL PERMITTING TECHNICAL REQUIREMENTS DOCUMENT

albus environmental

212 KINGSNORTH INDUSTRIAL ESTATE, HOO, ROCHESTER, KENT

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ACRONYMS/TERMS USED IN THE TEXT

Albus	**Albus Environmental Limited**
AMP	**Accident Management Plan**
CCA	**Climate Change Agreement**
CMS	**Chemicals Management System**
CO_2	**Carbon Dioxide**
DAA	**Directly Associated Activities**
EA	**Environment Agency**
ECL	**Environmental Compliance Limited**
EMS	**Environmental Management System**
EP Regulations	**Environmental Permitting (England and Wales) Regulations 2016 as amended**
EP	**Environmental Permit**
EPTR	**Environmental Permitting Technical Requirements**
ERA	**Environmental Risk Assessment**
EWC	**European Waste Catalogue**
FPP	**Fire Prevention Plan**
GLC	**Ground Level Concentrations**
HEPA	**High-Efficiency Particulate Air**
LOW	**List of Wastes**
MCERTS	**Monitoring Certification Scheme**
MSDS	**Material Safety Data Sheets**
OMP	**Odour Management Plan**
PC	**Process Contributions**
PPMR	**Planned Preventative Maintenance Regime**
SCR	**Site Condition Report**
The Installation	**Albus Environmental Limited Clinical Waste Treatment Installation**
UKAS	**United Kingdom Accreditation Service**
VOCs	**Volatile Organic Compounds**
WAMITAB	**Waste Management Industry Training and Advisory Board**

1. INTRODUCTION

1.1. Overview

1.1.1. Environmental Compliance Limited ("ECL") have been commissioned by Albus Environmental Limited ("Albus") to prepare an Environmental Permit ("EP") (EPR/JB3604FF) variation application in relation to their waste treatment Installation, hereafter referred to as "the Installation", located at 212 Kingsnorth Industrial Estate, Hoo, Rochester, Kent, ME3 9NZ.

1.1.2. The Permit variation application proposes the following:

- expansion of the Environmental Permit boundary for inclusion of the offensive waste building extension and to incorporate additional yard area. No additional waste storage in the expanded areas is proposed;
- operation of a sharps container treatment plant designed to wash and disinfect sharps containers prior to shredding within a fully enclosed system. Treatment of sharps is not proposed;
- incorporation of an additional point source emission to air associated with the sharps container treatment plant;
- inclusion of additional waste codes for storage and bulking up only – absorbents, wiping cloths and protective clothing (15 02 02*, 15 02 03) and aerosols (16 05 04* and 16 05 05).

1.2. Installation Location

1.2.1. The Installation is located at 212 Kingsnorth Industrial Estate, Hoo, Rochester, Kent, ME3 9NZ.

1.2.2. The Installation covers an area of approximately 0.23 hectares. Albus is proposing to expand the EP boundary to include additional areas of land to include the offensive waste building expansion and northern yard area. The proposed EP boundary is shown on the Site Location Plan and Site Layout Plan (ALBU.01.07-01 & 02) contained in Section 3 of this application submission.

1.3. The Applicant

1.3.1. Albus Environmental Limited was incorporated in May 2012 under company number 08070020. Albus are experts in providing a bespoke healthcare waste management service to a variety of businesses including doctor surgeries, veterinary practices and nursing homes.

2. LISTED ACTIVITIES

2.1. Current Activities

Installation Activities

2.1.1. The Installation is currently subject to two Schedule 1 Activities under the Environmental Permitting (England and Wales) Regulations 2016 as amended ("EP Regulations"). The scheduled activities as well as the directly associated activities ("DAA") are detailed in Table 1 below.

Table 1: Permitted Schedule 1 Activities and DAAs

Schedule 1 Activity	Description of Specified Activity	Description of specified activity and WFD Annex I and II Operations
AR1	Section 5.3. Part A(1) (a) (ii) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment	Treatment of infectious waste by continuous thermal treatment in a steam auger (including pre-shredding of waste and post-treatment compaction of treated floc). R3 Recycling/reclamation of organic substances which are not used as solvents. D9 Physico-chemical treatment
AR2	Section 5.3. Part A(1) (a) (iv) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving repackaging.	Repackaging of hazardous waste. R12 Exchange of waste for submission to any of the operations numbered R1 to R11. D14 Repackaging prior to submission to any of the operations numbered D1 to D13.
DAA	**Description of DAA**	**Limits of Specified Activity**
AR33	Steam Supply	Gas oil fired steam raising boiler – net thermal input approx. 0.6 MWth
AR4	Cleaning and disinfection of containers and carts	Automated and contained bin wash system that washes and disinfects waste bins and carts
AR5	Raw material handling and storage	Raw material handling and storage

Waste Operations

2.1.2. Albus also have three waste operations within their Permit; AR6, AR7 and AR8 as detailed in Table 2.

Table 2: Permitted Waste Operations

Activity Reference	Description of Activities for Waste Operations
AR6	Repackaging of non-hazardous waste. R12 Exchange of waste for submission to any of the operations numbered R1 to R11. D14 Repackaging prior to submission to any of the operations numbered D1 to D13.
AR7	Storage of hazardous and non-hazardous waste. R13 Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced) D15 Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced).
AR8	Treatment by shredding of non-hazardous waste. R3 Recycling/reclamation of organic substances which are not used as solvents. D9 Physico-chemical treatment not specified elsewhere which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D12.

