



BAT CONCLUSIONS ASSESSMENT

**SECURE WASTE & RECYCLING FACILITY
TIPTON WASTE TRANSFER STATION
CHIMNEY ROAD
TIPTON
WEST MIDLANDS
DY4 7BY**

**Document Reference: BF5094/07.R0
November 2025**



**Project Quality Assurance
Information Sheet**

BAT CONCLUSIONS ASSESSMENT

SECURE WASTE & RECYCLING FACILITY, CHIMNEY ROAD, TIPTON, WEST MIDLANDS

Report Status : Final

Report Reference : BF5094/07.R0

Report Date : November 2025

Prepared for : Biffa Waste Services Limited.

Prepared by : Sirius Environmental Limited
The Beacon Centre for Enterprise
Dafen
Llanelli
SA14 8LQ

Written by :

**William Rees BSc (Hons) MSc
Graduate Environmental Consultant**

Reviewed by :

**Dylan Thomas BSc (Hons) PG Dip MCIWM
Principal Environmental Consultant**

Approved by :

**Mark Griffiths BSc (Hons) MSc CGeol MCIWM
Environmental Director**

Revision	Date	Amendment Details	Author	Reviewer
0	27/11/2025	First Issue	W. Rees	D. Thomas

This report is written for the sole use of Biffa Waste Services Limited and their appointed agents. No other third party may rely on or reproduce the contents of this report without the written approval of Sirius. If any unauthorised third party comes into possession of this report, they rely upon it entirely at their own risk and the authors do not owe them any Duty of Care or Skill.

BAT Conclusions Assessment

The following presents a review of the relevant BAT to support an application to vary Environmental Permit EPR/FB3809KS to allow the operation of a Secure Waste & Recycling Facility (SWaRF) for the destruction of hazardous and non-hazardous wastes, which will replace the existing non-hazardous waste transfer and physical treatment facility. The SWaRF will have a aggregated hazardous waste treatment capacity in excess of 10tpd and an associated storage capacity of over 50 tonnes. The review considers the updated BAT conclusions presented in the Commission Implementing Decision (EU) 2018/1147 following publication of the revised BREF Document for Waste Treatment in 2018.

BAT Conclusion	Assessment Review
1.1 Overall Environmental Performance	
<p>BAT 1. In order to improve the overall environmental performance, BAT is to implement and adhere to an environmental management system (EMS).</p>	<p>The Facility will operate under the effective system of management procedures in accordance with an Integrated Management Systems accredited ISO14001:2018 Environmental Management System.</p>
<p>BAT 2. In order to improve the overall environmental performance of the plant, BAT is to use all of the specified techniques.</p> <p>a) Set up and implement waste characterisation and pre-acceptance procedures</p> <p>b) Set up and implement waste acceptance procedures</p> <p>c) Set up and implement a waste tracking system and inventory</p>	<p>Biffa have developed waste characterisation and pre-acceptance procedures that will employed at the site to ensure the relevant information is provided to establish the properties of incoming wastes in order to determine if they are permitted to be accepted at the facility.</p> <p>Biffa have developed waste acceptance procedures to ensure that the wastes received correspond with the pre-acceptance characterisation information. Acceptance checks will principally comprise visual checks to confirm that only the permitted wastes are received and do not contain any significant levels of contamination.</p> <p>A record is kept of the date and time of waste deliveries, quantities and the nature of the waste deposited at the site, the name of the company and their representative delivering (if applicable) each load of waste and the vehicle registration number.</p> <p>Wastes accepted at the site will be stored in designated areas. First in, first out principles will be employed at the waste facility reception areas to ensure good management of waste and to prevent excessive storage times. Maximum waste storage time appropriate to each waste type will be adhered to.</p>

