

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/VP3831XJ
The Operator is: Ensus UK Limited
The Installation is: Wilton Bioethanol Plant
This Variation Notice number is: EPR/VP3831XJ/V006

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 (LVOC) 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 (CWW). Published 09 June 2016

We also considered the following relevant BAT Conclusions

The Food, Drink and Milk Industries (FDM). Published 04 December 2019 – see detail in Annex I

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, Common Waste Water And Waste Gas Treatment/Management Systems in the Chemical Sector and Food, Drink and Milk industries as detailed in documents reference C(2017) 7469, C(2016) 3127 and C(2019) 7989 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 .

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 proposed decision.
2. How we reached our decision.
3. The legal framework.
4. Annex 1– Decision checklist regarding relevant BAT Conclusions.
5. Annex 2 – Assessment, determination and decision where an application for Derogation from BAT Conclusions with associated emission levels (AEL) has been requested.
6. Annex 3 – Improvement Conditions.
7. Annex 4 – Advertising and consultation on the draft decision.

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 that updates the whole permit.

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 07/08/18, 10/08/18 and 09/10/18.

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 have no reason to consider that the operator will not be able to comply with the techniques and standards described in the BAT Conclusions.

For some BAT conclusions the operator has stated they are not currently compliant but will be before the target date and we agree.

In relation to some of these BAT conclusions we have therefore included Improvement conditions in the consolidated variation notice to ensure that the requirements of the BAT conclusions are delivered before the relevant BAT conclusion implementation date.

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, and issued a further information request on 12/02/21, 10/03/21, 16/08/21, 02/12/21 and 06/12/21 and suitable further information was provided by the operator on 04/10/21, 10/12/21 and 21/12/21. A copy of the further information request was placed on our public register.

Information provided on 04/10/21	AECOM report – BAT Derogation for TOC Emissions via Emission point W1 dated 30 September 2021
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Information provided on 10/12/21	EMS Status and review of parameters and limits within CWW BATc12 tables 1,2,3 Request to withdraw the derogation
Information provided on 21/12/21	Metal Analysis data

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 provided an Environmental Risk Assessment (ERA) dated 07/08/18 which confirmed:-

- There is a low potential for pollution to ground and groundwater to occur on most areas of the site.
- The materials present with the main processing areas are not categorised as harmful to the environment and the site infrastructure includes primary, secondary and tertiary containment systems to reduce the risk of pollution.
- an Application Site Report (ASR) dated April 2008 and in particular Appendix C5 was provided in support of the original permit application. This included soil and groundwater data which is considered to represent the baseline conditions. In addition during construction of the site, a geotextile membrane was installed so any

made ground above the membrane is considered to be uncontaminated at the commencement of the permit activities.

We are satisfied these documents meet the requirements of Articles 16 and 22 of IED.

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 EQSD¹ (priority hazardous substances, priority substances and "other pollutants"). It also applies to the specific pollutants listed in the 2015 Directions², 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 confirmed the site has a single discharge to water (W1), effluent from process activities and surface water are collected into holding sumps on site prior to being tested and then either disposal off site or discharge to drain via W1. The waste water from W1 then discharges along with other effluent on the Wilton International complex that are collected and managed by Sembcorp Limited before being discharged to the Tees Estuary.

The site drainage to W1 receives waste water from a number of sources:-

- evaporated condensate from the production of syrup and animal feed processing
- cooling water purge
- bund rainwater which is tested to confirm it is not contaminated
- surface water drainage from the sites hardstanding
- storm water from offsite land drains beyond the installation boundary

The Operator has listed the effluent sources and potential contaminants. They have confirmed that the effluent sources discharged from the site which will eventually be discharged to the River Tees are either not hazardous or screen out because they are present at trace concentrations well below the published no observable effect concentration for the substance and well below published environmental quality standards.

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

² The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015

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.

We have set emission limit values (ELV's) in line with the BAT Conclusions, unless a tighter, i.e. more stringent, limit was previously imposed and these limits have been carried forward. For emissions to each relevant environmental receptor (i.e. air, or surface water), the emission limits and monitoring requirements have been incorporated into the consolidated variation notice via two sets of tables/tables with notes in Schedule 3 – Emissions and Monitoring for

- a) the existing ELVs and monitoring requirements which are effective from the date of issue of the notice; and
- b) amended ELVs where a BAT-AEL is specified in the BAT conclusions, and any associated monitoring requirements which will take effect from 7th December 2021 for LVOC/CWW and 4th December 2023 for FDM.

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.

