

## **Environment Agency**

### **Review of an Environmental Permit for an Installation subject to Chapter II of the Industrial Emissions Directive under the Environmental Permitting (England & Wales) Regulations 2016 (as amended)**

#### **Decision document recording our decision-making process following review of a permit**

The Permit number is: EPR/EP3334AS  
The Operator is: Greenergy Biofuels Teesside Limited  
The Installation is: Greenergy Biofuels Teesside  
This Variation Notice number is: EPR/EP3334AS/V004

#### **What this document is about**

Article 21(3) of the Industrial Emissions Directive (IED) requires the Environment Agency to review conditions in permits that it has issued and to ensure that the permit delivers compliance with relevant standards, within four years of the publication by the European Commission of updated decisions on BAT conclusions.

We have reviewed the permit for this installation against the revised BAT Conclusions for the Large Volume Organic Chemicals industry sector published on 07 December 2017 in the Official Journal of the European Union.

Where appropriate, we also considered other relevant BAT Conclusions published prior to this date but not previously included in a permit review for the Installation:

Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector. Published 09 June 2016

In this decision document, we set out the reasoning for the consolidated variation notice.

It explains how we have reviewed and considered the techniques used by the operator in the operation and control of the plant and activities of the installation. This review has been undertaken with reference to the decision made by the European Commission establishing best available techniques (BAT) conclusions (BATc) for Production of Large Volume Organic Chemicals (LVOC) and Common Waste Water And Waste Gas Treatment/Management Systems in the Chemical Sector (CWW) as detailed in documents reference C(2017) 7469 and C(2016) 3127 respectively. It is our record of our decision-

making process and shows how we have taken into account all relevant factors in reaching our position.

As well as considering the review of the operating techniques used by the operator for the operation of the plant and activities of the installation, the consolidated variation notice takes into account and brings together in a single document all previous variations that relate to the original permit issue. Where this has not already been done, it also modernises the entire permit to reflect the conditions contained in our current generic permit template.

The introduction of new template conditions makes the permit consistent with our current general approach and with other permits issued to installations in this sector. Although the wording of some conditions has changed, while others have been deleted because of the new regulatory approach, it does not reduce the level of environmental protection achieved by the permit in any way. In this document we therefore address only our determination of substantive issues relating to the new BAT Conclusions and any changes to the operation of the installation.

We try to explain our decision as accurately, comprehensively and plainly as possible. Achieving all three objectives is not always easy, and we would welcome any feedback as to how we might improve our decision documents in future.

## **How this document is structured**

1. Our decision
2. How we reached our decision
3. The legal framework
4. Annex 1 – Decision checklist regarding relevant BAT Conclusions.
5. Annex 2 – Improvement Conditions

# 1 Our decision

We have decided to issue the variation notice to the operator. This will allow it to continue to operate the Installation, subject to the conditions in the consolidated variation notice.

Variation EPR/EP3334AS/V003 was issued to permit the direct discharge of process effluent to the River Tees via emission point to water W1. The operator must meet BAT associated emission levels (BAT-AELs) in the Common waste water and waste gas treatment/management systems in the chemical sector (CWW) BAT Conclusions by 07/12/2021. These are included as emission limit values in Table S3.2 and are applicable from 07/12/2021 if the discharge of process effluent is still being made via W1. The operator had planned to reinstate their sewer connection (S1) and achieve compliance with the BAT-AELs by discharging the process effluent as an indirect emission, for treatment at Bran Sands Industrial Effluent Treatment Works. The permit contains a pre-operational condition for the operator to demonstrate that this is BAT, as well as improvement conditions requiring quarterly progress reports on the operator's proposals to meet the BAT-AELs and confirmation of whether this has been achieved.

Under the quarterly progress reports, the operator now proposes to eliminate the discharge of process effluent to surface water by reusing it within the plant. This variation retains the emission limit values, improvement conditions and pre-operational condition previously set, with amendments to reflect the operator's current proposal for effluent management. When these plant upgrades have been made, improvement condition 28 requires the operator to update their responses on the relevant BAT conclusions, with details of their operating techniques and to confirm compliance.

Material recovery is a key aspect of LVOC BAT conclusion 17 and the operator's process is designed to address this requirement. If the residues from the treatment of waste to produce biodiesel are sold or transferred as non-wastes an assessment is required of whether the residues have stopped being waste and have satisfied all of the conditions within Article 6 of the Waste Framework Directive. This is addressed with improvement condition 29 requiring the operator to confirm the waste status.

