Natural Resources Wales permitting decisions

Variation and Consolidation of a bespoke Permit – Carmarthenshire County Council

We have decided to issue a Natural Resources Wales initiated variation and consolidated permit for Nantycaws Landfill Site Phase 1 Effluent Treatment Plant in Carmarthen operated by Carmarthenshire County Council.

The permit number is EPR/PP3338CQ.

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, changes to emissions limits and monitoring requirements.

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 Nantycaws Landfill Phase 1 Effluent Treatment Plant against the published BAT conclusions for Waste Treatment.
- Annex 1 – Decision Checklist regarding relevant BAT Conclusions

Assessment of Nantycaws Landfill Phase 1 Effluent Treatment Plant against the published BAT conclusions for Waste Treatment

1. Our decision

We have issued a variation, which will allow Carmarthenshire County Council 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, issued on the 28 September 2012 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, Carmarthenshire County Council 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. Carmarthenshire County Council 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, Carmarthenshire County Council 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.

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 23 October 2019 and additional information received on 14 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 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 detailed response was received from Carmarthenshire County Council. Following assessment of the Regulation 61(1) response, further information was requested from the Operator. 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. We have also extended the date of an existing improvement condition (IC4) at request from the regulatory compliance officer as we believe it is yet to be discharged.

Reference	Requirement	Date
IC5	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 Environment Management System • BAT 21 Emissions from Accidents and Incidents • BAT 23 Energy Efficiency	17 February 2022 or otherwise agreed in writing with Natural Resources Wales

Operational Changes

There are no operational changes as part of this variation. The scheduled activity has changed due to changes in the Environmental Permitting Regulations (EPR). The

previous scheduled activity was Section 5.3 Part A(1)(c)(i) it is now Section 5.4 Part A(1)(a)(i). The description remains consistent as Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving one or more of the following activities (i) biological treatment.

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 Operator provided the response detailed below.

The Operator stated in their response that no priority hazardous substances nor any other relevant priority hazardous substances are present in the discharge to surface water. Therefore no further assessment is required. We are in agreement with this conclusion.

1. The specific BAT Conclusions on water emissions were also reviewed based on the Waste Treatment BREF and the following changes are made to the ELV's for emissions to water taking into account BAT Conclusion 20 from the BREF.

BAT AELs have been amended for the following parameters.

Parameter	Limit	Compliance period
Ammonium (N-NH_4)	4.0 mg/L	Until 16 August 2022
pH	6 – 9	Until 16 August 2022
Total suspended solids	30 mg/L	Until 16 August 2022
Biological oxygen demand (BOD)	20 mg/L	Until 16 August 2022
Iron	3.0 mg/L	Until 16 August 2022
Chemical oxygen demand (COD)	No limit set	Until 16 August 2022
Total daily discharge volume of discharge	250 m^3/day	Until 16 August 2022
Ammonium (N-NH_4)	4.0 mg/L	From 17 August 2022
pH	6 – 9	From 17 August 2022

Total suspended solids	30 mg/L	From 17 August 2022
Biological oxygen demand (BOD)	20 mg/L	From 17 August 2022
Iron	3.0 mg/L	From 17 August 2022
Chemical oxygen demand (COD)	180 mg/L	From 17 August 2022
Total daily discharge volume of discharge	250 m^3/day	From 17 August 2022
Total nitrogen	25 mg/L	From 17 August 2022
Total phosphorus	2 mg/L	From 17 August 2022

Emissions to Water – Article 15(4) Derogations

No derogations.

Emissions to Air

There are no emissions to air associated with the permitted activity.

Emissions to Air – Article 15(4) Derogations

No derogations.

Other IED BREFs relevant to the permit review

There are no other specific listed activities within Table S1.1, therefore no other relevant BRefs apply.

Other changes following consolidation

The following changes have been carried out in line with the consolidation:

- The listed activity has changed on ther permit from Section 5.3 A(1)(c)(i) to Section 5.4 A(1)(a)(i). This is due to changes made to EPR in 2013, there are no operational changes to the activity at the installation.
- The OPRA score at permit issue is 56, there has been a change to the OPRA score, which according to PALS was 55. An OPRA profile from 2012 showed an OPRA score of 56 therefore it is expected the previous score on PALS was a transcription error.
- A number of new conditions have been added to the permit, these include conditions 1.3, 2.3.2, 3.1.4, 4.2.2(b) and 4.3. These conditions are added as part of the consolidation and update to the modern permit template.

