

# **1.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/QP3331PQ  
The Operator is:                         Archer Daniels Midland Erith Limited  
The Installation is:                     Erith Oil Works  
This Variation Notice number is:   EPR/QP3331PQ/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 best available techniques (BAT) Conclusions.

We have reviewed the permit for this installation against the BAT Conclusions for the Food, Drink and Milk Industries published on 4<sup>th</sup> December 2019 in the Official Journal of the European Union. In this decision document, we set out the reasoning for the consolidated variation notice that we have issued.

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. 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 decision
2. How we reached our decision
3. The legal framework
4. Annex 1 – Review of operating techniques within the Installation against BAT Conclusions.
5. Annex 2 – Review and assessment of changes that are not part of the BAT Conclusions derived permit review
6. Annex 3 – Improvement Conditions

# 1 Our decision

We have decided to issue the Variation Notice to the Operator. This will allow the Operator 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 08/06/2022 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 4 December 2023, which will then ensure that operations meet the revised standards, or
- justifies why standards will not be met by 4 December 2023, and confirmation of the date when the operation of those processes will cease within the Installation or an explanation of why the revised BAT standards are not applicable to those processes, or
- justifies why an alternative technique will achieve the same level of environmental protection equivalent to the revised BAT standards 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 BAT-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 28/10/2022.

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 BATc 5 for the monitoring of dust emissions and TVOCs, and BATc 6 in relation to having a standalone energy efficient plan. 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 response to the Regulation 61 Notice. We have therefore included Improvement Condition IC20 in the Consolidated Variation Notice to ensure that the requirements of the BAT Conclusions are delivered within 3 months of the variation being issued.

## 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 12/05/2023 regarding the EMS accreditation, dust emission points and abatement technologies, wastewater buffer capacity, noise minimisation techniques, hexane mass balance equation, biobeds, cooling towers, site plan, non-technical description. A copy of the further information request was placed on our public register.

In addition to the response to our further information request, we received additional information during the determination from the Operator on 20/06/2023 and 21/06/2023 regarding the hexane mass-balance uncertainties, waste gases characterisation, odour emission targets. We made a copy of this information available to the public in the same way as the response to our information request.

## **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 Food, Drink and Milk Industries, were published by the European Commission on 4 December 2019.

There are 37 BAT Conclusions.

BAT 1 – 15 are General BAT Conclusions (Narrative BAT) applicable to all relevant Food, Drink and Milk Installations in scope.

BAT 16 – 37 are sector-specific BAT Conclusions, including Best Available Techniques Associated Emissions Levels (BAT-AELs) and Associated Environmental Performance Levels (BAT-AEPLs):

BAT 16 & 17	BAT Conclusions for Animal Feed
BAT 18 – 20	BAT Conclusions for Brewing
BAT 21 – 23	BAT Conclusions for Dairies
BAT 24	BAT Conclusions for Ethanol Production
BAT 25 & 26	BAT Conclusions for Fish and Shellfish Processing
BAT 27	BAT Conclusions for Fruit and Vegetable Processing
BAT 28	BAT Conclusions for Grain Milling
BAT 29	BAT Conclusions for Meat Processing
BAT 30 – 32	BAT Conclusions for Oilseed Processing and Vegetable Oil Refining
BAT 33	BAT Conclusions for Soft Drinks and Nectar/Fruit Juice Processed from Fruit and Vegetables
BAT 34	BAT Conclusions for Starch Production
BAT 35 – 37	BAT Conclusions for Sugar Manufacturing

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 BAT Conclusions)**

**NC – Not Compliant**

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
<b>GENERAL BAT CONCLUSIONS (BAT 1-15)</b>			
1	<p><b>Environmental Management System - Improve overall environmental performance.</b></p> <p>Implement an EMS that incorporates all the features as described within BATc 1.</p>	<b>CC</b>	<p>The operator has provided information to support compliance with BATc 1. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 1.</p> <p>The operator has supplied a copy of the EMS contents page that addresses the following points:</p> <ul style="list-style-type: none"> <li>• Purpose and scope of the EMS</li> <li>• Stakeholders needs and expectations</li> <li>• Leadership and commitment</li> <li>• EMS compliance team</li> <li>• Senior management identified</li> <li>• Environmental policy</li> <li>• Roles and responsibilities for EMS implementation and development</li> <li>• Planning – inclusive of environmental aspects, compliance, actions, and objectives</li> <li>• Support – inclusive of competence, awareness, communication, EMS maintenance, information location and accessibility</li> <li>• Sectorial benchmarking is used</li> <li>• Operations – inclusive of planning and control, LCA, procurement, MOC</li> <li>• Emergency planning</li> <li>• Audits, review and improvements</li> <li>• Training opportunities</li> </ul> <p>The EMS elements cited above are representative of ISO14001 requirements but the EMS itself is not officially accredited at this standard.</p>
2	<p><b>EMS Inventory of inputs &amp; outputs. Increase resource efficiency and reduce emissions.</b></p>	<b>CC</b>	<p>The operator has provided information to support compliance with BATc 2. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 2.</p>

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>Establish, maintain and regularly review (including when a significant change occurs) an inventory of water, energy and raw materials consumption as well as of waste water and waste gas streams, as part of the environmental management system (see BAT 1), that incorporates all of the features as detailed within the BATCs.</p>		<p>The Operator demonstrated that it has:</p> <ul style="list-style-type: none"> <li>• A simplified process diagram</li> <li>• Description of processes and techniques that identify emissions points</li> <li>• Monitoring of water inputs and outputs</li> <li>• Effluent quality monitored prior to sewer discharge</li> <li>• Identified waste gas streams and chemical composition</li> <li>• Information regarding energy consumption, resource used, and waste generation</li> <li>• Monitoring of inputs and outputs based on company's agreed KPIs and environmental targets</li> </ul>
3	<p><b>Monitoring key process parameters at key locations for emissions to water.</b> 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 the pre-treatment, at the inlet to the final treatment, at the point where the emission leaves the installation).</p>	CC	<p>The operator has provided information to support compliance with BATc 3. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 3.</p> <p>Trade effluent discharge to sewer quality is monitored twice per day in-house and monthly by Thames Water against discharge licence conditions; tests include monitoring of pesticides, heavy metals discharge, COD, and SS.</p> <p>Uncontaminated surface water is monitored against pH and temperature prior to discharge to River Thames via an automated valve designed to automatically shut-off if the parameters are above the permitted limits.</p>
4	<p><b>Monitoring emissions to water to the required frequencies and standards.</b> 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>	NA	<p>We are satisfied that BATc 4 is not applicable to this Installation.</p> <p>This BAT is concerned with effluent discharge to water and this installation does not have such discharges. Trade effluent is treated on-site and</p>