2.2. Proposed Activities

2.2.1. As the proposed activities shall be operated in a continuous series and in accordance with the enhanced pre-application advice received, Albus propose the addition of one schedule 1 activity for the sharps container washing namely:

Section 5.3. Part A(1) (a) (ii) disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment.

2.2.2. Together with a DAA for the shredding activity of the sharps containers.

2.2.3. It is anticipated that the treatment of hazardous waste in the sharps container treatment plant will have its own activity references, namely AR9 (washing) and AR10 (DAA for shredding).

2.2.4. It is also considered that the treatment of the non-hazardous waste in the sharps container treatment plant shall fall under a new activity reference AR11 as a new waste operation (capacity below 50 tonnes per day) related to the washing and shredding of sharps containers for recovery.

2.2.5. Albus also propose the inclusion of additional waste codes for storage and bulking up only– absorbents, wiping cloths and protective clothing (15 02 02*, 15 02 03) and aerosols (16 05 04* and 16 05 05). It is anticipated that storage can fall under existing references AR7, with an additional activity reference for a new waste operation for the repackaging of hazardous and non-hazardous waste (AR12) for recovery or disposal.

2.2.6. Albus do not propose the storage of hazardous waste exceeding 50 tonnes, therefore, an additional schedule 1 activity Section 5.6 Part A (1) (a) (i) is not required.

2.3. Proposed Waste Codes

2.3.1. The proposed waste codes to be treated within the sharps container treatment plant are detailed in Table 3.

Table 3: Waste Codes to be Accepted For Sharps Container Treatment

NEW SCHEDULE 1 ACTIVITY – SHARPS CONTAINER TREATMENT PLANT	
Code	**Description**
18	**WASTES FROM HUMAN OR ANIMAL HEALTH CARE AND/OR RELATED RESEARCH**
18 01	**wastes from natal care, diagnosis, treatment or prevention of disease in humans**
18 01 01	sharps (except 18 01 03)
18 01 03*	wastes whose collection and disposal is subject to special requirements in order to prevent infection
18 01 08*	cytotoxic and cytostatic medicines
18 01 09*	medicines other than those mentioned in 18 01 08
18 02	**wastes from research, diagnosis, treatment or prevention of disease involving animals**
18 02 01	sharps (except 18 02 02)
18 02 02*	wastes whose collection and disposal is subject to special requirements in order to prevent infection

2.3.2. The proposed waste codes for storage and bulking up only are detailed in Table 4.

Table 4: Waste Codes to be Accepted For Storage and Bulking Up Only

15	**WASTE PACKAGING, ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**
15 02	**absorbents, filter materials, wiping cloths and protective clothing**
15 02 02	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by hazardous substances
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
16	**WASTES NOT OTHERWISE SPECIFIED IN THE LIST**
16 05	gases in pressure containers and discarded chemicals
16 05 04*	gases in pressure containers (including halons) containing hazardous substances
16 05 05	gases in pressure containers other than those mentioned in 16 05 04

3. MANAGEMENT TECHNIQUES

3.1. Technical Competence

3.1.1. Under the EP Regulations, a Technically Competent Manager is required. Mr Nick Clarke fulfils this role.

3.1.2. The Installation is operated at all times by an adequate number of staff with appropriate qualifications and competence. The design and maintenance of the proposed infrastructure plant and equipment is to be carried out by competent people.

3.2. Overview of the Environmental Management System

3.2.1. Albus operate an Environmental Management System ("EMS") which has been developed and is externally certified in accordance with the ISO 14001. The certificate is provided in Appendix II.

3.3. EMS Amendments Taking Account of the Variation Proposals

3.3.1. The EMS will be reviewed to take account of the variation to ensure that it remains appropriate and effective. The principle anticipated changes are described below:

- update to the EMS documents to take account of any additional Environmental Permit Conditions following the variation;
- the Environmental Risk Assessment ("ERA") (ALBU.01.07/ERA) will be used to inform the new risks and opportunities at the Installation;
- the environmental objectives and targets will take account of the proposed changes to ensure they remain appropriate, achievable but challenging;
- operational procedures will be reviewed to ensure they are aligned with the proposed changes detailed as part of the variation;
- the documented PPMR will be updated to include maintenance and inspection related to the new plant and equipment;
- emergency plans and procedures will be updated to take account of any additional risks;
- employees will be trained in the updated EMS and associated operational procedures. Roles will be assigned and training given with each relevant employee. Records will be held to show training has been completed and understood. Refresher training will be provided annually; and
- all changes to the EMS will be documented and communicated to all employees.