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

The consolidated variation notice contains many conditions taken from our standard environmental permit template including the relevant annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting Regulations and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the notice, we have considered the techniques identified by the operator for the operation of their

installation, and have accepted that the details are sufficient and satisfactory to make those standard conditions appropriate. This document does, however, provide an explanation of our use of “tailor-made” or installation-specific conditions, or where our permit template provides two or more options.

## 2 How we reached our decision

### 2.1 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 (a Regulation 61 Notice) on 04/05/18 requiring the operator to provide information to demonstrate where the operation of their installation currently meets, or how it will subsequently meet, the revised standards described in the relevant BAT Conclusions document. The notice required that where the revised standards are not currently met, the operator should provide information that

- Describes the techniques that will be implemented before 07/12/21 which will then ensure that operations meet the revised standard, or
- justifies why standards will not be met by 07/12/21, 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
- justifies why an alternative technique will achieve the same level of environmental protection equivalent to the revised standard described in the BAT Conclusions.

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 BAT Conclusions Document, the Regulation 61 notice required 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 notice response from the operator was received on 09/08/2018, with further submissions on 23/10/2018 (H5 Site Condition Report) and 12/12/2018 (surface water assessment).

We considered it was in the correct form and contained sufficient information for us to begin our determination of the permit review but not that it necessarily contained all the information we would need to complete that determination.

The operator made no claim for commercial confidentiality. We have not received any information in relation to the Regulation 61 Notice response that appears to be confidential in relation to any party.

## 2.2 Review of our own information in respect to the capability of the installation to meet revised standards included in the BAT Conclusions document

Based on our records and previous experience in the regulation of the installation we consider that the operator will be able to comply with the techniques and standards described in the BAT Conclusions other than for those techniques and requirements described in LVOC BATc 14 and CWW BATc 2, 7, 8, 10, 11 and 12. In relation to these BAT Conclusions, we do not fully agree with the operator in respect of their current stated capability as recorded in their regulation 61 Notice response. We have therefore included Improvement Condition 28 in the consolidated variation notice to ensure that the requirements of the BAT Conclusion are delivered before 07/12/21.

## 2.3 Requests for further information during determination

Although we were able to consider the Regulation 61 notice response generally satisfactory at receipt, we did in fact need more information in order to complete our permit review assessment. This was received from the operator on 22/10/21 in response to Improvement Condition 26. (See Key Issues in Annex 1.)

## 2.4 Condition of Soil and Groundwater

Articles 16 and 22 of the Industrial Emissions Directive (IED) require that a quantified baseline is established for the level of contamination of soil and groundwater with hazardous substances, in order that a comparison can be made on final cessation of activities.

We have used the Large Volume Organic Chemicals permit review to regulate against the above IED requirements. Our Regulation 61 notice required operators, where the activity of the installation involved the use, production or release of a relevant hazardous substance (as defined in Article 3(18) of the Industrial Emissions Directive), to carry out a risk assessment considering the possibility of soil and groundwater contamination at the installation with such substances. Where any risk of such contamination was established we requested that the operator either:

- prepare and submit a baseline report containing information necessary to determine the current state of soil and groundwater contamination; or
- provide a summary report referring to information previously submitted where they were satisfied that such information represented the current state of soil and groundwater contamination so as to enable a

quantified comparison to be made with the state of soil and groundwater contamination upon definitive cessation the activity.

Where operators concluded that there were no risks of soil or groundwater contamination (due to there not being any release of hazardous substances), they were required to provide a copy of the risk assessment.

The operator submitted an updated H5 Site Condition Report as part of their response to the Regulation 61 Notice. This contains the following information:

- There have been no pollution incidents that have had an impact on the land.
- The site was constructed in 2006 with suitable protection given to the ground and groundwater, which the Site Protection and Monitoring Programme (SPMP) that was written in July 2008 determined that no soil, gas and water quality monitoring was required.
- An assessment of a new area of land to be added to the permit was completed on 20/06/2016. There have been no changes to the site boundary since variation EPR/EP3334AS/V002 was issued in February 2017.
- There was no evidence of any new or historical contamination on the ground.
- All potentially polluting materials of large quantities are stored within impermeable concrete bunds with a capacity of 110%. Smaller quantities of potentially polluting material in IBCs or drums are stored on mobile bunds.
- All pipework is situated above ground to ensure easy inspection and maintenance.
- The site is raised and situated on its own integral bund with kerbing around the site and hardstanding within the site boundary. All drainage drains to an onsite drainage system and is monitored prior to discharge. Inspection of bunds, sumps and hardstanding is undertaken to ensure that all areas are maintained correctly with maintenance performed as and when required.
- There is no evidence of damage to these pollution prevention measures.
- The site has a management of change process that includes environmental prompts including soil and groundwater protection and leak management.
- All incidents whether actual or potential are recorded on an electronic incident reporting system for investigation and recording of potential actions.

