

BATc number	Summary of BAT Conclusion requirement	Status / comment
OVERALL ENVIRONMENTAL PERFORMANCE		
1	Environment Management System (EMS) – <u>ALL</u> of the following:	
	I. Management commitment	Veolia operates under an integrated management system that defines the business procedures, formulated to assist in meeting business objectives across the entire scope of Veolia's activities. The system is externally certified to ISO:14001 and therefore is subject to both internal and external audits to ensure compliance and to promote continual improvement. The Management System is an electronic platform, allowing widespread access across the business (see 'Veolia's Management System, Environmental Control, January 2023). See also https://www.veolia.com/en/our-purpose
	II. Environmental policy development including CI of performance	Procedures are in place for the management, identification and review of objectives and targets. Sites are responsible for ensuring that specific targets are set, which both drive continual improvement on a site basis and contribute to overall strategic objectives. See 'Environmental Sustainability Policy Statement'.
	III. Planning and implementing procedures & targets in conjunction with financial planning & investment	The Group is committed to multifaceted performance organized, in its GreenUp strategic program for 2027, around 15 progress objectives. Each of the indicators associated with the objectives is measured and audited by independent bodies in order to monitor progress. Multifaceted performance is directly linked to UN Sustainable Development Goals including economic and financial performance. See https://www.veolia.com/en/veolia-group/csr-multifaceted-performance

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		OUR MULTIFACETED PERFORMANCE GreenUp 2027 PLANET - OUR ENVIRONMENTAL PERFORMANCE - Combat pollution and accelerate the ecological transformation - Decarbonization of our assets - Decarbonization of our customers Scope 4 - Water savings and resources regeneration - Depollution - Biodiversity CLIENTS - OUR COMMERCIAL PERFORMANCE - Guarantee results over the long term through innovative services - Growth boosters and innovation - Customer and consumer satisfaction - Profitability SHAREHOLDERS - OUR ECONOMIC AND FINANCIAL PERFORMANCE - Investment capacity - Return on capital employed - Increase prosperity and results over time EMPLOYEES - OUR HUMAN RESOURCES PERFORMANCE - Give meaning to our employees' work and help them with career development and engagement - Employee commitment - Diversity and inclusion - Health, safety and well-being SOCIETY - OUR SOCIAL PERFORMANCE - Support regional development through responsible means - Ethics and integrity - Support to local communities Legend: 1. Our stakeholders 2. Our performance 3. Our commitments 4. Our objectives Veolia has the following accreditations: • ISO 14001 - Environmental Management • Competence Management System - Energy & Utility Skills (Private Standard) Version 5 • ISO 45001:2018 - Occupational health and safety management systems • ISO 9001 2015 - Quality Management System • ISO 50001:2018 - Energy management systems • ISO 22301:2019 - Business Continuity Management Systems / Security and resilience

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		SSIP: Safety Schemes in Procurement
IV.	Implementation of procedures	
	(a) Structure & responsibility	Veolia sites are certified as operating to Competence Management System - Energy & Utility Skills (Private Standard) Version 5 (CMS – 00033038). The scheme is based on the recognition that the individual competence of all employees contributes to the overall performance of a site. The system is implemented at Veolia via the VMS 'Veolia Management System' and associated training platforms. Each activity is accompanied by an overarching set of activity / sector based rules to which sites must adhere know as a VMR 'Veolia Minimum Requirements'. Each VMR has an associated toolkit which lays out the various requirements of specific operational roles such as managers, supervisors and operatives. The CMS removes reliance on specific individuals, who could become unavailable due to sickness and holidays or leave the business, and maintains business operational continuity. It also increases staff awareness and individual accountability for environmental issues and permit requirements and applies increased awareness of emergency situations. Employees undergo training that is relevant to their roles which does not require a formal qualification. CMS creates competence awareness across the whole permitted operation, improving standards and efficiency. Continuing competence is ongoing rather than scheduled every 2 years. Sites must be operational before implementing the CMS system, this will usually be achieved within 6 months of initial operations. This transition period has previously been accepted by UK regulators. The CMS is recognised by Natural Resources Wales. Individual management plans are assigned to a role responsible for document review and training rather than a named post holder, this is usually the site manager.
	(b) Recruitment, training, awareness & competence	Role specific training is carried out based on the requirements of CMS as outlined above. - Training records are logged and kept up to date with refresher training - Personal development plans are in place for all roles and annual appraisals are completed and recorded