4. OPERATING TECHNIQUES

4.1. Technical Standards

4.1.1. The following EA sector technical standards / guidance has been considered during the preparation of this application:

- Healthcare waste: appropriate measures for permitted facilities (updated December 2021);
- Non-hazardous and inert waste: appropriate measures for permitted facilities (Updated August 2023);
- Guidance for the Recovery and Disposal of Hazardous and Non Hazardous Waste (IPPC S5.06, May 2013); and
- Guidance for the storage and treatment of aerosol canisters and similar packaged wastes (addendum to SGN IPPC S5.06) (Version 1, November 2011).

4.2. Current Activities

4.2.1. Albus is currently permitted for the following activities:

- pre-shredding and steam disinfection of infectious waste, compaction and storage of treatment residues;
- repackaging of hazardous waste;
- steam generation and container washing;
- shredding, compaction and storage of non-hazardous waste;
- temporary storage of hazardous and non-hazardous waste; and
- repackaging of non-hazardous waste.

4.3. Proposed Activities

Plastics Container Washing and Shredding Treatment Plant

4.3.1. The treatment of the clinical waste containers, such as sharps bins and rigid clinical tubs, will be undertaken by removal of the lid, emptying the contents for onward disposal, and then subsequent washing and disinfecting of the containers for reuse. If the containers are at end of life, they will be shredded for onward recycling. A batch process is proposed, therefore, within one batch only those containers destined for reuse shall be washed and disinfected. In another separate batch to be processed, containers which are at end of life shall be washed and then shredded.

4.3.2. Waste pre-acceptance and acceptance procedures shall be the same for the proposed sharps container waste (18 01 and 18 02 codes) as those already employed at the Installation adhering to 'waste pre-acceptance, acceptance and tracking appropriate measures' of the healthcare waste appropriate measures.

4.3.3. The entire treatment process is fully enclosed and automated. All chambers operate under negative pressure and the air is continuously filtered and the wash water is contained within a sealed system until being discharged to foul sewer.

4.3.4. Prior to treatment the sharps container waste shall be stored on the mezzanine floor of the main building within thirty 770 litre clinical waste carts/bins which are fully enclosed, lockable, rigid and leakproof and weatherproof.

4.3.5. Operators place the sealed clinical containers onto the clamping conveyor and an air lock chamber, under negative pressure and heavy duty rubber curtains, will ensure all air is contained and does not enter the loading area. The cutting chamber is also under negative pressure and is fully enclosed whereby the lid is removed and is disinfected and dropped directly into the shredder hopper. All liquids are captured in the sealed drainage troughs.

4.3.6. The conveyor transports the container into a sealed tipping hopper under negative pressure, the container is then rotated to remove its contents. An internal air pulse dislodges any material. The sharps waste shall fall into a lined, sealed bin for off-site clinical waste treatment and disposal. A camera monitoring system will also be in place to ensure all waste is removed.

4.3.7. The first wash chamber is entirely enclosed and disinfectant is used. All wash water is captured, filtered and reused. The washed container then passes through sealed curtains into a drying chamber to remove moisture. Negative pressure airflow ensures complete containment and no residual disinfectant or moisture is transferred to the shredding area.

4.3.8. Any solid residues from the washing process, such as labels, will be discharged into a sealed cart/bin for off-site treatment.

4.3.9. Full solution replacement occurs at predetermined intervals. The effluent will be discharged into the same drainage line as the bin wash and held in an underground storage tank and then following analysis, disposed of to an appropriately licensed facility/installation offsite via tanker.

4.3.10. After washing and drying, the containers enter the shredder hopper. Only disinfected containers can enter this stage, and the shredder hopper operates under negative pressure. The shredded plastic is then submerged into disinfectant and drying blowers then remove the moisture. The clean, dry plastic is then deposited into bulk bags for recycling.

4.3.11. During the design phase of the treatment plant, Albus considered the decommissioning phase with the aim to minimise risks during decommissioning.

Acceptance and Storage of Aerosol

4.3.12. Albus propose the acceptance and storage of aerosols prior to transfer offsite. No treatment of aerosols is proposed.

4.3.13. Albus propose the acceptance of 5 tonnes per annum of aerosols at the Installation.

4.3.14. For bulk loads of waste canisters, Albus shall obtain the following information in writing from the customer:

- quantity of waste being delivered;
- the contents of canisters, including named product and propellant;
- whether the canisters are fully discharged, partially discharged or unused;
- hazard properties posed by contents of canisters (i.e. from MSDS); and °
- construction material of canisters (e.g. steel, aluminium or mixed).

4.3.15. Albus shall instruct the customer on requirements regarding the type and condition of containers and packaging that canisters will be accepted in.

4.3.16. If waste canisters are received in containers that are not secure for on-site storage nor well ventilated, based upon an appropriate risk assessment (e.g. taking into account the nature and quantity of the waste, the design and condition of the containers and available site storage provisions), the canisters shall be prioritised for subsequent acceptance checks and transferred to a secure well ventilated container.

4.3.17. Should the load be found to contain leaking canisters, these wastes shall be immediately removed from the waste reception area, stored in a well ventilated area and away from any sources of ignition. The aerosols shall not be transported unless they are repackaged for transfer using UN approved salvage packaging provided with appropriate measures to prevent the dangerous build up of pressure, or until the leaking has ceased or slowed sufficiently to present no threat of a flammable atmosphere being generated during transport.