We are satisfied that the SCR and SPMP meet our requirements and are still relevant to the current operations.

## 2.5 Surface Water Pollution Risk Assessment

As part of our delivery of the Water Framework Directive (WFD) requirements, we need to identify and assess the impact of all sources of hazardous pollutants to surface waters from regulated industry. We use the term 'hazardous pollutants' to collectively describe substances covered by the EQSD<sup>1</sup> (priority hazardous substances, priority substances and "other pollutants"). It also applies to the specific pollutants listed in the 2015 Directions<sup>2</sup>, and substances which have operational (non-statutory) Environmental Quality Standards (EQS).

For all installations with discharges to surface water and/or sewer we required the operator, via our Regulation 61 notice, to provide a summary report of the current hazardous pollutant releases referring to the series of screening tests, which are described in our H1 risk assessment guidance, which would allow us to assess whether the emissions of hazardous pollutants from the installation are significant.

The operator submitted a surface water assessment as part of their Regulation 61 Notice response. This was superseded by work on the variation application EPR/EP3334AS/V003, to permit the direct discharge of process effluent to the River Tees via emission point to water W1.

The requirements for this assessment can be found at:

<https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit>

This includes tables listing the hazardous chemicals and elements and details of the sequential screening steps for the assessment.

The dataset on effluent composition collected by the operator during Spring 2020 was of particular importance to this assessment, as being representative of the quality of the discharge made via W1. The operator used this data in a spreadsheet to complete the assessment of hazardous chemicals and elements. We made some corrections to errors in the screening steps and units they had used, as well as a more conservative river flow estimate.

Although not all substances strictly screen out as being under 4% of the EQS (Test 2), the few that do exceed this have process contributions of less than 25% of the EQS, despite using precautionary figures for the calculations. We are satisfied that none of the substances covered by the hazardous chemicals and elements permitting guidance pose a threat to any EQSs or of significant deterioration to water quality and there is no need for detailed modelling of these substances. We have also checked that none of the significant loads for priority hazardous substances are exceeded.

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<sup>1</sup> Environmental Quality Standards Directive (EQSD) (2008/105/EC, as amended by 2013/39/EU)

<sup>2</sup> The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015



We do not consider it necessary to set emission limit values in the permit for any hazardous chemicals and elements. See Key Issues in Annex 1 regarding the BAT-AELs and their applicability.

### **3 The legal framework**

The consolidated variation notice will be issued under Regulations 18 and 20 of the 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 IED;
- subject to aspects of other relevant legislation which also have to be addressed.

We consider that, in issuing the consolidated variation notice, 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.

## **Annex 1: decision checklist regarding relevant BAT Conclusions**

BAT Conclusions for the Large Volume Organic Chemicals industry sector were published by the European Commission on 07 December 2017. There are 19 General BAT Conclusions and a further 71 BAT Conclusions in 10 subsector-specific sections. Where appropriate, we also considered other relevant BAT Conclusions published prior to this date but not previously included in a permit review for the Installation; 23 BAT Conclusions for Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector. This annex 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.

The overall status of compliance with the BAT conclusion is indicated in the table as

- NA Not Applicable
- CC Currently Compliant
- FC Compliant in the future (within 4 years of publication of LVOC BAT conclusions)
- NC Not Compliant