BAT Conclusion	Assessment Review
<p>d) Set up and implement an output quality management system</p> <p>e) Ensure waste segregation</p> <p>f) Ensure waste compatibility prior to mixing or blending of waste</p> <p>g) Sort incoming solid waste</p>	<p>All wastes will undergo visual assessment during the treatment process. Strict waste pre-acceptance and acceptance procedures will help ensure that the respective outputs from each waste treatment process is of high quality and in line with regulatory requirements.</p> <p>All wastes will be stored separately and appropriately according to their waste types. The wastes handled at the site are subject to strict pre-acceptance and acceptance checks, where all waste onsite will be compliant.</p> <p>Waste received will be sorted and stored in separate storage areas according to each waste type. Wastes will be processed in batches, No mixing or blending of wastes will be undertaken.</p> <p>Hazardous waste will be stored separately depending on treatment process being used to treat the waste stream.</p>
<p>BAT 3. In order to facilitate the reduction of emissions to water and air, BAT is to establish and to maintain an inventory of wastewater and waste gas streams, as part of the environmental management system (see BAT 1).</p>	<p>All roof and external yard waters are considered as uncontaminated and will be discharged to surface water or combined sewer (where existing connections exist).</p> <p>The discharge of inert gases from the nitrous oxide treatment plant will be continuously monitored.</p> <p>There will be no waste waters discharged from the site associated with the proposed activities. Liquid waste from the alcohol and cosmetic destruction activities will be stored in tanks and transferred off-site for further treatment.</p>
<p>BAT 4. In order to reduce the environmental risk associated with the storage of waste, BAT is to use all of techniques specified.</p>	
<p>a. Optimised storage location</p>	<p>All wastes are stored internally</p>
<p>b. Adequate storage capacity</p>	<p>The maximum storage capacity of the site and each storage area has established.</p> <p>The facility will handle wastes from government organisation and a limited number of commercial entities. These restrictions will ensure that significant fluctuations in waste input will not occur and that adequate capacity is available.</p>

BAT Conclusion	Assessment Review
<p>c. Safe storage operation</p>	<p>All waste is handled by forklift truck fitted with appropriate lifting equipment/attachment based on the form of wastes being handled e.g. palleted, baled. All FLT operators will be fully trained in their use.</p> <p>Hazardous waste streams are stored in accordance HSE guidance (e.g. HSG71).</p> <p>Pressurised containers/canisters are segregated from combustible waste streams.</p>
<p>d. Separate area for storage and handling of packaged hazardous waste</p>	<p>Hazardous waste streams are stored in accordance HSE guidance (e.g. HSG71)</p>
<p>BAT 5. In order to reduce the environmental risk associated with the handling and transfer of waste, BAT is to set up and implement handling and transfer procedures.</p> <p>Handling and transfer procedures aim to ensure that wastes are safely handled and transferred to the respective storage or treatment. They include the following elements:</p> <ul style="list-style-type: none"> - handling and transfer of waste are carried out by competent staff; - handling and transfer of waste are duly documented, validated prior to execution and verified after execution; - measures are taken to prevent, detect and mitigate spills; - operation and design precautions are taken when mixing or blending wastes (e.g. vacuuming dusty/powdery wastes). <p>Handling and transfer procedures are risk-based considering the likelihood of accidents and incidents and their environmental impact.</p>	<p>Waste handling and transfer procedures form part of Biffa's EMS.</p>
1.2 Monitoring	
<p>BAT 6. For relevant emissions to water as identified by the inventory of waste-water streams (see BAT 3), BAT is to monitor key process parameters (e.g. waste water flow, pH, temperature, conductivity, BOD) at key locations (e.g. at the inlet and/or outlet of the pre-treatment, at the inlet to the final treatment, at the point where the emission leaves the installation).</p>	<p>Not Applicable</p>
<p>BAT 7. BAT is to monitor emissions to water with at least the frequency given below, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.</p>	<p>Not Applicable</p>

BAT Conclusion	Assessment Review
<p>BAT 8. BAT is to monitor channelled emissions to air with at least the frequency given below, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.</p>	<p>Releases from the point source air emission are continuously monitored to ensure the emissions are as intended.</p>
<p>BAT 9. BAT is to monitor diffuse emissions of organic compounds to air from the regeneration of spent solvents, the decontamination of equipment containing POPs with solvents, and the physico-chemical treatment of solvents for the recovery of their calorific value, at least once per year.</p>	<p>Not applicable.</p>
<p>BAT 10. BAT is to periodically monitor odour emissions.</p>	<p>Precautionary olfactory monitoring will be carried out daily, as stipulated in the OMP.</p>
<p>BAT 11. BAT is to monitor the annual consumption of water, energy and raw materials as well as the annual generation of residues and waste water, with a frequency of at least once per year.</p>	<p>The annual consumption of water, energy and raw materials form part of Biffa's EMS and will be monitored annually.</p>
<p>BAT 12. In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to set up, implement and regularly review an odour management plan, as part of the environmental management system (see BAT 1).</p>	<p>The site will operate strictly in accordance with Odour Management Plan, which is reviewed annually.</p>
<p>BAT 13. In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to use one or a combination of the specified techniques.</p>	<p>All loads are delivered in palletted and packaged form.</p> <p>All treatment, transfer and storage of potentially odorous wastes will be undertaken internally in enclosed treatment buildings.</p> <p>Storage and treatment of wastes will be carried out on a first in first out basis with regular stock rotation in order to minimise residence times.</p>

