



WasteCare Ltd

Battery Treatment Facility, Halifax

BAT ASSESSMENT

May 2023

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1 INTRODUCTION

WasteCare Limited are applying for a variation to the bespoke installation permit at Units 1-6 North Dean Business Park, Stainland Road, Halifax, HX4 8LR. The site location and permit boundary of the facility are shown on drawings ST16653-001 and ST16653-002 respectively.

1.1 This application seeks to increase the tonnage of hazardous and non-hazardous batteries that can be stored on site both pre and post sorting into chemistry, pending either further mechanical treatment of non-hazardous portable batteries into components for recycling and recovery on site or despatch to a third party treatment site.

The facility will accept 25,000 tonnes per annum of hazardous and non-hazardous batteries will be accepted at the site for sorting.

1.2 Treatment of batteries will be carried out in accordance with Best Available Techniques.

1.3 Treatment of WEEE is carried out using Best Available Treatment, Recovery and Recycling Techniques (BATRRT).

1.4 The treatment and storage of waste batteries will comply with Part A of Annex III to the Batteries Directive, specifically:

- a) treatment will include the removal of all fluids and acids; and
- b) treatment and storage areas will have impermeable surfaces with weatherproof covering in appropriate areas or suitable containers.

1.5 Recycling processes shall also meet the relevant recycling efficiencies and associated provisions set out in Annex III, Part B of the Batteries Directive as set out below.

- c) recycling of 50% by average weight of other waste batteries.

1.6 As the facility is classed as an installation, it must utilise the Best Available Techniques (BAT) for minimising emissions and impacts on the environment. This requires as a minimum compliance with the Environment Agency's Sector Guidance Note 5.06 "Guidance for the Recovery and Disposal of Hazardous and non-hazardous Waste," which sets out indicative BAT for waste treatment facilities.

1.7 The facility will also comply with Guidance on Best Available Treatment, Recovery and Recycling Techniques (BATRRT) and treatment of Waste Electrical and Electronic Equipment (WEEE) published jointly by the Department for Environment, Food and Rural Affairs, the Welsh Assembly Government and the Scottish Executive. BATRRT is the extension of the principles of BAT to systems that provide for the recovery, recycling and treatment (RRT) of WEEE and Annex II to the WEEE Directive requires that, batteries must be removed from any separately collected WEEE.

1.8 In determining the best available techniques, special consideration should be given to the following matters listed in Annex IV to the IPPC Directive:

- i. the use of low-waste technology;
- ii. the use of less hazardous substances;
- iii. the furthering of recovery and recycling of substances generated and used in the process and of waste, where appropriate;
- iv. comparable processes, facilities or methods of operation, which have been tried with success on an industrial scale;
- v. technological advances and changes in scientific knowledge and understanding;
- vi. the nature, effects and volume of the emissions concerned;
- vii. the commissioning dates for new or existing installations;
- viii. the length of time needed to introduce the best available technique;
- ix. the consumption and nature of raw materials (including water) used in the process and their energy efficiency;
- x. the need to prevent or reduce to a minimum the overall impact of the emissions on the environment and the risks to it;
- xi. the need to prevent accidents and to minimize the consequences for the environment; and
- xii. the information published by the Commission pursuant to Article 16 (2) or by international organisations.

2 BATTERIES IN WEEE

2.1 Batteries should be removed from the WEEE in a manner that does not contaminate the remaining material streams. The location of the battery in the equipment may dictate at what point the battery should be removed. However, they should be removed intact in such a way that they are clearly recognisable as batteries. Removed batteries will be stored in appropriate labelled containers having due regard to the potential fire risk that batteries can present.

2.2 Although it is relatively easy to remove batteries from most appliances, such as mobile telephones and cordless tools, some equipment will contain a small battery on a circuit board.

2.3 If the circuit board that contains a small on-board battery has already been removed, then removal of the battery will be considered to have taken place. However, if the circuit boards are to be shredded, then on-board batteries will have to be removed from them. If leaving them on would not lead to the dispersion of pollutants into the recycled material or the waste stream and would not impact on the achievement of the recycling and recovery targets, removal in a specified material stream is permitted.

3 ASSESSMENT AGAINST INDICATIVE BAT

3.1 The following table provides a commentary of how the treatment operations meet the relevant standards set out in SGN 5.06.

3.2 The waste treatment process is undertaken in two phases. The initial phase sorts the mixed waste stream into the different component streams listed below:

- NiMH;
- Lithium Ion;
- Lithium Primary;
- Lead Acid (Portable);
- NiCd (Portable);
- NiCd (Industrial);
- Alkaline 6v; (oversize)
- Alkaline (portable);
- Button and coin cells
- WEEE; and
- Residual waste.

3.3 The second phase treats only the alkaline non-hazardous batteries to separate the different components for recovery:

- Black mass;
- Ferrous metal
- Non-ferrous metal; and
- Paper and plastic.