For emissions to water the Operator did request a derogation from compliance with the BAT- AEL for total organic carbon (TOC) included within the CWW BAT Conclusion 12. However this was withdrawn after the

Operator had clarified that the main source of the TOC load was an intermittent discharge of effluent which related to the FDM activity. On this basis we have aligned this discharge with the FDM BAT-AELs. Whilst the discharge standards for FDM are similar to the LVOC & CWW, the compliance date for achieving the standards are different. The compliance date for achieving the BAT AEL is 4 December 2023 and we have included an improvement condition requiring the Operator to report on progress to achieve the BAT AEL for COD before this date. Therefore the final part of this annex considers the Food, Drink and Milk Industries BAT Conclusions published on 4 December 2019. There are 37 BAT Conclusions. BAT 1-15 are general BAT Conclusions and BAT 16-37 are sector specific BAT Conclusions. 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
1	Monitor channelled emissions to air from process furnaces/heaters in accordance with the described standards and minimum frequencies	NA	<p>Whilst the Operator provided details on emission points to air from process furnaces and heaters, we do not consider they operate any equipment classified as process furnaces or heaters. See key issue section below.</p> <p>The BATc is not applicable.</p>
2	Monitor channelled emissions to air other than from process furnaces/heaters in accordance with the described standards and minimum frequencies	CC	See the key issue section below.
3	Ensure optimised combustion from process furnaces/heaters to reduce emissions to air of CO	NA	The BATc is not applicable to the activities carried out at the installation – see BATc 1 above.
4	Reduce NO _x emissions from process furnace/heaters by using one or a combination of the described techniques	NA	The BATc is not applicable to the activities carried out at the installation – see BATc 1 above.

5	Prevent or reduce dust emissions from process furnace/heaters by using one or a combination of the described techniques	NA	The BATc is not applicable to the activities carried out at the installation – see BAT conclusion 1 above.
6	Prevent or reduce SO ₂ emissions from process furnace/heaters by using one or a combination of the described techniques	NA	The BATc is not applicable to the activities carried out at the installation – see BAT conclusion 1 above.
7	To reduce emission of ammonia optimise design/operation of SCR/SNCR	NA	The BATc is not applicable to the activities carried out at the installation – see BAT conclusion 1 above. Selective catalytic reduction and non-selective catalytic reduction are not used to abate NO _x emissions.
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)	CC	<p>The operator has confirmed-</p> <ul style="list-style-type: none"> a) No hydrogen is generated by the process so recovery and use of excess or generated hydrogen is not applicable. b) Recovery and use of organic solvents and unreacted organic raw materials includes recovery phases to maximise the product yield (99.8% ethanol purity). c) Use of spent air is not applicable to this process. d) No HCL is generated by the process therefore recovery is not applicable. e) No H₂S is generated by the process f) Cyclones are used on the process drier outlets to prevent solids entrainment and this is considered BAT compliant. <p>BAT is to use an appropriate combination of the techniques given in BATc a)-f). We agree with the operator's confirmed compliance.</p>
9	Increase energy efficiency/reduce the pollutant load on final waste gas treatment by sending process off-gas streams of	NA	The process does not generate off gas of sufficient calorific value suitable for combustion.

	sufficient calorific value to a combustion unit.		We agree that this BATc is not applicable to the activities.
10	Reduce channelled emissions of organic compounds to air by using one or a combination of the described techniques.	CC	<p>The Operator has confirmed that a combination of techniques from a) and e) are used to reduce channelled emission of organic compounds to air:-</p> <ul style="list-style-type: none"> a) a condensation process is applied as part of the bioethanol recovery. b) adsorption is not applicable. c) wet scrubbing is not applicable, it was previously used for the installation driers but led to odour issues and therefore the plant needed to be modified with thermal oxidisers being installed. d) catalytic oxidisers not considered applicable. e) thermal oxidisers installed to A1 and A2 as primary abatement. <p>BAT is to use one or a combination of the techniques given in BATc a)-e). We agree with the operator's confirmed compliance.</p>
11	Reduce channelled dust emissions to air, by using one or a combination of the described techniques.	CC	<p>The Operator has confirmed that a combination of techniques from a) , c) and d) are used to reduced channelled dust emissions to air.</p> <ul style="list-style-type: none"> a) a cyclone technique is applied to the A2 drier lines to abate dust emissions from the wet process flows b) electrostatic precipitators are not applicable. c) fabric filters are applied to emissions points A3 to A8 and bag filters applied to emissions points A9 –A18. d) Vapour points from milling and all other emission points are a combination of two-stage dust filters, ceramic/metal filters and bag filters.

			BAT is to use one or a combination of the techniques given in BATc a)-d). We agree with the operator's confirmed compliance.
12	Reduce emissions to air of sulphur dioxide and other acid gases (e.g. HCl), by using wet scrubbing.	NA	The Operator confirmed that the process does not generate sulphur dioxide or other acid gases. We agree that this BATc is not applicable to these activities.
13	Reduce NO _x , CO and SO ₂ emissions from thermal oxidisers by using a combination of the described techniques	CC	The Operator has confirmed:- <ul style="list-style-type: none"> a) Due to the low level NO_x emissions, the need for pre-treatment of off gases is not considered applicable. b) The plant uses a single source gaseous natural fuel c) The plant uses low NO_x burners. d) RTO's are used at emission points A1 and A2 and e) The RTOs are designed to achieve optimum residence times at a minimum operational temperature of 850 degrees C. f) and g) Selective catalytic reduction (SCR) and Selective non-catalytic reduction (SNCR) are not considered applicable as the NO_x emissions are currently below the BAT-AEL levels. <p>BAT is to use an appropriate combination of the techniques given in BATc a)-g). We agree with the operator's confirmed compliance.</p>
14	Reduce the waste water volume, the pollutant loads discharged to a suitable final treatment (typically biological 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.	CC	Cooling tower water purge is the main source of process waste water from the primary activity – the bioethanol production process. This not heavily contaminated and does not need final treatment, it is monitored and controlled to minimise water discharge.

