

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

EPC United Kingdom PLC

Great Oakley Works

Great Oakley

Harwich

Essex

CO12 5JW

Variation application number

EPR/BR7607IP/V006

Permit number

EPR/BR7607IP

Great Oakley Works

Permit number EPR/BR7607IP

Introductory note

This introductory note does not form a part of the notice

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made. Only the variations specified in schedule 1 are subject to a right of appeal.

The schedules specify the changes made to the permit.

Changes introduced by this variation notice

The BAT conclusions (BATc) for production of large volume organic chemicals (LVOC) were published on 07 December 2017 in the Official Journal of the European Union (L323) following a European Union wide review of BAT, implementing decision 2017/2117/EU of 21 November 2017. A review of compliance against relevant BATc also included other relevant BATc 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. A variation was issued on 20 May 2020 to address compliance with the relevant BATc, with improvement conditions to track progress against future compliance by 07 December 2021. In carrying out the improvement conditions, the operator has established that the installation will not meet the new Industrial Emissions Directive (IED) BAT Associated Emission Levels (AELs) in CWW Tables 1 and 3 after BATc 12, for Chemical Oxygen Demand, Chromium and Nickel for direct emissions to a receiving water body.

This variation permits a time-limited delay to 31 December 2023 in meeting these BAT-AELs through the introduction of temporary emission limits (Table S3.2 of this permit), with an improvement condition (IC40) to address reporting progress on development of a ferric sulphate production plant. A brief explanation of the derogation is included in the Annex to the conditions of this permit.

Brief Description of the process

The primary manufacturing activity is the Fuel Additives Plant (FAP) that manufactures 2-ethylhexyl nitrate (2-EHN) from the related alcohol by a simple high yield nitrification process using nitric and sulphuric acid under Scheduled Activity S4.1 A1(a)(iv). The product is used as a fuel additive to reduce emissions and improve fuel efficiency in diesel engines. The FAP has a manufacturing capacity of 30,000 tonnes per annum (tpa).

Nickel and Vanadium compounds are recovered in a separate manufacturing plant, the Metal Recovery Plant (MRP) under scheduled activity S4.2 A1(a)(iv). This is a dedicated batch plant that utilises waste materials such as spent catalysts or fly ashes as well as the waste acid from the FAP, to make re-usable saleable metal salt products. The plant has a point source emission to air and an aqueous discharge to Bramble Creek. The MRP has a production capacity of 2,000 tpa but has been mothballed for a number of years (so there are currently no emissions to air or water from metals recovery operations).

Residual strong acid is rapidly diluted to ensure stability of the dissolved and entrained 2-EHN and is discharged to Bramble Creek tidal estuary via release point W2 along with a dilute acid stream from 2-EHN product washing. From 01/01/24, or before, the dilution and discharge of strong acid will cease with the preferred option being that it will be reacted with magnetite to produce a ferric sulphate solution for use in the water treatment industry (requiring a further permit variation application). The dilute acid product washing stream discharge will continue.

The installation is located on Bramble Island (TM2135326512) approximately 5km SW of Harwich, Essex. The installation is within a Special Protection Area, Ramsar site, Site of Special Scientific Interest and National Nature Reserve (all Hamford Water) and adjacent to Hamford Water Special Area of Conservation. There are no residential receptors within 1km of the installation.

The site EMS is certified to ISO14001:2015.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	Date	Comments
Application BR7607IP	Duly made 23/09/03	Under PPC Regulations 2000
Request to revise the Multi Product Protocol	Request made 09/12/03	Response dated 26/02/04
Request to provide a statement of Site Condition	Report dated 12/03/04	Response dated 31/03/04
Proposal for rebuild of the Fine Chemicals Plant	Received 23/03/04	
Request for further revision of the Multi-Product Protocol	Request dated 18/05/04	Response dated 18/05/04
Permit BR7607IP determined	Issued 28/05/04	
Variation Application EPR/BR7607IP/V002	Duly made 15/04/10	Under EPR Regulations 2010
Variation EPR/BR7607IP/V002	Issued 19/01/11	Removal of Fine Chemicals and Semi-Technical plants, Kilo Laboratory and site central boiler from permit. Addition of a Sulphuric Acid Recovery plant.
Environment Agency initiated variation EPR/BR7607IP/V003	Issued 28/05/13	Environment Agency variation to implement the changes introduced by IED
Regulation 61 Notice dated 04/05/18 (Notice requiring information for statutory review of permit)	Response received 09/08/18	Response included: Assessment of compliance with LVOC BATc General Section and CWW BATc, Risk assessment considering the possibility of soil and groundwater contamination, and Summary report of the current hazardous pollutant releases to allow an assessment of whether the emissions of hazardous pollutants are significant.
Further Regulation 61 response	24/01/19	Operator review of existing permit Introductory note, Scheduled Activities, Emission Points, Improvement Conditions and Minor Operational Changes received.
Variation Application EPR/BR7607IP/V004	Duly Made 20/06/19	Variation to permit temporary increase in W2 discharge volume and content. Received during permit review determination
Schedule 5 Notice for EPR/BR7607IP/V004	Issued 19/07/19	Response received 07/08/19
Variation EPR/BR7607IP/V004	Issued 10/09/19	
Request for further information	16/09/19	Request for further information relating to Regulation 61 Notice response