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			discharge to sewer. The only direct emissions to water is uncontaminated surface run-off and cooling water.
5	<p><b>Monitoring channelled emissions to air to the required frequencies and standards.</b></p> <p>BAT is to monitor channelled emissions to air with at least the frequency given and in accordance with EN standards.</p>	<b>FC</b>	<p>The operator has provided information to support compliance with BATc 5. We have assessed the information provided and we are not satisfied that the operator has demonstrated compliance with BATc 5.</p> <p>The Operator declared monitoring the following air emission points:</p> <p><b>Annually</b></p> <ul style="list-style-type: none"> <li>• A6, A8, A9, A10, 14 – particulates at BS EN 13284-1 standard</li> </ul> <p><b>Bi-annually</b></p> <ul style="list-style-type: none"> <li>• A10 and A14 – VOCs as TOC at BS EN 13526 standard</li> </ul> <p><b>However, this BATc requirement is for the annual monitoring of total volatile organic carbon (TVOC) at EN 12619 standard. As such, we will be including TVOC monitoring requirement in the consolidated permit.</b></p> <p>Improvement condition IC20 has been included in the permit to achieve compliance (see Annex 3).</p>
6	<p><b>Energy Efficiency</b></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>	<b>FC</b>	<p>The operator has provided information to support compliance with BATc 6. We have assessed the information provided and we are not satisfied that the operator has demonstrated compliance with BATc 6.</p> <p><b>Although the Operator is monitoring and assessing energy usage based on KPIs, and provided a range of actions currently undertaken at this site, partially representative of the ISO 50001 standard, this does not satisfy the BATc</b></p>



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			<p><b>6(a) requirement, specifically to have a standalone energy efficiency plan.</b></p> <p>The following energy efficiency techniques are currently used at this installation:</p> <ul style="list-style-type: none"> <li>• Burner regulation and control</li> <li>• Cogeneration</li> <li>• Energy efficient motors</li> <li>• Heat recovery</li> <li>• Minimising blowdown</li> <li>• Preheating feed water</li> <li>• Process control systems</li> <li>• Variable speed drives</li> <li>• Multiple effect evaporation</li> </ul> <p>Improvement condition IC20 has been included in the permit to achieve compliance (see Annex 3).</p>
7	<p><b>Water and wastewater minimisation</b></p> <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.</p> <p>(a) water recycling and/or reuse</p> <p>(b) Optimisation of water flow</p> <p>(c) Optimisation of water nozzles and hoses</p> <p>(d) Segregation of water streams</p> <p>Techniques related to cleaning operations:</p> <p>(e) Dry cleaning</p> <p>(f) Pigging system for pipes</p> <p>(g) High-pressure cleaning</p> <p>(h) Optimisation of chemical dosing and water use in cleaning-in-place (CIP)</p> <p>(i) Low-pressure foam and/or gel cleaning</p> <p>(j) Optimised design and construction of equipment and process areas</p> <p>(k) Cleaning of equipment as soon as possible</p>	<b>CC</b>	<p>The operator has provided information to support compliance with BATc 7. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 7.</p> <p>The Operator declared using the following techniques:</p> <ul style="list-style-type: none"> <li>• Water recycling and reuse</li> <li>• Dry cleaning</li> <li>• High pressure cleaning</li> <li>• Optimisation of chemical dosing</li> </ul>
8	<b>Prevent or reduce the use of harmful substances</b>	<b>CC</b>	The operator has provided information to support compliance with BATc 8. We have assessed 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 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> <p>(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</p>		<p>information provided and we are satisfied that the operator has demonstrated compliance with BATc 8.</p> <p>The Operator is using the following techniques:</p> <ul style="list-style-type: none"> <li>• Reuse of cleaning chemicals</li> <li>• Dry cleaning</li> </ul> <p>In addition, the use of chemicals is done via an automated control system aimed at dispensing the correct chemical volume.</p>
9	<p><b>Refrigerants</b></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	<p>We are satisfied that BATc 9 is not applicable to this Installation.</p> <p>The Operator declared that no refrigerants are used in the production process. The only gases subject to this BATc are used for domestic purposes in air conditioning systems.</p>
10	<p><b>Resource efficiency</b></p> <p>In order to increase resource efficiency, BAT is to use one or a combination of the techniques given below:</p> <p>(a) Anaerobic digestion            (b) Use of residues            (c) Separation of residues            (d) Recovery and reuse of residues from the pasteuriser            (e) Phosphorus recovery as struvite            (f) Use of waste water for land spreading</p>	CC	<p>The operator has provided information to support compliance with BATc 10. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 10.</p> <p>The Operator declared that all waste generated in the production process, apart from wastewater, is repurposed by reintroducing it in the production process, recycled or transformed in animal feed. The site does not have waste sent to landfill.</p>
11	<p><b>Waste water buffer storage</b></p> <p>In order to prevent uncontrolled emissions to water, BAT is to provide an appropriate buffer storage capacity for waste water.</p>	CC	<p>The operator has provided information to support compliance with BATc 11. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 11.</p>

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			The Operator declared that it has sufficient buffer capacity to prevent accidental discharges and, in case of emergency, has both automated and manually actioned valves that can be used to prevent accidental discharges reaching the wider environment. Furthermore, all tanks are bunded or double bounded and any spillages are captured by the site drainage system leading to the foul sewer.
12	<p><b>Emissions to water – treatment</b></p> <p>In order to reduce emissions to water, BAT is to use an appropriate combination of the techniques given below.</p> <p>Preliminary, primary and general treatment</p> <p>(a) Equalisation</p> <p>(b) Neutralisation</p> <p>(c) Physical separate (eg screens, sieves, primary settlement tanks etc)</p> <p>Aerobic and/or anaerobic treatment (secondary treatment)</p> <p>(d) Aerobic and/or anaerobic treatment (eg activated sludge, aerobic lagoon etc)</p> <p>(e) Nitrification and/or denitrification</p> <p>(f) Partial nitrification - anaerobic ammonium oxidation</p> <p>Phosphorus recovery and/or removal</p> <p>(g) Phosphorus recovery as struvite</p> <p>(h) Precipitation</p> <p>(i) Enhanced biological phosphorus removal</p> <p>Final solids removal</p> <p>(j) Coagulation and flocculation</p> <p>(k) Sedimentation</p> <p>(l) Filtration (eg sand filtration, microfiltration, ultrafiltration)</p> <p>(m) Flotation</p>	<b>CC</b>	<p>The operator has provided information to support compliance with BATc 12. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 12.</p> <p>The site does have an ETP on-site consisting of settlement, flocculation and coagulation used for wastewater treatment prior to discharge to sewer under consent from Thames Water.</p>
12	<p><b>Emissions to water – treatment</b></p> <p><b>BAT-associated emission levels (BAT-AELs) for direct emissions to a receiving water body</b></p>	<b>NA</b>	We are satisfied that the BAT-AELs associated BATc 12 are not applicable to this Installation.