15	Increase resource efficiency when using catalysts by using a combination of the described techniques.	NA	<p>The Operator has confirmed catalysts are not used within the process, therefore not applicable.</p> <p>We agree that this BATc is not applicable to the activities carried out at the installation.</p>
16	Increase resource efficiency by recovery and reuse of organic solvents.	NA	<p>The Operator confirmed that organic solvents are not used in the process, only organic reagents, therefore not applicable.</p> <p>We agree that this BATc is not applicable to the activities carried out at the installation.</p>
17	Prevent, or where not practicable reduce, waste for disposal by using a combination of the described techniques.	CC	<p>The Operator confirmed that:-</p> <ul style="list-style-type: none"> a) The addition of inhibitors to the distillation system is not considered applicable. The process is optimised achieving 99.8% recovery therefore further optimisation is not considered. b) Minimising high boiling residues is not considered applicable c) Distillation bottoms are recycled for syrup and DDGS for onward sales into animal feed markets. d) Catalyst and adsorbent regeneration is also not applicable e) Use of residues as fuels is not considered applicable as the current process optimisation and distillation residue markets are considered BAT. <p>We agree with the operator's confirmed compliance.</p>
18	Prevent or reduce emissions from equipment malfunctions, by using all the described techniques.	CC	<p>The Operator confirmed that:-</p> <ul style="list-style-type: none"> a) The plant has identified environmental critical equipment and FMEA's completed.

			<p>b) Standard Operating Procedures, emergency response procedures, condition monitoring on rotating equipment and PSSR inspections include fermenters. Incident and accident reporting procedures are well developed and embedded into the operational management philosophy for the plant.</p> <p>c) There are back up systems for critical equipment. Drier RTOs x2 , 1 per drying line are operated independently . Procedures in place in the event of a drier failure. In the event of a fermenter RTO failure there is an agreed 60 hour by pass option , if the failure continues beyond this point the fermenter operations would stop.</p> <p>We agree with the Operator's confirmed compliance.</p>
19	<p>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:</p> <p>i) Start up and shutdown operations</p> <p>ii) Other circumstances</p>	CC	<p>The fermenters operate on a batch semi-continuous basis, this minimises start up and shut down scenarios. Emissions at this time are lower than the normal process levels as the system is attempting to reach optimisation.</p> <p>Any specific maintenance activities are undertaken under the sites permit to work control and management procedures. System purging is designed to contain emissions and they are appropriate procedures. The operator has undertaken a DSEAR Assessment in relation to potential flammable (VOC) materials releases in relation to an uncontrolled event and /or invasive maintenance activities to prevent any fugitive emissions.</p> <p>We agree with the Operator's confirmed compliance.</p>

Key Issues

The operator identified the following channelled emission points (other than from process furnaces/heaters) as set out below, the operator has confirmed that all monitoring is undertaken annually as the process is stable with a single fuel input and stable operating parameters. The monitoring standards required in the current permit differ to those specified in the BATc2 (the monitoring standards for Total VOC and Particulate matter(PM10). We have included the monitoring standards specified in BATc2 for emission points A1, A3-A8 , however permit condition 3.5.3 allows some flexibility to agree other methods providing the data is of an equivalent scientific quality.

Emission point	Source	Parameter	Existing Monitoring requirement	LVOC Monitoring requirement Note 1	Monitoring standard
A1	Fermentation and distillation via RTO	Oxides of Nitrogen	Annual	Annual	EN 14792
		Carbon monoxide	Annual	Annual	EN 15058
		Total VOC (as Carbon)	Annual	Annual	EN 12619
A2	DDGS Driers A & B via RTO Stack	Oxides of Nitrogen	Annual	Annual	EN 14792
		Carbon monoxide	Annual	Annual	EN 15058
		Total VOC (as Carbon)	Annual	Annual	EN 12619
A3 to A8	Milling building vents	Particulate Matter (PM10)	Annual	Annual	EN 13284-1

Note 1 The minimum monitoring frequency for periodic measurements may be reduced to once every year, if emission levels are proven to be sufficiently stable