Status log of the permit		
Description	Date	Comments
Further information response	18/10/19 20/01/20 13/02/20	Responses received.
EPR/BR7607IP/V005 (Variation and consolidation)	Environment Agency Initiated Variation	Statutory review of permit occasioned by LVOC BAT Conclusions published 07 December 2017. Includes removal of Production of nitrobenzylacetate.
Variation determined EPR/BR7607IP/V005	20/05/20	Varied and consolidated permit issued
Variation Application EPR/BR7607IP/V006	Duly Made 21/06/21	Application for time-limited derogation from BAT-AELs for Chemical Oxygen Demand, Chromium and Nickel BAT-AELs in BAT Conclusions for Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector.
Scope Clarification response	20/07/21	Confirmation that derogation from Total Suspended Solids BAT-AEL is not required.
Request for further information	17/08/21	Further information requested about derogation options.
Further information response	08/09/21	Response received with additional CBA tools
Variation determined EPR/BR7607IP/V006 (Billing ref:BP3209MV)	21/01/22	Varied and consolidated permit issued

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies

Permit number

EPR/BR7607IP

Issued to

EPC United Kingdom PLC (“the operator”)

whose registered office is

Venture Crescent

Nix's Hill Industrial Estate

Alfreton

Derbyshire

DE55 7RA

company registration number 00084170

to operate an installation at

Great Oakley Works

Great Oakley

Harwich

Essex

CO12 5JW

to the extent set out in the schedules.

The notice shall take effect from 21/01/2022

Name	Date
Philip Lamb	21/01/2022

Authorised on behalf of the Environment Agency

Schedule 1

Only the following conditions have been varied by the consolidated permit EPR/BR7607IP/V006

The following conditions were varied as a result of an Environment Agency initiated variation:

Condition 4.3.2 is updated to current template wording

Schedule 5 Notification Form is updated to current template wording in sections c) and d).

Schedule 6 Interpretation is updated that European Union legislation is now read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016.

The following conditions were varied as a result of the application made by the operator:

Table S1.1 Activities as referred to in condition 2.1.1 is updated to remove the Directly Associated Activity for recovery of sulphuric acid using coalescer technology.

Table S1.3 Improvement programme requirements as referred to in condition 2.4.1 is updated to reflect new, completed and superseded improvement conditions

Table S3.2 as referred to in conditions 3.1.1 and 3.5.1 (including notes) is updated to reflect the emission limit values during the time-limited derogation.

Table S4.3 as referred to in condition 4.2.2 is updated to include annual reporting of mass emissions of Chromium and Nickel to water.

Annex to conditions is added to explain the derogation under the IED

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/BR7607IP

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/BR7607IP/V006 authorising,

EPC United Kingdom PLC (“the operator”),

whose registered office is

Venture Crescent

Nix's Hill Industrial Estate

Alfreton

Derbyshire

DE55 7RA

company registration number 00084170

to operate an installation at

Great Oakley Works

Great Oakley

Harwich

Essex

CO12 5JW

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Philip Lamb	21/01/2022

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and
- (b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.2 Energy efficiency

1.2.1 The operator shall:

- (a) take appropriate measures to ensure that energy is used efficiently in the activities;
- (b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
- (c) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

1.3.1 The operator shall:

- (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
- (b) maintain records of raw materials and water used in the activities;
- (c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
- (d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

1.4.1 The operator shall take appropriate measures to ensure that:

- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and
- (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
- (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation (“plan”) specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.