6. Conclusion

We consider that the installation already employed what used to be BAT. The revised BREF and its BAT-AELs 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:**		Complaint in the future Limited information provided, improvement condition set.
	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	
		(e) Documentation	
		(f) Effective process control	

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
		(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)	Currently Compliant See BAT 2
	XI.	Inventory of waste water & waste gas streams (BAT 3)	Currently Compliant See BAT 3
	XII.	Residues Management Plan – S6.5	Not Applicable See BAT 24
	XIII.	Accident Management Plan – S6.5	Compliant in the future

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
			See BAT 21
	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	Not Applicable Only one waste stream is accepted by the plant, this is landfill leachate, this quality of this waste remains constant. Continuous flow is monitored into the plant. See BAT 3 for information of waste water stream characteristics, leachate is characterised during the process in line with the permit requirements.
	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	Currently Compliant See BAT 3
	e.	Ensure waste segregation	Not Applicable – only one waste stream
	f.	Ensure waste compatibility prior to mixing or blending	Not Applicable – no mixing or blending
	g.	Sort solid incoming waste – S6.4	Not Applicable – no solid waste
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	Currently Compliant The Operator has site process diagrams are displayed within the plant room and electronic copies.
	(i)(b)	Process-integrated and waste water/waste gas treatment descriptions including performance	Currently Compliant The Operator has all plant operations, descriptions and sampling techniques displayed within the plant room with electronic copies.

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
			Results are logged in on-site field notes and yearly performance is submitted in reports.
	Information on characteristics of waste water streams		
	(ii)(a)	*Mean and variability of:*	
		Flow	Currently Compliant The Operator monitors water volume, pH, temperature and conductivity recorded daily.
		pH	
		Temperature	
		Conductivity	
	(ii)(b)	*Mean concentration, load and variability of:*	
		Total suspended solids	Compliant in the future The Operator has monitoring in place as per the permit requirements. Weekly samples are sent to a UKAS accredited laboratory. TSS, COD, nitrogen species, relevant metals and other pollutants are monitored. Phosphorus species will be added to the permit from 17 August 2022.
		COD/TOC	
		Nitrogen species	
		Phosphorous	
		Metals	
		Priority substances/micropollutants	
		Any other relevant compounds	
	(ii)(c)	*Bioeliminability data (see BAT 52):*	
		BOD	Currently Compliant BOD and COD monitored.
		BOD to COD ratio	
		Zahn-Wellens test	
		Biological inhibition potential	
	Information on characteristics of waste gas streams		
	(iii)(a)	*Mean and variability of:*	Not applicable – no waste gas stream

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
		Flow	
		temperature	
	(iii)(b)	*Mean concentration, load and variability of relevant substances:*	
		Organic compounds	
		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:**		
	a.	Optimised storage location	Currently Compliant The landfill leachate is stored in a designated lagoon, leachate is recirculated through the plant until all determinants are below emission limits. No other waste is treated or stored on site.
	b.	Adequate storage capacity	
	c.	Safe storage operation	
	d.	Separate area for storage & handling of packaged hazardous waste	Not Applicable – no hazardous 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
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	Currently Compliant The Operator has stated waste handling and transfer is carried out by competent staff. Sludge is periodicially removed by a designated waste specialist. Technical competence a requirement of the permit.
	Duly documented, validated and verified	Currently Compliant All procedures documented
	Spill prevention, detection and mitigation measures	Currently Compliant Accident management plan in place. Pipework is checked daily to detect, mitigate and prevent spills, spill kits in place. All pipework is above ground and is bunded.
	Take precautions when mixing or blending wastes	Not Applicable – no mixing or blending
	Procedures are risk-based and consider likelihood of accidents, incidents and their environmental impact	Currently Compliant Procedures are documented, accident management plan in place.
	MONITORING	
6	**Relevant emissions to water: monitor key process parameters at key locations**	
	Key process parameters	
	Waste water flow	Currently Compliant Flow, pH, conductivity, BOD and other parameters are monitored as per the permit requirements. There are two locations (SAF 2 and
	pH	
	Temperature	