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		• Role (toolkit)/task/asset-specific risk assessments are in place and reviewed annually as a minimum • Documents and records are readily available to those who need them i.e. VMR Toolkit • Instructions, Operations & Maintenance (O&M) manuals, site plans/drawings
	(c) Communication	Veolia communicates its strategy and commitments to all employees via its intranet system, training platform, site based cascades and conferences. Veolia has a dedicated learning management system (SABA) and a dedicated people development team. See 'Veolia's Management System, Environmental Control, January 2023
	(d) Employee involvement	All employees at the company undertake purpose and values training based around Respect, Customer Focus, Community Spirit, Responsibility and Innovation. All employees have access to the Veolia Management System including the EMS which is hosted on the company Intranet.
	(e) Documentation	The VMS is subject to a strict document control and peer review protocol. All VMS documents are held on a secure live online platform with access to the latest version of any document available immediately after publishing.
	(f) Effective process control	Processing includes manual dismantling and shredding only. Where manual dismantling is carried out under extraction pressure monitoring is in place.
	(g) Maintenance programmes	The VMR / CMS toolkit includes a maintenance technician role profile including training requirement, instructions and competency. PPM is tracked using HxGN EAM. See https://hexagon.com/products/enterprise-asset-management
	(h) Emergency preparedness & response	The business is accredited to ISO 22301 - Business Continuity Management Systems. Every site has a business continuity plan 'BCP' and an emergency plan. Contingency and emergency response is also covered in specific management plans including the Fire Prevention Management Plan 'FPMP'
	(i) Safeguarding compliance with environmental legislation	Veolia has a Risk and Assurance team with dedicated permitting and environmental compliance specialists. See 'Veolia's Management System, Environmental Control, January 2023.
	Checking performance and taking corrective action	
V.	(a) Monitoring & measurement	Role specific training includes monitoring requirements.

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	(b) Corrective and preventive action	Eco-online (AVA), a proprietary software platform which allows management of audits and inspections, incident management, risk management and emergency response and critical event notifications and tracking. AVA is our risk and assurance system for event reporting, investigation and audit. By understanding the root cause of events, we can learn and prevent them from happening again. That's why we are taking a step forward and adopting AVA. With enhanced data capture and analysis tools, AVA helps us to see trends and work smarter. It also provides our sites with visibility that they are operating to Veolia's Minimum Requirements (VMRs).
	(c) Maintenance of records	Eco-online (AVA), a proprietary software platform which allows management of audits and inspections, incident management, risk management and emergency response and critical event notifications and tracking.
	(d) Independent (where practicable) internal or external EMS auditing	Veolia sites are subject to third audits, which may be associated with ISO 14001 continuing compliance or CMS compliance. Sites are also routinely audited by external clients as part of their due diligence process. Sites are also subject to routine internal audits by Risk and Assurance specialists. General compliance is also audited by the local site management team via monthly management reviews. As a minimum, the manager carries out a VMR Managers Monthly Review, including a site walk around which is recorded on EcoOnline (AVA).
VI.	Senior management review of EMS	VMS documents and amendments can only be authorised and approved by the senior leadership team. Site based management plans are reviewed by site management either annually, before a change in operations, following an incident, or if requested by the regulator.
VII.	Following development of cleaner technologies	Continuous improvement is embedded in company culture.
VIII.	Whole life cycle considerations when designing a new plant i.e. impacts from eventual decommissioning and throughout its operating life	A site condition report has been prepared as part of the permit application. Records relating to land quality are stored for the lifetime of the permit. Records of pollution incidents are recorded using Eco-online (AVA), a proprietary software platform which allows management of audits and inspections, incident management, risk management and emergency response and critical event notifications and tracking.
IX.	Regular sectoral bench marking	All sites are required to carry out a 'Permit Review' annually. The configuration of the annual review is below. Configuration Questions ● Permit Details ● Management condition ● Competence- Answer for those under COTC (where applicable) ● Competence- answer for those under CMS (where applicable) ● Management ● Energy Efficiency

