Techemet – BAT Assessment

Summary

This document details the assessment carried out against the Waste Treatment BRef BAT conclusion in support of the variation of the Techemet permit to an IED installation.

BAT Conclusion Ref	BAT Conclusion Text	Applicability and Comments
BAT 1	In order to improve the overall environmental performance, BAT is to implement and adhere to an environmental management system (EMS) that incorporates all of the following features: 1. commitment of the management, including senior management; 2. definition, by the management, of an environmental policy that includes the continuous improvement of the environmental performance of the installation; 3. planning and establishing the necessary procedures, objectives and targets, in conjunction with financial planning and investment; 4. implementation of procedures paying particular attention to: (a) structure and responsibility; (b) training, awareness and competence; (c) communication; (d) employee involvement; (e) documentation; (f) effective process control; (g) maintenance programmes; (h) emergency preparedness and response; (i) safeguarding compliance with environmental legislation. 5. checking performance and taking corrective action, paying particular attention to: (a) monitoring and measurement (see also the JRC Reference Report on Monitoring of emissions from IED installations — ROM); corrective and preventive action; (c) maintenance of records; (d) independent (where practicable) internal or external auditing in order to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained;	Techemet have an ISO:14001 Environmental Management System (EMS). A copy of the EMS is included in the permit variation application as **Appendix I** Techemet also operate using the EU Skills Competence Management System (CMS). A copy of the CMS system is included in the permit variation application as appendix ### All aspects of this BAT conclusion are complied with within the EMS or CMS system Where BAT Conclusion 1 reference other BAT conclusion these are covered in the relevant section of this table

	6. review of the EMS and its continuing suitability, adequacy and effectiveness by senior management; 7. following the development of cleaner technologies; 8. Consideration for the environmental impacts from the eventual decommissioning of the installation at the stage of designing a new plant, and throughout its operating life; 9. Application of sectoral benchmarking (e.g. EMAS Sectoral Reference Document) on a regular basis. 10. Waste stream management (see BAT 2); 11. An inventory of wastewater and waste gas streams (see BAT 3); 12. Residues management plan 13. Accident management plan 14. Odour management plan (see BAT 12); 15. Noise and vibration management plan (see BAT 17). The scope (e.g. level of detail) and nature of the EMS (e.g. standardised or non-standardised) will generally be related to the nature, scale and complexity of the installation, and the range of environmental impacts it may have (determined also by the type and amount of wastes processed).	
BAT 2	In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques given below. a. Set up and implement waste characterisation and pre-acceptance procedures b. Set up and implement waste acceptance procedures c. Set up and implement a waste tracking system and inventory d. Set up and implement an output quality management system e. Ensure waste segregation f. Ensure waste compatibility prior to blending of waste g. Sort incoming solid waste	Techemet implement the BAT conclusion in this section as shown below: a. Techemet have a bespoke IT system which holds the technical information related to each material including any analysis, characterisation and pre-acceptance information b. Techemet have rigorous waste acceptance procedures where all incoming waste is placed into a holding area where the documentation checks are completed and then the waste containers are moved into an internal holding area where the containers are inspected and the contents verified c. All wastes are tracked using bar codes and the Techemet IT system

		d. The Techemet facility is a sampling plant for high value and precious metal bearing waste streams. All materials are subject to rigorous inspection and testing to confirm the contents and the suitability for recovery e. The waste streams handled by Techemet are predominately automotive catalysts and metal containing fractions from other industries. The majority of these wastes are inert solids. Waste are stored in containers with the exception of bulk ferrous metals which are stored in skips awaiting recovery. Oils and other hazardous waste produces on site are stored in a dedicated areas and are segregated in accordance with HSG71 f. Techemet only blend solid waste streams that are of the same materials type such as catalyst powder with catalyst powder. These materials are blended as needed to meet an optimal smelter input specification. This ensures there are no issues with cross reactions between incompatible materials. g. Techemet have a dedicated inspection and sorting area for waste in particular automotive catalysts. These items are sorted by types and processing requires (decanning, cutting of excess ferrous etc). Due to the high value of the waste Techemet handles the wastes are sorted to confirm quantities/weights and to remove any foreign objects.
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).	All emission points are identified in the sites environmental Management system
BAT 4	In order to reduce the environmental risk associated with the storage of waste, BAT is to use all of the techniques given below. a. Optimised storage location	Techemet operate and optimised facility design where waste flows through the site in a logical manner. Waste is inspected, checked and counted then processed and stored in dedicated areas which storage for materials local to the process stage to