Table 3:1 Compliance with Indicative BAT for Pre-Acceptance of Wastes

Indicative BAT requirements for Pre-Acceptance	Compliance with Indicative BAT requirements
<p>From the waste disposal enquiry, the Operator should obtain information in writing relating to:</p> <ul style="list-style-type: none"> • the type of process producing the waste • the specific process from which the waste derives • the quantity of waste; • chemical analysis of the waste (individual constituents and as a minimum their percentage compositions) • the form the waste takes (solid, liquid, sludge etc) • hazards associated with the waste • sample storage and preservation techniques 	<p>All wastes will be assessed for suitability of acceptance by an appropriately trained member of staff. In order to ensure that wastes which arrive at the site are acceptable under the permit, waste enquiry forms will be completed by the customer for each new waste stream. The forms will ascertain:</p> <ul style="list-style-type: none"> • Producer and customer contact details; • Waste type; • Composition of the waste (battery types); • List of wastes to code waste (European Waste Catalogue (EWC)) code of the waste; • Waste quantity; <p>Wastes acceptable at the site are detailed in the Operating Techniques document.</p>
<p>Unless a sample and analysis has already been completed by a third party and the Operator has sufficient written information from them, then the Operator should in every case obtain representative sample(s) of the waste from the production process/current holder and compare it against the written description to ensure that it is consistent.</p>	<p>The waste types to be accepted on site are mixed batteries. Most will come from other Wastecare sites across the UK. Other suppliers of batteries may be required to provide representative samples for analysis and assessment before Wastecare will agree to let the batteries be delivered thus ensuring that their composition is known and that they are appropriate for treatment.</p>
<p>The Operator should ensure that the sample is representative of the waste and has been obtained by a person who is technically competent to undertake the sampling process.</p>	<p>Wastecare Limited staff will require that samples of waste are representative, i.e. taking into account any variation in the waste. Waste samples will be obtained by a person who is technically competent to undertake the sampling process.</p>
<p>Wastes should not be accepted at the installation without a clear method or defined treatment and disposal route being determined in advance and costed before the waste is accepted at the installation.</p>	<p>Through the pre-application procedures, set out above, Wastecare Limited is able to confirm whether waste delivered to site falls within the permitted waste types and quantities and is suitable for acceptance and treatment at the site.</p>
<p>There must be a clear distinction between sales and technical staff roles and responsibilities. If non-technical sales staff are involved in waste disposal enquiries, then a final technical assessment prior to approval should be made. It is this final technical checking that should be used to avoid build-up of accumulations of wastes.</p>	<p>Only suitably qualified staff are authorised to undertake technical assessments. Wastecare Limited employs qualified and experienced individuals who are competent to undertake the assessments of proposed waste streams.</p>
<p>All records relating to pre-acceptance should be maintained at the installation for cross-reference and verification at the waste acceptance stage. These records should be kept for a minimum of 3 years.</p>	<p>Records of enquiries will be kept for at least 3 years. These records will be available in the site office.</p>

Table 3:2 Compliance with Indicative BAT for Waste Acceptance

Indicative BAT requirements for acceptance procedures when waste arrives at the installation	Compliance with Indicative BAT requirements
<p>On arrival loads should:</p> <ul style="list-style-type: none"> • be weighed, unless alternative reliable volumetric systems linked to specific gravity data are available • not be accepted into site unless sufficient storage capacity exists and site is adequately manned to receive waste • have all documents checked and approved, and any discrepancies resolved before the waste is accepted 	<p>Incoming wastes will have their weights recorded from the transfer note. All waste deliveries will be recorded in the computerised recording system.</p> <p>Wastes will not be accepted at the site unless there is sufficient storage capacity and the site is adequately manned.</p> <p>Transfer documentation will be checked by a site operative on arrival at the site. Hazardous wastes will be accompanied by consignment notes.</p>
<p>Hazardous wastes should only be received under the supervision of a suitably qualified person (HNC qualified chemist or higher)</p>	<p>Wastecare Limited’s staff will have sufficient competence and training to supervise all hazardous wastes deliveries. The hazardous waste will comprise mixed batteries, predominantly from other Wastecare facilities and extensive testing is unlikely to be required.</p> <p>Wastes will be visually inspected on the delivery vehicle before being consented to be deposited in the waste reception area.</p> <p>Acceptance of waste will be supervised by trained Wastecare Limited staff.</p>
<p>Visual inspection. Where possible, confirmatory checks should be undertaken before offloading where safety is not compromised. Inspection must in any event be carried out immediately upon offloading at the installation.</p>	<p>All loads will be subject to visual inspection to ensure it appears in line with the pre-acceptance information both before it is unloaded and when it is deposited in the waste reception area.</p>
<p>Check every container to confirm quantities against accompanying paperwork. All containers should be clearly labelled and should be equipped with well-fitting lids, caps and valves secure and in place. Any damaged, corroded or unlabelled drums should be put into a quarantine area and dealt with appropriately. Following inspection, the waste should then be unloaded into a dedicated sampling/reception area.</p>	<p>All loads will be inspected during unloading and visual observation will identify the condition of wastes arriving on site. Any non-conforming waste will be put into the quarantine area and dealt with appropriately. Quantities will be compared against paperwork that is provided by the vehicle driver and against the pre-acceptance information provided by the customer.</p> <p>Damaged packaging may not prevent wastes from being safely stored and treated. The reception area comprises impermeable concrete with sealed drainage.</p> <p>Lead acid and wet alkaline NiCad batteries will be considered as incompatible and will not be accepted together and will be stored separately.</p>
<p>The inspection, unloading and sampling areas should be marked on a plan and have suitably sealed drainage systems.</p>	<p>The site layout plan HXSP1 shows the waste reception area. Areas of waste reception are provided with sealed drainage as shown on drawing.</p>
<p>Sampling - checking - testing of wastes - storage Other than pure product chemicals and laboratory smalls, no wastes should be accepted at the installation without sampling, checking and testing being carried out. Reliance solely on the written information supplied is not acceptable, and physical verification and analytical confirmation are required. All wastes, whether for on-site treatment or</p>	<p>Permitted wastes include loads of mixed batteries. Assessments at the pre-acceptance stage will confirm that waste streams are suitable for acceptance at the site. Regardless, visual inspections of waste deliveries will be undertaken of every load that arrives at the site.</p>