BAT Conclusion	Assessment Review
<p>BAT 14. In order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use an appropriate combination of the techniques.</p>	<p>All waste storage and treatment operations are carried out internally or with enclosed containers.</p> <p>Cigarette/tobacco shredder fitted with ATEX rated dust extractor fitted with fabric cartridge filters.</p> <p>Vape destruction process is fitted with a active carbon filter to adsorb nicotine and battery evaporites.</p> <p>All internal and external areas of the site will be subject to routine housekeeping to prevent the build up of dust, mud, debris or odours residues.</p> <p>Maintenance operational plant and equipment are scheduled in line with manufacturers recommendations.</p>
<p>BAT 15 – BAT 16</p>	<p>Not applicable.</p>
<p>BAT 17. In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to set up, implement and regularly review a noise and vibration management plan, as part of the environmental management system (see BAT 1), that includes all of the following elements</p> <ol style="list-style-type: none"> I. a protocol containing appropriate actions and timelines; II. a protocol for conducting noise and vibration monitoring; III. a protocol for response to identified noise and vibration events, e.g. complaints; IV. a noise and vibration reduction programme designed to identify the source(s), to measure/estimate noise and vibration exposure, to characterise the contributions of the sources and to implement prevention and/or reduction measures. 	<p>The site is located adjacent to other industrial premises with an elevated baseline environment.</p> <p>Only the unloading of palleted wastes and the loading of pallets or containers will be carried out externally.</p> <p>Acoustic wall cladding installed main building envelope.</p> <p>Daily checks for noise will be carried out. Instrumental measures will not be required.</p> <p>All road vehicles and site static and mobile plant will be maintained to a standard in line with manufacture's recommendations at regular intervals. This will ensure they run effectively and within their specified sound power outputs.</p>

BAT Conclusion	Assessment Review
<p>BAT 18. In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to use one or a combination of the techniques given below.</p>	<p>Noise and vibration generated by the secure waste and recycling facility do not pose significant risk to nearby receptors. Appropriate measures will be implemented to further reduce the risk. These include:-</p> <ul style="list-style-type: none"> • all treatment activities are carried out internally • material movement will be via FLT's, therefore minimising drop heights of materials. • all fixed and mobile plants will be subject to regular maintenance to prevent mechanical faults
1.5 Emissions to water	
<p>BAT 19. In order to optimise water consumption, to reduce the volume of wastewater generated and to prevent or, where that is not practicable, to reduce emissions to soil and water, BAT is to use an appropriate combination of the techniques given below.</p>	<p>All waste is stored on impermeable surfaces, with sealed drainage system supporting areas where high quantities of liquid wastes will be handled i.e. alcohol and cosmetic building.</p> <p>The tanks for the storage of segregated alcohol and cosmetics will be within a bunded area with at least 110% of the capacity of the tanks.</p>
<p>a. water management</p>	<p>The cleaning of internal surfaces will be carried out using dry methods (e.g. vacuuming), unless wet methods are necessary. Wet methods will utilise mechanical or trigger controls to minimise water consumption</p> <p>Process water to support the hazardous alcohols and cosmetics treatment activity will use main water, but future options may be to seek to harvest rain water.</p>
<p>b. Water recirculation</p>	<p>Not applicable.</p>
<p>c. Impermeable surfacing</p>	<p>All internal and external areas are engineered with impermeable surfacing to protect soil and water. A sealed drainage system will also be installed in the alcohol and cosmetic building.</p>
<p>d. Techniques to reduce the likelihood and impact of overflows and failures from tanks and vessels</p>	<p>All tanks will be fitted with high levels alarms.</p> <p>All three tanks will be located in bund with a capacity equivalent to 110% of at least one tanks.</p> <p>All tanks connection point will be located within the bund and capable of being isolated.</p>
<p>e. Roofing of waste storage and treatment areas</p>	<p>All incoming waste storage area and waste treatment activities will be located internally within buildings. Processed waste will be containerised or stored in curtain-sided articulated trailers.</p>