	b. Adequate storage capacity c. Safe storage operation d. Separate area for storage and handling of packaged hazardous waste	ensure safe and efficient handling. Waste is stored in dedicated areas/racking systems with segregated bunded storage for the small volume of hazardous liquid wastes produced on site. **Appendix B** and **Appendix E** show the flow through the site.
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. 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: — 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). Handling and transfer procedures are risk-based considering the likelihood of accidents and incidents and their environmental impact.	Techemet operate a Competence Management System that ensures all staff are fully trained and competent in the tasks they are carrying out including all handling of wastes. The Techemet IT system and Management System ensures all wastes are tracked and any processing, treatment and handling carried out is documented. All transfers of waste are managed via the IT system which has a document library. All processing and handling following the initial offloading and inspection takes place within the sealed building. Each process such as sorting, counting, cutting and blending takes place in dedicated area with dedicated equipment which capture any residues and abate any dust produced. Any spillages are cleaned up immediately in accordance with the spillage response plan. Procedures and work instructions for all activities are risk based and are managed in accordance with the ISO 14001 Environmental Management System which considers the risks and environmental impacts of operations. These risks are also covered in the dedicated Environmental Risk Assessment for the facility.
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 pretreatment, at the inlet to the final treatment, at the point where the emission leaves the installation).	N/A – Techemet discharge only clean uncontaminated surface water via an interceptor
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.	N/A – Techemet discharge only clean uncontaminated surface water via an interceptor

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.	The Techemet facility operates a closed loop dust extraction system for all waste treatment and handling activities. Air is extracted local to the activities/sources that could produce dust such as the sorting areas, sheers, cutters sampling and blending plants. The air is passed through a primary filter (bag or cartridge type filter) and then polished via a HEPA filter. The air from the HEPA filter is clean and discharged back into the building. There is no eternal vented emission only the closed loop of air being extracted from within the facility and discharge back into the facility
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 using one or a combination of the techniques given.	Not applicable - Techemet does not carry out these activities
BAT 10	BAT is to periodically monitor odour emissions. Odour emissions can be monitored using: - EN standards (e.g. dynamic olfactometry according to EN 13725 in order to determine the odour concentration or EN 16841-1 or -2 in order to determine the odour exposure); - when applying alternative methods for which no EN standards are available (e.g. estimation of odour impact), ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality. The monitoring frequency is determined in the odour management plan (see BAT 12).	Not Applicable – Techemet do not handle odours wastes. The wastes accepted are predominantly automotive catalyst and other high metal content materials. These materials are inorganic/metallic in nature and do not have an odour. Any materials which were identified as odorous would be rejected at the initial inspection/acceptance stage.
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.	Techemet comply with this requirement – these are tracked as part of management accounting and are available as part of management reporting and dashboards.

	Monitoring includes direct measurements, calculation or recording, e.g. using suitable meters or invoices. The monitoring is broken down at the most appropriate level (e.g. at process or plant/installation level) and considers any significant changes in the plant/installation.	
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), that includes all of the following elements: — a protocol containing actions and timelines; — a protocol for conducting odour monitoring as set out in BAT 10; — a protocol for response to identified odour incidents, e.g. complaints; — an odour prevention and reduction programme designed to identify the source(s); to characterise the contributions of the sources; and to implement prevention and/or reduction measures.	Not Applicable – Techemet do not handle odours wastes and does not require an odour emission plan. The wastes accepted are predominantly automotive catalyst and other high metal content materials. These materials are inorganic/metallic in nature and do not have an odour. Any materials which were identified as odorous would be rejected at the initial inspection/acceptance stage. Any odour complaints would be recorded and investigated in accordance with the Environmental Management System
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 techniques given.	Not applicable – see response to BAT 10 &12
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 given below. Depending on the risk posed by the waste in terms of diffuse emissions to air, BAT 14d is especially relevant.	Not applicable – see response to BAT 6
BAT 15	BAT is to use flaring only for safety reasons or for non-routine operating conditions (e.g. start-ups, shutdowns) by using both of the techniques given.	Not applicable – Techemet do not require flares and no organic/solvent treatment is carried out
BAT 16	In order to reduce emissions to air from flares when flaring is unavoidable, BAT is to use both of the techniques given	Not applicable – Techemet do not require flares and no organic/solvent treatment is carried out
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: I. a protocol containing appropriate actions and timelines; II. a protocol for conducting noise and vibration monitoring;	Techemet have a low noise and vibration risk which is managed as part of the Environmental Management System included noise and vibration mitigation aspects as summarised below: • 2 yearly full site wide noise assessment • Band saw is housed in a soundproof room