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	<table border="1"> <thead> <tr> <th data-bbox="282 261 770 293">Parameter</th> <th data-bbox="770 261 1211 293">BAT-AEL (1) (2) (daily average)</th> </tr> </thead> <tbody> <tr> <td data-bbox="282 293 770 325">Chemical oxygen demand (COD) (3) (4)</td> <td data-bbox="770 293 1211 325">25-100 mg/l (5)</td> </tr> <tr> <td data-bbox="282 325 770 357">Total suspended solids (TSS)</td> <td data-bbox="770 325 1211 357">4-50 mg/l (6)</td> </tr> <tr> <td data-bbox="282 357 770 389">Total nitrogen (TN)</td> <td data-bbox="770 357 1211 389">2-20 mg/l (7) (8)</td> </tr> <tr> <td data-bbox="282 389 770 421">Total phosphorus (TP)</td> <td data-bbox="770 389 1211 421">0,2-2 mg/l (9)</td> </tr> </tbody> </table>	Parameter	BAT-AEL (1) (2) (daily average)	Chemical oxygen demand (COD) (3) (4)	25-100 mg/l (5)	Total suspended solids (TSS)	4-50 mg/l (6)	Total nitrogen (TN)	2-20 mg/l (7) (8)	Total phosphorus (TP)	0,2-2 mg/l (9)		<p>This installation does not have direct to water discharges of process effluent but only to foul sewer under licence from Thames Water.</p> <p>The site does discharge to River Thames but only uncontaminated surface water run-off and cooling water.</p>
Parameter	BAT-AEL (1) (2) (daily average)												
Chemical oxygen demand (COD) (3) (4)	25-100 mg/l (5)												
Total suspended solids (TSS)	4-50 mg/l (6)												
Total nitrogen (TN)	2-20 mg/l (7) (8)												
Total phosphorus (TP)	0,2-2 mg/l (9)												
13	<p><b>Noise management plan</b></p> <p>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:</p> <ul style="list-style-type: none"> <li>- a protocol containing actions and timelines;</li> <li>- a protocol for conducting noise emissions monitoring;</li> <li>- a protocol for response to identified noise events, eg complaints;</li> <li>- 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.</li> </ul>	NA	<p>We are satisfied that BATc 13 is not applicable to this Installation.</p> <p>A noise management plan is only required where noise nuisance at sensitive receptors is expected or has been substantiated. There have been no substantiated noise nuisances from the site therefore an NMP is not a requirement for this site.</p>										
14	<p><b>Noise management</b></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> <ol style="list-style-type: none"> <li>(a) Appropriate location of equipment and buildings</li> <li>(b) Operational measures</li> <li>(c) Low-noise equipment</li> <li>(d) Noise control equipment</li> <li>(e) Noise abatement</li> </ol>	CC	<p>The operator has provided information to support compliance with BATc 14. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 14.</p> <p>The Operator declared that is using low-noise equipment, where possible, to avoid increasing the existing sound pressure level. In addition, the site has implemented a range of operational techniques and noise control measures in the form of:</p> <ul style="list-style-type: none"> <li>• Vibration isolation and dampening</li> <li>• Exhaust silencers</li> <li>• Noise assessments</li> </ul>										

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15	<p><b>Odour Management</b></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"> <li>- a protocol containing actions and timelines;</li> <li>- a protocol for conducting odour monitoring.</li> <li>- a protocol for response to identified odour incidents eg complaints;</li> <li>- 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.</li> </ul>	CC	<p>The operator has provided information to support compliance with BATc 15. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 15.</p> <p>The Operator provided an outline of the OMP that has been originally requested and submitted as part of the V002 variation application; this has been included in the 'Operating techniques' table of the V002 permit variation issued on 16/12/2022. There have been registered odour complaints between 2021 and 2023.</p> <p><b>We have included in the consolidated permit improvement condition IC21 asking the Operator to inform the Environment Agency with two weeks in advance of commencing the actions introduced by IC22.</b></p> <p><b>IC22 is asking the Operator to provide the Environment Agency with an impact assessment and modelling results for the proposed ELVs concerning TVOC, CO, SO<sub>2</sub>, and H<sub>2</sub>S parameters included in the permit as part of the permit review, in addition to ammonia.</b></p>
	<p><b>OILSEED PROCESSING &amp; VEGETABLE OIL REFINING SECTOR</b></p> <p><b>BAT CONCLUSIONS (BAT 30-32)</b></p>		
30	<p><b>Energy efficiency – Oilseed processing and refining</b></p> <p>In order to increase energy efficiency, BAT is to use an appropriate combination of the techniques specified in BAT 6 and to generate an auxiliary vacuum.</p>	CC	<p>The operator has provided information to support compliance with BATc 30. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 30.</p> <p>The Operator declared that an auxiliary vacuum, used for drying, degassing and minimising oil</p>

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			oxidation, is created in tandem with the following BATc 6 techniques: <ul style="list-style-type: none"> <li>• Heat recovery</li> <li>• Optimisation of steam distribution</li> <li>• Reduction of compressed air leaks</li> </ul>												
31	In order to reduce channelled dust emissions to air, BAT is to use one or a combination of the techniques given below. <table border="1" data-bbox="275 512 1171 804"> <thead> <tr> <th>Technique</th> <th>Description</th> <th>Applicability</th> </tr> </thead> <tbody> <tr> <td>(a) Bag filter</td> <td rowspan="3">See Section 14.2</td> <td>May not be applicable to the abatement of sticky dust.</td> </tr> <tr> <td>(b) Cyclone</td> <td>Generally applicable.</td> </tr> <tr> <td>(c) Wet scrubber</td> <td></td> </tr> </tbody> </table>	Technique	Description	Applicability	(a) Bag filter	See Section 14.2	May not be applicable to the abatement of sticky dust.	(b) Cyclone	Generally applicable.	(c) Wet scrubber		CC	The operator has provided information to support compliance with BATc 31. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 31. <p>In relation to the following air emission points, the Operator declared that is using:</p> <p><b>Bag filter for the seed preparation sources</b></p> <ul style="list-style-type: none"> <li>• A8, A9 and A10.</li> <li>• <b>Wet dust from drying and cooling would be abated by cyclone but in this case it goes to biofilter for odour abatement (A14). Whilst biofilter is not a listed technique, we still consider the abatement suitable for the process of reducing particulates emissions into the atmosphere.</b></li> </ul>		
Technique	Description	Applicability													
(a) Bag filter	See Section 14.2	May not be applicable to the abatement of sticky dust.													
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Parameter	Unit	BAT-AEL (average over the sampling period)													
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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>Emission points A22, A23 and A24, although abated, are silo vents and thus, no ELVs apply.</p> <p><b>We have taken this opportunity to include in the consolidated permit the following upper range ELVs shown below, applicable from the time of permit issue:</b></p> <ul style="list-style-type: none"> <li>• A8 – 10 mg/m<sup>3</sup></li> <li>• A9 – 10 mg/m<sup>3</sup></li> <li>• A10 – 10 mg/m<sup>3</sup></li> <li>• A14 – 20 mg/m<sup>3</sup> (drying &amp; cooling)</li> </ul> <p><b>In addition, for the scope of preventing odorous emissions from the thermal oxidiser, air emission point A28, based on the completion of IC17 from variation V003, data and values proposed by the Operator in the Commissioning Report, the following ELVs will be included in the consolidated permit:</b></p> <ul style="list-style-type: none"> <li>• TVOC – 50 mg/m<sup>3</sup></li> <li>• H<sub>2</sub>S – 100 mg/m<sup>3</sup></li> <li>• CO – 50 mg/m<sup>3</sup></li> <li>• SO<sub>2</sub> – 220 mg/m<sup>3</sup> (retained, unchanged)</li> </ul> <p>The new ELVs are applicable from the time of permit issue.</p> <p><b>The ELVs shown in the consolidated permit for TVOC, H<sub>2</sub>S and CO are temporary, until IC22 has been completed. At that time, where appropriate, revised and/or additional ELVs and parameters will be considered.</b></p> <p>In addition, we have taken this opportunity to include a 2kg/hour ELV for air emission point A17, applicable from the time of permit issue. This emission limit is</p>

