

Natural Resources Wales permitting decisions

Variation and Consolidation of a bespoke Permit – Shield Environmental Services Limited

We have decided to issue a Natural Resources Wales initiated variation and consolidated permit for Martin Road Hazardous Waste Transfer Station in Unit 11, Martin Road, Tremorfa Industrial Estate, Cardiff, CF24 5SD operated by Shield Environmental Services Limited.

The permit number is PP3739BK.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

The permit has been varied following the publication of the revised Best Available Techniques (BAT) Reference Documents (BREF) for Waste Treatment. The associated BAT conclusions to this document were published on 17 August 2018 in the Official Journal of the European Union.

This variation incorporates the changes required by the Industrial Emissions Directive following a statutory review of permits in the Waste Treatment sector. These include the amendment of the wording of several permit conditions relating to notifications, there are no changes to emissions limits and monitoring requirements at this site as there is no point source emissions. One European Waste Catalogue (EWC) has been amended as was incorrect in the current permit, this has been amended from 06 01 11* to 16 01 11*. One EWC has been added to the permit, this is 15 02 02*, the Operator has been allowed to store this via agreement during the regulatory compliance of the site therefore the permit is updated to reflect this. The site plan on the permit has been updated as the previous site plan was unclear.

We are satisfied that the operator will be compliant with the published BAT conclusions which will apply from 17 August 2022.

Purpose of this document

This decision document:

- explains how we have carried out our statutory review of the Operator's Permit;
- why we have decided to vary the Permit as a result of that review; and
- why we have included the specific conditions in the revised Permit through the variation notice we are issuing.

It is our record of our decision-making process, to show how we have taken into account all relevant factors in reaching our position.

Structure of this document

- Assessment of Martin Road Hazardous Waste Transfer Station against the published BAT conclusions for Waste Treatment.
- Annex 1 – Decision Checklist regarding relevant BAT Conclusions

Assessment of Martin Road Hazardous Waste Transfer Station against the published BAT conclusions for Waste Treatment

1. Our decision

We have issued a variation, which will allow Shield Environmental Services Limited to operate the installation, subject to the conditions in the varied permit.

The variation does three things:

- it consolidates the original permit to reflect changes made through earlier variations;
- it brings the permit into line with our modern regulatory template; and
- it varies the permit where appropriate to reflect the outcome of our statutory review and incorporate Best Available Techniques (BAT) and Associated Emission Limit Values (BAT-AELs).

We consider that, in reaching this decision, we have taken into account all relevant considerations and legal requirements and that the permit will continue to ensure that a high level of protection is provided for the environment and human health.

The original permit operated in accordance with a waste management licence. The permit was varied to an installation permit issued on the 25 March 2014. The permit ensured that the installation, employed Best Available Techniques (BAT) and ensured a high level of protection for human health and the environment. We have altered the permit as a result of the statutory review, and we are confident that the new requirements will deliver a superior level of protection to that which was previously achieved. Where a site is not currently compliant with BAT, Improvement Conditions have been included to bring the site up standard by 17 August 2022.

2. The legal framework

The Variation and Consolidation Notice (which includes the consolidated permit as Schedule 2) will be issued under Regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 (EPR). The environmental permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an *installation* as described by the Industrial Emissions Directive (IED);
- subject to aspects of other relevant legislation which also have to be addressed.

We consider that, in issuing the Variation and Consolidated Permit, it will ensure that the operation of the installation complies with all relevant legal requirements and that a high level of protection will be delivered for the environment and human health.

We explain how we have addressed specific statutory requirements more fully in the rest of this document.

3. How we reached our decision

Requesting information to demonstrate compliance with BAT Conclusion techniques

We issued a Notice under Regulation 61(1) of the Environmental Permitting (England and Wales) Regulations 2016 on 05 April 2019 requiring the operator to provide

information to demonstrate how the operation of their installation currently meets, or will subsequently meet, the revised standards described in the relevant BAT Conclusions document.

The Regulation 61(1) Notice required the operator to:

- Describe the techniques that will be implemented before 17 August 2022, which will then ensure that operations meet the revised standard, or
- Justify why standards will not be met by 17 August 2022, and confirmation of the date when the operation of those processes will cease within the installation or an explanation of why the revised BAT standard is not applicable to those processes, or
- Justify why an alternative technique will achieve the same level of environmental protection equivalent to the revised standard described in the BAT Conclusions.
- Where their permitted activity involves the use, production or release of a hazardous substance, as defined in Article 3(18) of the Industrial Emissions Directive, Shield Environmental Services Limited were required to carry out a risk assessment considering the possibility of soil and groundwater contamination at the permitted installation with such substances. Where risk of such contamination is established prepare a baseline report containing information necessary to determine the state of soil and groundwater contamination so as to make a quantified comparison with the state upon definite cessation of the activity. Shield Environmental Services Limited have a copy of a consequent baseline report.
- Where their permitted activity involves the use, production, storage or release of priority hazardous substances and any other relevant substances., as defined by the Water Framework Directive, Shield Environmental Services Limited were required to carry out a risk screening assessment considering the presence of priority hazardous substances at the permitted installation. Where a risk of these substances is established the operator is to sample the effluent and screen for the priority hazardous substances. If these substances are found to be present in the effluent stream, then assessment using the H1 tool and potential detailed modelling will be required to demonstrate that the effluent discharge will not have a significant impact to the receiving water. There are no point source emissions to water of priority hazardous substances of any relevant substances as defined by the Water Framework Directive from the installation.