Table 3:2 Compliance with Indicative BAT for Waste Acceptance

Indicative BAT requirements for acceptance procedures when waste arrives at the installation	Compliance with Indicative BAT requirements
<p>simply storage, must be sampled and undergo verification and compliance testing.</p>	
<p>The Operator should ensure that waste delivered to the installation is accompanied by a written description of the waste describing:</p> <ul style="list-style-type: none"> • the physical and chemical composition • hazard characteristics and handling precautions • compatibility issues • information specifying the original waste producer and process 	<p>Wastecare will not accept a waste load unless it is accompanied by a full written transfer note or consignment note as required in accordance with the Waste (England and Wales) Regulations 2011 and the Hazardous Waste (England and Wales) Regulations 2005. Such a description will include:</p> <ul style="list-style-type: none"> • the physical and chemical composition • hazard characteristics and handling precautions • information specifying the original waste producer and process
<p>On-site verification and compliance testing should take place to confirm:</p> <ul style="list-style-type: none"> ▪ identity of the waste ▪ description of the waste ▪ consistency with pre-acceptance information and proposed treatment method ▪ compliance with permit 	<p>Transfer documentation will be reviewed, and visual observations undertaken to ensure consistency with pre-acceptance information and compliance with permit conditions. Further verification testing is not required.</p>
<p>The Operator should have clear and unambiguous criteria for the rejection of wastes, together with a written procedure for tracking and reporting such non-conformance. This should include notification to the customer/waste producer and the Regulator. Written/computerised records should form part of the waste tracking system information.</p>	<p>Wastes will only be accepted where they comply with the six figure waste codes listed in the environmental permit. Where waste is not in compliance the load will be rejected and will be returned to the waste producer where possible. Where this is not possible the waste will be directed to the quarantine area and arrangements will be made for it to be removed to a permitted site as soon as possible. The waste producer will be notified if waste is rejected from site. Records of rejected wastes will be made in the recording system.</p>
<p>Documentation provided by the driver, written results of acceptance analysis, details of offloading point or off-site transfer location should be added to the tracking system documentation.</p>	<p>A tracking system will be in place confirming all loads of waste accepted on site and the batch or batches in which it was blended.</p>
<p>Wastes must not be deposited within a reception area without adequate space.</p>	<p>Wastes will only be accepted at the site if there is sufficient space within the waste reception area. The waste reception area provides sufficient capacity for the storage of 25 m³/tonnes</p>
<p>Should the inspection or analysis indicate that the wastes fail to meet the acceptance criteria, then such loads should be stored in a dedicated quarantine area and dealt with appropriately. Such storage should be for a maximum of five working days. Written procedures should be in place for dealing with wastes held in quarantine, together with a maximum storage volume.</p>	<p>Should non-conforming waste be delivered to the site it will be held in the quarantine area, where it will remain isolated before removal from site. Storage of quarantined wastes will be limited to a maximum of five working days and 25 m³/tonnes. Non-conforming wastes will be removed from site to an appropriately permitted facility as soon as possible, maintaining the space available. The Operating Techniques report provides the written procedures for dealing with wastes held in quarantine.</p>

Table 3:2 Compliance with Indicative BAT for Waste Acceptance

Indicative BAT requirements for acceptance procedures when waste arrives at the installation	Compliance with Indicative BAT requirements
<p>If the cause of failure to meet acceptance criteria is due to incompatibility, then the wastes should be segregated immediately to remove the hazard.</p>	<p>Loads are received separately and are not sorted until the waste acceptance procedure has been completed. Lead acid and wet alkaline NiCad batteries will be considered as incompatible and will not be accepted together and will be stored separately.</p>
<p>Waste Rejection procedures The operator should have clear and unambiguous criteria for the rejection of wastes, together with a written procedure for tracking and reporting such non-conformance. This should include notification to the customer/waste producer and the Environment Agency.</p> <p>Written/computerised records should form part of the waste tracking system information. The operator should also have a clear and unambiguous policy for the subsequent storage and disposal of such rejected wastes. This policy should achieve the following:</p> <ul style="list-style-type: none"> • identifies the hazards posed by the rejected wastes • labels rejected wastes with all information necessary to allow proper storage and segregation arrangements to be put in place • segregates and stores rejected wastes safely pending removal. 	<p>Wastecare Limited has clearly defined criteria for the rejection of wastes within the Environmental Management System for the site. Wastes will be isolated and removed from site as described above.</p> <p>When a load is rejected the Environment Agency and the waste producer will be informed. All data required for regulatory and tracking purposes will be recorded.</p> <p>Further information is provided in the Operating Techniques report.</p>
<p>Records The waste tracking system should hold all the information generated during pre-acceptance, acceptance, storage, treatment and/or removal off-site. Records should be made and kept up to date on an ongoing basis to reflect deliveries, on-site treatment and despatches. The tracking system should operate as a waste inventory/stock control system and include as a minimum:</p> <ul style="list-style-type: none"> • date of arrival on-site • producers details • all previous holders • a unique reference number for waste • pre-acceptance and acceptance analysis results • package type and size • intended treatment/disposal route • record accurately the nature and quantity of wastes held on site, including all hazards and identification of primary hazards 	<p>Records will kept of each load arriving on site including details of:</p> <ul style="list-style-type: none"> • date of arrival on-site • producers details • all previous holders • a unique reference number for waste • pre-acceptance and acceptance analysis results • package type and size • intended treatment/disposal route • record accurately the nature and quantity of wastes held on site, including all hazards and identification of primary hazards • where the waste is physically located in relation to a site plan • where the waste is in the designated disposal route • identification of operator’s staff who have taken any decisions re. acceptance or rejection of waste streams and decided upon recovery/disposal options