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															
			needed to bring this site in line with other hexane using oilseed installations, and the approach is consistent with them in terms of ELV, monitoring standard, and frequency.															
32	<p><b>In order to reduce the hexane losses from oilseed processing and refining, BAT is to use all of the techniques given below:</b></p> <table border="1" data-bbox="282 475 1211 871"> <thead> <tr> <th data-bbox="282 475 338 515"></th> <th data-bbox="338 475 568 515">Technique</th> <th data-bbox="568 475 1211 515">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="282 515 338 603">(a)</td> <td data-bbox="338 515 568 603">Countercurrent flow of meal and steam in the desolventiser-toaster</td> <td data-bbox="568 515 1211 603">Hexane is removed from the hexane-laden meal in a desolventiser-toaster, involving a countercurrent flow of steam and meal.</td> </tr> <tr> <td data-bbox="282 603 338 691">(b)</td> <td data-bbox="338 603 568 691">Evaporation from the oil/ hexane mixture</td> <td data-bbox="568 603 1211 691">Hexane is removed from the oil/hexane mixture using evaporators. The vapours from the desolventiser-toaster (steam/hexane mixture) are used to provide thermal energy in the first stage of the evaporation.</td> </tr> <tr> <td data-bbox="282 691 338 778">(c)</td> <td data-bbox="338 691 568 778">Condensation in combination with a mineral oil wet scrubber</td> <td data-bbox="568 691 1211 778">Hexane vapours are cooled to below their dew point so that they condense. Uncondensed hexane is absorbed in a scrubber using mineral oil as a scrubbing liquid for subsequent recovery.</td> </tr> <tr> <td data-bbox="282 778 338 871">(d)</td> <td data-bbox="338 778 568 871">Gravitational phase separation in combination with distillation</td> <td data-bbox="568 778 1211 871">Undissolved hexane is separated from the aqueous phase by means of a gravitational phase separator. Any residual hexane is distilled off by heating the aqueous phase to approximately 80-95 °C.</td> </tr> </tbody> </table>		Technique	Description	(a)	Countercurrent flow of meal and steam in the desolventiser-toaster	Hexane is removed from the hexane-laden meal in a desolventiser-toaster, involving a countercurrent flow of steam and meal.	(b)	Evaporation from the oil/ hexane mixture	Hexane is removed from the oil/hexane mixture using evaporators. The vapours from the desolventiser-toaster (steam/hexane mixture) are used to provide thermal energy in the first stage of the evaporation.	(c)	Condensation in combination with a mineral oil wet scrubber	Hexane vapours are cooled to below their dew point so that they condense. Uncondensed hexane is absorbed in a scrubber using mineral oil as a scrubbing liquid for subsequent recovery.	(d)	Gravitational phase separation in combination with distillation	Undissolved hexane is separated from the aqueous phase by means of a gravitational phase separator. Any residual hexane is distilled off by heating the aqueous phase to approximately 80-95 °C.	CC	<p>The operator has provided information to support compliance with BATc 32. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 32.</p> <p>The following techniques are used on the site:</p> <ul style="list-style-type: none"> <li>• Countercurrent flow of meal and steam in the desolventiser-toaster</li> <li>• Evaporation from the oil/ hexane mixture</li> <li>• Condensation in combination with a mineral oil wet scrubber</li> <li>• Gravitational phase separation in combination with distillation</li> </ul>
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AELs	<b>BAT-associated emission levels (BAT-AELs) for hexane losses from oilseed processing and refining:</b>			<p><b>CC</b></p> <p>The operator has provided information to support compliance with BAT-AELs. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BAT-AELs.</p> <p>The Operator has supplied the hexane mass balance formula used to assess solvent losses using the following equation:</p> $a + c + f - b - g = h \rightarrow h / i = j$ <p>where,                  a – starting hexane inventory   c – hexane receipts   f - In process hexane prior   b - ending hexane inventory current result   g - in process hexane current   h – daily hexane loss   i - daily crush   j – hexane loss.</p> <p>The current hexane loss reported by the Operator is 0.5 kg per tonne of seed processed which is compliant with the 0.2 – 0.7 kg/t AEL specific for rapeseed and sunflower seeds processing.</p> <p><b>We have taken this opportunity to include in the consolidated permit, based on the current emission level declared, an updated ELV of 0.65 kg per tonne of rapeseeds processed. This ELV is applicable from the date of permit issue.</b></p> <p><b>However, the mass-balance calculation provided by the operator does not include recovery and reutilisation of hexane. Furthermore, it is unclear if hexane loss through chemical and/or physical reactions is measured and accounted for, or if uncertainties are included in the calculations.</b></p> <p><b>Because the Operator has not provided us with a solvent management plan (SMP) as part of the RFI and Clarifications requests to demonstrate how uncertainties and errors are dealt with and how fugitive emissions are minimised, we consider that a comprehensive, stand-alone SMP is required for the sustainable management of hexane. Following the submission and review of the SMP a revised ELV might be applied.</b></p>						
	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Type of seeds or beans processed</th> <th>Unit</th> <th>BAT-AEL (yearly average)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Hexane losses</td> <td>Soybeans</td> <td rowspan="2">kg/tonne of seeds or beans processed</td> <td>0,3-0,55</td> </tr> <tr> <td>Rapeseeds and sunflower seeds</td> <td>0,2-0,7</td> </tr> </tbody> </table>	Parameter	Type of seeds or beans processed		Unit	BAT-AEL (yearly average)	Hexane losses	Soybeans	kg/tonne of seeds or beans processed	0,3-0,55
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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											
			Improvement condition IC23 has been included in the permit to achieve compliance (see Annex 3).											
<b>Oilseed processing &amp; vegetable oil refining sector Environmental Performance Levels</b>														
<b>EPL</b>	<b>Environmental Performance Level – Energy consumption</b>		<b>CC</b>	<p>The operator has provided information to support compliance with BAT EPL for energy consumption. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BAT EPL.</p> <p>The Operator recorded an energy consumption of 1.0 MWh/t of oil produced, which is within the range of 0.45 – 1.05 MWh per tonne range applicable for the integrated crushing and refining of rapeseeds and/or sunflower seeds process.</p> <p>The installation only processes rapeseeds.</p>										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Specific process</th> <th style="width: 20%;">Unit</th> <th style="width: 20%;">Specific energy consumption (yearly average)</th> </tr> </thead> <tbody> <tr> <td>Integrated crushing and refining of rapeseeds and/or sunflower seeds</td> <td rowspan="3" style="text-align: center; vertical-align: middle;">MWh/tonne of oil produced</td> <td style="text-align: center;">0,45-1,05</td> </tr> <tr> <td>Integrated crushing and refining of soybeans</td> <td style="text-align: center;">0,65-1,65</td> </tr> <tr> <td>Stand-alone refining</td> <td style="text-align: center;">0,1-0,45</td> </tr> </tbody> </table>	Specific process			Unit	Specific energy consumption (yearly average)	Integrated crushing and refining of rapeseeds and/or sunflower seeds	MWh/tonne of oil produced	0,45-1,05	Integrated crushing and refining of soybeans	0,65-1,65	Stand-alone refining	0,1-0,45	
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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										
EPL	<p><b>Environmental Performance Level – Specific waste water discharge</b></p> <table border="1" data-bbox="286 300 1225 507"> <thead> <tr> <th data-bbox="286 300 734 363">Specific process</th> <th data-bbox="734 300 981 363">Unit</th> <th data-bbox="981 300 1225 363">Specific waste water discharge (yearly average)</th> </tr> </thead> <tbody> <tr> <td data-bbox="286 363 734 427">Integrated crushing and refining of rapeseeds and/or sunflower seeds</td> <td data-bbox="734 363 981 507" rowspan="3">m<sup>3</sup>/tonne of oil produced</td> <td data-bbox="981 363 1225 427">0,15-0,75</td> </tr> <tr> <td data-bbox="286 427 734 467">Integrated crushing and refining of soybeans</td> <td data-bbox="981 427 1225 467">0,8-1,9</td> </tr> <tr> <td data-bbox="286 467 734 507">Stand-alone refining</td> <td data-bbox="981 467 1225 507">0,15-0,9</td> </tr> </tbody> </table>	Specific process	Unit	Specific waste water discharge (yearly average)	Integrated crushing and refining of rapeseeds and/or sunflower seeds	m <sup>3</sup> /tonne of oil produced	0,15-0,75	Integrated crushing and refining of soybeans	0,8-1,9	Stand-alone refining	0,15-0,9	CC	<p>The operator has provided information to support compliance with BAT EPL for wastewater discharge. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BAT EPL.</p> <p>The Operator recorded a wastewater discharge volume of 0.9 m<sup>3</sup>/t of oil produced, which is not within the 0.15 – 0.75 m<sup>3</sup> per tonne range applicable for the integrated crushing and refining of rapeseeds and/or sunflower seeds process.</p> <p>The installation only processes rapeseeds. Because the Operator is currently recycling and reusing wastewater, has implemented a monitoring strategy to reduce water consumption and increase efficiency, and applies sectoral benchmarking, we will not be including an improvement condition at this to reduce the volume of wastewater discharged.</p>
	Specific process	Unit	Specific waste water discharge (yearly average)										
	Integrated crushing and refining of rapeseeds and/or sunflower seeds	m <sup>3</sup> /tonne of oil produced	0,15-0,75										
	Integrated crushing and refining of soybeans		0,8-1,9										
Stand-alone refining	0,15-0,9												