4.3.18. Storage of canisters shall take place within the main building in secure well ventilated containers or within caged storage areas in a well vented location which is not subject to extreme temperatures or direct sunlight. The storage area is provided with an impervious surface and sealed drainage system.

4.3.19. Canisters received and held in insecure or flammable containers/packaging shall be stored in cages or transferred to secure ventilated containers to prevent the risk of them spreading fires by ‘missiling’ or ‘ejection’.

4.3.20. During storage, lids on containers holding canisters shall remain securely closed at all times when not being filled, emptied or internally inspected and the doors/hatches of cages remain closed and locked when not being used. Containers shall also not be overfilled.

4.3.21. Cages used for storage shall be robust, fire-resistant and of an appropriate mesh size (based upon the size of the canisters to be stored) to constrain the canisters and prevent any ejection.

4.3.22. The aerosol storage area will have adequate signage to ensure that the hazard properties are clearly shown.

4.3.23. In order to prevent the risk of a thermite spark during storage and handling activities, wherever possible and practical to do so, aluminium canisters shall be stored separately from steel canisters that are rusty or in poor condition and will not be stored in direct contact with unprotected or rusty steel containers.

4.3.24. As detailed in the Fire Prevention Plan (Doc Reference FPP, dated July 2026), the canister reception and storage area is provided with appropriate fire detection and fire extinguisher systems.

4.3.25. The Operator should implement written inspection procedures to assess the condition of all waste containers (e.g. tanks, drums, IBCs and skips), pipework, bunding / kerbing and surfacing, and to carryout prompt remedial action where required or take unsuitable equipment out of use.

4.3.26. Canisters shall be regularly inspected on a frequent basis by visual inspection. Leaking canisters should be immediately removed from the storage area to the open air and away from any sources of ignition so gases can be safely dispersed. The canisters shall be repackaged for transfer using UN approved salvage packaging.

4.3.27. An auditable waste booking and tracking system shall be in place in order to avoid the accumulation and storage of aged stock. Canisters shall be held on site no longer than 3 months, prior to transfer.

Acceptance and Storage of Absorbents, Filter Materials, Wiping Cloths and Protective Clothing

4.3.28. Albus propose the acceptance and storage of absorbents, filter materials, wiping cloths and protective clothing, both contaminated by infectious substances and those not contaminated with infectious substances prior to transfer offsite. No treatment is proposed.

4.3.29. The hazardous and non-hazardous waste types shall not be mixed and will be stored separately in lockable, rigid, leakproof and weather proof 770 litre carts/bins.

4.3.30. Albus propose the acceptance of 5 tonnes per annum of 15 02 02* and 5 tonnes per annum of 15 02 03 at the Installation.

4.3.31. Albus shall implement strict waste pre-acceptance procedures for the proposed waste types so that enough information is known (including its composition) before it arrives at the Installation. This is to assess and confirm that the waste is technically and legally suitable.

4.3.32. If the waste is accepted, records shall be kept to justify the decision.

4.3.33. Albus shall implement waste acceptance procedures to check that the characteristics of the waste received matches the information provided during waste pre-acceptance. This is to confirm the waste is as expected and that it can be accepted.

4.3.34. If the waste does not conform to the pre-acceptance information, Albus may still be able to accept the waste, if the Permit allows. Otherwise, it shall be rejected.

4.3.35. When deciding whether to accept waste, Albus shall check that the relevant storage areas have the physical capacity needed to handle the waste. Albus shall not accept waste if this capacity is not available.

4.3.36. Albus shall visually check wastes and verify them against pre-acceptance information and transfer documentation before acceptance onto site. Hazardous wastes shall only be received under the supervision of a suitably qualified person.

4.3.37. Albus shall check and validate all transfer documentation and resolve discrepancies before acceptance.

4.3.38. If Albus believe the incoming waste classification or description is incorrect or incomplete, then Albus shall address this with the original waste producer or waste carrier (or both) during waste acceptance and any non-conformances shall be recorded. If Albus have assessed the waste as acceptable for on-site storage, this shall be documented.

4.3.39. Albus shall have clear criteria to identify non-conforming wastes and wastes to be rejected.

4.3.40. Albus shall work with the waste producer to ensure measures to prevent the recurrence of non-conforming and rejected wastes are implemented.

4.3.41. Albus shall ensure that personnel undertaking the waste acceptance checks are trained to effectively identify and manage any non-conformances in the loads received. If non-technical sales staff are involved in waste enquiries, then a final technical assessment prior to approval will be undertaken.

4.3.42. Nominated personnel shall watch waste being unloaded, so that it can be quarantined if necessary before it is mixed with other material.

4.3.43. Offloading and reception areas on site are within the main building which benefits from an impermeable surface with self-contained drainage, to prevent any potentially polluting liquid from escaping off site.

4.3.44. Albus have an existing quarantine area which is separate from all areas and clearly marked. The maximum storage time of waste within the quarantine area is 7 days, however, if the waste is odorous, it shall be removed within 24 hours.