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
	Conductivity		post treatment outfall pipe) measured daility. Lagoon and French drain with the inlet well is sampled weekly.
	BOD		
	Other process parameters		
	Key monitoring locations		
	Pre-treatment inlet and/or outlet		Currently Compliant – see above
	Final treatment inlet		
	Discharge point (to the environment)		
	Other location		
7	Monitoring emissions to water (refer to table) Monitoring parameters depend on waste treatment process(es) involved		Currently Complaint Monitoring is completed as per the current permit requirements, additional parameters will be added into the permit from 17 August 2022.
8	Monitoring emissions to air (refer to table) Monitoring parameters depend on waste treatment process(es) involved		Not Applicable – no 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		

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
11	**Annual monitoring for:**		
	- **Water, energy and raw materials**		Compliant in the future Will be implemented through the permit requirements
	- **Generation of residues and waste water**		Compliant in the future Will be implemented through the permit requirements
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:**		
	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:**		
	a.	Minimising residence times (open systems only)	Not Applicable – no odour emissions
	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.	

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
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:**		
	a.	Minimising potential diffuse emission sources – see examples	Not Applicable – no diffuse emission to air
	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	
	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 <u>both</u> 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 <u>both</u> 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	

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
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 <u>ALL</u> 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:**		
	a.	Appropriate location of equipment and buildings	Not Applicable – no noise generated as part of the waste treatment process
	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:**		
	a.	Water management – see examples	Currently Compliant
	b.	Water recirculation	

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.	Impermeable surface	No water is used in the process therefore water consumption is not applicable. Water is only used to remove build up residue from the bund, this is done periodically and waste water is recirculated via the lagoon, no water is added as part of the ETP process. The landfill leachate is stored in a segregated lagoon, no other wastes are treated or stored on site. Pipework is above ground and is bunded, the concrete plinth upon which the tanks are mounted are bunded within an impermeable concrete bund wall, the containment volume is sufficient to contain a complete tank failure of the largest tank. There is a concrete lined holding lagoon, which provides storage capacity in the event of storm event leading to increased flow of leachate. The holding lagoon also enables the storage of contaminated surface water collected in the bunded area.
	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.	
	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	Currently Compliant Primary settlement tank in use.
	b.	Neutralisation	
	c.	Physical separation	
	Physico-chemical treatment		
	d.	Adsorption	Not Applicable – no physico-chemical treatment carried out
	e.	Distillation/rectification	
	f.	Precipitation	
	g.	Chemical oxidation	

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.	Chemical reduction	
	i.	Evaporation	
	j.	Ion exchange	
	k.	Stripping	
	Biological treatment		
	l.	Activated sludge process	Not Applicable
	m.	Membrane bioreactor	Currently Compliant Membrane bioreactor treatment technique is carried out using plastic media with microorganisms.
	Nitrogen removal		
	n.	Nitrification/denitrification (where biological treatment used)	Currently Compliant Membrane bioreactor used to reduce ammonia concentration.
	Solids removal		
	o.	Coagulation and flocculation	Not Applicable
	p.	Sedimentation	Currently Compliant Sedimentation using settlement tank.
	q.	Filtration (sand, micro, ultra)	Not Applicable
	r.	Flotation	Not Applicable
	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	Not Applicable – COD BAT-AEL applied
		30-180	Compliant in the future

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
	COD (TOC is preferred)	30-300 for water-based liquid waste	BAT-AEL for COD will be implemented in the permit. COD parameter is within the permit currently with no limit.
	Suspended solids	5.0-60	Currently Compliant Limit in the permit currently 30 mg/L therefore compliant with BAT-AEL.
	HOI	0.5-10 applying to specific waste treatments	Not Applicable
	Total N	1-25 for biological treatment and waste oil re-refining 10-60 for water-based liquid waste	Complaint in the future BAT-AEL for Total N will be implemented in the permit.
	Total P	0.3-2 for biological treatment 1-3 for water-based liquid waste	Compliant in the future BAT-AEL for Total P will be implemented in the permit.
	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	Not Applicable
	Free CN-	0.02-0.1 for water-based liquid waste	Not Applicable
	AOX	0.2-1 for water-based liquid waste	Not Applicable
	Metals & Metalloids – specific waste treatments as listed in Table 6.1		
	As	0.01-0.05	Not Applicable
	Cd	0.01-0.05	
	Cr	0.01-0.15	
	Cu	0.05-0.5	

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
	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	
	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) *Table 6.2 and its supporting notes. Monitoring requirements are outlined in BAT 7*		
	HOI	0.5-10 applying to specific waste treatments	Not Applicable – no indirect discharges
	Free CN-	0.02-0.1 for water-based liquid 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
	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	
	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	