BATc number	Summary of BAT Conclusion requirement	Status / comment
		• Raw Materials • Waste Hierarchy • The site • Operations e.g. Table 2.1/S1.1 • Waste Acceptance • Operating Techniques • WEEE • Improvement conditions • Preoperational Conditions • Emissions with no specific limits • Odour • Noise and Vibration • Pests • Mud and Litter • Emissions • Records • Reporting • Notifications • Operating Techniques • Monitoring • Records • Reporting Completion of permit reviews is audited internally. Veolia has a central risk and assurance team with staff dedicated to environmental compliance including any new regulatory requirements.
X.	Waste stream management (BAT 2)	See BAT2
XI.	Inventory of waste water & waste gas streams (BAT 3)	Waste gas streams have been identified, characterised and assessed in the permit application using air dispersion modelling.
XII.	Residues Management Plan – S6.5	Pre-acceptance procedures including sample loads where appropriate ensure that all wastes received have been assessed for their recoverability and outlets have been secured for all residual fractions.
XIII.	Accident Management Plan – S6.5	An accident management is in place including risk of spillage.
XIV.	Odour Management Plan (BAT 12)	N/A - the site will not accept odourous wastes.
XV.	Noise & Vibration Management Plan (BAT 17)	A site specific noise management plan is not deemed to be required. site is located within an existing Veolia Facility and within a much larger industrial estate setting. The system comprised a slow moving screw compressor with a small motors serving the Incline Screw Feed Conveyor Motor: 5.5 kW.

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			Basic Machine (RUNI Screw Compactor): 15.00 kW. Fume Extraction System Motor: 0.75 kW. The system will only operate during the daytime and will not be the dominant noise source on site. The plant is sited at the furthest location possible from residential properties 265m. Geometric noise attenuation alone is 48.43 dB and there are also several structures between source and receiver which will act as a noise barrier. The M6 motorway also runs past the nearest receptors at a distance of approximately 25m which will dominate the residual soundscape. Noise from the RUNI will not be perceptible at receptors.
2	Improving overall environmental performance – <u>ALL</u> of the following:		
	a.	Set up and implement waste characterisation & pre-acceptance procedures	Strict pre-acceptance criteria are in place and every input stream is assessed before being accepted at the site.
	b.	Set up and implement waste acceptance procedures	An EWC list is in place which ensures only waste codes accepted by the permit can be received across the weighbridge. Waste acceptance procedures are in place including a visual check of the waste before it is unloaded.
	c.	Set up and implement a waste tracking system & inventory	Veolia uses Elemos which is a proprietary weighbridge management system. Elemos records material flows and makes material movements more efficient with pre-set functions configured for each site. Each site is configured using the list of waste authorised by the permit
	d.	Set up and implement an output quality management system	Existing procedures for output quality management are in place at the site.
	e.	Ensure waste segregation	Existing procedures for waste separation are in place at the site.
	f.	Ensure waste compatibility prior to mixing or blending	Mixed paints from HWRC are manually sorted before processing to ensure separation of oil and water based paints and remove any contamination including incompatible material.
	g.	Sort solid incoming waste – S6.4	Mixed stream waste such as paints from HWRC are manually sorted prior to processing. Single stream loads are visually assessed before being processed.
3	Establish and maintain a waste water and waste gas inventory as part of the EMS - <u>ALL</u> of the following:		
	<i>Information on characteristics of waste and waste treatment processes</i>		
	(i)(a)	Simplified process flow sheets showing emission sources	N/A
	(i)(b)	Process-integrated and waste water/waste gas treatment descriptions including performance	N/A
	<i>Information on characteristics of waste water streams</i>		
	(ii)(a)	<i>Mean and variability of:</i>	
		Flow	N/A
		pH	N/A
		Temperature	N/A
		Conductivity	N/A