Table 3:2 Compliance with Indicative BAT for Waste Acceptance

Indicative BAT requirements for acceptance procedures when waste arrives at the installation	Compliance with Indicative BAT requirements
<ul style="list-style-type: none"> • where the waste is physically located in relation to a site plan • where the waste is in the designated disposal route • identification of operator’s staff who have taken any decisions re. acceptance or rejection of waste streams and decided upon recovery/disposal options 	<p>Records will be kept on site, in either electronic or hard copy format and stored within the site office.</p> <p>The tracking system will be kept up-to date on an ongoing basis to reflect deliveries, on-site treatment and dispatches.</p>
<p>All records relating to pre-acceptance should be maintained and kept readily available at the installation for cross-reference and verification at the waste acceptance stage. Records should be held for a minimum of two years after the waste has been treated or removed off-site. Records should be held in an area well removed from hazardous activities to ensure their accessibility during any emergency.</p>	<p>All records will be held electronically or in a hard copy format. Access to records will be in the site office.</p> <p>Records will be held for a minimum of 2 years.</p>
<p>The system adopted should be capable of reporting on all of the following:</p> <ul style="list-style-type: none"> • total quantity of waste present on-site at any one time, in appropriate units, for example, 205 litre drum equivalents • breakdown of waste quantities being stored pending on-site treatment, classified by treatment route • breakdown of waste quantities on-site for storage only, that is, awaiting onward transfer • breakdown of waste quantities by hazard classification • indication of where the waste is located on site relative to a site plan • comparison of the quantity on site against total permitted • comparison of time the waste has been on-site against permitted limit <p>These records should be held in a designated area, away from hazardous activities to ensure their accessibility during any emergency</p>	<p>Wastecare Limited’s computerised records system will be capable of reporting on the following:</p> <ul style="list-style-type: none"> • total quantity of waste present on-site at any one time and storage method • breakdown of waste quantities being stored pending on-site treatment, classified by treatment route • breakdown of waste quantities on-site for storage only, that is, awaiting onward transfer • breakdown of waste quantities by hazard classification • indication of where the waste is located on site relative to a site plan • comparison of the quantity on site against total permitted • comparison of time the waste has been on-site against permitted limit <p>These records will be held in the site office. This location is considered to be accessible during any emergency.</p>
<p>Back-up copies of computer records should be maintained off-site.</p>	<p>All records are available to be viewed via the computer-based recording system. The system will be backed up regularly to ensure that records continue to be available.</p>
<p>General</p> <p>Wastes should not be accepted at the installation without a clear defined method of recovery or disposal being determined and costed and ensuring there is sufficient capacity being available. These checks should be performed before the waste acceptance stage is reached.</p>	<p>Pre-acceptance checks will confirm that the wastes are suitable for treatment on site.</p>
<p>The Operator should ensure that the installation personnel who may be involved in the sampling, checking and analysis procedures are suitably</p>	<p>Sampling, checking or analysis of waste will be undertaken by suitably qualified staff if required. Staff will be suitably trained for their role.</p>

Table 3:2 Compliance with Indicative BAT for Waste Acceptance

Indicative BAT requirements for acceptance procedures when waste arrives at the installation	Compliance with Indicative BAT requirements
qualified (HNC qualified chemist or higher) and adequately trained, and that the training is updated on a regular basis.	
There must be a clear distinction between sales and technical staff roles and responsibilities. If non-technical sales staff are involved in waste enquiries then a final technical assessment prior to approval should be made. It is this final technical checking that should be used to avoid build-up of accumulations of wastes and to ensure that sufficient capacity exists.	Only Wastecare Limited's qualified technically competent staff will be permitted to carry out the technical assessment of potential waste deliveries to the site. Technical staff will also ensure that sufficient capacity exists at the site prior to delivery of the waste load.

Table 3:3 Compliance with Indicative BAT for Storage of Wastes

Indicative BAT requirements for storage	Compliance with Indicative BAT requirements
<p>Offloading/discharge of waste The Operator should have in place a system to ensure that the correct discharge point or storage area is used. The options for this include:</p> <ul style="list-style-type: none"> • ticket systems • supervision by site staff and if relevant CCTV • keys 	<p>Wastecare Limited personnel are responsible for supervising the offloading of each waste delivery into the reception area.</p> <p>All deliveries will be supervised by Wastecare Limited personnel.</p> <p>Further information is provided in the Operating Techniques report.</p>
Offloading and quarantine points should have an impervious surface with self-contained drainage, to prevent any spillage entering the storage systems or escaping off-site	All site operations will take place in areas provided with impermeable concrete flooring and sealed drainage system. External areas of the site direct any water to a sealed sump.
<p>Record keeping The Operator should have an internal tracking system which should satisfy the objectives and minimum standards.</p>	Records will be maintained within a computerised recording system.
All spillages of hazardous wastes should be logged, where spillages >200 litre then additionally the Regulator should be informed.	Hazardous liquid wastes stored on site will be limited to potassium hydroxide with a storage capacity of 1000 litres. Spillages of hazardous wastes on site will be recorded in the site log. Any spillage over 200 litres will formally be reported to the EA.
<p>Turnover Storage within the reception area should be for a maximum of five working days. Following receipt, wastes should be treated or removed off-site as soon as possible. The total storage time will depend upon the characteristics of a particular site and the waste types being stored. For example, on a site in a sensitive location handling hazardous wastes, it may be appropriate to limit storage times to one month. Other non-hazardous</p>	<p>Waste deposited in the waste reception area will be transferred for temporary storage or treatment within 5 days.</p> <p>Wastes awaiting treatment will be stored on site for up to 30 days.</p> <p>Recovered wastes will be stored on site for up to 30 days pending their removal from site.</p>