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
1	To improve overall environmental performance implement and adhere to an EMS incorporating all the described features.	FC	<p>The Operator has confirmed the site has an internal management system which is aligned to ISO14001 but not certificated. The EMS is under development. There is non-compliance with the following sections of the BAT conclusions:-</p> <p>v) checking performance and taking corrective action, paying particular attention to :</p> <p style="padding-left: 40px;">d) independent (where practicable) internal or external auditing in order to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained</p> <p>vi) review of the EMS and its continuing suitability, adequacy and effectiveness by senior managers.</p> <p>The Operator gave commitment to revising EMS and seeking external audit and implement recommendations to be completed by 7th December 2021. However the external audit has not yet been completed – this will be addressed during 2022. The Operator will be implementing</p>

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
			a new management structure which will be subject to internal and external verification activities with recommendations being developed. We have included an improvement condition IC 13 to address this.
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.	CC	The Operator has confirmed that full data is held on site within electronic database systems. Site collates data on emissions to air and water including analysis of key determinants using accredited sampling and analysis standards.
3	For relevant emissions to water monitor key process parameters at key locations.	CC	The Operator has confirmed that continuous monitoring of water flow, pH and temperature is carried out at the site discharge point W1. See key issue section below.
4	Monitor emissions to water in accordance with the described standards and minimum frequencies.	CC	See key issues section below.
5	Periodically monitor diffuse VOC emissions to air from relevant sources using a	FC	The Operator confirmed that the site does not handle VOCs. We disagree, the site produces large amounts of bioethanol. They need to

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
	combination (or for large amounts – all) of the described techniques.		show how they will comply with this narrative BATc. We have included an improvement condition (IC16) to address this.
6	Periodically monitor odour emissions from relevant sources using the described standards.	CC	Site has an odour management plan(OMP) which has been incorporated into the permit. Annual odour monitoring is undertaken on the emissions from the RTOs to demonstrate 99% destruction of odorous emissions. Odour patrols are carried out on a daily basis and offsite in the event of abatement trips, malfunctions and breakdowns.
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.	CC	Cooling tower water purge is the main source of process waste water from the primary activity – the bioethanol production process. This not heavily contaminated and does not need final treatment, it is monitored and controlled to minimise water discharge. See also key issues section below, BATc7 requirements for FDM and IC15.

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
8	Prevent the contamination of uncontaminated water reduce emissions to water, by segregating uncontaminated waste water streams from waste water streams that require treatment.	CC	Cooling tower water purge is the main source of process waste water from the primary activity – the bioethanol production process. See key issues section below, BATc7 requirements for FDM and IC15
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.	CC	Waste water is already held in sumps which act as a buffer storage capacity. Cooling towers are unlikely to impacted by OTNOC scenarios. There is also additional effluent buffer capacity available at Sembcorp Wilton sites which is available to the Operator.
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).	CC	Cooling tower water purge is the main source of process waste water from the primary activity – the bioethanol production process. See key issues section below, BATc7 requirements for FDM and IC15

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.	CC	Cooling tower water purge is the main source of process waste water from the primary activity – the bioethanol production process. This not heavily contaminated and does not need treatment, it is monitored and controlled to minimise water discharge. See key issues section below, BATc7 requirements for FDM and IC15
12	Reduce emissions to water, by using an appropriate combination of the described final waste water treatment techniques.	CC	Cooling tower water purge is the main source of process waste water from the primary activity – the bioethanol production process. This not heavily contaminated and does not need final treatment, it is monitored and controlled to minimise water discharge. See key issues section below, BATc7 requirements for FDM and IC15
13	Prevent or, where this is not practicable, reduce the quantity of waste being sent for	CC	The site has a waste management plan and applies the waste hierarchy. Carbon dioxide is sent to Wilton CO ₂ liquefaction plant. Syrup and

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
	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.		DDGS by-products are used in animal feed. Where possible waste will be recycled, metals are recovered in relation to mechanical overhaul and maintenance. The quantities of process materials generated at the site are limited with typical yields being in the range of 99.8% ethanol purity.
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.	NA	Not applicable as there are no on-site waste water treatment processes and no waste sludge is generated 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.	CC	Process fermentation, drying and distillation all take place in enclosed systems with process flows vented to appropriate emission points via abatement systems.

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.	CC	Process to air are minimised through the optimisation of product recovery and associated quality requirements. All potential emission sources to air are directed into emission control systems with abatement
17	Prevent emissions to air from flares, by using flaring only for safety reasons or non-routine operational conditions (e.g. start-ups, shutdowns) using one or both of the described techniques.	NA	There is no flaring on site.
18	Reduce emissions to air from flares when flaring is unavoidable, by using one or both of the described techniques.	NA	There is no flaring on site.
19	Prevent or, where that is not practicable, reduce diffuse VOC emissions to air, by	CC	There are no diffuse VOC emission points on the site as all potential emission sources contained and vented via the abatement systems (RTOs) .