- Where the operator proposed that they were not intending to meet a BAT standard, that also included a BAT Associated Emission Level (BAT-AEL) described in the Waste Treatment BAT Conclusions Document, the Regulation 61(1) Notice requested that the operator make a formal request for derogation from compliance with that AEL (as provisioned by Article 15(4) of IED). In this circumstance, the Notice identified that any such request for derogation must be supported and justified by sufficient technical and commercial information that would enable us to determine acceptability of the derogation request.

The Regulation 61(1) Notice response from the operator was received on the 04 November 2019 and additional information received on 11 September 2020.

We considered that the response contained sufficient information for us to commence determination of the permit review. The operator made no claim for commercial confidentiality. We have not received any information in relation to the Regulation 61(1) Notice response that appears to be confidential in relation to any part.

4. Key issues/Regulation 61(1) response

BAT Conclusions for the Waste Treatment were published as Commission Implementing Decision EU 2018/1447 in the Official Journal of the EU on 17 August 2018. There are 53 BAT Conclusions. This annex provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This should be read in conjunction with the permit/variation notice issued.

A response was received from Shield Environmental Services Limited. Following assessment of the Regulation 61(1) response, further information was requested from Shield Environmental Services Limited. Where the operator has concluded that they have achieved BAT, and we are in agreement, no further information/justification has been sought by Natural Resources Wales.

5. Changes we have made

Improvement Conditions

Based on the information provided in the Regulation 61(1) response, we consider that we need to set improvement conditions. These conditions are set out below. We are using these conditions to require the operator to provide Natural Resources Wales with

details that need to be established or confirmed during operations. The improvement conditions ensure compliance by 2022.

Improvement condition 3 (IC3), has been imposed to ensure compliance with certain BAT Conclusions by 17 August 2022. See Annex 1 for information of specific BAT conclusions and why they have been included in this improvement condition.

Reference	Requirement	Date
IC3	The operator shall submit to Natural Resources Wales a written procedure(s) describing how they intend to meet the following BAT requirements in accordance with requirements specified within BAT Conclusion of the Waste Treatment BREF Document (EU 2018): • BAT 1 (i – x, xii, xiii) In order to improve the overall environmental performance, BAT is to implement and adhere to an environment management system (EMS) that incorporates all of the features listed in BAT 1. • BAT 2 In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques described in BAT 2. • BAT 4 In order to reduce the environmental risk associated with the storage of waste BAT is to use all the techniques given in BAT 4. • 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. • 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 described in BAT 14. • 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 in BAT 18. • 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 described in BAT 19. • BAT 21 In order to prevent or limit the environmental consequences of accidents and incidents, BAT is to use all of the techniques described in BAT 21. • BAT 23 In order to use energy efficiently, BAT is to use both of the techniques given in BAT 23.	17 February 2022 or otherwise agreed in writing with Natural Resources Wales

Operational Changes

There are no operational changes as part of this variation. One European Waste Catalogue (EWC) has been amended as was incorrect in the current permit, this has

been amended from 06 01 11* to 16 01 11*. One EWC has been added to the permit, this is 15 02 02*, the Operator has been allowed to store this via agreement during the regulatory compliance of the site therefore the permit is updated to reflect this. There are no point source emissions and no associated monitoring at the installation.

Emissions to Water

As part of our delivery of the Water Framework Directive requirements, we need to identify and assess the impact for all discharges to surface waters and/or sewer from the site for priority hazardous substances and any other relevant substances. The emissions monitoring for these substances should be carried out using the methods and standards described in the M18 guidance on “Monitoring of discharges to water and sewer”.

With reference to the risk assessment guidance on the gov.uk website entitled “Surface water pollution risk assessment for your environmental permit” (accessible via: <https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit>) the company carried out the following assessments:

- Screening tests for priority hazardous pollutants and any other relevant priority hazardous substances.
- For any substance which is not screened out by the screening tests further modelling, as described in the risk assessment guidance “Surface water pollution risk assessment for your environmental permit”.

There are no point source emissions to water from the installation, therefore no further information or assessment was required.

Emissions to Water – Article 15(4) Derogations

No derogations as there are no point source emissions to water from the installation.

Emissions to Air

There are no point source emissions to air from the installation.

Emissions to Air – Article 15(4) Derogations

No derogations as there are no point source emissions to air from the installation.

Other IED BREFs relevant to the permit review

There are no specific listed activities within Table S1.1 of the permit that are within scope of other published BREFs.

6. Conclusion

We consider that the installation already employed what used to be BAT, the revised BREF provide the opportunity to consider further environmental improvements.

Coupled with the consolidation and modernisation of the permit, we believe this variation provides a sound basis for ongoing regulation of the installation and we are satisfied that the operator is currently achieving or will be achieving all relevant BAT by 17 August 2022.