Table 3:3 Compliance with Indicative BAT for Storage of Wastes

Indicative BAT requirements for storage	Compliance with Indicative BAT requirements
wastes, however, may be held on-site for longer periods. However, all waste should be treated or removed off site within a maximum of six months from the date of receipt.	
<p>Bulk Storage Vessels Bulk storage vessels should be located on an impervious surface that is resistant to material being stored, with sealed construction joints within a bunded area with a capacity at least 110% of the largest vessel or 25% of the total tankage volume, whichever is the greater.</p>	The only storage of liquids will be for any drained from wet NiCad batteries. A 1000 litre IBC will be used and will be located on an impervious surface within a bunded area
Vessels should not be used beyond the specified design life or used in a manner or for substances that they were not designed, Vessels should be inspected at regular intervals, with written records kept to prove that they remain fit for purpose. See HSE Guidance Note PM75.	Tanks will not be used beyond their design life. Storage vessels and bunds will be inspected weekly and repaired and maintained as necessary. Records of inspections will be maintained in a site log.
No open-topped tanks should be used for storage or treatment of hazardous or liquid wastes. Exceptions would require justification.	All storage vessels for the storage of liquid wastes will be enclosed.
No uncontrolled venting to atmosphere should be allowed, and all vents should be linked to suitable scrubbing and abatement systems.	Unit 2 where portable alkaline batteries will be treated will include air extraction equipment comprising particulates filter and carbon filter to remove particulates and ammonia before the air is recirculated within the equipment.
Tank and vessel optimum design should be considered in each case, taking into account waste type, storage time, overall tank design and mixing system to prevent sludge accumulation and to ease desludging. Storage and treatment vessels should be regularly desludged.	Tanks used for storage of liquid wastes on site will be suitable for the required use.
Tanks and vessels should be equipped with suitable abatement systems and level meters with both audible and visual high-level alarms. These systems should be sufficiently robust and regularly maintained to prevent foaming and sludge build-up affecting the reliability of the gauges.	N/A
Storage vessels holding flammable or highly flammable wastes should meet the requirements of HSG51, HSG140, HSG716 and HSG176	N/A
All connections between vessels must be capable of being closed via suitable valves. Overflow pipes should be directed to a contained drainage system, which may be the relevant bunded area, or to another vessel provided suitable control measures are in place.	N/A
Pipework should preferably be routed above ground; if below ground it should be contained within suitable inspection channels.	There will be no connecting pipework from any storage vessels.

Table 3:3 Compliance with Indicative BAT for Storage of Wastes	
Indicative BAT requirements for storage	Compliance with Indicative BAT requirements
All vessels should be clearly signed as to their contents and capacity and should have a unique identifier. Tanks should be appropriately labelled.	All vessels will be clearly signed as to their contents and capacity and should have a unique identifier.
Written records of all tanks should be kept detailing: <ul style="list-style-type: none"> • unique identifier • capacity • construction including materials • maintenance schedules and inspection results • fittings (including joints and gaskets etc.) • waste types that may be stored/treated in the vessel including flashpoint limit 	Bunds will be inspected regularly and maintained as required so that they remain fit for purpose. The site is subject to a comprehensive maintenance programme. Records are kept for the following: <ul style="list-style-type: none"> • unique identifier • capacity • construction including materials • maintenance schedules and inspection results • fittings (including joints and gaskets etc.) • waste types that may be stored in the vessel including flashpoint limit

Table 3:4 Compliance with Indicative BAT for Treatment	
Indicative BAT for treatment	Compliance with Indicative BAT requirements
Provide adequate process descriptions of the activities and the abatement and control equipment for all of the activities such that the Regulator can understand the process in sufficient detail to assess the operator's proposals and in particular to be able to assess opportunities for further improvements. This should include: <ul style="list-style-type: none"> • diagrams of the main plant items where they have environmental relevance, for example, storage, tanks, treatment and abatement plant design, etc. • details of chemical reactions and their reaction kinetics/energy balance • equipment inventory, detailing plant type and design parameters, for example, flashpoints • waste types to be subjected to the process • control system philosophy and how the control system incorporates environmental monitoring information • process flow diagrams (schematics) • venting and emergency relief provisions 	A description of the waste types, process and the pollution prevention measures are provided in the Operating Techniques document.

Table 3:4 Compliance with Indicative BAT for Treatment

Indicative BAT for treatment	Compliance with Indicative BAT requirements
<ul style="list-style-type: none"> • summary of operating and maintenance procedures • a description of how protection is provided during abnormal operating conditions such as, runaway reactions, unexpected releases, start-up, momentary stoppages and shut-down for as long as is necessary to ensure compliance with release limits in Permits • additionally, for some applications, it may be appropriate to supply process instrumentation diagrams for systems containing potentially polluting substances 	

Table 3:5 Compliance with Indicative BAT for Point Source Emissions to Air

Indicative BAT for point source emissions to air	Compliance with Indicative BAT requirements
Operational control is required to prevent the production of gas during any mixing process.	Ammonia may be produced when the portable alkaline batteries are treated in the hammermill. Any ammonia will be collected in the extraction and filtration system
Vent and chimney heights should be assessed for dispersion capability and an assessment made of the fate of the substances emitted to the environment.	There are no point source emissions from the facility. All treated air is recirculated within the equipment. Further information on the control of odour is provided in the Odour Management Plan.