4.3.45. Albus has an electronic system to hold up-to-date information about the available capacity of different areas of the Installation. A pre-booking system is used to make sure that there is sufficient capacity for the incoming acceptable waste.

4.3.46. Albus have an electronic system which is readily accessible and holds all the information generated during:

- pre-acceptance;
- acceptance;
- non-conformance or rejection;
- storage; and
- removal off site.

4.3.47. Records are created and updated to reflect deliveries, and despatches.

Storage Locations

4.3.48. Albus shall prepare waste storage and handling procedures to prevent and minimise pollution risks by using appropriate measures.

4.3.49. Waste is stored in the main building minimise the unnecessary handling of waste and in a location away from sensitive receptors.

4.3.50. Albus shall have in place a system to ensure that the correct storage area is used. This includes supervision by site staff and area signage including marking of hazardous properties where relevant.

4.3.51. Albus shall ensure that waste handling is undertaken by competent staff using appropriate equipment.

4.3.52. The maximum storage capacity and its designated storage areas are shown on the Site Layout Plan (ALBU.01.07-02) submitted as part of this application.

4.3.53. As part of site inspections, regularly monitoring of the quantity of stored waste against the allowed maximum capacities shall be undertaken.

4.3.54. All waste storage areas are clearly marked with signs indicating the type of waste stored.

4.3.55. A first in first out principle shall be used prioritising waste based on:

- its type;
- its age on arrival;
- the date of arrival; and
- the duration of storage on site.

4.3.56. Albus thoroughly clean containers on a regular basis to prevent the build-up of aging waste, which will be a source of odour and attract vermin.

4.3.57. All waste containers are fit for purpose including being:

- in sound condition;
- have well-fitting lids;
- suitable for the contents; and
- within the manufacturer's designed lifespan;

4.3.58. As part of site inspections, Albus inspect storage areas, containers and infrastructure daily to ensure there is no loss of containment. Inspections pay particular attention to signs of damage, deterioration and leakage. Records are to be kept detailing action taken. Any issues are dealt with immediately and records kept of inspection and any remedial action required.

4.4. Proposed Drainage & Infrastructure

4.4.1. The entire area of the Installation benefits from impermeable surfacing.

4.4.2. The Installation is located within a secure compound, completely enclosed and a lockable main entrance gate which is locked out of hours.

4.4.3. The proposed wastes shall be stored within the building with a sealed drainage system.

4.4.4. Albus undertake a regime of visual site condition checks undertaken weekly to ensure that the infrastructure is maintained in good condition. The site condition inspection checks/ site audits will cover:

- condition and integrity of the impermeable concrete hardstanding;
- condition and integrity of storage containers;
- condition and integrity of vehicles/equipment;
- condition and integrity of the treatment plant;
- condition and integrity of fire detection and fire-fighting equipment and spill containment provisions; and
- condition and integrity of the site buildings, fences and gates; and
- general housekeeping standards.

4.4.5. The results of these checks and details of any remedial action and maintenance that may be required in order to ensure good condition will be recorded in the site diary.

5. EMISSIONS

5.1. Point Source Emissions to Air – Current Arrangements

5.1.1. There are currently four emission points to air, designated A1-A4 detailed in the Environmental Permit.

5.2. Point Source Emissions to Air – Proposed Arrangements

5.2.1. Albus is proposing to add one new point source emissions to air associated with the sharps container treatment plant.

5.2.2. The new point source emission to air designated A5 is shown on Drawing ALBU.01.07-02 Site Layout Plan which is contained in Section 3 of this application submission.

5.2.3. All treatment plant air is subject to a three-stage filtration process prior to release to A5. This consists of the following:

- Coarse dust filter (5 micron);
  - removes dust and larger particulates; and
  - conforms to BS EN 779 / ISO 16890.
- High-Efficiency Particulate Air ("HEPA") H14 Filter;
  - removes 99.995% of particles ≥0.3µm;
  - captures bacteria, viral aerosols and spores; and
  - conforms to BS EN 1822-1: 2019
- Activated carbon filter;
  - removes volatile organic compounds ("VOCs"), odours and chlorine vapours; and
  - conforms to BS EN 15009 performance criteria.

5.2.4. Procedures will be in place to ensure that HEPA filters are monitored by measuring the pressure drop across the filter and maintained to achieve a minimum particle removal efficiency of 99.97% for particles ≥0.3µm diameter.

5.2.5. Procedures will also be in place to ensure the filters are safely removed and disposed of.

5.2.6. Detailed air quality modelling has been undertaken to predict the impacts associated with the emissions from the proposed point source emission to air.

5.2.7. For the purposes of the assessment, the following pollutants are assumed to be emitted to atmosphere from each of the following appliances:

- A2:
  - total particulate matter ("TPM") (assessed as particulate matter with diameters of 2.5µm or less ("$PM_{2.5}$") and 10µm or less ("PM_{10}"));
  - volatile organic compounds ("VOCs");
  - formaldehyde ("CH_2O");
- A3 and A4:
  - VOCs; and
  - CH_2O;

- A5:
  - TPM; and
  - VOCs (as 100% benzene).