We believe that we have ensured compliance with all relevant legal requirements in carrying out this review and making our determination on the variation.

Annex 1: Decision checklist regarding relevant BAT Conclusions

BAT Conclusions for the Waste Treatment BREF were published as Commission Implementing Decision EU 2018/1147 in the Official Journal of the EU on 17 August 2018. There are 53 BAT Conclusions. This checklist provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This annex should be read in conjunction with the consolidated variation notice.

All BAT Conclusions arising are listed by number in order below;

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
OVERALL ENVIRONMENTAL PERFORMANCE		
1	Environment Management System (EMS) – <u>ALL</u> of the following:	
	I.	Management commitment
	II.	Environmental policy development including CI of performance
	III.	Planning and implementing procedures & targets in conjunction with financial planning & investment
	IV.	Implementation of procedures
		(a) Structure & responsibility
		(b) Recruitment, training, awareness & competence
		(c) Communication
		(d) Employee involvement
Compliant in the future – No information provided by the Operator of how the BAT conclusion is achieved. Improvement Condition (IC3) set.		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		(e) Documentation	
		(f) Effective process control	
		(g) Maintenance programmes	
		(h) Emergency preparedness & response	
		(i) Safeguarding compliance with environmental legislation	
	V.	Checking performance and taking corrective action	
		(a) Monitoring & measurement	
		(b) Corrective and preventive action	
		(c) Maintenance of records	
		(d) Independent (where practicable) internal or external EMS auditing	
	VI.	Senior management review of EMS	
	VII.	Following development of cleaner technologies	
	VIII.	Whole life cycle considerations when designing a new plant i.e. impacts from eventual decommissioning and throughout its operating life	
	IX.	Regular sectoral bench marking	
	X.	Waste stream management (BAT 2)	Compliant in the future – see BAT 2
	XI.	Inventory of waste water & waste gas streams (BAT 3)	Not applicable – no waste water or waste gas stream
	XII.	Residues Management Plan – S6.5	Compliant in the future – see BAT 24
	XIII.	Accident Management Plan – S6.5	Compliant in the future – see BAT 21

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	XIV.	Odour Management Plan (BAT 12)	Not Applicable – see BAT 12
	XV.	Noise & Vibration Management Plan (BAT 17)	Not Applicable – see BAT 17
2	Improving overall environmental performance – <u>ALL</u> of the following:		
	a.	Set up and implement waste characterisation & pre-acceptance procedures	Compliant in the future – No information provided by the Operator of how the BAT conclusion is achieved. Improvement Condition (IC3) set.
	b.	Set up and implement waste acceptance procedures	
	c.	Set up and implement a waste tracking system & inventory	
	d.	Set up and implement an output quality management system	
	e.	Ensure waste segregation	
	f.	Ensure waste compatibility prior to mixing or blending	
	g.	Sort solid incoming waste – S6.4	
3	Establish and maintain a waste water and waste gas inventory as part of the EMS - <u>ALL</u> of the following:		
	Information on characteristics of waste and waste treatment processes		
	(i)(a)	simplified process flow sheets showing emission sources	Not Applicable – no point source emissions to water or air. No waste water stream or waste gas stream.
	(i)(b)	Process-integrated and waste water/waste gas treatment descriptions including performance	
	Information on characteristics of waste water streams		
	(ii)(a)	Mean and variability of:	Not applicable – no point source emissions to water / no waste water stream.
		Flow	
pH			

BATc number		Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant		
		Temperature				
		Conductivity				
	(ii)(b)	Mean concentration, load and variability of:				
		Total suspended solids				
		COD/TOC				
		Nitrogen species				
		Phosphorous				
		Metals				
		Priority substances/micropollutants				
		Any other relevant compounds				
		(ii)(c)	Bioeliminability data (see BAT 52):			
	BOD					
	BOD to COD ratio					
	Zahn-Wellens test					
	Biological inhibition potential					
	Information on characteristics of waste gas streams					Not applicable – No point source emissions to air / no waste gas stream
	(iii)(a)	Mean and variability of:				
		Flow				
		temperature				
	(iii)(b)	Mean concentration, load and variability of relevant substances:				
		Organic compounds				

BATc number		Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		POPs e.g. PCBs		
		Any other relevant compounds		
	(iii)(c)	Flammability		
		Lower and Higher Explosive Limits		
		Reactivity		
	(iii)(d)	Presence of other substances that may affect the gas treatment system or plant safety:		
		O2		
		N2		
		Water vapour		
		Dust		
4	Reducing environmental risk associated with waste storage – <u>ALL</u> of the following:			Compliant in the future – No information provided by the Operator of how the BAT conclusion is achieved. Improvement Condition (IC3) set.
	a.	Optimised storage location		
	b.	Adequate storage capacity		
	c.	Safe storage operation		
	d.	Separate area for storage & handling of packaged hazardous waste		
5	Set up and implement procedures to reduce the environmental risk associated with handling and transfer of waste - include following elements:			
	Carried out by competent staff			
	Duly documented, validated and verified			