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
	using a combination of the described techniques.		
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:	CC	The site has an OMP that complies with the elements of i) – iv). The OMP has been incorporated into table S1.2 Operating techniques.
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.	NA	This is not applicable as the site does not have a waste water treatment system. Process waste water collection for off-site disposal is within fully contained systems. There are a small number of sumps on site that may contain rainwater and others where residence time is sufficiently limited to control potential waste water odour emissions.

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
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:	NA	The site does not have a noise management plan. The operations have a low noise potential. There have been no substantiated noise complaints during the operational life of the plant for the last 10 years.
23	Prevent or, where that is not practicable, reduce noise emissions, by using one or a combination of the described techniques.	CC	The plant is existing and constructed with consideration of potential noise impacts. With those activities which produce higher potential noise located away from sensitive receptors with landscaping to provide attenuation. Distances to receptors are approximately 450 metres. Noisy activities like grain deliveries are scheduled during the daytime. The plant is operated by experienced staff who can recognise and mitigate excessive noise. Maintenance activities are managed to minimise noise. Mechanical removal and, lifting activities would be planned to take place in normal hours of operation (day time hours). At the time of construction the equipment and plant were considered low noise.

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
			The acoustic enclosure systems on potential noise emitters eg conveyor systems and plant is designed around good practice abatement of physical noise emitters in relation to operational equipment and machinery.

Key Issues

Emissions to Water

The primary activity at the site is a 4.1A(1)(a)(ii) activity(LVOC) for the production of bioethanol by fermentation and this triggered the permit review. There is also a secondary 6.8 A(1)(d)(ii) activity as the post distillation stillage residues are treated and dried to make an animal feed (FDM).

The Operator has clarified that the process related effluent load for TOC/COD mainly comes from the production of animal feed – Section 6.8 Food, Drink and Milk industries sector activity.

The site has a single effluent/surface water discharge point W1. Sembcorp Limited collect and manage this discharge along with others from the Wilton International complex, before they are discharged to the River Tees Estuary. There is no effluent treatment carried out at installation. There is no effluent treatment at Sembcorp , who collect and manage the discharge.

The Operator has confirmed the site drainage to W1 receives waste water from a number of sources which include:-

- Cooling tower purge water which serves both the primary activity – bioethanol production and also the animal feed process.
- Evaporated condensate – an intermittent discharge produced when the site is operating at reduced capacity. The condensate is produced by the animal feed process. This is the main source of Total Organic Carbon (TOC)
- Offsite water – The site drainage contains storm water run-off from a number of upstream land drains outside the installation boundary. Wilton international is a large site which over time has been separated into a number of small sites and as a consequence some of the infrastructure is shared.
- Raw water used to flush the process drains when evaporated condensate is being discharged.
- Clean uncontaminated site drainage

The table below shows an indicative TOC mass balance for the sources of waste water.

Table 4. 2017 Indicative TOC Mass Balance Data

Source of Discharge	Flow m ³ /year	Average TOC mg/l	Total TOC tonnes/year
Cooling Towers	175,200	30	5.26
Evaporated Condensate	17,520	648	11.35
Raw Water	192,720	22	4.24
Total from the Ensus Installation	385,440	54.09	20.85
Beck	262,800	60	15.77
Total (W1 Discharge)	648,240	56.49	36.62

BATc3

The BATc requires continuous monitoring of flow, pH and temperature at 'key locations'.

Flow:- the Operator has confirmed that they carry out continuous monitoring of flow . We have included the requirement for continuous monitoring of flow and have specified MCERTs monitoring however permit condition 3.5.3 allows some flexibility to agree other methods.

pH:- the current permits requires continuous monitoring of pH using ISO 10523:1994 or BS 6068-2.5:1995. We have retained the existing monitoring requirements.

Temperature:- the current permit requires the continuous monitoring of temperature using a verified temperature probe, with have retained the existing monitoring requirements.

BATc4

The applicable monitoring parameters standards and frequency for BATc4 are set out below, they also confirm the existing requirements in the permit and the future requirements.

Substance/ parameter	Standard	Minimum monitoring frequency	Existing permit	Varied permit
			W1	W1
Total Organic compounds (TOC)	BS EN 1484	Daily	Continuous	Continuous
Chemical Oxygen Demand (COD)	No BS EN standard available		None	N/A
Total Suspended Solids (TSS)	BS EN 872		Weekly	Daily
Total Nitrogen	BS EN 12260		None	Weekly

Total Phosphorus		Various		None	Weekly
Metals	Cr	Various BS EN standards available	Monthly	None	Monthly ^{Note 1}
	Cu			None	Monthly ^{Note 1}
	Ni			None	Monthly ^{Note 1}
	Zn			None	Monthly ^{Note 1}
	Other if relevant			-	-
Note 1: The operator has confirm that they will monitor metals initially and confirm by analysis if emissions are below the reportable thresholds.					

We have set daily monitoring for TOC, and TSS but there is provision for a reduced frequency if the data demonstrates sufficient stability. We have set weekly monitoring of total nitrogen and phosphorus with provision for it to be reviewed with a 12 month data set. Toxicity monitoring is not required due to the nature of the raw materials.