5.2.8. Detailed air quality modelling using the ADMS dispersion model has been undertaken to predict the impacts associated with emissions arising from the Installation.

5.2.9. In summary, therefore, it can be concluded that the predicted process contributions ("PCs") associated with the operation of Albus' existing emission points (A2, A3 and A4) and proposed emission point A5, will not have a detrimental impact on local air quality or human health.

5.2.10. The Air Dispersion Modelling Study (ALBU.01.07/ADM), which is contained in Section 6 of this application should be read in conjunction with this EPTR.

5.3. Point Source Emissions to Surface Water

5.3.1. No changes are proposed as part of this variation application.

5.4. Point Source Emissions to Foul Sewer

5.4.1. Manholes 3 and 4 as noted in the Permit provide access to an underground storage tank with emissions to private sewer to a treatment works for the industrial estate. There are no changes proposed as part of this variation application.

5.4.2. The effluent from the sharps container washing shall connect to the existing bin wash drainage line within the main hazardous waste reception, treatment and transfer building. This drainage line connects to the underground tank, denotated as manhole 1 in the Permit. The underground tank has a capacity of 1,500 litres and has sufficient capacity to capture both the existing bin wash effluent and the additional proposed sharps container wash effluent. This combined effluent shall be analysed and tankered offsite for appropriate disposal/recovery. The wash water effluent shall not enter the wider foul drainage network. It is anticipated that the frequency of emptying of the tank will increase from twelve weeks to every four weeks.

5.5. Emissions to Land

5.5.1. There are no emissions to land and no changes are proposed as part of this variation application.

5.5.2. The Installation benefits from impermeable surfacing and waste is stored within the site buildings which is isolated from the drainage network.

5.5.3. As part of the EMS, periodic infrastructure inspections are undertaken and recorded. Any requirement for remedial action is reported promptly and undertaken at the earliest convenience.

5.5.4. The proposed new areas to be covered by the EP boundary expansion will benefit from new impermeable surfacing.

5.6. Fugitive Emissions to Air

5.6.1. All plant and equipment will be operated in accordance with manufacturer manuals and instructions and subject to routine maintenance and inspection to ensure they are operating within set parameters and at optimal performance levels.

5.6.2. The filters shall be inspected and replaced in accordance with the manufacturer recommendations and inspections and maintenance will be included in the PPMR.

5.6.3. The odour control measures are described in the Odour Management Plan (ALBU.01.03/OMP) submitted as part of this application.

5.7. Fugitive Emissions to Surface Water, Sewer and Groundwater

5.7.1. Fugitive releases to the groundwater will be prevented by conducting all operations in areas sealed with an impervious barrier to prevent a pathway for migration to ground and groundwater.

5.7.2. The disinfectant to be used within the washing process shall be stored internally in a bunded cabinet / on a standalone bund which is capable of holding 110% of the contents of the disinfectant storage container.

5.7.3. As discussed, there will be no connection to the foul drainage network within the main building and the effluent from the sharps container washing shall connect to the existing bin wash drainage line and be directed to the underground tank prior to testing and tankered offsite for appropriate disposal/recovery.

5.7.4. Due to the capacity of the underground tank and frequency of emptying, it is also capable of acting as buffer storage taking into account potential abnormal operating scenarios.

5.7.5. Externally, the entire area is paved with impermeable concrete laid to a fall towards a central open drain, which in turn leads to a gully pot and to the interceptor sump.

5.7.6. The entire yard is constructed of impermeable concrete with an inverted camber running central along its entire length and connects to the four gully pots positioned at various points in the yard. From the gully pots water is carried to the interceptor tank (manholes 3 and 4 noted in the Permit) prior to discharge to the private foul sewerage network. No waste storage or treatment externally is proposed as part of this variation.

5.7.7. All plant and equipment will be subject to regular maintenance and servicing as per the maintenance programme contained within the Installation's EMS. This will ensure all plant is in good working order to reduce the likelihood of spill/leakage at the Installation.

5.7.8. Any evidence of spillage/loss of containment, as well as the site infrastructure, including bunding and impermeable concrete surfacing, is inspected weekly. If remedial action is required, this will be reported immediately and the issue rectified as soon as possible.

5.7.9. Any spillages at the Installation will be subject to the robust 'emergency spill response procedure. This will prevent any potentially polluting materials from entering the Installation's drainage network.

5.7.10. All relevant employees are suitably trained in spill response, such as the deployment of absorbent materials and drain covers. Spill kits are strategically located around the Installation with the contents regularly inspected and maintained.

5.8. Microbial Emissions to Air – Washing and Shredding Sharps Containers

5.8.1. Industrial Safety Solutions Limited ("ISS") have been consulted regarding the design of the proposed process and the potential for bioaerosol emissions, as well as for consideration of the testing requirements needed in order to satisfy the EA's appropriate measures.

5.8.2. As part of the proposed process to ensure the washing process is biocidal rather than being limited to surface cleaning/removing solid debris, ISS has advised the following which is to be adopted by Albus:

Wash 1: Use a detergent to remove soiling prior to maceration ideally high temperature 60-85^{o}C .