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Spill prevention, detection and mitigation measures		Compliant in the future – No information provided by the Operator of how the BAT conclusion is achieved. Improvement Condition (IC3) set.
	Take precautions when mixing or blending wastes		
	Procedures are risk-based and consider likelihood of accidents, incidents and their environmental impact		
MONITORING			
6	Relevant emissions to water: monitor key process parameters at key locations		
	Key process parameters		
	Waste water flow		Not Applicable – No point source emissions to water
	pH		
	Temperature		
	Conductivity		
	BOD		
	Other process parameters		
	Key monitoring locations		
	Pre-treatment inlet and/or outlet		Not Applicable – No point source emissions to water
	Final treatment inlet		
	Discharge point (to the environment)		
	Other location		
	Monitoring emissions to water (refer to table)		
7	Monitoring parameters depend on waste treatment process(es) involved		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
8	Monitoring emissions to air (refer to table) Monitoring parameters depend on waste treatment process(es) involved		Not Applicable – No point source emissions to air
9	Monitoring diffuse emissions of organic compounds to air from processes involving solvents. Use one or a combination of the following:		
	a	Measurement – S6.2 descriptions	Not Applicable – No processes involving solvents.
	b	Emissions factor calculation	
	c	Mass balance calculation	
10	Periodically monitor odour emissions where nuisance is expected and/or has been substantiated (monitoring frequency is outlined in BAT 12)		
	Use EN standards e.g. 13725 or 16841		Not Applicable – Odour nuisance not expected nor substantiated.
	Use equivalent methods e.g. ISO / national / international monitoring standards		
11	Annual monitoring for:		
	- Water, energy and raw materials		Compliant in the future – Will be implemented through the permit reporting requirements from 17 August 2022.
	- Generation of residues and waste water		Compliant in the future – Will be implemented through the permit reporting requirements from 17 August 2022.
EMISSIONS TO AIR			
12	Set up, implement and review an Odour Management Plan (as part of the site EMS) where nuisance is expected and/or has been substantiated. Include ALL of the following:		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Protocol containing actions and timelines		Not Applicable - Odour nuisance not expected nor substantiated
	Protocol for conducting odour monitoring (BAT 10)		
	Protocol for response to odour incidents/complaints		
	Odour prevention and reduction programme		
13	Techniques to prevent, or where not practicable reduce odour emissions. Use one or a combination of the following:		Not Applicable – none of these techniques are applicable to this treatment technique.
	a.	Minimising residence times (open systems only)	
	b.	Use chemical treatment (N/A if desired output is hampered)	
	c.	Optimising aerobic treatment – see examples. Refer to BAT 36 for wastes other than water-based liquid waste.	
14	Techniques to prevent, or where not practicable reduce diffuse emissions to air, in particular of dust, organic compounds and odour. Use one or a combination of the following:		Compliant in the future – No information provided by the Operator of how the BAT conclusion is achieved. Improvement Condition (IC3) set.
	a.	Minimising potential diffuse emission sources – see examples	
	b.	Select and use high-integrity equipment – see examples	
	c.	Corrosion prevention – see examples	
	d.	Containment, collection and treatment of diffuse emissions – see examples	
	e.	Dampening (with water or fog)	
	f.	Maintenance – see examples	
	g.	Cleaning of waste treatment and storage areas – see examples	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	h.	Leak Detection And Repair (LDAR) programme for organics – S6.2	
15	Use flaring only for safety reasons or non-routine operating conditions (OTNOC). Use both of the following:		
	a.	Correct plant design – see examples	Not Applicable – No flaring
	b.	Plant management including gas system balancing and advanced process control	
16	Reduce emissions to air when flaring is unavoidable. Use both of the following:		
	a.	Correct design of flaring devices – see examples	Not Applicable – No flaring
	b.	Monitoring and recording as part of flare management – see examples	
NOISE AND VIBRATIONS			
17	Set up, implement, and regularly review a Noise and Vibration Management Plan (as part of the EMS) where nuisance is expected and/or has been substantiated. Include ALL of the following:		
	I.	Protocol with actions and timelines	Not Applicable - Noise nuisance not expected nor substantiated
	II.	Noise and vibration monitoring plan/protocol	
	III.	Noise & vibration complaint response plan/protocol	
	IV.	Noise and vibration reduction programme	
18	Techniques to prevent, or where not practicable reduce noise and vibration emissions. Use one or a combination of the following:		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	a.	Appropriate location of equipment and buildings	Compliant in the future – No information provided by the Operator of how the BAT conclusion is achieved. Improvement Condition (IC3) set.
	b.	Operational measures – see examples	
	c.	Low-noise equipment – see examples	
	d.	Noise & vibration control equipment – see examples	
	e.	Noise attenuation – see examples	
EMISSIONS TO WATER			
19	Optimise water consumption, reduce waste water generation and prevent or where not practicable reduce emissions to soil and water. Use one or a combination of the following:		Compliant in the future – No information provided by the Operator of how the BAT conclusion is achieved. Improvement Condition (IC3) set.
	a.	Water management – see examples	
	b.	Water recirculation	
	c.	Impermeable surface	
	d.	Reduce likelihood and impact of tank/vessel overflows and failures – see examples	
	e.	Roofing of waste storage and treatment areas	
	f.	Segregation of water streams (being mindful of existing plant constraints)	
	g.	Adequate drainage infrastructure	
	h.	Design and maintenance provisions to allow risk-based leak detection and repair. Minimise use of underground components.	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	i.	Appropriate buffer storage capacity (being mindful of existing plant constraints)	
20	Treat waste water using a combination of:		
	Preliminary, primary and general treatment		
	a.	Equalisation	Not Applicable – no waste water treatment
	b.	Neutralisation	
	c.	Physical separation	
	Physico-chemical treatment		
	d.	Adsorption	Not Applicable – no waste water treatment
	e.	Distillation/rectification	
	f.	Precipitation	
	g.	Chemical oxidation	
	h.	Chemical reduction	
	i.	Evaporation	
	j.	Ion exchange	
	k.	Stripping	
	Biological treatment		
	l.	Activated sludge process	Not Applicable – no waste water treatment
	m.	Membrane bioreactor	
	Nitrogen removal		
	n.	Nitrification/denitrification (where biological treatment used)	Not Applicable – no waste water treatment