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
	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 <u>ALL</u> of the following:**		
	a.	Protection measures – see examples	Compliant in the future Limited information provided, improvement condition 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 – not applicable with the treatment process
ENERGY EFFICIENCY			
23	**Use energy efficiently by using <u>both</u> of the following techniques:**		
	a.	Energy efficiency plan	Compliant in the future Limited information supplied, improvement condition set.
	b.	Energy balance record	
REUSE OF PACKAGING			

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
24	**Maximise the reuse of packaging as part of a Residues Management Plan (see BAT 1 XII.)**		Not Applicable – no packaging is disposed of
	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
	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
	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

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)	Remove dangerous items from waste inputs and dispose of them in a safe manner	
	(c)	Treatment of containers accompanied by a declaration of cleanliness	
27	**Prevent deflagrations and reduce emissions from deflagrations. Use technique a. <u>AND ONE OR BOTH</u> of techniques b. and c.**		
	a.	Deflagration management plan with reduction programme, incident review and response protocol	Not Applicable
	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.**		
	a.	Optimised removal and capture of refrigerants and oils	Not Applicable
	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
	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:**		

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.	Inert atmosphere e.g. N2	Not Applicable
	b.	Forced ventilation	
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	Not Applicable
	b.	Biofilter – see S6.1	
	c.	Thermal oxidation – see S6.1	
	d.	Wet scrubbing – see S6.1	
	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
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		Not Applicable
	Waste gas treated using dedusting techniques – see examples – followed by adsorption on activated carbon		
	Monitoring of waste gas treatment efficiency		

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
	Mercury levels measured at least weekly within treatment and storage areas		
	BAT-AEL for channelled mercury (Hg) emissions to air from the mechanical treatment of WEEE containing mercury (µg/Nm3) *Table 6.6. Monitoring requirements are outlined in BAT 8*		
	Hg	2.0-7.0	Not Applicable
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**		Currently Compliant – See BAT2, only one waste input which is landfill leachate.
34	**Reduce emissions to air of dust, organic compounds and odorous compounds (including H2S & NH3) by using one or a combination of the following techniques:**		
	a.	Adsorption – see S6.1	Not Applicable – no channelled emissions to air
	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/Nm3) (ou_E/m3) *Table 6.7 and its supporting notes. Monitoring requirements are outlined in BAT 8*		
	NH3	0.3-20	Not Applicable – no channelled emissions to air
	Odour	200-1000	

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
	Dust	2.0-5.0	
	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)	Currently Compliant Water is recirculated at the plant where possible. No water is added as part of the treatment process. Water is only used to remove build-up residue from the bund, this is completed periodically.
	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 composting activities
	Temperature and moisture content within windrows (Moisture monitoring not needed for enclosed processes where H&S issues have been identified)		Not Applicable – no composting activities
	Aeration of the windrow		Not Applicable - no composting activities
	Windrow porosity, height and width		Not Applicable – no composting activities
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 composting activities
	b.	Adaptation of operations to the meteorological conditions	

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
BIOLOGICAL TREATMENT OF WASTE: ANAEROBIC METHODS			
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 anaerobic methods
	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 anaerobic methods
	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 <u>BOTH</u> of the following techniques:**		
	a.	Segregation of the waste gas streams (refer to inventory described in BAT 3)	Not Applicable

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.	Not Applicable
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
	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
	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
RE-REFINING OF WASTE OIL			

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
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
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
	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
	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
	b.	Cryogenic condensation – see S6.1	
	c.	Thermal oxidation – see S6.1	
	d.	Wet scrubbing – 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
	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
	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
	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*		
BAT-AEL FOR EMISSIONS OF ORGANIC COMPOUNDS TO AIR – SECTION 4.5 (RE-REFINING OF WASTE OIL) (PHYSICO-CHEMICAL TREATMENT OF WASTE WITH CV)			

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
(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
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
	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:**		
	a.	Cyclone – see S6.1	Not Applicable
	b.	Electrostatic precipitator (ESP) – see S6.1	
	c.	Fabric filter – see S6.1	
	d.	Wet scrubbing – 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
	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:**		
	a.	Adsorption – see S6.1	Not Applicable
	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			
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
	b.	Implementation of staff access rules to prevent dispersion of contamination – 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
	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
	Feasibility of emulsion breaking e.g. lab testing		
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
	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) *Table 6.10 and its supporting notes. 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
	HCl	1.0-5.0	Not Applicable
	TVOC	3.0-20	

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

No derogation