Wash 2: Use of a biocide that is a broad-spectrum disinfectant used to control bacteria, fungi, spores, and viruses on hard surfaces and enclosures.

Once surface contact has occurred at bottom of auger, ensure the flight time allows for sufficient contact time in line with manufactures specifications. Option for consideration could be a heated auger to dry product and add another element of heat treatment for standard pathogens.

5.8.3. As this is a novel process, an initial monitoring testing protocol has been provided as part of the application which is detailed below. It is anticipated that ISS shall prepare a formal monitoring protocol on behalf of Albus for the EA's approval as part of a pre-operational condition.

5.8.4. The initial monitoring testing protocol is as follows:

There is no need for efficacy testing, as per thermal treatment technologies, however proof of disinfection and bio-aerosol release assessments may be required.

Testing of bin wash process via introduction of target organisms/tracer suspensions as soiling and liquid spills, in marked bins.

Test of bin surfaces after stage 1 wash and test of bin wash reservoir.

Test of final shredded material after wash 2 disinfection at discharge from auger and test of wash solutions.

Bin soiling testing via Artificial Test Soils such as defibrinated blood with addition attenuated biological indicators.

The emission limit for bacillus spores to water or sewer is 300cfu per litre.

Bio-aerosol assessment in line with Healthcare Waste guidance using B.atrophaeus spore suspensions to determine containment of wash line process through to final discharge.

5.8.5. *Key test points for active point source sampling:*

- *Bin Emptying;*
- *Wash 1;*
- *Shredding;*
- *Wash 2; and*
- *Auger Discharge.*

5.8.6. Point source emission A5 and the final effluent within manhole 1 shall also be incorporated into the bioaerosol assessment.

6. GENERAL REQUIREMENTS

6.1. It should be noted that no complaints such as dust, odour, noise or pest, have been received at the Installation since Permit issue.

6.2. Dust Emissions Management

6.2.1. The proposed waste types to be accepted are not considered to be dusty waste and therefore, taking into consideration the storage of such waste within containers inside a building, it is not anticipated that there will be a significant risk of fugitive dust emissions.

6.2.2. The use and maintenance of dust filters, and the equipment controls and monitoring systems will prevent any fugitive emissions associated with the sharps container treatment plant.

6.2.3. Consequently, the ERA (ALBU.01.07/ERA) has demonstrated that emissions of substances not controlled by emission limits (i.e. fugitive emissions) are not considered to be significant, consequently, an Emissions Management Plan is not required as part of this application.

6.3. Odour Management

6.3.1. The Installation has implemented an EA approved Odour Management Plan ("OMP") (ALBU.01.03/OMP) which forms part of the EMS and has been written in accordance with the EA's online odour guidance.

6.3.2. The OMP has been updated to take account of the proposed activities and is submitted in Section 7 of this variation application. The ERA has demonstrated that with strict adherence to the control measures set out in the OMP, the risk of odour emissions beyond the Installation EP boundary is not considered to be significant.

6.4. Noise Management

6.4.1. It is not considered that the changes proposed as part of this variation will result in noise nuisance being experienced by sensitive receptors in the surrounding area.

6.4.2. The ERA has demonstrated that with strict adherence to the control measures set out in the ERA, risk of noise emissions beyond the Installation EP boundary is not considered to be significant.

6.4.3. Furthermore, completion of the Noise Advisory Tool contained within the ERA stated a Noise Impact Assessment and Noise Management Plan are not required as part of this application.

6.5. Pest Management

6.5.1. It is not considered that the changes proposed as part of this variation will lead to any significant increase in the attraction of pests or the formation of pest habitats based on the new waste types and treatment process proposed.

6.5.2. The ERA demonstrates that with strict adherence to the control measures, the risk of pest nuisance is not considered to be significant.

6.6. Fire Management

6.6.1. As the Installation stores combustible waste, an approved Fire Prevention Plan ("FPP") has been implemented at the Installation. The FPP has been updated accordingly to take account of the proposed activities. This document can be found in Section 6 of this application.

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7. APPLICATION SITE CONDITION REPORT

7.1. An updated Site Condition Report ("SCR") (ALBU.01.07/ASCR) has been prepared to take account of the proposed additional land to be included in the Environmental Permit boundary. The SCR is submitted in Section 9 of this variation application.

8. PROPOSED MONITORING

8.1. Monitoring of Emissions to Air

8.1.1. For new point source emission A5, it is anticipated that the following monitoring will be required:

- particulate matter–
  - an emission limit (including unit) of 5 mg/m^3 is proposed;
  - to be tested once every 6 months;
  - using standard or method is BS EN 13284-1; and
  - results would be reported as the average value of 3 consecutive measurements of at least 30 minutes each.
- total volatile organic compounds (TVOCs) –
  - the emission limit is 30 mg/m^3 is proposed;
  - to be tested at a frequency of once every 6 months;
  - using standard or method is BS EN 12619; and
  - results would be reported as the average value of 3 consecutive measurements of at least 30 minutes each.

8.1.2. A suitable monitoring point shall be installed to enable the required air emissions monitoring to be undertaken.

8.2. Monitoring of Surface Water

8.2.1. There are no point source emissions (i.e. process contributions) to surface water. Therefore, no monitoring of surface water is proposed.