The Operator has also confirmed that they do not use raw materials or discharge substances containing halogenated organic compounds or metals. However due to the construction and corrosive nature of the process and concentration of cooling waters, metals could be present in the effluent leaving site. We have included monitoring requirements with the provision for it to be removed if it can be demonstrated that the emissions are below reportable thresholds.

BATc12 (including BAT AELs)

BAT-AELs for emissions to a receiving water body

As the TOC/COD loading is mainly from the animal feed process (6.8 A(1)(d)(ii) activity) we are applying COD BAT-AELs from FDM industries with a compliance date of 4th December 2023, note there are no TOC BAT-AELs for FDM. In the interim until the compliance date we are applying a TOC ELV of 100mg/l as an annual average. See also the BATc 12 requirements for FDM.

Parameter	BAT AEL
TOC ^{Note1}	100 mg/l (yearly average)
COD ^{Note 2}	100 mg/l (daily average)
TSS	30 mg/l
Chromium	25 µg/l
Copper	50 µg/l
Nickel	50µg/l
Zinc	300µg/l

Note1 applies up until the 04/12/23

Note2 applies from 04/12/23

Yearly average calculations of TOC – all years except 2019 are within the yearly average of 100mg/l.

Table 2. Annual Average TOC Emissions via Emission Point W1 (2015 – 2020 basis)

Year	Annual Average TOC mg / l
2015	51.05
2016	51.37
2017	52.79
2018	96.29
2019	109.17
2020	80.29

We have set monitoring provisions and BAT-AELs for metals but these can be removed if they are below the reportable thresholds specified in BATc12.

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	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
GENERAL BAT CONCLUSIONS (BAT 1-15)			
1	<p>Environmental Management System - Improve overall environmental performance.</p> <p>Implement an EMS that incorporates all the features as described within BATc 1.</p>	CC	This is identical to CWW BATc1 and has already been addressed as part of this permit review and IC13.
2	<p>EMS Inventory of inputs & outputs. Increase resource efficiency and reduce emissions.</p> <p>Establish, maintain and regularly review (including when a significant change occurs) an inventory of water, energy and raw materials consumption as well as waste water and waste gas streams, as part of the environmental management system (see BAT 1), that incorporates all the features as detailed within the BATCs.</p>	CC	This is identical to CWW BATc2 and has already been addressed as part of this permit review.
3	<p>Monitoring key process parameters at key locations for emissions to water.</p> <p>For relevant emissions to water as identified by the inventory of waste water streams (see BAT 2), BAT is to monitor key process parameters (e.g. continuous monitoring of waste water flow, pH and temperature) at key locations (e.g. at the inlet and/or outlet of</p>	CC	This is identical to CWW BATc3 and has already been addressed as part of this permit review. See also key issues section of CWW.

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	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
	the pre-treatment, at the inlet to the final treatment, at the point where the emission leaves the installation).		
4	<p>Monitoring emissions to water to the required frequencies and standards.</p> <p>BAT is to monitor emissions to water with at least the frequency given [refer to BAT 4 table in BATc] and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.</p>	CC	Monitoring emission to water for the substances /parameters applicable to these waste water streams is provided in compliance with this BATc.
5	<p>Monitoring channelled emissions to air to the required frequencies and standards.</p> <p>BAT is to monitor channelled emissions to air with at least the frequency given in BAT5 table in the BATc and in accordance with EN standards.</p>	NA	Not applicable to the drying of dry distillers grains with solubles because it is not a specific process as specified in BAT5 table.
6	<p>Energy Efficiency</p> <p>In order to increase energy efficiency, BAT is to use an energy efficiency plan (BAT 6a) and an appropriate combination of the common techniques listed in technique 6b within the table in the BATc.</p>	FC	Partially covered by LVOC BATc9 and BATc17. We have included an improvement condition to address the minor gaps and demonstrate compliance with the narrative BATc
7	Water and wastewater minimisation	FC	Improvement condition IC15 included as Operator will need to address the

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	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
	<p>In order to reduce water consumption and the volume of waste water discharged, BAT is to use BAT 7a and one or a combination of the techniques b to k given below. [for detail of each technique, refer BAT 7 table in BATc]</p> <ul style="list-style-type: none"> (a) water recycling and/or reuse (b) Optimisation of water flow (c) Optimisation of water nozzles and hoses (d) Segregation of water streams <p>Techniques related to cleaning operations:</p> <ul style="list-style-type: none"> (e) Dry cleaning (f) Pigging system for pipes (g) High-pressure cleaning (h) Optimisation of chemical dosing and water use in cleaning-in-place (CIP) (i) Low-pressure foam and/or gel cleaning (j) Optimised design and construction of equipment and process areas (k) Cleaning of equipment as soon as possible 		<p>use of substantial amounts of raw water used to flush the process drains when evaporated condensate is being discharged.</p>
8	Prevent or reduce the use of harmful substances	CC	Equivalent controls provided by CWW BAT 11