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Solids removal	
	o.	Coagulation and flocculation
	p.	Sedimentation
	q.	Filtration (sand, micro, ultra)
	r.	Flotation
	Not Applicable – no waste water treatment	
	BAT-AELs for DIRECT discharges to a receiving waterbody (mg/l)	
	Table 6.1 and its supporting notes. Monitoring requirements are outlined in BAT 7	
	TOC	10.0-60 10-100 for water-based liquid waste
	COD (TOC is preferred)	30-180 30-300 for water-based liquid waste
	Suspended solids	5.0-60
	HOI	0.5-10 applying to specific waste treatments
	Total N	1-25 for biological treatment and waste oil re-refining 10-60 for water-based liquid waste
	Total P	0.3-2 for biological treatment 1-3 for water-based liquid waste
		Not Applicable – no point source emissions to water

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Phenol	0.05-0.2 for waste oil re-refining and physio-chemical treatment of waste with CV 0.05-0.3 for water-based liquid waste	
	Free CN-	0.02-0.1 for water-based liquid waste	
	AOX	0.2-1 for water-based liquid waste	
	Metals & Metalloids – specific waste treatments as listed in Table 6.1		
	As	0.01-0.05	
	Cd	0.01-0.05	
	Cr	0.01-0.15	
	Cu	0.05-0.5	
	Pb	0.05-0.1	
	Ni	0.05-0.5	
	Hg	0.5-5	
	Zn	0.1-1	
	Metals & Metalloids – treatment of water-based liquid waste		
	As	0.01-0.1	
	Cd	0.01-0.1	
	Cr	0.01-0.3	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant	
	Hexavalent Cr [Cr(VI)]	0.01-0.1		
	Cu	0.05-0.5		
	Pb	0.05-0.3		
	Ni	0.05-1		
	Hg	1.0-10		
	Zn	0.1-2		
	BAT-AELs for INDIRECT discharges to a receiving waterbody (mg/l)			Not Applicable – no point source emissions to water
	Table 6.2 and its supporting notes. Monitoring requirements are outlined in BAT 7			
	HOI	0.5-10 applying to specific waste treatments		
	Free CN-	0.02-0.1 for water-based liquid waste		
	AOX	0.2-1 for water-based liquid waste		
	Metals & Metalloids – specific waste treatments as listed in Table 6.2			
	As	0.01-0.05		
	Cd	0.01-0.05		
	Cr	0.01-0.15		
	Cu	0.05-0.5		
	Pb	0.05-0.1		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Ni	0.05-0.5	
	Hg	0.5-5	
	Zn	0.1-1	
	Metals & Metalloids – treatment of water-based liquid waste		
	As	0.01-0.1	
	Cd	0.01-0.1	
	Cr	0.01-0.3	
	Hexavalent Cr [Cr(VI)]	0.01-0.1	
	Cu	0.05-0.5	
	Pb	0.05-0.3	
	Ni	0.05-1	
	Hg	1.0-10	
	Zn	0.1-2	
EMISSIONS FROM ACCIDENTS AND INCIDENTS			
21	Techniques to prevent or limit the environmental consequences of accidents and incidents, as part of the Accident Management Plan. Use ALL of the following:		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	a.	Protection measures – see examples	Compliant in the future – No information provided by the Operator of how the BAT conclusion is achieved. Improvement Condition (IC3) set.
	b.	Management of incidental or accidental emissions	
	c.	Incident/accident registration and assessment system – see examples	
MATERIAL EFFICIENCY			
22	Use materials efficiently by substituting materials with waste e.g. waste acids/alkalis for pH adjustment, fly ashes for binders		Not Applicable – no treatment of waste
ENERGY EFFICIENCY			
23	Use energy efficiently by using both of the following techniques:		Compliant in the future – No information provided by the Operator of how the BAT conclusion is achieved. Improvement Condition (IC3) set.
	a.	Energy efficiency plan	
	b.	Energy balance record	
REUSE OF PACKAGING			
24	Maximise the reuse of packaging as part of a Residues Management Plan (see BAT 1 XII.)		Not Applicable – no packaging received