## **Annex 2: Review and assessment of changes that are not part of the BAT Conclusions derived permit review**

### **Other key considerations for the oilseed processing sector**

#### Control of solvent emissions

This Installation utilises hexane as part of the process.

In part, this is considered by the FDM BAT Conclusions, as per BAT 32

In addition, Chapter V of the Industrial Emissions Directive sets out the requirements for installations that use organic solvents. Whilst this does not directly apply to oilseed processing, we are incorporating some of the methodologies as part of this permit review, to ensure the appropriate operational controls are in place.

Chapter V Annex VII Part 6 requires operators to continuously monitor solvent emissions where the mass emission rate is greater than 10 kg/h TOC.

The mass emission rate for this installation is approximately 19 kg/h through meal, not via a specific air emission point, but as a general process considered at installation level.

On that basis, we have required the operator to continuously monitor TVOC at emission points A10, A12, A14, and A28.

During the determination the Operator raised concerns regarding the requirement to monitor total particulates and TVOCs from the brake fan (A12) and from the drying and cooling decks (A14) along with monitoring of hexane emissions from the purge fan (A17). Emission points A12, A14 and A17 are all located within ATEX zones. The emissions from A12 are likely to contain potentially flammable properties which cannot be monitored with any available ATEX certified equipment. The same is for emission from A14, whilst historically emissions were monitored from this point changes to the ATEX zoning following an onsite fire in 2020 have prevented the monitoring of this emission point. The Operator highlighted the limitations of undertaking the associated monitoring from these emission points due to the availability of ATEX certified equipment. Emission point A17 is in relation to the purge fan and is only operational following the degassing of the extractor which is undertaken once a year in order to carry out annual maintenance on the plant. Previously this emission point hasn't been monitored due to its limited use.

We have included Improvement Conditions (IC 26 and IC27) for monitoring to be undertaken on these emission points. IC 26 requires the Operator to submit a monitoring plan for approval for the monitoring of hexane from emission point A17 during the purging of the extractor fan. IC 27 requires the Operator to submit a monitoring plan for the monitoring of Particulate Matter and TVOCs from emission points A12 and A14.

Chapter V Annex VII Part 7 requires operators to have a solvent emissions management plan in place.

This is incorporated into the permit by the operating techniques.

The mass balance methodology for this site has been reviewed as part of BAT 32.

### Control of odour emissions

BAT 2 requires operators to fully characterise their waste gases.

Considering the ongoing odour release issues references in recent CAR forms and Schedule 5 Part A reports regarding 22 unauthorised emissions from the facility in the preceding 24 months when odorous substances such as hexane and H<sub>2</sub>S have been released into the atmosphere, we have included IC21 and IC22 asking the Operator to review the substances causing odour and the associated abatement/reduction techniques.

We have imposed additional monitoring requirements and ELVs for odorous species H<sub>2</sub>S and SO<sub>2</sub> as a result of IC17 (from the previous variation V003) and monitoring results obtained by the Operator, and have reviewed the OMP to ensure it is robust.

In terms of emissions to sewer, compounds of sulphur can cause off-site odour impacts if discharged at an elevated level. We have therefore included a requirement for the operator to monitor this parameter.

### Updating permit during permit review consolidation

- Introductory note updated
- Site plan
- Table S1.1 overhaul
  - Activity Reference (AR) renumbering
  - Updated listed activities
  - Addition of production capacity
  - Directly associated activities (DAAs) standardisation

We have updated permit conditions to those in the current generic permit template as a part of permit consolidation. The conditions will provide the same level of protection as those in the previous permit.

### Production Threshold

The Environment Agency is looking to draw a “line in the sand” for permitted production capacity; a common understanding between the Operator and regulator for the emissions associated with a (maximum) level of production, whereby the maximum emissions have been demonstrated as causing no significant environmental impact.

We have included a permitted production level (capacity) within table S1.1 of the permit for the section 6.8 listed activity and we need to be confident that the level of emissions associated with this production level have been demonstrated to be acceptable.

The existing volume of raw material permitted at the site has not increased since the previous variation and therefore the assessment for emissions to water/sewer remain valid for capacity threshold now placed within table S1.1 of the permit.

**Emissions to Air**

We have included TVOC monitoring requirements for emission points A12 and A14, as per requirements of BATc 5 of the Bref. No ELV's have been set as the Bref only requires the addition of ELV's for dust from the handling and preparation of seeds as well as the drying and cooling of meal, along with Hexane losses.

We asked the operator to list all emission points to air from the installation in the Regulation 61 notice. And to provide a site plan indicating the locations of all air emission points.

The operator has provided an up to date air emission plan.