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4	(ii)(b)	Mean concentration, load and variability of:	
		Total suspended solids	N/A
		COD/TOC	N/A
		Nitrogen species	N/A
		Phosphorous	N/A
		Metals	N/A
		Priority substances/micropollutants	N/A
		Any other relevant compounds	N/A
	(ii)(c)	Bioeliminability data (see BAT 52):	
		BOD	N/A
		BOD to COD ratio	N/A
		Zahn-Wellens test	N/A
		Biological inhibition potential	N/A
	Information on characteristics of waste gas streams		
	(iii)(a)	Mean and variability of:	
		Flow	N/A
		Temperature	N/A
	(iii)(b)	Mean concentration, load and variability of relevant substances:	
		Organic compounds	
		POPs e.g. PCBs	N/A
		Any other relevant compounds	N/A
	(iii)(c)	Flammability	N/A
		Lower and Higher Explosive Limits	N/A
		Reactivity	See above.
	(iii)(d)	Presence of other substances that may affect the gas treatment system or plant safety:	
		O ₂	N/A
		N ₂	N/A
		Water vapour	N/A
		Dust	N/A
Reducing environmental risk associated with waste storage – ALL of the following:			

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	a.	Optimised storage location	The new cover is within the central area of the site and poses no additional risks due to location.
	b.	Adequate storage capacity	Storage capacity has been assessed and controls are in place to ensure stock is managed.
	c.	Safe storage operation	Storage is undercover and protected from changes in ambient conditions. There is sealed drainage and perimeter bunding.
	d.	Separate area for storage & handling of packaged hazardous waste	Yes as required, the wider site has multiple options for storage.
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		The site will operate in accordance with the Competence Management System - Energy & Utility Skills (Private Standard).
	Duly documented, validated and verified		Waste movements are logged and tracked.
	Spill prevention, detection and mitigation measures		Spill training and procedures are in place.
	Take precautions when mixing or blending wastes		N/A
	Procedures are risk-based and consider likelihood of accidents, incidents and their environmental impact		The procedures are risk-based in the following ways: • The procedures focus on identifying and mitigating the risks associated with the operation of the facility. • The procedures are designed to prevent or minimize the occurrence of incidents that could lead to harm to people or the environment. • The procedures are regularly reviewed and updated to reflect changes in the facility's operations or the risks associated with those operations. • The procedures are communicated to all employees and contractors who work at the facility so that they can understand and follow them. • The procedures are enforced by management to ensure that they are followed by all employees and contractors. By taking these steps, the facility can reduce the risks.

MONITORING

6	Relevant emissions to water: monitor key process parameters at key locations		
	Key process parameters		
	Waste water flow		N/A
	pH		N/A

BATc number	Summary of BAT Conclusion requirement		Status / comment
	Temperature		N/A
	Conductivity		N/A
	BOD		N/A
	Other process parameters		N/A
	Key monitoring locations		
	Pre-treatment inlet and/or outlet		N/A
	Final treatment inlet		N/A
	Discharge point (to the environment)		N/A
	Other location		N/A
7	Monitoring emissions to water		N/A
	Monitoring parameters depend on waste treatment process(es) involved		
8	Monitoring emissions to air (refer to table)		N/A
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	N/A
	b	Emissions factor calculation	N/A
	c	Mass balance calculation	N/A
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		N/A
	Use equivalent methods e.g. ISO / national / international monitoring standards		N/A
11	Annual monitoring for:		
	- Water, energy and raw materials		N/A
	- Generation of residues and waste water		N/A