BAT Conclusion	Assessment Review
f. Segregation of water streams	<p>There is limited contamination risk to surface water run-off from external yard areas and roof water. These are therefore discharged to surface water, via an oil interceptor.</p> <p>Potential leakage and spillage incidents involving liquid wastes in the alcohol and cosmetics building will be captured by a sealed drainage systems.</p>
g. Adequate drainage infrastructure	All treatment areas are located internally. Only low-risk waste streams are stored externally in containers or curtain-sided articulated trailers.
h. Design and maintenance provisions to allow detection and repair of leaks	The alcohol and cosmetics treatment plant and infrastructure will be routinely inspected for signs of leaks, with repairs instigated as soon as practicable.
i. Appropriate buffer storage capacity	The remaining capacity of alcohol and cosmetics storage tanks will be regularly checked to ensure sufficient capacity is available for further waste treatment.
<p>BAT 20. In order to reduce emissions to water, BAT is to treat wastewater using an appropriate combination of the techniques given below.</p>	<p>There is wastewater treatment associated with the waste management activities discharged from site to surface water or sewer. Liquid wastes are bulked for recovery off-site.</p> <p>The site feature impermeable surfacing engineered to drain to a central gully leading to a sealed sump. Sump waters will be removed off-site by tanker for treatment at an authorised facility.</p> <p>There is a very low risk of surface water run off being contaminated by the waste activities. These waters pass through an oil interceptor prior to discharge to surface water.</p>
1.6 Emissions from accidents and incidents	
<p>BAT 21. In order to prevent or limit the environmental consequences of accidents and incidents, BAT is to use all of the techniques given below, as part of the accident management plan (see BAT 1).</p>	Accident risks and associated management procedures are included in the Environmental & Accidents Risk Assessment (<i>Doc. Ref.: BF5094/07//01</i>)
1.7 Material Efficiency	
<p>BAT 22. In order to use materials efficiently, BAT is to substitute materials with waste</p>	<p>Water used for alcohols is the minimum required to minimise the risk of combustion during treatment. Therefore, there is no inherent need to substitute materials with waste.</p> <p>The remaining processes don't rely on extensive use of raw materials with the exception of oils and greases for plant involved with treatment processes.</p>

BAT Conclusion	Assessment Review
1.8 Energy Efficiency	
<p>BAT 23. In order to use energy efficiently, BAT is to use both of the techniques given below</p>	<p>The facility will be managed to ensure that basic energy efficiency measures are undertaken during normal operations. The energy efficiency of the facility will be reviewed and recorded every four years to assess whether there are suitable opportunities to improve the energy efficiency of the activities.</p>
1.9 Reuse of packaging	
<p>BAT 24. In order to reduce the quantity of waste sent for disposal, BAT is to maximise the reuse of packaging, as part of the residues management plan (see BAT 1).</p>	<p>Waste packaging removed manually and mechanically from the materials treated and stored will be treated on site to enable recovery off-site where appropriate.</p> <p>Storage containers and pallets will be reused, unless damaged.</p>
2 BAT conclusions for the mechanical treatment of waste	
2.1 BAT conclusions for the mechanical treatment of waste	
<p>BAT 25. In order to reduce emissions to air of dust, and of particulate-bound metals, PCDD/F and dioxin-like PCBs, BAT is to apply BAT 14d and to use one or a combination of the techniques given.</p>	<p>Cigarette/tobacco shredder fitted with ATEX rated dust extractor fitted with fabric cartridge filters.</p> <p>This cigarette shredder will be monitored according to the relevant BAT-AEL for channelled emissions to air for the mechanical treatment of waste (Dust, 2-5mg/Nm³) using spot measurements according to EN 13284-1.</p> <p>This will be carried out every six months.</p>
2.2 BAT conclusions for the mechanical treatment in shredders of metal waste	
<p>BAT 26 In order to improve the overall environmental performance, and to prevent emissions due to accidents and incidents, BAT is to use BAT 14g and all of the techniques given below:</p> <ol style="list-style-type: none"> a. implementation of a detailed inspection procedure for baled waste before shredding; b. removal of dangerous items from the waste input stream and their safe disposal (e.g. gas cylinders, non-depolluted ELVs, non-depolluted WEEE, items contaminated with PCBs or mercury, radioactive items); c. treatment of containers only when accompanied by a declaration of cleanliness 	<p>No shredding of metal waste proposed under the proposed activities. Small nitrous oxide canisters are pierced only to release the pressurised gas to capture and treat gases within. Larger cannisters are emptied by the connection of pipework to the valves to drain the contents. The empty cannisters are then stored pending recovery off-site.</p>