8.3. Monitoring of Foul Water

8.3.1. There are no point source emissions (i.e. process contributions) to foul water. Therefore, no monitoring of foul sewer is proposed.

9. RESOURCE EFFICIENCY AND CLIMATE CHANGE

9.1.1. Albus monitor the annual consumption of water, energy and raw materials, as well as the annual generation of waste and waste water, with a frequency of at least once a year.

9.2. Energy Efficiency Measures

9.2.1. A number of energy efficiency measures will be implemented at the Installation as part of the variation proposals to improve energy efficiency:

- purchase and installation of energy efficient equipment;
- purchase and use of efficient models, variable speed drives, motors and process control systems;
- use of renewable solar energy generated on site;
- all plant and equipment will be regularly inspected and will be covered by service / maintenance contracts;
- a record is kept for each piece of machinery / plant detailing the routine servicing and maintenance required;
- the site operates a policy of switching off systems and machinery when not in use;
- completion of energy audits; and
- energy monitoring and reporting.

9.2.2. As part of the EMS, Albus maintain an Energy Efficiency Plan and Energy Balance Record which is updated annually. The Energy Efficiency Plan shall be updated to take account of the additional energy uses and energy targets shall be adjusted accordingly.

9.3. Energy Consumption

9.3.1. Albus estimate an approximately annual consumption of 100kw per annum solely attributed to the new treatment plant activity.

9.4. Climate Change Agreement

9.4.1. Albus do not hold a Climate Change Agreement ("CCA"). Section 9.2 demonstrates Albus' commitment to reducing energy consumption and associated carbon dioxide ("CO_2") emissions.

9.5. Raw Material Justification

9.5.1. The primary raw material use proposed as part of the variation shall be mains water and disinfectant.

9.5.2. Albus shall maintain a list of raw materials and their properties.

9.5.3. Estimated consumption quantities of disinfectant shall be circa 5,000 litres per annum. The maximum quantity stored at the Installation shall be 1,000 litres.

9.5.4. In order to ensure minimal environmental impact from the use of disinfectant, Albus shall:

- use the optimum quantity that maintains effective treatment;
- use disinfectant which has a lower environmental impact; and
- ensure no potential for components of waste to inhibit or react with the chemical disinfectant.

9.5.5. It is not possible to substitute raw materials with waste as part of the proposals, however, Albus undertake a review of raw material usage and investigate the suitability of raw materials with an improved environmental profile. Following implementation of the variation proposals, raw material consumption monitoring and reporting within the first year will allow Albus to set a baseline against which improvement targets can be set as part of the EMS.

9.5.6. Water use shall be minimised by implementation of the following measures:

- creating a water mass balance and implementing a water saving plan as part of the EMS;
- recirculation of wash waters to reduce wastewater;
- water management including water metering and water audits;
- impermeable surfacing;
- flow control;
- design and maintenance provisions to allow detection and repair of leaks;
- optimised design and construction of equipment and process areas
- cleaning of equipment as soon as possible to prevent build-up; and
- use and optimisation of water nozzles and hoses.

9.5.7. In accordance with the Permit Condition 1.3.1, a raw material and water efficiency audit is undertaken every four years.

9.6. Waste Minimisation

9.6.1. The proposed sharps container treatment plant adheres strongly to the healthcare waste appropriate measures detailed in 'Waste Minimisation, Recovery and Disposal' section and also applies the waste hierarchy reducing the quantity of waste being sent for disposal.

9.6.2. Sharps containers in good condition are to be washed and disinfected ready for reuse and eliminating the need for disposal of the containers.

9.6.3. Once at end of the life, the treatment plant will shred the containers to produce clean, disinfected shredded plastic which can be sent for recycling.

9.6.4. In accordance with the Permit Condition 1.4.2, a waste review is undertaken every four years.

10. COMPLIANCE WITH APPROPRIATE MEASURES

10.1. Healthcare Waste Appropriate Measures

10.1.1. It is considered that the proposed techniques that will be in use at the Installation related to the sharps container treatment plant will adhere to relevant appropriate measures as detailed in the EA's online guidance – *Healthcare waste: appropriate measures for permitted facilities*.[1] The techniques shall be appropriate and proportionate to the scale of the activities at the Installation and the risks that are posed to the environment by the proposed activities.

10.1.2. A demonstration of compliance with applicable appropriate measures solely related to the proposed waste types and activities as part of this variation application is provided as part of this application.

10.2. Appropriate BAT Conclusions

10.2.1. Specifically related to the acceptance of aerosols which poses different risks to the waste types currently permitted to be accepted at the Installation, the additional guidance detailed in the EA's Addendum to SGN IPPC S5.06 'Guidance for the storage and treatment of aerosol canisters and similar packaged wastes' (Version 1.0, November 11) has also been considered.

10.2.2. A demonstration of compliance with applicable BAT is provided as part of this application.

[1] https://www.gov.uk/guidance/healthcare-waste-appropriate-measures-for-permitted-facilities/when-appropriate-measures-apply