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:		
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BATc number	Summary of BAT Conclusion requirement		Status / comment
	Protocol containing actions and timelines		There will be no storage of waste types likely to produce odour.
	Protocol for conducting odour monitoring (BAT 10)		As above.
	Protocol for response to odour incidents/complaints		As above.
	Odour prevention and reduction programme		As above.
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)	N/A
	b.	Use chemical treatment (N/A if desired output is hampered)	N/A
	c.	Optimising aerobic treatment – see examples. Refer to BAT 36 for wastes other than water-based liquid waste.	N/A
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	There will be no storage of waste types likely to produce dust.
	b.	Select and use high-integrity equipment – see examples	N/A
	c.	Corrosion prevention – see examples	N/A
	d.	Containment, collection and treatment of diffuse emissions – see examples	N/A
	e.	Dampening (with water or fog)	N/A
	f.	Maintenance – see examples	N/A
	g.	Cleaning of waste treatment and storage areas – see examples	N/A
	h.	Leak Detection And Repair (LDAR) programme for organics – S6.2	N/A
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	N/A
	b.	Plant management including gas system balancing and advanced process control	N/A
16	Reduce emissions to air when flaring is unavoidable. Use <u>both</u> of the following:		
	a.	Correct design of flaring devices – see examples	N/A
	b.	Monitoring and recording as part of flare management – see examples	N/A

NOISE AND VIBRATIONS

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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	N/A
	II.	Noise and vibration monitoring plan/protocol	N/A
	III.	Noise & vibration complaint response plan/protocol	N/A
	IV.	Noise and vibration reduction programme	N/A
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	N/A
	b.	Operational measures – see examples	N/A
	c.	Low-noise equipment – see examples	N/A
	d.	Noise & vibration control equipment – see examples	N/A
	e.	Noise attenuation – see examples	N/A

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	There will be no process water produced. Roof water will be discharged to existing site drainage systems. The waste storage area will be sealed and discharged to a 2.2m3 blind sump.
	b.	Water recirculation	N/A
	c.	Impermeable surface	All waste treatment and storage activities take place on a solid impermeable concrete surface with perimeter bund.
	d.	Reduce likelihood and impact of tank/vessel overflows and failures – see examples	N/A
	e.	Roofing of waste storage and treatment areas	The storage area is covered.
	f.	Segregation of water streams (being mindful of existing plant constraints)	Roof water will be discharged to existing site drainage systems.
	g.	Adequate drainage infrastructure	No increase in drainage volumes required.
	h.	Design and maintenance provisions to allow risk-based leak detection and repair. Minimise use of underground components.	The only underground component is a sump for collection of any spillages.

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	i.	Appropriate buffer storage capacity (being mindful of existing plant constraints)	N/A
20	Treat waste water using a combination of:		
	<i>Preliminary, primary and general treatment</i>		
	a.	Equalisation	N/A
	b.	Neutralisation	N/A
	c.	Physical separation	N/A
	<i>Physico-chemical treatment</i>		
	d.	Adsorption	N/A
	e.	Distillation/rectification	N/A
	f.	Precipitation	N/A
	g.	Chemical oxidation	N/A
	h.	Chemical reduction	N/A
	i.	Evaporation	N/A
	j.	Ion exchange	N/A
	k.	Stripping	N/A
	<i>Biological treatment</i>		
	l.	Activated sludge process	N/A
	m.	Membrane bioreactor	N/A
	<i>Nitrogen removal</i>		
	n.	Nitrification/denitrification (where biological treatment used)	N/A
	<i>Solids removal</i>		
	o.	Coagulation and flocculation	N/A
	p.	Sedimentation	N/A
	q.	Filtration (sand, micro, ultra)	N/A
	r.	Flotation	N/A
	<i>BAT-AELs for DIRECT discharges to a receiving waterbody (mg/l)</i>		
	<i>Table 6.1 and its supporting notes. Monitoring requirements are outlined in BAT 7</i>		
	TOC	10.0-60	N/A
		10-100 for water-based liquid waste	N/A

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COD (TOC is preferred)	30-180		N/A
		30-300 for water-based liquid waste	N/A
Suspended solids	5.0-60		N/A
HOI		0.5-10 applying to specific waste treatments	N/A
Total N		1-25 for biological treatment and waste oil re-refining	N/A
		10-60 for water-based liquid waste	N/A
Total P		0.3-2 for biological treatment	N/A
		1-3 for water-based liquid waste	N/A
Phenol		0.05-0.2 for waste oil re-refining and physio-chemical treatment of waste with CV	N/A
		0.05-0.3 for water-based liquid waste	
Free CN-		0.02-0.1 for water-based liquid waste	N/A
AOX		0.2-1 for water-based liquid waste	N/A
Metals & Metalloids – specific waste treatments as listed in Table 6.1			
As		0.01-0.05	N/A
Cd		0.01-0.05	N/A
Cr		0.01-0.15	N/A
Cu		0.05-0.5	N/A
Pb		0.05-0.1	N/A
Ni		0.05-0.5	N/A
Hg		0.5-5	N/A
Zn		0.1-1	N/A
Metals & Metalloids – treatment of water-based liquid waste			
As		0.01-0.1	N/A
Cd		0.01-0.1	N/A
Cr		0.01-0.3	N/A