BAT Conclusion	Assessment Review
<p>BAT 27</p> <p>In order to prevent deflagrations and to reduce emissions when deflagrations occur, BAT is to use technique a. and one or both of the techniques b. and c. given below.</p>	<p>Not applicable</p>
<p>BAT 28</p> <p>In order to use energy efficiently, BAT is to keep the shredder feed stable.</p>	<p>Not applicable</p>
<p>2.3 BAT conclusions for the treatment of WEEE containing VFCs and/or VHCs</p>	
<p>BAT 29</p> <p>In order to prevent or, where that is not practicable, to reduce emissions of organic compounds to air, BAT is to apply BAT 14d, BAT 14h and to use technique a. and one or both of the techniques b. and c. given below.</p>	<p>WEEE containing VHCs is treated at the site (Vapes).</p> <p>The Hammer mill provides a controlled atmosphere (6 bar N₂ blanket).</p> <p>Nicotine, battery electrolyte, and VOCs are evaporated in a dryer and extracted from the chamber prior to being condensed and contained in a canister for transfer.</p> <p>A carbon filter is present where the condenser emits to atmosphere which is capable of trapping any remaining vapours.</p> <p>A self-cleaning dust filter is present internally. When saturated, compressed air is passed through liberating the dust, which is collected in a sealed drum.</p> <p>The emissions will be monitored in accordance with the BAT-AEL values for the treatment of WEEE containing VHCs (TVOC, 3-15mg/Nm³) according to EN 12619.</p> <p>This will be carried out every six months.</p>
<p>BAT 30</p> <p>In order to prevent emissions due to explosions when treating WEEE containing VFCs and/or VHCs, BAT is to use either of the techniques given below.</p>	<p>Not applicable</p>
<p>2.4 BAT conclusions for the mechanical treatment of waste with calorific value</p>	
<p>BAT 31</p> <p>In order to reduce emissions to air of organic compounds, BAT is to apply BAT 14d and to use one or a combination of the techniques given below.</p>	<p>Not Applicable</p>
<p>BAT 32</p>	<p>Not Applicable.</p>

BAT Conclusion	Assessment Review
2.5 BAT conclusions for the mechanical treatment of WEEE containing mercury	
<p>BAT 33</p> <p>In order to reduce mercury emissions to air, BAT is to collect mercury emissions at source, to send them to abatement and to carry out adequate monitoring.</p>	<p>Not Applicable</p>
3 BAT conclusions for the Biological Treatment of Waste	
<p>BAT 34 – BAT 39.</p>	<p>Not applicable.</p>
4 BAT conclusions for the physio-chemical treatment of waste	
4.1 BAT conclusions for the physio-chemical treatment of solid and/or pasty waste	
<p>BAT 40.</p> <p>In order to improve the overall environmental performance, BAT is to monitor the waste input as part of the waste pre-acceptance and acceptance procedures (see BAT 2).</p>	<p>All wastes are fully characterised prior to acceptance at the site for treatment. Waste acceptance procedures will be implemented on site to verify and characterise the waste as it arrives at the waste facility.</p>
<p>BAT 41.</p> <p>In order to reduce emissions of dust, organic compounds and NH₃ to air, BAT is to apply BAT 14d and to use one or a combination of the techniques given below.</p>	<p>Cigarette/tobacco shredder fitted with ATEX rated dust extractor fitted with fabric cartridge filters.</p> <p>Vape destruction process is fitted with a active carbon filter to adsorb nicotine and battery evaporites.</p>
<p>BAT 42 – BAT 51</p>	<p>Not applicable.</p>
5 BAT conclusions for the treatment of water-based liquid waste	
5.1 Overall environmental performance	
<p>BAT 52.</p> <p>In order to improve the overall environmental performance, BAT is to monitor the waste input as part of the waste pre-acceptance and acceptance procedures (see BAT 2).</p>	<p>All wastes are fully characterised prior to acceptance at the site for treatment. Waste acceptance procedures will be implemented on site to verify and characterise the waste as it arrives at the waste facility. Waste will be carefully tracked on its journey through the site processes.</p> <p>The treatment of liquids wastes (alcohols and cosmetics) is limited to the segregation of the liquid contents from there containers (physical/mechanical treatment). Other than the addition of water to counter the flammability of the wastes, the liquid waste streams are subsequently bulked for onward transfer for recovery.</p>

BAT Conclusion	Assessment Review
<p>BAT 53</p> <p>In order to reduce emissions of HCl, NH₃ and organic compounds to air, BAT is to apply BAT 14d and to use one or a combination of the techniques given below.</p>	<p>Hazardous alcohols and cosmetics are blended onsite.</p> <p>Clean air associated with the alcohol vapour scrubber used on the hazardous alcohol depackaging shredder is emitted to atmosphere. The air is extracted from the inlet and outlet of the shredder, before being passed through a packed wet scrubber unit which absorbs potentially odorous or flammable VOC vapours prior to release to air.</p> <p>The scrubber emission point will be monitored according to the relevant BAT-AEL for channelled emissions to air from the treatment of water-based liquid waste (TVOC, 3-20mg/Nm³) according to EN 12619.</p> <p>This will be carried out once every six months.</p>