Table 3:6 Compliance with Indicative BAT for Emissions to Surface Water and Sewer

Indicative BAT requirements for control of point source emissions to surface water and sewer	Compliance with Indicative BAT requirements
<p>The following general principles should be applied in sequence to control emissions to water:</p> <ul style="list-style-type: none"> • water use should be minimised and wastewater reused or recycled • contamination risk of process or surface water should be minimised 	<p>Water is not used in the treatment process and no water will be discharged to directly surface water or sewer from the site. All waters will drain to the surface water sump, from where the will be removed from site by a registered waste carrier.</p> <p>Should there be a spillage of waste externally, any spilt liquids will flow to the sump. Sumps will be inspected following any spillage and will be pumped out as necessary.</p> <p>The concrete surfacing and sealed drainage system will prevent any emissions to surface water.</p>

Table 3:7 Compliance with Indicative BAT for Fugitive Emissions to Air	
Indicative BAT for fugitive emissions to air	Compliance with Indicative BAT requirements
The control of fugitive emissions to air other than odour	<p>There is no risk of litter from the treatment operations at the site. Wastes are accepted in containers and are treated inside the building.</p> <p>Collected air from the treatment room will pass through a particulate filter and carbon filter to prevent uncontrolled fugitive emissions to air from carbon black or ammonia respectively.</p>

Table 3:8 Compliance with Indicative BAT for Odour	
Indicative BAT for odour	Compliance with Indicative BAT requirements
<p>Where odour releases are expected to be acknowledged in the Permit, (i.e. contained and treated prior to discharge or discharged for atmospheric dispersion):</p> <ul style="list-style-type: none"> For existing installations, the releases should be modelled to demonstrate the odour impact at sensitive receptors. The target should be to minimise the frequency of exposure to ground level concentrations that are likely to cause annoyance. Where there is no history of odour problems then modelling may not be required although it should be remembered that there can still be an underlying level of annoyance without complaints being made. 	<p>Odour will be controlled at source by good operational practices, the correct use and maintenance of plant, and operator training.</p> <p>A carbon filter will remove ammonia from collected air which will then be recirculated within the [name] building as clean air.</p> <p>No odour modelling is required as there are no emissions of malodorous air from the facility.</p>
The objective is to prevent emissions of odorous releases that are offensive and detectable beyond the site boundary. This may be judged by the likelihood of complaints. However, the lack of complaint should not necessarily imply the absence of an odour problem.	Good operational practices, the correct use and maintenance of plant, and operator training ensure that the potential for malodorous emissions are minimised.
Assessment of odour impact should cover a range of reasonably foreseeable odour generation and receptor exposure scenarios, including emergency events and the effect of different mitigation options.	The Amenity and Accident risk assessment considers odour generation and receptor exposure scenarios, including the provision of mitigation measures and responses in the event of odour being detected offsite.
A record must be kept of any complaints relating to odour from the site.	The Amenity and Accident risk assessment includes procedures for dealing with complaints and associated record keeping.

Table 3:9 Compliance with Indicative BAT for Management	
Indicative BAT for management	Compliance with Indicative BAT requirements
<p><i>Operations and maintenance</i></p> <p>Effective systems should be employed on all aspects of the process, in particular:</p>	Wastecare Limited will operate the facility in accordance with an Environmental Management System.

Table 3:9 Compliance with Indicative BAT for Management

Indicative BAT for management	Compliance with Indicative BAT requirements
<ul style="list-style-type: none"> ▪ documented procedures that may have an adverse effect on the environment ▪ documented procedures for monitoring emissions or impacts ▪ a preventative maintenance programme to include regular inspection of any tanks, pipework, retaining walls, bunds or filters 	<p>A preventative maintenance programme will be in place with all site infrastructure and equipment inspected on a regular basis and serviced in accordance with the manufacturer’s recommendations. Records will be kept of all inspections and any necessary repairs or maintenance will be noted, with timescales for these to be carried out.</p>
<p><i>Competence and training</i> Training systems should be in place for relevant staff which cover:</p> <ul style="list-style-type: none"> ▪ awareness of the regulatory implications of the permit for the activity and their work activities ▪ awareness of environmental effects from operation under normal and abnormal circumstances ▪ awareness of the need to report deviation from the permit ▪ prevention of, and handling of, accidental emissions <p>The skills and competencies necessary for key posts should be documented and records of training needs and training received for these posts maintained.</p>	<p>All staff will be trained with regards to the Environmental Permit and Environmental Management System ensuring that they have an understanding commensurate with their post.</p> <p>A record will be kept of the skills necessary for each role and training needs will be assessed on an annual basis with additional training being provided where needed.</p>
<p><i>Accidents/incidents/non-conformance</i> There should be an accident plan which:</p> <ul style="list-style-type: none"> ▪ identifies the likelihood and consequences of accidents ▪ identifies actions to prevent accidents and mitigate consequences 	<p>An Amenity and Accident Risk Assessment has been included with the application. The potential environmental risks associated with the site have been identified and measures are in place to minimise to these risks and to mitigate against incidents should they occur.</p>
<p>There should be written procedures for handling, investigating, communicating and reporting actual or potential noncompliance with operating procedures or emission limits.</p>	<p>The EMS will include written procedures for handling, investigating, communicating and reporting actual or potential non-compliance with operating procedures or emission limits.</p> <p>Details of any complaints received, and the actions taken to resolve them will be recorded in the Site Log.</p>
<p>There should be written procedures for handling, investigating, communicating and reporting environmental complaints and implantation of appropriate action.</p>	<p>The EMS and Amenity and Accident risk assessment include written procedures for handling, investigating, communicating and reporting environmental complaints and implantation of appropriate action.</p>
<p>There should be written procedures for investigating incidents, (and near misses) including identifying suitable corrective action and following up.</p>	<p>The EMS will include written procedures for investigating incidents, (and near misses) including identifying suitable corrective action and following up.</p>
<p><i>Organisation</i> There should be an environmental policy/programme which:</p>	<p>Wastecare Limited has an environmental policy which:</p> <ul style="list-style-type: none"> • includes a commitment to continual improvement and prevention of pollution;