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
MECHANICAL TREATMENT OF WASTE (GENERAL BAT)			
25	Reduce emissions to air of dust, particulate-bound metals, PCDD/F and dioxin-like PCBs by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:		
	a.	Cyclone – see S6.1	Not Applicable – no treatment of waste
	b.	Fabric filter – see S6.1	
	c.	Wet scrubbing – see S6.1	
	d.	Water injection into the shredder	
	BAT-AEL for channelled dust emissions to air from the mechanical treatment of waste (mg/Nm3) Table 6.3 and its supporting note. Monitoring requirements are outlined in BAT 8		
Dust	2.0-5.0	Not Applicable – no treatment of waste	
MECHANICAL TREATMENT OF METAL WASTE BY SHREDDING			
26	Improve overall environmental performance and prevent emissions due to accidents and incidents. Use BAT 14g <u>AND ALL</u> of the following techniques:		
	(a)	Detailed inspection procedure for baled waste before shredding	Not Applicable – no treatment of waste
	(b)	Remove dangerous items from waste inputs and dispose of them in a safe manner	
	(c)	Treatment of containers accompanied by a declaration of cleanliness	

BATc number		Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
27	Prevent deflagrations and reduce emissions from deflagrations. Use technique a. <u>AND ONE OR BOTH</u> of techniques b. and c.			Not Applicable – no treatment of waste
	a.	Deflagration management plan with reduction programme, incident review and response protocol		
	b.	Pressure relief dampers		
	c.	Pre-shredding (device)		
28	Use energy efficiently by keeping the shredder feed stable			
MECHANICAL TREATMENT OF WEEE CONTAINING VFCs AND/OR VHCS				
29	Techniques to prevent, or where not practicable reduce emissions of organic compounds to air. Apply BAT 14d <u>AND</u> BAT14h <u>AND</u> technique a. <u>AND ONE OR BOTH</u> of techniques b. and c.			Not Applicable – no treatment of waste
	a.	Optimised removal and capture of refrigerants and oils		
	b.	Cryogenic condensation		
	c.	Adsorption		
	BAT-AELs for channelled TVOC and CFC emissions to air from treatment of WEEE containing VFCs and/or VHCs (mg/Nm3)			
	Table 6.4. Monitoring requirements are outlined in BAT 8			
	TVOC	3.0-15		Not Applicable – no treatment of waste
CFCs	0.5-10			
30	Prevent emissions due to explosions when treating WEEE containing VFCs and/or VHCs. Use <u>EITHER</u> of the following techniques:			Not Applicable – no treatment of waste
	a.	Inert atmosphere e.g. N2		
	b.	Forced ventilation		

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
MECHANICAL TREATMENT OF WASTE WITH CALORIFIC VALUE		
31	Reduce emissions to air of organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:	
	a.	Adsorption – see S6.1
	b.	Biofilter – see S6.1
	c.	Thermal oxidation – see S6.1
	d.	Wet scrubbing – see S6.1
	Not Applicable – no treatment of waste	
BAT-AEL for channelled TVOC emissions to air from the mechanical treatment of waste with calorific value (mg/Nm3)		
Table 6.5 and its supporting note. Monitoring requirements are outlined in BAT 8		
	TVOC	10.0-30.0
		Not Applicable – no treatment of waste
MECHANICAL TREATMENT OF WEEE CONTAINING MERCURY		
32	Reduce mercury emissions to air by collecting them at source, sending them to abatement and carrying out adequate monitoring. This includes <u>ALL</u> of the following:	
	Equipment is enclosed, under negative pressure and connected to a LEV system	
	Waste gas treated using dedusting techniques – see examples – followed by adsorption on activated carbon	
	Monitoring of waste gas treatment efficiency	
	Mercury levels measured at least weekly within treatment and storage areas	
		Not Applicable – no treatment of waste

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant	
	BAT-AEL for channelled mercury (Hg) emissions to air from the mechanical treatment of WEEE containing mercury ($\mu\text{g}/\text{Nm}^3$) <i>Table 6.6. Monitoring requirements are outlined in BAT 8</i>		
Hg	2.0-7.0	Not Applicable – no treatment of waste	
BIOLOGICAL TREATMENT OF WASTE (GENERAL BAT)			
33	Reduce odour emissions and improve overall environmental performance by selecting the waste input (to ensure its suitability for biological treatment). See also BAT 2	Not Applicable – no treatment of waste	
34	Reduce emissions to air of dust, organic compounds and odorous compounds (including H ₂ S & NH ₃) by using one or a combination of the following techniques:		
	a.	Adsorption – see S6.1	Not Applicable – no treatment of waste
	b.	Biofilter – see S6.1	
	c.	Fabric filter – see S6.1.	
	d.	Thermal oxidation – see S6.1	
	e.	Wet scrubbing – see S6.1	
	BAT-AEL for channelled NH₃, odour, dust and TVOC emissions to air from the biological treatment of waste (mg/Nm^3) ($\text{ou}_\text{E}/\text{m}^3$) <i>Table 6.7 and its supporting notes. Monitoring requirements are outlined in BAT 8</i>		
	NH ₃	0.3-20	Not Applicable – no treatment of waste
	Odour	200-1000	
	Dust	2.0-5.0	