BAT Conclusion No	Summary of BAT Conclusion requirement for Production of Large Volume Organic Chemicals	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	BAT Conclusions that are not applicable to this installation	<b>NA</b>	<p>LVOC BAT Conclusions 1, 3, 4, 5 and 6 are not applicable because no process furnaces/heaters are installed on site.</p> <p>LVOC BAT Conclusion 7 is not applicable because no SCR or SNCR for the abatement of NO<sub>x</sub> emissions are performed on site.</p> <p>LVOC BAT Conclusion 9 is not applicable because the off-gases are of insufficient flow and calorific value to send to a combustion unit.</p> <p>LVOC BAT Conclusion 13 is not applicable because the operator does not use a thermal oxidiser as part of the abatement plant on site.</p> <p>See also LVOC BAT Conclusions 12 and 15 below.</p> <p>LVOC BAT Conclusions 20 to 23 inclusive are not applicable as there is no production of lower olefins at this installation.</p> <p>LVOC BAT Conclusions 24 to 30 inclusive are not applicable as there is no production of aromatics at this installation.</p> <p>LVOC BAT Conclusions 31 to 44 inclusive are not applicable as there is no production of ethylbenzene and styrene monomer at this installation.</p> <p>LVOC BAT Conclusions 45 to 47 inclusive are not applicable as there is no production of formaldehyde at this installation.</p>

			<p>LVOC BAT Conclusions 48 to 55 inclusive are not applicable as there is no production of ethylene oxide and ethylene glycols at this installation.</p> <p>LVOC BAT Conclusions 56 to 60 inclusive are not applicable as there is no production of phenol at this installation.</p> <p>LVOC BAT Conclusions 61 to 63 inclusive are not applicable as there is no production of ethanolamine at this installation.</p> <p>LVOC BAT Conclusions 64 to 74 inclusive are not applicable as there is no production of toluene diisocyanate(TDI) and methylene diphenyl diisocyanate (MDI) at this installation.</p> <p>LVOC BAT Conclusions 76 to 85 inclusive are not applicable as there is no production of ethylene dichloride and vinyl chloride monomer at this installation.</p> <p>LVOC BAT Conclusions 86 to 90 inclusive are not applicable as there is no production of hydrogen peroxide at this installation.</p>
2	Monitor channelled emissions to air other than from process furnaces/heaters in accordance with the described standards and minimum frequencies	<b>CC</b>	<p>There is no potential for benzene or gaseous chlorides to be released. Emissions of sulphur dioxide can only come from combustion and are minimised by the use of natural gas.</p> <p>Emission points A3, A4 and A7 are no longer used due to changes in process operations. A footnote has been added to the emissions table to reflect this and ensure that monitoring requirements are agreed in writing with the Environment Agency before any of these emission points are brought back into use.</p> <p>There is currently a quarterly monitoring requirement of emission points A1 and A9 for VOC. The operator has requested that this is removed as their MCERTS reports find that the flow rate from these emission points is below the limit of detection. The monitoring requirement is reduced to</p>

			<p>an annual frequency (and added for A11) to ensure that emissions remain low and stable and to retain a check on the concentration of VOC.</p> <p>Emission point A2 is used as a local exhaust vent for protection of operators during the discharge of KOH bags into the hopper. As this is an intermittent and short-lived activity, with a bag filter in place, dust monitoring will not be required. Process monitoring is in place.</p>
8	Increase resource efficiency/reduce the pollutant load on final waste gas treatment by using one or a combination of the described techniques on process off-gas streams (8a/b take precedence over 9)	<b>CC</b>	Greenergy make use of techniques for the recovery and use of organic solvents and unreacted organic raw materials and techniques to reduce solids and/or liquids entrainment.
10	Reduce channelled emissions of organic compounds to air by using one or a combination of the described techniques.	<b>CC</b>	Greenergy use both condensation and water scrubbing to reduce emissions to air.
11	Reduce channelled dust emissions to air, by using one or a combination of the described techniques.	<b>CC</b>	<p>There is limited potential for dust emissions from the main vent due to the design of the process. Any non-condensed vapours go to the main plant abatement system where they are condensed and pass through a water scrubber prior to discharge via A1.</p> <p>There is a fabric filter on the local exhaust vent of the potassium hydroxide big bag discharge. Process monitoring is in place.</p>
12	Reduce emissions to air of sulphur dioxide and other acid gases (e.g. HCl), by using wet scrubbing.	<b>NA</b>	There is no formation of acid gases in the process plant or vents, although wet scrubbing is in place (see BAT 10).
14	Reduce the waste water volume, the pollutant loads discharged to a suitable final treatment (typically biological	<b>CC</b>	Greenergy use a number of process-integrated techniques and water usage reduction measures along with recovery of pollutants at source. They also control the water content of the raw materials.