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	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
	<p>In order to prevent or reduce the use of harmful substances, e.g. in cleaning and disinfection, BAT is to use one or a combination of the techniques given below.</p> <ul style="list-style-type: none"> (a) Proper selection of cleaning chemicals and/or disinfectants (b) Reuse of cleaning chemicals in cleaning-in-place (CIP) (c) Dry cleaning (d) Optimised design and construction of equipment and process areas 		
9	<p>Refrigerants</p> <p>In order to prevent emissions of ozone-depleting substances and of substances with a high global warming potential from cooling and freezing, BAT is to use refrigerants without ozone depletion potential and with a low global warming potential.</p>	NA	Not applicable to this installation.
10	<p>Resource efficiency</p> <p>In order to increase resource efficiency, BAT is to use one or a combination of the techniques given below:</p> <ul style="list-style-type: none"> (a) Anaerobic digestion (b) Use of residues (c) Separation of residues (d) Recovery and reuse of residues from the pasteuriser 	CC	This is addressed by CWW BAT 13.

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	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
	(e) Phosphorus recovery as struvite (f) Use of waste water for land spreading		
11	Waste water buffer storage In order to prevent uncontrolled emissions to water, BAT is to provide an appropriate buffer storage capacity for waste water.	CC	This is identical to CWW BAT9 and has already been addressed as part of this permit review.
12	Emissions to water – treatment In order to reduce emissions to water, BAT is to use an appropriate combination of the techniques given below. <i>Preliminary, primary and general treatment</i> (a) Equalisation (b) Neutralisation (c) Physical separate (eg screens, sieves, primary settlement tanks etc) <i>Aerobic and/or anaerobic treatment (secondary treatment)</i> (d) Aerobic and/or anaerobic treatment (eg activated sludge, aerobic lagoon etc) (e) Nitrification and/or denitrification (f) Partial nitrification - anaerobic ammonium oxidation <i>Phosphorus recovery and/or removal</i> (g) Phosphorus recovery as struvite	FC	The Operator had clarified that the main source of the TOC/COD load for W1 was an intermittent discharge of effluent (evaporated condensate) which related to the FDM activity. On this basis we have aligned the W1 discharge for COD with the FDM COD BAT-AELs. Whilst the discharge standards for FDM are similar to the CWW, the compliance date for achieving the standards are different. The compliance date for achieving the COD BAT AEL is 4 December 2023 and we have included IC14 requiring the Operator to report on progress to achieve the BAT AEL for COD before this date. We have also included an

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	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
	(h) Precipitation (i) Enhanced biological phosphorus removal <i>Final solids removal</i> (j) Coagulation and flocculation (k) Sedimentation (l) Filtration (eg sand filtration, microfiltration, ultrafiltration) (m) Flotation		interim TOC ELV of 100mg/l as an annual average see key issues associated with the summary of BAT Conclusion for CWW.
13	Noise management plan In order to prevent or, where that is not practicable, to reduce noise emissions, BAT is to set up, implement and regularly review a noise management plan, as part of the environmental management system (see BAT 1), that includes all of the following elements: - a protocol containing actions and timelines; - a protocol for conducting noise emissions monitoring; - a protocol for response to identified noise events, eg complaints; - a noise reduction programme designed to identify the source(s), to measure/estimate noise and vibration exposure, to characterise the contributions of the sources and to implement prevention and/or reduction measures.	CC	This is identical to CWW BATc22 and has already been addressed as part of this permit review.

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	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
14	<p>Noise management</p> <p>In order to prevent or, where that is not practicable, to reduce noise emissions, BAT is to use one or a combination of the techniques given below.</p> <ul style="list-style-type: none"> (a) Appropriate location of equipment and buildings (b) Operational measures (c) Low-noise equipment (d) Noise control equipment (e) Noise abatement 	CC	This is identical to CWW BATc23 and has already been addressed as part of this permit review.
15	<p>Odour Management</p> <p>In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to set up, implement and regularly review an odour management plan, as part of the environmental management system (see BAT 1), that includes all of the following elements:</p> <ul style="list-style-type: none"> - a protocol containing actions and timelines; - a protocol for conducting odour monitoring. - a protocol for response to identified odour incidents eg complaints; 	CC	This is identical to CWW BATc20 and has already been addressed as part of this permit review.

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	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
	- an odour prevention and reduction programme designed to identify the source(s); to measure/estimate odour exposure: to characterise the contributions of the sources; and to implement prevention and/or reduction measures.		

Annex 2: Assessment, determination and decision where an application for Derogation from BAT Conclusions with associated emission levels (AEL) has been requested.

The Operator did request a derogation from compliance with the BAT- AEL for total organic carbon (TOC) included within the CWW BAT Conclusion 12. However this was withdrawn after the Operator had clarified that the main source of the TOC load was an intermittent discharge of effluent which related to the FDM activity.