BATc number		Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	TVOC	5.0-40		
35	Reduce the generation of waste water and reduce water usage by using <u>ALL</u> of the following:			
	a.	Segregation of water streams (see also BAT 19f)		Not Applicable – no treatment of waste
	b.	Water recirculation		
	c.	Minimisation of the generation of leachate		
BIOLOGICAL TREATMENT OF WASTE: AEROBIC METHODS				
36	Reduce emissions to air and improve overall environmental performance by monitoring and/or controlling key waste and process parameters. Include following elements:			
	Waste input characteristics e.g. C to N ratio, particle size		Not Applicable – no treatment of waste	
	Temperature and moisture content within windrows (Moisture monitoring not needed for enclosed processes where H&S issues have been identified)			
	Aeration of the windrow			
	Windrow porosity, height and width			
37	Reduce diffuse emissions to air of dust, odour and bioaerosols from open-air treatment steps. Use <u>ONE OR BOTH</u> of the following techniques:			
	a.	Use of semi-permeable membrane covers		Not Applicable – no treatment of waste
	b.	Adaptation of operations to the meteorological conditions		
BIOLOGICAL TREATMENT OF WASTE: ANAEROBIC METHODS				

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
38	Reduce emissions to air and improve overall environmental performance by monitoring and/or controlling key waste and process parameters. Include following elements:	
	Implement a manual and/or automatic monitoring system to:	
	Ensure a stable digester operation	Not Applicable – no treatment of waste
	Minimise operational difficulties and associated odour emissions	
	Provide sufficient early warning of system failures	
	Windrow porosity, height and width	
	Monitoring and/or control of key waste and process parameters – examples below:	
	pH and alkalinity of the digester feed	Not Applicable – no treatment of waste
	Digester operating temperature	
	Hydraulic and organic loading rates of the digester feed	
	Volatile fatty acids and NH3 concentrations within digester & digestate	
	Biogas quantity, composition (e.g. H2S) and pressure	
	Liquid and foam levels in the digester	
MECHANICAL BIOLOGICAL TREATMENT (MBT) OF WASTE		
39	Reduce emissions to air. Generally applicable to new plants, existing plants may have layout constraints. Use BOTH of the following techniques:	
	a.	Segregation of the waste gas streams (refer to inventory described in BAT 3)

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	b.	Recirculation of waste gas. Waste gas treatment is described in BAT 34 and recirculation in BAT 35.	
PHYSICO-CHEMICAL TREATMENT OF SOLID AND/OR PASTY WASTE			
40	Improve overall environmental performance by monitoring the waste input as part of the waste pre-acceptance and acceptance procedures. See also BAT 2.		
	Monitoring the waste input		
	Content of organics, oxidising agents, metals, salts, odorous compounds		Not Applicable – no treatment of waste
	H2 formation potential upon mixing of flue-gas treatment residues/ashes with water		
41	Reduce emissions to air of dust, organic compounds and NH3 by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:		
	a.	Adsorption – see S6.1	Not Applicable – no treatment of waste
	b.	Biofilter – see S6.1	
	c.	Fabric filter – see S6.1.	
	d.	Wet scrubbing – see S6.1	
	BAT-AEL for channelled NH3, odour, dust and TVOC emissions to air from the physico-chemical treatment of solid and/or pasty waste (mg/Nm3)		
	Table 6.8. Monitoring requirements are outlined in BAT 8		
Dust	2.0-5.0	Not Applicable – no treatment of waste	

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
RE-REFINING OF WASTE OIL			
42	Improve overall environmental performance by monitoring the waste input as part of the waste pre-acceptance and acceptance procedures. See also BAT 2.		
	Monitoring the waste input		
	Chlorinated compounds e.g. solvents or PCBs	Not Applicable – no re-refining of waste oil	
43	Reduce quantity of waste sent for disposal by using <u>ONE OR BOTH</u> of the following techniques:		
	a.	Material recovery e.g. organic residues in asphalt products	Not Applicable – no re-refining of waste oil
	b.	Energy recovery	
44	Reduce emissions to air of organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:		
	a.	Adsorption – see S6.1	Not Applicable – no re-refining of waste oil
	b.	Thermal oxidation – see S6.1	
	c.	Wet scrubbing – see S6.1	
	The BAT-AEL for TVOC emissions to air set in Section 4.5 (below) applies.		
Monitoring requirements are outlined in BAT 8			
PHYSICO-CHEMICAL TREATMENT OF WASTE WITH CALORIFIC VALUE			
45	Reduce emissions to air of organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:		
	a.	Adsorption – see S6.1	Not Applicable – no treatment of waste
	b.	Cryogenic condensation – see S6.1	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	c.	Thermal oxidation – see S6.1	
	d.	Wet scrubbing – see S6.1	
	The BAT-AEL for TVOC emissions to air set in Section 4.5 (below) applies. Monitoring requirements are outlined in BAT 8		
REGENERATION OF SPENT SOLVENTS			
46	Improve overall environmental performance by using <u>ONE OR BOTH</u> of the following techniques:		
	a.	Material recovery (by evaporation from distillation residues)	Not Applicable – no regeneration of spent solvents
	b.	Energy recovery e.g. using distillation residues	
47	Reduce emissions to air of organic compounds by applying BAT 14d <u>AND</u> using <u>a combination of</u> the following techniques:		
	a.	Recirculation of process off-gases in a steam boiler. Avoid generating PCBs and/or PCDD/Fs	Not Applicable – no regeneration of spent solvents
	b.	Adsorption – see S6.1	
	c.	Thermal oxidation – see S6.1. Avoid generating PCBs and/or PCDD/Fs	
	d.	Condensation or cryogenic condensation	
	e.	Wet scrubbing – see S6.1	
	The BAT-AEL for TVOC emissions to air set in Section 4.5 (below) applies. Monitoring requirements are outlined in BAT 8		