	treatment), and emissions to water, by using appropriate techniques based on the information provided by the inventory of waste water streams specified in the CWW BAT conclusions.		There is limited pretreatment (pH adjustment, oil skimmers) prior to discharge. Greenergy now intend to eliminate the discharge of process effluent to surface water by reusing it within the plant. This furthers their compliance with this BATc. They will be required to update their response to this BATc under IC28.
15	Increase resource efficiency when using catalysts by using a combination of the described techniques.	<b>NA</b>	The process uses Potassium Hydroxide / Methanol catalyst as part of the reaction mechanism. The recovery and reuse of the organic catalyst is described in LVOC BAT 16.
16	Increase resource efficiency by recovery and reuse of organic solvents.	<b>CC</b>	The product specifications require that methanol is removed during the process. The recovered methanol stream is fed back into the main methanol tank for reuse.
17	Prevent, or where not practicable reduce, waste for disposal by using a combination of the described techniques.	<b>CC</b>	Greenergy employ techniques to prevent or reduce the generation of waste. They also recover glycerol and potassium sulphate as 'by-products'. Material recovery is a key aspect of this BAT conclusion and we are satisfied that the process is designed to address this requirement. However, the Environment Agency has not assessed whether the residues from the treatment of waste to produce biodiesel have stopped being waste and have satisfied all of the conditions within Article 6 of the Waste Framework Directive. This is addressed with improvement condition 29 requiring Greenergy to confirm the waste status.
18	Prevent or reduce emissions from equipment malfunctions, by using all the described techniques.	<b>CC</b>	Greenergy maintain an asset system that contains a list of equipment and the monitoring or maintenance programmes. There is a defect logging system.

			Many systems on site operate a duty/standby system, some with additional spares on site as well as critical spares for all equipment that is not on duty standby .
19	Prevent or reduce emissions to air and water occurring during other than normal operating conditions, by implementing measures commensurate with the relevance of potential pollutant releases for: i) Start up and shutdown operations ii) Other circumstances	<b>CC</b>	Abatement plants such as the scrubber are started up first and shut down last. On small scale shutdowns the plant being worked on can be isolated and the other plant can be kept under circulation ensuring a more efficient restart process with fewer emissions. When required wash waters from cleaning operations are removed to ensure compliance with the emissions limits for the discharges to water. Risk assessments, safe systems of work and permits to work are used for maintenance activities which help to reduce emissions to air, water and waste generation.

End of LVOC BAT conclusions

BAT Conclusion No	Summary of BAT Conclusion requirement for Common Waste Water and Waste Gas Treatment/ Management Systems in the Chemical Sector	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	BAT Conclusions that are not applicable to this installation	<b>NA</b>	CWW BAT Conclusions 17 and 18 are not applicable because there is no flare on site. See also CWW BAT Conclusions 5, 6, 20, 21 and 22 below.
	BAT Conclusions where we accept the operator's Reg 61 notice response that they are currently compliant and no further explanation is required.	<b>CC</b>	See lines below
	BAT Conclusions where improvements will be undertaken on site within the 4 year period in order to achieve compliance with the narrative and/or BATAEL prior to the 4 year deadline	<b>FC</b>	See lines below
1	To improve overall environmental performance implement and adhere to an EMS incorporating all the described features.	<b>CC</b>	Greenergy have an EMS certified to ISO 14001 and a company environmental policy statement, which address the points.



BAT Conclusion No	Summary of BAT Conclusion requirement for Common Waste Water and Waste Gas Treatment/ Management Systems in the Chemical Sector	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
2	To facilitate reduction of emissions to water and air and water usage, establish and maintain an inventory of waste water and waste gas streams as part of BAT1 EMS incorporating the described features.	<b>FC</b>	Information provided on the chemical production processes and the waste gas streams. There is limited information on the waste water streams, however Greenergy now intend to eliminate the discharge of process effluent to surface water by reusing it within the plant. They will be required to update their response to this BATc under IC28.
3	For relevant emissions to water monitor key process parameters at key locations.	<b>CC</b>	Greenergy undertake continuous monitoring of pH and TOC in the discharge, along with some monitoring of relevant parameters at other stages in the process. The relevant requirements for flow monitoring were added to the permit under variation EPR/EP3334AS/V003 on 20/05/2021.
4	Monitor emissions to water in accordance with the described standards and minimum frequencies.	<b>FC</b>	TOC and pH are monitored continuously in the discharge. The relevant requirements for monitoring were added to the permit under variation EPR/EP3334AS/V003, with a start date of 07/12/2021 where applicable.