**Implementing the requirements of the Medium Combustion Plant Directive**

**Existing Medium Combustion Plant (1MW-50MW)**

We asked the Operator to provide information on all combustion plant on site in the Regulation 61 Notice as follows:

- Number of combustion plant (CHP engines, back-up generators, boilers);
- Size of combustion plant – rated thermal input (MWth)
- Date each combustion plant came into operation
- The Operator provided the information in the table(s) below:

**Combined heat and power (CHP)**

1. Rated thermal input (MW) of the medium combustion plant.	84 MWth
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	Gas turbine 1 – 28 MWth Gas turbine 2 – 28 MWth Gas turbine 3 – 28 MWth
3. Type and share of fuels used according to the fuel categories laid down in Annex II.	Natural gas – 100% for each gas turbine
4. Date of the start of the operation of the medium combustion plant or, where the exact date of the start of the operation is unknown, proof of the fact that the operation started before 20 December 2018.	Gas turbine 1 – June 1995 Gas turbine 2 – June 1995 Gas turbine 3 – June 1996

**Boilers**

1. Rated thermal input (MW) of the medium combustion plant.	2.2 MWth
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	Boiler
3. Type and share of fuels used according to the fuel categories laid down in Annex II.	Natural gas – 100%
4. Date of the start of the operation of the medium combustion plant or, where the exact date of the start of the operation is	November 2018

unknown, proof of the fact that the operation started before 20 December 2018.	
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We have reviewed the information provided and we consider that the declared combustion plant qualify as “existing” medium combustion plant.

For existing MCP with a rated thermal input of less than or equal to 5 MW, the Boiler, the emission limit values set out in tables 1 and 3 of Part 1 of Annex II MCPD shall apply from 1 January 2030.

**However, the Operator declared that the expected operating hours per year of this MCP represent only 2.5%. This represents a value of 200 hours per year, thus less than the MCPD minimum required operation time of 500 hours per year for NO<sub>x</sub> ELVs to be applicable. As such, the limits referenced in the following paragraph, and included in Table S3.1 of the consolidated permit, will be applicable when and only if the MCP operation time is equal to or above 500 hours per year or every five years, whichever is sooner.**

We have included the appropriate emission limit values for existing medium combustion plant as part of this permit review. See Table S3.1 in the permit. We have also included a new condition 3.1.4 within the permit which specifies the monitoring requirements for the combustion plant in accordance with the MCPD.

We have retained the previous emission limit value and monitoring requirements for NO<sub>2</sub> for the gas turbine’s 1,2 and 3 as per variation (V003.) Under this consolidated variation (V004) we have included the monitoring required for CO, an associated ELV has not been included as per the requirements of the MCPD.

### **Particulate Emissions**

BAT-AELs are derived for those substances identified as key environmental issues during the BREF review process.

If the operator has identified current compliance against BAT-AELs we will implement the relevant emission limit value (ELV) from the date of permit issue. This is relevant for emission points A9, A10, A12 and A14 against BAT 31 for dust emissions from the bag filter.

We have added an improvement condition (IC24) for size fractionation of particulate emissions because a BAT-AEL applies for dust emissions to air. The justification for this IC is that there are a number of activities within the FDM sector which may result in release of particulates to air e.g. drying, milling and grinding. Overall there is little available information on how much fine particulates are released. This IC is a one-off exercise requiring operators to monitor and report on the fractions of fine particulate (PM<sub>10</sub> and PM<sub>2.5</sub>) emissions from A8, A9, A10, A12 and A14 and increase our understanding of potential health effects. Where BAT-AELS may apply to multiple emission points, e.g. grain milling, we may accept limited representative monitoring rather than expecting them to monitor every single emission point.

### **Emissions to Water and implementing the requirements of the Water Framework Directive**

We asked the Operator to provide information on all emissions to water at the installation in the Regulation 61 Notice as follows;

- Identify any effluents which discharge directly to surface or groundwater;
- Provide an assessment of volume and quality, including results of any monitoring data available;
- and for any discharges to water / soakaway whether a recent assessment of the feasibility of connection to sewer has been carried out.

The operator has previously provided assessments for all emissions to water at the installation. The operator declares there has been no change to activities and subsequent effluents generated at the installation since this risk assessment was taken. Consequently, we agree that the original risk assessments remain valid at this time.

As part of the Regulation 61 response, the operator also confirmed that there are unlikely to be pesticides present in the effluent discharge.

### **Soil & groundwater risk assessment (baseline report)**

The IED requires that the operator of any IED installation using, producing or releasing “relevant hazardous substances” (RHS) shall, having regarded the possibility that they might cause pollution of soil and groundwater, submit a “baseline report” with its permit application. The baseline report is an important reference document in the assessment of contamination that might arise during the operational lifetime of the regulated facility and at cessation of activities. It must enable a quantified comparison to be made between the baseline and the state of the site at surrender.

At the definitive cessation of activities, the Operator has to satisfy us that the necessary measures have been taken so that the site ceases to pose a risk to soil or groundwater, taking into account both the baseline conditions and the site’s current or approved future use. To do this, the Operator has to submit a surrender application to us, which we will not grant unless and until we are satisfied that these requirements have been met.

The Operator submitted a site condition report [Referenced in the Agency PPC Permit Application File 1 dated 14/03/2005, and decision document dated 18 April 2005] at the time of permitting [duly made on 18/04/2005]. The Operator has also submitted a site condition report [Report ref: 10514540068.503/v.B.0, dated January 2011] as part of the Reg.61 Response Tool. The site condition report included a report on the baseline conditions as required by Article 22. We reviewed that report and considered that it adequately described the condition of the soil and groundwater at that time.

The Operator is using a site protection and monitoring programme (SPMP) that is updated regularly and evidence has been provided in the form of SPMP copy referencing the site conditions observed in December 2021.



## **Hazardous Substances**

Hazardous substances are those defined in Article 3 of Regulation (EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures

The operator has provided a short risk assessment on the hazardous substances stored and used at the installation. The risk assessment was a stage 1-3 assessment as detailed within EC Commission Guidance 2014/C 136/03.

The stage 1 assessment identified the hazardous substances used / stored on site. The stage 2 assessment identified if hazardous substances are capable of causing pollution. If they are capable of causing pollution they are then termed Relevant Hazardous Substances (RHS). The Stage 3 assessment identified if pollution prevention measures are fit for purpose in areas where hazardous substances are used / stored. This includes drains as well.

The outcomes of the three stage assessment identified that pollution of soil and/or ground water to be unlikely.

## **Climate Change Adaptation**

The operator has considered if the site is at risk of impacts from adverse weather (flooding, unavailability of land for land spreading, prolonged dry weather / drought) .

The operator has stated that the installation is not likely to be or has previously not been affected by climate change.

However, because the installation is located on the river's shore, we consider that the Operator has not full considered the impacts of flooding. We have included an improvement condition into the permit (IC26) to request a climate change adaptation plan is submitted by the operator for approval from the Environment Agency.

## **Containment**

We asked the Operator vis the Regulation 61 Notice to provide details of the each above ground tanks which contain potentially polluting liquids at the site, including tanks associated with the effluent treatment process where applicable.