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
BAT-AEL FOR EMISSIONS OF ORGANIC COMPOUNDS TO AIR – SECTION 4.5 (RE-REFINING OF WASTE OIL) (PHYSICO-CHEMICAL TREATMENT OF WASTE WITH CV) (REGENERATION OF SPENT SOLVENTS)			
	BAT-AEL for channelled TVOC emissions to air from the re-refining of waste oil, physico-chemical treatment of waste with calorific value and regeneration of spent solvents (mg/Nm3) Table 6.9 and its supporting note. Monitoring requirements are outlined in BAT 8		
	TVOC	5.0-30	Not Applicable – none of these processes carried out
THERMAL TREATMENT OF SPENT ACTIVATED CARBON, WASTE CATALYSTS AND EXCAVATED CONTAMINATED SOIL			
48	Improve overall environmental performance by using <u>ALL</u> of the following techniques:		
	a.	Heat recovery from the furnace off-gas e.g. for preheating combustion air or steam generation	Not Applicable – no treatment of waste
	b.	Indirectly fired furnace i.e. avoids contact between the furnace contents and the burner flue-gases. Note applicability constraints.	
	c.	Process-integrated techniques to reduce emissions to air – see examples	
49	Reduce emissions to air of HCl, HF, dust and organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	a.	Cyclone – see S6.1	Not Applicable – no treatment of waste
	b.	Electrostatic precipitator (ESP) – see S6.1	
	c.	Fabric filter – see S6.1	
	d.	Wet scrubbing – see S6.1	
	e.	Adsorption – see S6.1	
	f.	Condensation – see S6.1	
	g.	Thermal oxidation – see S6.1	
	Note supporting text for BAT 49g (thermal oxidation) Monitoring requirements are outlined in BAT 8. No BAT-AELs have been set for this BATc.		
WATER WASHING OF EXCAVATED CONTAMINATED SOIL			
50	Reduce emissions to air of dust and organic compounds from the storage, handling and washing steps by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:		Not Applicable – no water washing of excavated contaminated soil
	a.	Adsorption – see S6.1	
	b.	Fabric filter – see S6.1	
	c.	Wet scrubbing – see S6.1	
Monitoring requirements are outlined in BAT 8. No BAT-AELs have been set for this BATc.			
Decontamination of equipment containing PCBs			

BATc number		Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant	
51	Reduce emissions to air of PCBs and organic compounds and improve overall environmental performance by using <u>ALL</u> of the following techniques:				
	a.	Coating of the storage and treatment areas – see examples		Not Applicable – no decontamination of equipment containing PCBs	
	b.	Implementation of staff access rules to prevent dispersion of contamination – see examples			
	c.	Optimised equipment cleaning and drainage – see examples			
	d.	Control and monitoring of emission to air – see examples			
	e.	Disposal of waste treatment residues – see examples			
	f.	Recovery of solvent when solvent washing is used			
	Monitoring requirements are outlined in BAT 8. No BAT-AELs have been set for this BATc.				
TREATMENT OF WATER-BASED LIQUID WASTE					
52	Improve overall environmental performance by monitoring the waste input as part of the waste pre-acceptance and acceptance procedures. See also BAT 2.				
	Monitoring the waste input				
	Bioeliminability e.g. BOD, BOD-COD ratio, Zahn-Wellens test, biological inhibition potential			Not Applicable – no treatment of waste	
	Feasibility of emulsion breaking e.g. lab testing				

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
53	Reduce emissions to air of HCl, NH3 and organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:		
	a.	Adsorption – see S6.1	Not Applicable – no treatment of waste
	b.	Biofilter – see S6.1	
	c.	Thermal oxidation – see S6.1.	
	d.	Wet scrubbing – see S6.1	
	BAT-AELs for channelled HCl and TVOC emissions to air from the treatment of water-based liquid waste (mg/Nm3) <i>Table 6.10 and its supporting notes. Monitoring requirements are outlined in BAT 8</i>		
	HCl	1.0-5.0	Not Applicable – no treatment of waste
	TVOC	3.0-20	

Annex 2: Consultation on the draft decision where an Article 15(4) derogation has been applied

No derogations applied for.