BAT Conclusion No	Summary of BAT Conclusion requirement for Common Waste Water and Waste Gas Treatment/ Management Systems in the Chemical Sector	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
5	Periodically monitor diffuse VOC emissions to air from relevant sources using a combination (or for large amounts – all) of the described techniques.	<b>NA</b>	There is a thorough maintenance and inspection regime on site to ensure that the vessels and pipework are maintained to high standards so the risk of diffuse emissions of VOCs is low.
6	Periodically monitor odour emissions from relevant sources using the described standards.	<b>NA</b>	No odour complaints.
7	Reduce usage of water and the generation of waste water, by reducing the volume and/or pollutant load of waste water streams, enhancing the reuse of waste water within the production process and recovery and reuse of raw materials.	<b>CC</b>	Greenergy use many different techniques to either reduce the usage of water or to reduce the generation of waste water, including the recovery and reuse of water on the plant. Greenergy now intend to eliminate the discharge of process effluent to surface water by reusing it within the plant. This furthers their compliance with this BATc and they will be required to update their response to this BATc under IC28.
8	Prevent the contamination of uncontaminated water reduce emissions to water, by segregating uncontaminated	<b>CC</b>	Applicability exclusion - Due to the layout of the existing surface water drains and effluent system it is not possible to segregate the surface water streams from the effluent streams.

BAT Conclusion No	Summary of BAT Conclusion requirement for Common Waste Water and Waste Gas Treatment/ Management Systems in the Chemical Sector	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	waste water streams from waste water streams that require treatment.		Greenergy now intend to eliminate the discharge of process effluent to surface water by reusing it within the plant. They will be required to update their response to this BATc under IC28.
9	Prevent uncontrolled emissions to water by providing an appropriate buffer storage capacity for waste water incurred during other than normal operating conditions based on a risk assessment, and taking appropriate further measures.	<b>CC</b>	The site has a number of tanks that can store effluent, with tanker point connections for removal of effluent if necessary. Lab testing is available to establish the composition of the effluent and inform decisions on its disposal.
10	Reduce emissions to water, by using an integrated waste water management and treatment strategy that includes an appropriate combination of the described techniques (in the priority order given).	<b>FC</b>	Greenergy use a number of process-integrated techniques along with recovery of pollutants at source. There is limited pretreatment prior to discharge and no final effluent treatment. Greenergy now intend to eliminate the discharge of process effluent to surface water by reusing it within the plant. They will be required to update their response to this BATc under IC28.

BAT Conclusion No	Summary of BAT Conclusion requirement for Common Waste Water and Waste Gas Treatment/ Management Systems in the Chemical Sector	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
11	Reduce emissions to water, by pre-treating waste water that contains pollutants that cannot be dealt with adequately during final waste water treatment using appropriate techniques as part of an integrated waste water management and treatment strategy.	<b>FC</b>	Limited – Oil skimmers/interceptors are designed to remove any oil from the drainage system. Greenergy now intend to eliminate the discharge of process effluent to surface water by reusing it within the plant. They will be required to update their response to this BATc under IC28.
12	Reduce emissions to water, by using an appropriate combination of the described final waste water treatment techniques.	<b>FC</b>	Limited – pH is monitored, with adjustments made if necessary. Greenergy now intend to eliminate the discharge of process effluent to surface water by reusing it within the plant. They will be required to update their response to this BATc under IC28.
	<b>BAT-AELs</b> Table 1 – TOC, COD, TSS Table 2 – nutrients Table 3 – AOX and metals	<b>FC</b>	See Key Issues below.

BAT Conclusion No	Summary of BAT Conclusion requirement for Common Waste Water and Waste Gas Treatment/ Management Systems in the Chemical Sector	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
13	Prevent or, where this is not practicable, reduce the quantity of waste being sent for disposal by setting up and implementing a waste management plan as part of the environmental management system (see BAT 1) that, in order of priority, ensures that waste is prevented, prepared for reuse, recycled or otherwise recovered.	<b>CC</b>	Greenergy follow the waste hierarchy and training is provided to staff.
14	Reduce the volume of waste water sludge requiring further treatment or disposal, and reduce its potential environmental impact, by using one or a combination of the described techniques.	<b>CC</b>	Waste water sludge is not produced on site.
15	Facilitate the recovery of compounds and the reduction of emissions to air, by enclosing the emission sources and treating the emissions, where possible.	<b>CC</b>	A common vent header treats vapours using a condenser and a water scrubber. Off gas from the distillation units passes through a condenser with any remaining vapours emitted to air via A9 and A11.