BATc number	Summary of BAT Conclusion requirement		Status / comment
Hexavalent Cr [Cr(VI)]	0.01-0.1		N/A
Cu	0.05-0.5		N/A
Pb	0.05-0.3		N/A
Ni	0.05-1		N/A
Hg	1.0-10		N/A
Zn	0.1-2		N/A
BAT-AELs for INDIRECT discharges to a receiving waterbody (mg/l)			
<i>Table 6.2 and its supporting notes. Monitoring requirements are outlined in BAT 7</i>			
HOI	0.5-10 applying to specific waste treatments		N/A
Free CN-	0.02-0.1 for water-based liquid waste		N/A
AOX	0.2-1 for water-based liquid waste		N/A
Metals & Metalloids – specific waste treatments as listed in Table 6.2			N/A
As	0.01-0.05		N/A
Cd	0.01-0.05		N/A
Cr	0.01-0.15		N/A
Cu	0.05-0.5		N/A
Pb	0.05-0.1		N/A
Ni	0.05-0.5		N/A
Hg	0.5-5		N/A
Zn	0.1-1		N/A
Metals & Metalloids – treatment of water-based liquid waste			N/A
As	0.01-0.1		N/A
Cd	0.01-0.1		N/A
Cr	0.01-0.3		N/A

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	Hexavalent Cr [Cr(VI)]	0.01-0.1	N/A
	Cu	0.05-0.5	N/A
	Pb	0.05-0.3	N/A
	Ni	0.05-1	N/A
	Hg	1.0-10	N/A
	Zn	0.1-2	N/A

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	Site security measures include a fence and lockable gate which is closed when operations have ceased and an externally monitored CCTV system.
	b.	Management of incidental or accidental emissions	The wider site can be easily isolated from the sewer network. Spill training is carried out.
	c.	Incident/accident registration and assessment system – see examples	Eco-online (AVA), a proprietary software platform which allows management of audits and inspections, incident management, risk management and emergency response and critical event notifications and tracking. AVA is our risk and assurance system for event reporting, investigation and audit. By understanding the root cause of events, we can learn and prevent them from happening again. That's why we are taking a step forward and adopting AVA. With enhanced data capture and analysis tools, AVA helps us to see trends and work smarter. It also provides our sites with visibility that they are operating to Veolia's Minimum Requirements (VMRs).

MATERIAL EFFICIENCY

22	Use materials efficiently by substituting materials with waste e.g. waste acids/alkalis for pH adjustment, fly ashes for binders		N/A
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ENERGY EFFICIENCY

23	Use energy efficiently by using <u>both</u> of the following techniques:	
	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.)	Packaging is reused where possible.
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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
	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) <i>Table 6.3 and its supporting note. Monitoring requirements are outlined in BAT 8</i>	
	Dust	2.0-5.0

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
	(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

	Prevent deflagrations and reduce emissions from deflagrations. Use technique a. <u>AND ONE OR BOTH</u> of techniques b. and c.	
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	a.	Deflagration management plan with reduction programme, incident review and response protocol	N/A
	b.	Pressure relief dampers	N/A
	c.	Pre-shredding (device)	N/A
28	Use energy efficiently by keeping the shredder feed stable		N/A

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	N/A
	b.	Cryogenic condensation	N/A
	c.	Adsorption	N/A
	BAT-AELs for channelled TVOC and CFC emissions to air from treatment of WEEE containing VFCS and/or VHCS (mg/Nm3) <i>Table 6.4. Monitoring requirements are outlined in BAT 8</i>		
	TVOC	3.0-15	N/A
	CFCs	0.5-10	N/A
30	Prevent emissions due to explosions when treating WEEE containing VFCS and/or VHCS. Use <u>EITHER</u> of the following techniques:		
	a.	Inert atmosphere e.g. N2	N/A
	b.	Forced ventilation	N/A