	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.	• Limitations on activities in the rear yard (no activities after 1600) • Vibration impacts are limited Techemet do not use shredders or vibrating equipment • Treatment plant is limited to saws/sheers/mixers. These plant items have a very low vibration rating Vibration is generated only through limited use of powered hand tools during maintenance activities. No fixed plant or continuous vibration sources are present on site. The risk of off-site environmental impact is considered low. Occupational exposure is controlled through equipment selection, maintenance, exposure time management, and instructions to employees.
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	See response to BAT 17 – Techemet have a low noise and vibration risk profile and have also implement control measures to mitigate those risks even further.
BAT 19	In order to optimise water consumption, to reduce the volume of waste water 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. a. Water management b. Water recirculation c. Impermeable surface d. Techniques to reduce the likelihood and impact of overflows and failures from tanks and vessels e. Roofing of waste storage and treatment areas f. Segregation of water streams g. Adequate drainage infrastructure h. Design and maintenance provisions to allow detection and repair of leaks i. Appropriate buffer storage capacity	The Techemet activities take place within a sealed building with the exception of the initial offloading and inspection area. The external area is comprised of an impermeable concrete surface and is fitted with drainage channels which direct the water to an interceptor before discharge to surface water. The interceptor is scheduled for 6 monthly cleanses and 6 monthly alarm service and dip tests, in accordance with the Oil Storage Bill which covers bunded oil storage and Separator systems for light liquids BS EN 858-1/2. Techemet operate a dry process and do not use water as part of the process. All waste streams accepted on site are solid. With the exception of some liquid waste streams produced from maintenance and laboratory testing work carried out on site.
BAT 20	In order to reduce emissions to water, BAT is to treat waste water using an appropriate combination of the techniques given	The only source of emissions to water is from the offloading and initial inspection area. All waste received by Techemet are containerised (IBCs, Drums FIBCs). Techemet do not carry out any activities on the incoming waste in this area other than initially confirming labels and quantities. All opening of

		containers, sorting and treatment takes place within the sealed building. Techemet also store clean empty containers in this area and clean ferrous metals within a skip. The area has an impermeable concrete surface complete with drainage channels to an interceptor. The highest risk activity with the are is a leak of oil or fuels from the vehicles. Due to the limited scope of activities within the area there is a minimal risk of any contamination which would be abated by the interceptor.
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 BAT1). a. Protection measures b. Management of incidental/accidental emissions c. Incident/accident registration and assessment system	The Techemet management system as covers these points, and the site also has a specific Fire Prevention Plan, Spillage response plant and accident/incident response procedure. Details of any and all incident and accidents are recorded and investigate as part of the management system.
BAT 22	In order to use materials efficiently, BAT is to substitute materials with waste. Waste is used instead of other materials for the treatment of wastes (e.g. waste alkalis or waste acids are used for pH adjustment, fly ashes are used as binders).	Not applicable – Techemet do not use and raw materials as part of their activities
BAT 23	In order to use energy efficiently, BAT is to use both of the techniques given below. a. Energy efficiency plan b. Energy balance record	Energy use and efficiency is tracked as part of management accounting and are available as part of management reporting and dashboards.
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). Packaging (drums, containers, IBCs, pallets, etc.) is reused for containing waste, when it is in good condition and sufficiently clean, depending on a compatibility check between the substances contained (in consecutive uses). If necessary, packaging is sent for appropriate treatment prior to reuse (e.g. reconditioning, cleaning).	Techemet reuse packaging where appropriate and have a range of different container such as drums, IBC, stillages and cages. These are used to hold material during processing and handling on site. Due to the similar inert nature of materials incompatibility is not a risk but all containers are inspected and cleaned before any reuse to eliminate cross contamination of materials and ensure the accuracy of any samples taken
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.	Not applicable – Techemet do not accept waste contaminated with these substances.

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: (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 EoLVs, non-depolluted WEEE, items contaminated with PCBs or mercury, radioactive items); (c) treatment of containers only when accompanied by a declaration of cleanliness.	Techemet do not shred any wastes nor do they treat containers. All incoming wastes are subject to detailed inspection and acceptance checks during which any dangerous items are removed and placed appropriate storage containers for safe disposal or recovery.
BAT 27	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 a. Deflagration Management Plan b. Pressure Relief Dampers c. Pre-Shredding	Not applicable – Techemet do not shred waste or treat materials with a risk of deflagration
BAT 28	In order to use energy efficiently, BAT is to keep the shredder feed stable.	Not applicable – Techemet do not shred waste
BAT 29	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.	Not applicable – Techemet do not treat WEEE contaminated VFCs or VHCs
BAT 30	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	Not applicable – Techemet do not treat WEEE contaminated VFCs or VHCs
BAT 31	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.	Not applicable – Techemet do not treat waste with a high calorific value
BAT 32	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.	Not applicable – Techemet do not treat WEEE waste containing mercury such as fluorescent tubes
BAT 33-39	Mechanical Bioligical treatment BAT conclusions	Not applicable – Techemet does not carry out these activities
BAT 40	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).	As response to BAT conclusion 2 Techemet have detailed acceptance and pre-acceptance procedures. Furthermore, as Techemet are a sampling plant for high value and precious metals all input and outputs are rigorously controlled to ensure all material is accounted for (mass balanced) and constituents are known.
BAT 41	In order to reduce emissions of dust, organic compounds and NH3 to air, BAT is to apply	There are not emissions of organic compounds or Ammonia as there waste are not accepted on site. Dust is emission are

	BAT 14d and to use one or a combination of the techniques.	mitigated using closed loops system as detailed in the response to BAT conclusion 6
BAT 42-53	BAT conclusions for various specified treatment activities	Does not apply as the site does not carry out these activities