Annex 3: 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 or Annex 2).

Improvement conditions IC1-IC12 are complete and have been removed.

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC13	<p>The operator shall submit, for approval by Environment Agency, a report setting out progress to achieving the ‘Narrative’ BAT where BAT is currently not achieved, but will be achieved before 01/08/22. The report shall include, but not be limited to, the following:</p> <ul style="list-style-type: none"> • Methodology for achieving BAT • Associated targets / timelines for reaching compliance by 01/08/22 • Any alterations to the initial plan (in progress reports).. <p>The report shall address the following BAT Conclusion:</p> <ul style="list-style-type: none"> • Production of Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector BAT 1 (Improve overall environmental performance implement and adhere to an EMS incorporating all the described features) <p>Refer to BAT Conclusions for a full description of the BAT requirement.</p>	<p>Progress report by: 01/04/22 01/08/22</p>

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC14	<p>The operator shall either,</p> <p>A) submit, for approval by the Environment Agency, a report setting out progress to achieving the BAT conclusion AELs where BAT is currently not achieved, but will be achieved before 04/12/23. The report shall include, but not be limited to, the following:</p> <ol style="list-style-type: none"> 1) Current performance against the BATc AEL. 2) Methodology for reaching the AELs. 3) Associated targets / timelines for reaching compliance by 04/12/23. 4) Any alterations to the initial plan (in progress reports). <p>The report shall address the following BAT Conclusions:</p> <ul style="list-style-type: none"> • The food, drink and milk industries BAT conclusion 12, Section 1.7 Table 1 (compliance with BAT-AEL Chemical oxygen demand –COD at emission point W1) <p>Refer to BAT Conclusions for a full description of the BAT requirement.</p> <p>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> <ol style="list-style-type: none"> i. The BAT conclusions the operator wishes to derogate from and relevant BAT-AELs; ii. The operator’s current performance against the BAT-AELs; iii. Derogation evidence and the qualifying criteria identified in article 15(4) of IED that is relevant to this site; iv. A timeline for compliance with the BAT-AELs or confirmation that this is 	<p>Progress reports by:</p> <p>01/06/22</p> <p>01/12/22</p> <p>01/06/23</p> <p>04/12/23</p>

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<p>a request for an open ended derogation;</p> <p>v. 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;</p> <p>vi. A cost benefit analysis of the options and preferred solution showing that any other action would incur disproportionate costs; and</p> <p>vii. A demonstration that no significant pollution is caused and that a high level of environmental protection is achieved</p>	
IC15	<p>The operator shall submit, for approval by Environment Agency, a report setting out progress to achieving the 'Narrative' BAT where BAT is currently not achieved, but will be achieved before 04/12/23. The report shall include, but not be limited to, the following:</p> <ul style="list-style-type: none"> • Methodology for achieving BAT • Associated targets / timelines for reaching compliance by 04/12/23 • Any alterations to the initial plan (in progress reports).. <p>The report shall address the following BAT Conclusion:</p> <ul style="list-style-type: none"> • Food, Drink and Milk Industries BAT conclusion 6, Section 1.3 energy efficiency; And BAT conclusion 7, Section 1.4 Water consumption and waste water discharge • Refer to BAT Conclusions for a full description of the BAT requirement. 	<p>Progress reports by:</p> <p>01/06/22</p> <p>01/12/22</p> <p>01/06/23</p> <p>04/12/23</p>

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC16	<p>The operator shall submit, for approval by Environment Agency, a report setting out progress to achieving the 'Narrative' BAT where BAT is currently not achieved. The report shall include, but not be limited to, the following:</p> <ul style="list-style-type: none"> • Methodology for achieving BAT. • Associated targets / timelines for reaching compliance. • Any alterations to the initial plan (in progress reports). <p>The report shall address the following BAT Conclusions:</p> <ul style="list-style-type: none"> • Common waste water and waste gas treatment/management systems in the chemical sector: BAT Conclusion 2 ((to facilitate reduction of emissions to water and air and water usage). <p>Refer to BAT Conclusions for a full description of the BAT requirement.</p>	<p>Progress report by: 01/04/22 01/08/22</p>
IC17	<p>The operator shall submit, for approval by Environment Agency, a report setting out progress to achieving the 'Narrative' BAT where BAT is currently not achieved. The report shall include, but not be limited to, the following:</p> <ul style="list-style-type: none"> • Methodology for achieving BAT. • Associated targets / timelines for reaching compliance. • Any alterations to the initial plan (in progress reports). <p>The report shall address the following BAT Conclusions:</p> <ul style="list-style-type: none"> • Common waste water and waste gas treatment/management systems in the chemical sector: BAT Conclusion 5 (monitor diffuse VOC emissions). <p>Refer to BAT Conclusions for a full description of the BAT requirement</p>	<p>Progress report by: 01/04/22 01/08/22</p>

Annex 4: Advertising and Consultation on the draft decision

No advertising and consultation was required.