The Operator provided details of all tanks;

- Tank reference/name
- Contents
- Capacity (litres)
- Location
- Construction material(s) of each tank
- The bunding specification including
  - Whether the tank is banded
  - If the bund is shared with other tanks
  - The capacity of the bund
  - The bund capacity as % of tank capacity
  - Construction material of the bund

- Whether the bund has a drain point
  - Whether any pipes penetrate the bund wall
- Details of overfill prevention
- Drainage arrangements outside of bunded areas
- Tank filling/emptying mitigation measures (drips/splashes)
- Leak detection measures
- Details of when last bund integrity test was carried out
- Maintenance measures in place for tank and bund (inspections)
- How the bund is emptied
- Details of tertiary containment

and whether the onsite tanks currently meet the relevant standard in the Ciria “Containment systems for the prevention of pollution (C736)” report.

We reviewed the information provided by the operator. We are satisfied that the existing tanks and containment measures on site meet the standards set out in CIRIA C736.

### 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).

Previous improvement conditions marked as complete in the previous permit.

<b>Superseded Improvement Conditions – Removed from permit as marked as “complete”</b>	
<b>Reference</b>	<b>Improvement Condition</b>
IC1	The Operator shall provide a report in writing to the Agency detailing the monitoring method used to determine effluent flow at S1. The monitoring method shall be approved in writing by the Agency.
IC2	The Operator shall provide the Agency with written proposals for a programme of monitoring for release of particulate matter from emission points A7, A11, A12, A13 and A15. Monitoring shall be carried out to an appropriate recognised standard. The proposals shall include justification for the frequency and method of monitoring and a justification for the exclusion of any of the emissions points as appropriate.
IC3	The Operator shall carry out monitoring of 4-pentenenitrile discharged from point S1 to an appropriate recognised standard and assess the likely impact, if any, on the environment. A summary of the assessment shall be sent to the Agency in writing together with a timetable to implement any improvements required to minimise impact.
IC4	The Operator shall carry out monitoring of oxides of nitrogen and particulate matter from emission point A4 and A13 using an appropriate recognised standard to be agreed by the Agency in writing. Results shall be submitted to the Agency in writing.
IC5	The Operator shall develop and maintain an odour management plan, summarising the actions to be taken to minimise odour under both normal and abnormal operating conditions with regard to the requirements set out in the Agency Guidance Note IPPC S6.10 Section 2.2.6, Dec. 2002. This plan shall assess the measures that are in place to prevent or reduce odour. Upon completion of the odour management plan a summary of the document shall be submitted to the Agency in writing and shall include time scales for any remedial action required.
IC6	The Operator shall assess their documented system of environmental management techniques, having regard to the Agency Guidance Note IPPC S6.10 Section 2.3, October 2003. A summary of the assessment shall be submitted to the Agency in writing together with a timetable to implement any necessary changes identified.
IC7	The Operator shall undertake detailed air dispersion modelling for releases of oxides of nitrogen from A1, A2 and A3 when firing on natural gas to further assess impacts on human health and ecological receptors. A report shall be submitted in writing to the

	Agency and shall include, but not be limited to, the effects of conversion of nitric oxide to nitrogen dioxide. The electronic input files of the model shall also be submitted to the Agency.
IC8	The Operator shall carry out an assessment of the options available for reducing oxides of nitrogen (NOx) and carbon monoxide from the emission point A1, A2 and A3. A summary of the assessment shall be submitted to the Agency in writing together with a timetable to implement any necessary changes identified.
IC9	The Operator shall undertake an assessment of the surfacing and containment measures on site. The assessment will take into account the requirements of section 2.2.5 of the Agency Guidance Note IPPC S6.10, October 2003. A written report summarising the findings shall be submitted to the Agency. A timescale for implementation of any improvements shall be approved by the Agency.
IC10	The operator shall demonstrate to the Agency that the pH meter used for continuous monitoring of pH on S1, is fit for purpose by comparing the manufacturers stated performance of the pH meter with the performance criteria for equivalent equipment having an MCERTS conformance certificate as given in document 'Continuous water monitoring equipment part 2: Performance Standards for on-line analysers, Turbidity and pH meters; ammonia, COD, TOC, dissolved O2, total phosphorous, nitrate and total oxidised nitrogen analysis version 1, February 2003'. Where this comparison shows that the pH meter does not meet the criteria in the above document, the operator shall propose a timescale whereby either the pH meter will be able to meet the criteria or for the purchase of suitable replacement equipment. The timescale for implementation of any improvements shall be approved by the Agency.
IC11	The Operator shall assess the current method for effluent flow at point S1 with the requirements given in the MCERTS standard 'Minimum requirements for the self-monitoring of effluent flow' version 2, Aug 2004. A written report shall be provided to the Agency detailing how this standard is to be achieved and shall include timescales for implementation.
IC12	The Operator shall undertake an assessment of all oil storage containers having regard to Agency Guidance Note IPPC S6.10 Section 2.2.5, October 2003 and the Control of Pollution (Oil Storage) Regulations 2001. A summary of the Agency in writing timescales for any improvements identified.
IC13	Provide to the Agency a list of the solvents used within the SED installation containing details of the risk phases of these solvents and the current consumption of these as defined by the Solvent Emission Regulations 2004.
IC14	The Operator shall undertake an assessment of subsurface structures and their potential to cause fugitive emissions to surface water and ground water. The assessment will take into account the requirements of section 2.2.5 of the Agency Guidance Note IPPC S6.10, October 2003. A written report summarising the findings shall be submitted to the Agency. A timescale for implementation of any improvements shall be approved by the Agency.

IC15	Provide the Agency with a report detailing the proposals for the operator meet the requirements of the SED regulations as set in the condition below.
IC16	Provide the Agency with a report confirming that the operator has fully met the requirements of the SED regulations.
IC17	<p><b>Review of odour abatement plant</b></p> <p>The operator shall carry out a review of the new thermal oxidiser and scrubber on site, in order to verify the assumptions made in the application (including H1 assessment) and determine its effectiveness.</p> <p>This will include a revised H1 assessment to verify that the SO2 screens out and propose appropriate ELV(emission limit value) for VOC, H2S and CO for approval.</p> <p>Within 1 month of the completion of the above the operator shall submit a written report to the Environment Agency for approval, to review the effectiveness of odour abatement on site, to include but not limited to:</p> <ul style="list-style-type: none"> <li>• Abatement stack monitoring results</li> <li>• Odour monitoring results at the site boundary</li> <li>• Records of odour complaints and odour related incidents since commissioning.</li> <li>• Proposed any improvement.</li> </ul>
IC18	Retained as it has not been completed
IC19	Retained as it has not been completed

The following improvement conditions have added to the permit as a result of the variation.