Table 3:9 Compliance with Indicative BAT for Management	
Indicative BAT for management	Compliance with Indicative BAT requirements
<ul style="list-style-type: none"> ▪ includes a commitment to continual improvement and prevention of pollution ▪ includes a commitment to comply with relevant legislation and other requirements to which the organisation subscribes; and ▪ identifies, sets, monitors and reviews environmental objectives and key performance indicators independently of the permit 	<ul style="list-style-type: none"> • includes a commitment to comply with relevant legislation and other requirements to which the organisation subscribes; and • identifies, sets, monitors and reviews environmental objectives and key performance indicators independently of the permit.
<p>The company should have demonstrable procedures (e.g. written instructions) which incorporate environmental considerations into the following areas:</p> <ul style="list-style-type: none"> ▪ the control of process and engineering change on the installation; ▪ design, construction and review of new facilities and other capital projects; ▪ capital approval; and ▪ purchasing policy 	<p>Wastecare Limited's Environmental Management System will include procedures for the incorporation of environmental considerations into engineering changes, capital approval and purchasing.</p> <p>Environmental issues will be a factor in purchasing of equipment and any infrastructure improvements, ensuring high levels of protection. Where possible equipment offering better energy efficiency and lower emissions will be selected.</p>
<p>The company should conduct audits, at least annually, and preferably independently, to check that all activities are being carried out in conformity with requirements.</p>	<p>Site operations will be audited on an annual basis to confirm compliance with the written procedures, review progress and set targets for continuing improvement over the coming year.</p>
<p>The company should operate a formal Environmental Management System. Preferably this should be a registered or certified EMAS/ISO14001 system (issued and audited by an accredited certification body).</p>	<p>The site will be operated in accordance with an Environmental Management System (EMS), which meets the requirements of the Environment Agency's Guidance (https://www.gov.uk/guidance/develop-a-management-system-environmental-permits).</p>
<p>The company should have a clear and logical system for keeping records of, amongst others:</p> <ul style="list-style-type: none"> ▪ policies ▪ roles and responsibilities ▪ targets ▪ procedures ▪ results of audits ▪ results of reviews 	<p>Records will be maintained on the computerised recording system. This will include:</p> <ul style="list-style-type: none"> ▪ policies ▪ roles and responsibilities ▪ targets ▪ procedures ▪ results of audits ▪ results of reviews

Table 3:10 Compliance with Indicative BAT for Raw Materials	
Indicative BAT for Raw Materials	Compliance with Indicative BAT requirements
<p>The Operator should maintain a list of raw materials and their properties as noted above.</p>	<p>Table 4:1 below, details the raw materials used at the site and their properties.</p>

Table 3:10 Compliance with Indicative BAT for Raw Materials

Indicative BAT for Raw Materials	Compliance with Indicative BAT requirements
<p>The Operator should have procedures for the regular review of new developments in raw materials and for the implementation of any suitable ones with an improved environmental profile.</p>	<p>Few raw materials are used on site with the inputs to the process being food waste and water. Wastecare Limited will review water use at least once every four years to identify whether or not any increased efficiencies can be made.</p> <p>Use of oils etc in maintenance will be reviewed at least once every four years in order to assess whether there are opportunities to minimise raw material use. Where improvements in raw material use can be achieved without excessive cost or reduction in the quality of the product these will be implemented.</p>

Table 3:11 Compliance with Indicative BAT for Water Efficiency

Indicative BAT requirements for water efficiency	Compliance with Indicative BAT requirements
<p>The Operator should carry out a regular review of water use (water efficiency audit) at least every 4 years. If an audit has not been carried out in the 2 years prior to submission of the application and the details made known at the time of the application, then the first audit should take place within 2 years of the issue of the Permit.</p>	<p>Water is not used in the process</p>
<p>The following general principles should be applied in sequence to reduce emissions to water:</p> <ul style="list-style-type: none"> • Water-efficient techniques should be used at source where possible • Water should be recycled within the process from which it issues, by treating it first if necessary. Where this is not practicable, it should be recycled to another part of the process that has a lower water-quality requirement • In particular, if uncontaminated roof and surface water cannot be used in the process, it should be kept separate from other discharge streams, at least until after the contaminated streams have been treated in an effluent treatment system and been subject to final monitoring. 	<p>Water is not used in the process</p>

Table 3:12 Compliance with Indicative BAT for Waste Recovery or Disposal

Indicative requirements for waste recovery or disposal	Compliance with Indicative BAT requirements
<p>Describe how each waste stream is proposed to be recovered or disposed of. If you propose any disposal, explain why recovery is technically and economically impossible and describe the measures planned to avoid or reduce any impact on the environment.</p>	<p>The output from the site will include:</p> <ul style="list-style-type: none"> • separated battery types which will be sent off-site for recovery • three waste streams from the mechanical treatment of alkaline batteries which will be sent for recycling

Table 3:12 Compliance with Indicative BAT for Waste Recovery or Disposal

Indicative requirements for waste recovery or disposal	Compliance with Indicative BAT requirements
Waste production should be avoided wherever possible. Any waste that is produced should be recovered, unless it is technically or economically impractical to do so.	<ul style="list-style-type: none"> • incidental WEEE that will have had batteries removed which will be sent for recovery • Water arisings will be sent for treatment at a STW.