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	N/A
	b.	Biofilter – see S6.1	N/A
	c.	Thermal oxidation – see S6.1	N/A
	d.	Wet scrubbing – see S6.1	N/A
	BAT-AEL for channelled TVOC emissions to air from the mechanical treatment of waste with calorific value (mg/Nm3) <i>Table 6.5 and its supporting note. Monitoring requirements are outlined in BAT 8</i>		
	TVOC	10.0-30.0	N/A

BATc number	Summary of BAT Conclusion requirement	Status / comment
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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	N/A
	Waste gas treated using dedusting techniques – see examples – followed by adsorption on activated carbon	N/A
	Monitoring of waste gas treatment efficiency	N/A
	Mercury levels measured at least weekly within treatment and storage areas	N/A
	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.

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		See BAT 2
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	N/A
	b.	Biofilter – see S6.1	N/A
	c.	Fabric filter – see S6.1.	N/A
	d.	Thermal oxidation – see S6.1	N/A
	e.	Wet scrubbing – see S6.1	N/A
	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	N/A
	Odour	200-1000	N/A
	Dust	2.0-5.0	N/A

BATc number	Summary of BAT Conclusion requirement		Status / comment
	TVOC	5.0-40	N/A
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)	N/A
	b.	Water recirculation	N/A
	c.	Minimisation of the generation of leachate	N/A

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		N/A
	Temperature and moisture content within windrows (Moisture monitoring not needed for enclosed processes where H&S issues have been identified)		N/A
	Aeration of the windrow		N/A
	Windrow porosity, height and width		N/A
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	N/A
	b.	Adaptation of operations to the meteorological conditions	N/A

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:		
	<i>Implement a manual and/or automatic monitoring system to:</i>		
	Ensure a stable digester operation		N/A
	Minimise operational difficulties and associated odour emissions		N/A
	Provide sufficient early warning of system failures		N/A
	Windrow porosity, height and width		N/A
	<i>Monitoring and/or control of key waste and process parameters – examples below:</i>		
	pH and alkalinity of the digester feed		N/A
	Digester operating temperature		N/A
	Hydraulic and organic loading rates of the digester feed		N/A

BATc number	Summary of BAT Conclusion requirement	Status / comment
	Volatile fatty acids and NH3 concentrations within digester & digestate	N/A
	Biogas quantity, composition (e.g. H2S) and pressure	N/A
	Liquid and foam levels in the digester	N/A

MECHANICAL BIOLOGICAL TREATMENT (MBT) OF WASTE

	Reduce emissions to air. Generally applicable to new plants, existing plants may have layout constraints. Use <u>BOTH</u> of the following techniques:	
39	a.	Segregation of the waste gas streams (refer to inventory described in BAT 3)
	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

	Improve overall environmental performance by monitoring the waste input as part of the waste pre-acceptance and acceptance procedures. See also BAT 2.	
40	Monitoring the waste input	
		Content of organics, oxidising agents, metals, salts, odorous compounds
		H2 formation potential upon mixing of flue-gas treatment residues/ashes with water
	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:	
41	a.	Adsorption – see S6.1
	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)	
	<i>Table 6.8. Monitoring requirements are outlined in BAT 8</i>	
	Dust	2.0-5.0
		Not applicable.