<b>Improvement programme requirements</b>		
<b>Reference</b>	<b>Reason for inclusion</b>	<b>Justification of deadline</b>
IC18	<p>The operator shall complete a trial of up to 6 months in duration, to assess the implications of rerouting emissions from the odour abatement system OAS (emission point A10) to emission point A14.</p> <p>The operator shall inform the Environment Agency 3 week prior the commencement of the trial.</p> <p>Should the trial result in a significant increase in odour emissions the operator shall notify the Environment Agency and cease the trial with immediate effect. The trial shall recommence on agreement with the Environment Agency.</p> <p>Following the completion of the trial, the operator shall report the findings to the Environment Agency.</p>	Within 1 month of trial completion

	The operator shall confirm any proposed changes and provide an H1 assessment, including proposed ELVs for approval.	
IC19	The operator shall install an interceptor prior to discharge point W1. The Operator shall inform the Environment Agency when the works are complete.	05/09/2025 or other date as agreed in writing with the Environment Agency.
IC20	<p>The operator shall submit, for approval by the Environment Agency, a report demonstrating achievement of the 'Narrative' BAT conclusions as identified in the Food, Drink and Milk Bref published on 4 December 2019 where BAT is currently not demonstrated or achieved. The report shall include, but not be limited to, the following:</p> <ul style="list-style-type: none"> <li>• Methodology applied for achieving BAT</li> <li>• Demonstrating that BAT has been achieved.</li> </ul> <p>The report shall address the BAT Conclusions for Food, Drink and Milk Industries with respect to BATc 5 and 6</p> <p>Refer to BAT Conclusions for a full description of the BAT requirement.</p>	05/12/2024 or other date as agreed in writing with the Environment Agency.
IC21	<p>The operator shall submit, for approval by the Environment Agency an annual monitoring procedure two weeks before the monitoring program associated with improvement condition IC22 is due to start. The information shall contain, but not limited to, the following aspects:</p> <ul style="list-style-type: none"> <li>• Complete list of current emission points</li> <li>• Chosen emission points for the 2-day campaign monitoring program.</li> <li>• Monitoring methodology or standard used, reflective of BATc 5 requirements</li> <li>• Existing odour abatement techniques designed efficiencies.</li> </ul>	05/09/2025 or other date as agreed in writing with the Environment Agency.
IC22	<p>The operator shall submit a written report to the Environment Agency for approval following a 2-day intensive monitoring program (associated with IC 21) to review the substances with the potential of causing odour emissions and associated abatement techniques current efficiencies.</p> <p>The report shall include but not limited to the following aspects:</p>	05/09/2025 or other date as agreed in writing with the Environment Agency.

	<ul style="list-style-type: none"> <li>• Full investigation and characterisation of the inlet and outlet gas streams for site abatement systems.</li> <li>• Abatement emissions monitoring results including odour concentrations (OUe/m3), GCMS monitoring results, TVOC, ammonia, SO2, H2S, and CO levels.</li> <li>• Details of site-specific “action levels”.</li> <li>• Proposed ELVs</li> <li>• Impact assessment and modelling for the proposed ELVs.</li> <li>• Recommendations for improvement including the replacement or upgrading of the abatement plant where appropriate.</li> </ul> <p>The report should also list all relevant contingency mitigation actions to minimise the risk of elevated odour pollution from the installation in abnormal operating periods e.g. plant breakdown and detail the actions to restore systems to normal operating conditions for effective odour control.</p> <p>The monitoring program shall be reviewed on an annual basis and the results communicated to the Environment Agency.</p>	
<p>IC23</p>	<p>The Operator shall submit an updated Solvent Management Plan (SMP) to the Environment Agency for technical assessment and approval, demonstrating compliance against BAT 32 for the FDM industries. Further guidance on SMPs can be found on our website Solvent Management Plans: environmental permits - GOV.UK (<a href="http://www.gov.uk">www.gov.uk</a>).</p> <p>The updated plan must include but not be limited to the following elements:</p> <ul style="list-style-type: none"> <li>• a protocol containing remediation actions and timelines;</li> <li>• a protocol for conducting solvent emissions monitoring;</li> <li>• a protocol for response to identified solvent loss events, e.g. fugitive emissions;</li> <li>• a protocol to reduce solvent mass-balance uncertainties;</li> <li>• a solvent reduction programme designed to identify the source(s), to measure/estimate solvent loss, to characterise the contributions of the sources and to implement prevention and/or reduction measures.</li> </ul>	<p>05/09/2025 or other date as agreed in writing with the Environment Agency.</p>

	<p>The solvent management plan is required to be reviewed at least annually to ensure continued compliance against BAT 32 as described above.</p> <p>You must implement the plan as agreed, and from the date stipulated by the Environment Agency.</p>	
IC24	<p>The Operator shall submit a written report to the Environment Agency of monitoring carried out to determine the size distribution of particulate matter in the exhaust gas emissions to air from emission point [A8, A9, A10, A12, and A14], identifying the fractions within the PM<sub>10</sub> and PM<sub>2.5</sub> ranges. The monitoring shall be carried out under representative operating conditions and shall be in accordance with EN ISO 23210 unless otherwise agreed with the Environment Agency</p>	05/09/2025 or other date as agreed in writing with the Environment Agency.
IC25	<p>The operator shall produce a climate change adaptation plan, which will form part of the EMS.</p> <p>The plan shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• Details of how the installation has or could be affected by severe weather;</li> <li>• The scale of the impact of severe weather on the operations within the installation;</li> <li>• An action plan and timetable for any improvements to be made to minimise the impact of severe weather at the installation.</li> </ul> <p>The Operator shall implement any necessary improvements to a timetable agreed in writing with the Environment Agency.</p>	05/09/2025 or other date as agreed in writing with the Environment Agency.
IC26	<p>The Operator shall submit a monitoring plan to the Environment Agency for technical assessment and approval for the monitoring of gas (hexane) emissions from emission point A17 during the purging of the extractor fan. The monitoring plan shall include but not be limited to the following:</p> <ul style="list-style-type: none"> <li>• A detailed explanation as to how the monitoring of hexane will be undertaken.</li> <li>• Action taken to prevent the release of hexane into the environment.</li> <li>• Action taken when hexane is detected within the gas stream during the degassing of purge fan vent, including how quickly the process can be stopped should gas be detected.</li> <li>• How long the extractor fan will be put back into 'degassing/condensing mode' before purging takes place again.</li> </ul> <p>In addition to the above, a risk assessment shall also be provided for technical assessment and approval that demonstrates that the emission of limit of 2kg/hour</p>	05/12/2024 or other date as agreed in writing with the Environment Agency.



	<p>associated with emission point A17 is not exceeded during purging events.</p> <p>The monitoring plan shall be reviewed on an annual basis and the results communicated to the Environment Agency.</p> <p>You must implement the plan as agreed, and from the date stipulated by the Environment Agency.</p>	
<p>IC27</p>	<p>The Operator shall submit a monitoring plan to the Environment Agency for technical assessment and approval for the monitoring of emissions (Particulate Matter and TVOC) from emission point A14. The monitoring plan shall include but not be limited to the following:</p> <ul style="list-style-type: none"> <li>• A detailed narrative of how the monitoring of particulate matter and TVOC from emission point A14 shall be undertaken, when deviating from the specified monitoring standards BS EN13284-1 and EN 12619 accordingly.</li> <li>• Where an alternative monitoring technique is proposed a detailed narrative on the how the samples will be collected and analysed accordingly.</li> <li>• Associated risk assessments/'Safe Systems of Work' for the proposed monitoring should also be provided for review.</li> <li>• A regular review of available monitoring techniques shall be undertaken to consider any future monitoring that allows the monitoring of Particulate Matter and TVOC's to be undertaken in accordance with the specified monitoring standards BS EN13284-1 and EN 12619.</li> </ul> <p>The monitoring plan shall be reviewed on an annual basis and the results communicated to the Environment Agency.</p> <p>You must implement the plan as agreed, and from the date stipulated by the Environment Agency.</p>	<p>05/12/2024 or other date as agreed in writing with the Environment Agency..</p>