Table 3:13 Compliance with Indicative BAT for Energy Requirements

Indicative BAT requirements for basic energy requirements	Compliance with Indicative BAT requirements
The Operator should provide the energy consumption information in terms of delivered energy and also, in the case of electricity, converted to primary energy consumption.	Energy consumption information is provided in Table 5:1.
The Operator should provide associated environmental emissions.	Associated emissions are provided in Table 5:2.
Operating, maintenance and housekeeping measures should be in place in the following areas: operation of motors and drives, other maintenance relevant to activities.	A preventative maintenance programme will be in place with all site infrastructure and equipment inspected on a regular basis and serviced in accordance with the manufacturer's recommendations. Wastecare Limited staff will ensure that plant and equipment is working correctly, with repairs undertaken as required.
Energy management techniques should be in place.	Environmental issues will be a factor in purchasing of equipment and any infrastructure improvements. Where possible equipment offering better energy efficiency and lower emissions will be selected.

4 RAW MATERIAL USAGE

- 4.1 The process comprises simple waste treatment and few raw materials are utilised.
- 4.2 The raw materials used include fuel and oils used in plant maintenance. Nevertheless, raw material usage will be reviewed at least once every four years to identify whether there is any scope to minimise the quantities used or to replace products with more environmentally friendly alternatives.
- 4.3 Expected annual raw material use is outlined below.

Table 4:1 Raw Materials

Raw Material	Required Stage	Chemical Composition	Typical Usage per Annum	Quantity Stored on Site at One Time	Use of material	Hazardous Properties	Assessment of alternatives / Reduction
Lubricating Oil	Plant and machinery Maintenance	Petroleum Hydrocarbon + Additives	300 litres	75 litres Stored in a suitable can / drum in a bund or drip tray.	Used for plant and equipment maintenance.	Prolonged or repeated contact with skin may cause mild irritation and possibly dermatitis. Mildly irritating to eyes. Waste oils may be carcinogenic.	Essential to proper operation of plant and machinery, no alternative available. Servicing of plant and machinery carried out in accordance with manufacturer's recommendations.
Hydraulic oil	Plant and machinery maintenance	Petroleum Hydrocarbon + Additives	300 litres	75 litres Stored in a suitable can / drum in a bund or drip tray.	Used in plant and equipment maintenance.	Dangerous to aquatic life.	Essential to proper operation of plant and machinery. Use will be minimised by correct servicing of plant and machinery to reduce the risks of leaks.
Diesel	Plant operation	C ₁₂ H ₂₃	144,000 litres	2,500 litres Stored in a double skinned tank with relevant signage. Stored in accordance with the oil storage regulations.	Fuel for site plant	Irritates the skin, eyes and respiratory tract.	Current best option for fuel. Options are kept under review.

5 ENERGY USE

- 5.1 Energy use will be minimised using simple management techniques including:
- switching plant off when it is not in use;
 - maintaining all equipment in accordance with the manufacturer’s recommendations and ensuring that adequate lubrication is used; and
 - considering energy efficiency in the specification of lighting and heating.
- 5.2 Energy use will be metered and records will be kept regarding use of electricity and diesel. Energy usage will be reviewed at least once every four years and potential energy savings will be identified and implemented where possible.
- 5.3 In purchasing of equipment energy efficiency will be a consideration and energy efficient models will be selected where they deliver the same performance and are of reasonable cost.
- 5.4 Table 5:1 identifies the estimated total energy consumption per annum, i.e. electricity and diesel use.

Table 5:1 Energy Consumption			
Energy Source	Unit	Units/year as delivered	At primary source Unit/year
Electricity	MWh	60	144
Diesel	Litres	36	
Total MWh		60	144

Factor of 2.6 applied for electricity from public supply in accordance with IPPC H2
Assumes 1 litre of diesel provides 11.1kW (<http://www.rets-project.eu/UserFiles/File/pdf/respedia/A-Beginners-Guide-to-Energy-and-Power-EN.pdf>).

Specific Energy Requirements

- 5.5 The specific energy consumption (SEC) for the site is defined as MWh per tonne of waste received. This will enable comparison of the site’s SEC to industry standards. The calculation of the SEC, using data from Table 15, will be made over the duration of one year and will be calculated as follows:

$$\text{SEC} = \frac{\text{total primary energy consumption (kWh)}}{\text{total amount of waste received (tonnes)}}$$

- 5.6 The calculation of SEC will be completed on an annual basis and will be included within the annual site review. Table 5:2 shows a prediction of SEC for the first year of operations at the site. It is based on a maximum waste throughput of 25,000 tonnes per annum and a total energy consumption of 2,846.4 MWh per annum.
- 5.7 This can be used to benchmark energy use at the site and demonstrate where savings have been made.