RE-REFINING OF WASTE OIL

BATc number	Summary of BAT Conclusion requirement		Status / comment
42	Improve overall environmental performance by monitoring the waste input as part of the waste pre-acceptance and acceptance procedures. See also BAT 2.		
	<i>Monitoring the waste input</i>		
	Chlorinated compounds e.g. solvents or PCBs		N/A
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	N/A
	b.	Energy recovery	N/A
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	N/A
	b.	Thermal oxidation – see S6.1	N/A
	c.	Wet scrubbing – see S6.1	N/A
	<i>The BAT-AEL for TVOC emissions to air set in Section 4.5 (below) applies.</i> <i>Monitoring requirements are outlined in BAT 8</i>		

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	N/A
	b.	Cryogenic condensation – see S6.1	N/A
	c.	Thermal oxidation – see S6.1	N/A
	d.	Wet scrubbing – see S6.1	N/A
	<i>The BAT-AEL for TVOC emissions to air set in Section 4.5 (below) applies.</i> <i>Monitoring requirements are outlined in BAT 8</i>		

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)	N/A
	b.	Energy recovery e.g. using distillation residues	N/A
47	Reduce emissions to air of organic compounds by applying BAT 14d <u>AND</u> using a combination of the following techniques:		

BATc number	Summary of BAT Conclusion requirement		Status / comment
	a.	Recirculation of process off-gases in a steam boiler. Avoid generating PCBs and/or PCDD/Fs	N/A
	b.	Adsorption – see S6.1	N/A
	c.	Thermal oxidation – see S6.1. Avoid generating PCBs and/or PCDD/Fs	N/A
	d.	Condensation or cryogenic condensation	N/A
	e.	Wet scrubbing – see S6.1	N/A
<i>The BAT-AEL for TVOC emissions to air set in Section 4.5 (below) applies.</i>			
<i>Monitoring requirements are outlined in BAT 8</i>			

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)

<i>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)</i>			
<i>Table 6.9 and its supporting note. Monitoring requirements are outlined in BAT 8</i>			
TVOC	5.0-30		N/A

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	N/A
	b.	Indirectly fired furnace i.e. avoids contact between the furnace contents and the burner flue-gases. Note applicability constraints.	N/A
	c.	Process-integrated techniques to reduce emissions to air – see examples	N/A
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	N/A
	b.	Electrostatic precipitator (ESP) – see S6.1	N/A

BATc number	Summary of BAT Conclusion requirement		Status / comment
	c.	Fabric filter – see S6.1	N/A
	d.	Wet scrubbing – see S6.1	N/A
	e.	Adsorption – see S6.1	N/A
	f.	Condensation – see S6.1	N/A
	g.	Thermal oxidation – see S6.1	N/A
	<i>Note supporting text for BAT 49g (thermal oxidation)</i>		
	<i>Monitoring requirements are outlined in BAT 8. No BAT-AELs have been set for this BATc.</i>		

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	N/A
	b.	Fabric filter – see S6.1	N/A
	c.	Wet scrubbing – see S6.1	N/A
	<i>Monitoring requirements are outlined in BAT 8. No BAT-AELs have been set for this BATc.</i>		

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	N/A
	b.	Implementation of staff access rules to prevent dispersion of contamination – see examples	N/A
	c.	Optimised equipment cleaning and drainage – see examples	N/A
	d.	Control and monitoring of emission to air – see examples	N/A
	e.	Disposal of waste treatment residues – see examples	N/A
	f.	Recovery of solvent when solvent washing is used	N/A
	<i>Monitoring requirements are outlined in BAT 8. No BAT-AELs have been set for this BATc.</i>		

TREATMENT OF WATER-BASED LIQUID WASTE

BATc number	Summary of BAT Conclusion requirement		Status / comment
52	Improve overall environmental performance by monitoring the waste input as part of the waste pre-acceptance and acceptance procedures. See also BAT 2.		
	<i>Monitoring the waste input</i>		
	Bioeliminability e.g. BOD, BOD-COD ratio, Zahn-Wellens test, biological inhibition potential		N/A
	Feasibility of emulsion breaking e.g. lab testing		N/A
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	N/A
	b.	Biofilter – see S6.1	N/A
	c.	Thermal oxidation – see S6.1.	N/A
	d.	Wet scrubbing – see S6.1	N/A
	<i>BAT-AELs for channelled HCl and TVOC emissions to air from the treatment of water-based liquid waste (mg/Nm3)</i>		
	<i>Table 6.10 and its supporting notes. Monitoring requirements are outlined in BAT 8</i>		
	HCl	1.0-5.0	N/A
	TVOC	3.0-20	N/A