BAT Conclusion No	Summary of BAT Conclusion requirement for Common Waste Water and Waste Gas Treatment/ Management Systems in the Chemical Sector	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
16	Reduce emissions to air, by using an integrated waste gas management and treatment strategy that includes process-integrated and waste gas treatment techniques.	<b>CC</b>	A common vent header treats vapours using a condenser and a water scrubber. Off gas from the distillation units passes through a condenser with any remaining vapours emitted to air via A9 and A11.
19	Prevent or, where that is not practicable, reduce diffuse VOC emissions to air, by using a combination of the described techniques.	<b>CC</b>	Greenergy use a variety of techniques to reduce diffuse VOC emissions to air.
20	Prevent or, where that is not practicable, reduce odour emissions, by setting up, implementing and regularly reviewing an odour management plan, as part of the environmental management system (see BAT 1), that includes all of the described elements:	<b>NA</b>	As there is no expected odour nuisance and no substantiated complaints then this BAT Conclusion is considered to be Not Applicable but there are procedures in place to investigate odour complaints.

BAT Conclusion No	Summary of BAT Conclusion requirement for Common Waste Water and Waste Gas Treatment/ Management Systems in the Chemical Sector	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
21	Prevent or, where that is not practicable, reduce odour emissions from waste water collection and treatment and from sludge treatment, by using one or a combination of the described techniques.	<b>NA</b>	There have been no reported odour emissions from the Greenergy effluent plant.
22	Prevent or, where that is not practicable, reduce noise emissions, by setting up and implementing a noise management plan, as part of the environmental management system (see BAT 1), that includes all of the described elements:	<b>NA</b>	Noise nuisance is not expected nor has ever occurred from the site but there are procedures in place to investigate noise complaints.
23	Prevent or, where that is not practicable, reduce noise emissions, by using one or a combination of the described techniques.	<b>CC</b>	The reduction of noise on site is achieved by a number of measures.

## **Key Issues**

Regardless of the outcome of the surface water pollution risk assessment in section 2.5, the BAT-AELs from the CWW BAT Conclusions must be set as emission limit values for direct discharges. EPR/EP3334AS/V003 was issued to permit the direct discharge of process effluent to the River Tees via emission point to water W1. BAT-AELs will apply if the discharge of process effluent continues to be made directly to the River Tees via W1 from 07/12/2021. From the effluent dataset collected by GBTL in Spring 2020, we know that the mass thresholds are exceeded for the following parameters, which means they are applicable to the emission:

- Total organic carbon (in preference to chemical oxygen demand)
- Total suspended solids
- Total phosphorus
- Copper
- Zinc

These parameters are included in the permit, to reflect the BAT-AELs as yearly average limits, along with the corresponding monitoring requirements. These emission limit values are in Table S3.2 Point source emissions, with a footnote explaining the applicability. Flow monitoring is required and a daily discharge limit of 400 m<sup>3</sup>/d of process effluent will be applicable from 07/12/2021 if the discharge of process effluent is still being made via W1. This maximum volume limit is based on the average figures used in the surface water pollution risk assessment.

At the time of our decision to grant the variation to permit the direct discharge, Greenergy had decided that they would not be installing on-site effluent treatment to meet the BAT-AELs but that they would achieve compliance by reconnecting to the sewer and sending their process effluent for treatment at Bran Sands Industrial Effluent Treatment Works. A pre-operational condition requires the operator to demonstrate that the treatment provided off-site is BAT and that it provides an equivalent level of treatment and protection of the environment as if the effluent were treated on-site, in accordance with Article 15 (1) of the Industrial Emissions Directive.

Improvement conditions 26 and 27 require the operator to provide progress reports on their proposals to achieve compliance with the BAT-AELs for direct emissions to a waterbody and confirmation that this has been met by 07/12/2021. Further information was



received from the operator on 22/10/21 in response to Improvement Condition 26. They now intend to eliminate the discharge of process effluent to surface water by reusing it within the plant. This also means that they will not re-establish their connection to sewer at this time. The BAT-AELs will not apply when process effluent is eliminated from the discharge to the River Tees. We have updated the footnote to improvement condition 27 to reflect this option as a route to compliance.

The BAT-AELs and option for a discharge to sewer will be retained in the permit in order to provide the operator with flexibility for the management of their process effluent, whilst ensuring that the appropriate environmental protection remains in place.

Where relevant and appropriate, we have incorporated the techniques described by the operator in their Regulation 61 notice response as specific operating techniques required by the permit, through their inclusion in Table S1.2 of the consolidated variation notice. The operator now proposes to make plant upgrades for the management of process effluent in order to eliminate it from their direct emission to the River Tees. As such, we have include Improvement condition 28 to require updates on the operator's responses to the relevant BATc, with details of their operating techniques and compliance. Following approval of the report by the Environment Agency, these updated responses shall be deemed to be incorporated into Table S1.2 Operating techniques.

## Annex 2: Improvement Conditions

Based on the information in the Operator's Regulation 61 Notice response and our own records of the capability and performance of the installation at this site, we consider that we need to set improvement conditions so that the outcome of the techniques detailed in the BAT Conclusions are achieved by the installation. These improvement conditions are set out below - justifications for them is provided at the relevant section of the decision document (Annex 1).

If the consolidated permit contains existing improvement conditions that are not yet complete or the opportunity has been taken to delete completed improvement conditions then the numbering in the table below will not be consecutive as these are only the improvement conditions arising from this permit variation.

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
27 <sup>Note (a)</sup>	<p>The operator shall either:</p> <p>A) Submit and obtain the Environment Agency's written approval to a report confirming that the management of process effluent is in compliance with the BAT-AELs for direct emissions to a receiving water body detailed in section 3.4 Tables 1, 2 &amp; 3 of the Common waste water and waste gas treatment/management systems in the chemical sector BAT Conclusions <sup>Note 1</sup> ; or</p> <p>B) Submit to the Environment Agency alternative emission limits by way of a derogation in accordance with article 15(4) of the Industrial Emissions Directive and Industrial Emissions Directive EPR Guidance on Part A installations.</p> <p>The derogation application shall include, but not be limited to, the following:</p> <ul style="list-style-type: none"> <li>a) The BAT conclusions the operator wishes to derogate from and the relevant BAT-AELs;</li> <li>b) The operator's current performance against the BAT-AELs;</li> <li>c) Derogation evidence and the qualifying criteria identified in article 15(4) of IED that is relevant to this site;</li> <li>d) A timeline for compliance with the BAT-AELs or confirmation that this is a request for an open ended derogation;</li> <li>e) An options appraisal of all other potential ways to deliver compliance with the BAT-AELs with justifications as to which options are to be taken forward;</li> </ul>	07/12/2021

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
	<p>f) A cost benefit analysis of the options and preferred solution showing that any other action would incur disproportionate costs; and</p> <p>g) A demonstration that no significant pollution is caused and that a high level of environmental protection is achieved.</p>	
28	<p>The operator shall submit a report, for approval by the Environment Agency, following finalisation of the plant upgrades for the management of process effluent and their commissioning. The report shall provide updates to the operator's responses to the Regulation 61 Notice (received 09/08/18), to provide details of their operating techniques and compliance with:</p> <ul style="list-style-type: none"> <li>• LVOC BATc 14;</li> <li>• CWW BATc 2, 7, 8, 10, 11 and 12; and</li> <li>• any other BATc as relevant, where changes have occurred due to the change in process effluent management.</li> </ul> <p>Following approval of the report by the Environment Agency, these updated responses to the requirements of the BAT conclusions shall be deemed to be incorporated into Table S1.2 Operating techniques.</p>	30/06/2022
29	<p>The operator shall ensure that any residues from the treatment of waste to produce biodiesel have stopped being waste and have satisfied all the conditions within Article 6 of the Waste Framework Directive if these residues are sold or transferred as non-wastes. This includes, but is not limited to, glycerine/glycerol/glycol and potassium sulphate. The operator may self-assess using the available guidance and/or consult with the Environment Agency's Definition of Waste (DoW) Service. The operator shall submit a written report to the Environment Agency to confirm the waste status.</p>	30/11/2022 or prior to any increase in waste acceptance, whichever is sooner.
<p><b>Note 1:</b> The operator may address this requirement with:</p> <ul style="list-style-type: none"> <li>• A report confirming that the process effluent has been eliminated from the direct emission to the River Tees and the BAT-AELs are therefore not applicable; or</li> <li>• The submission of the report detailed in pre-operational measure PO1, to demonstrate that the indirect emission is BAT.</li> </ul>		

Note (a): This improvement condition had been retained from EPR/EP3334AS/V003 with amendments to reflect the operator's effluent management proposal to eliminate process effluent from the direct emission to the River Tees.