2.3.4 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

- (a) the nature of the process producing the waste;
- (b) the composition of the waste;
- (c) the handling requirements of the waste;
- (d) the hazardous property associated with the waste, if applicable; and
- (e) the waste code of the waste.

2.3.5 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

2.5 Pre-operational conditions

2.5.1 The operations specified in schedule 1 table S1.4 shall not commence until the measures specified in that table have been completed.

3 Emissions and monitoring

3.1 Emissions to water, air or land

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1 and S3.2.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.2 Emissions of substances not controlled by emission limits

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.2.2 The operator shall:
 - (a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;
 - (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

- 3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.
- 3.3.2 The operator shall:
 - (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;
 - (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Noise and vibration

- 3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.
- 3.4.2 The operator shall:

- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;
- (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

- 3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:
 - (a) point source emissions specified in tables S3.1 and S3.2;
- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.
- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1 and S3.2 unless otherwise agreed in writing by the Environment Agency.

4 Information

4.1 Records

- 4.1.1 All records required to be made by this permit shall:
 - (a) be legible;
 - (b) be made as soon as reasonably practicable;
 - (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
 - (d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
 - (i) off-site environmental effects; and
 - (ii) matters which affect the condition of the land and groundwater.
- 4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

- 4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.
- 4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:

- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
- (b) the annual production /treatment data set out in schedule 4 table S4.2; and
- (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;
- (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4 ; and
- (c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.3 Notifications

4.3.1 In the event:

- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
 - (i) inform the Environment Agency,
 - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
 - (iii) take the measures necessary to prevent further possible incidents or accidents;
- (b) of a breach of any permit condition the operator must immediately—
 - (i) inform the Environment Agency, and
 - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
- (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

- (a) any change in the operator's trading name, registered name or registered office address; and

- (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

- (a) any change in the operator's name or address; and
- (b) any steps taken with a view to the dissolution of the operator.

In any other case:

- (a) the death of any of the named operators (where the operator consists of more than one named individual);
- (b) any change in the operator's name(s) or address(es); and
- (c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

- (a) the Environment Agency shall be notified at least 14 days before making the change; and
- (b) the notification shall contain a description of the proposed change in operation.

4.3.6 The Environment Agency shall be given at least 14 days' notice before implementation of any part of the site closure plan.

4.3.7 Where the operator has entered into a climate change agreement with the Government, the Environment Agency shall be notified within one month of:

- (a) a decision by the Secretary of State not to re-certify the agreement;
- (b) a decision by either the operator or the Secretary of State to terminate the agreement; and
- (c) any subsequent decision by the Secretary of State to re-certify such an agreement.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
AR1	S4.1 A1(a)(iv)	Continuous process producing 2-Ethyl Hexyl Nitrate	Receipt and storage of raw materials, processing operations to storage and despatch of finished products and disposal of waste, control and abatement systems, also including all reaction and treatment stages in between.
AR2	S4.2 A1(a)(iv)	Producing inorganic chemicals such as vanadium pentoxide, ammonium polyvanadate and nickel hydroxide from power station ash, spent catalysts and other sources.	Receipt and storage of raw materials, processing operations to storage and despatch of finished products and disposal of waste, control and abatement systems, also including all reaction and treatment stages in between.
Directly Associated Activity			
AR4	Operation of systems for the supply of utilities and services	Operations of systems for the supply of services such as cooling water and refrigeration services, compressed air, inert gases (nitrogen) and electricity.	Site utility and service systems as far as the installation boundary.
AR5	Storage and disposal of aqueous liquid waste.	Storage and disposal of aqueous liquid waste from the Fuels Additive Plant and Metals Recovery Plant to controlled waters of Bramble Creek.	Spent acid and wash water holding tanks, effluent interceptor and effluent holding tank, associated pipework at the discharge outfall.
AR6	Stabilisation of Spent Acid	Direct dilution of spent acid from Fuel Additives Plant	Dilution with water of spent acid including water scrubber abatement of acid vapours.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Variation Application EPR/BR7607IP/V002	Sections 5.1, 5.2, 5.3, 5.4 and 5.5 of the application document 'Operating Techniques' in response to Section 2a – technical standards, Part C of the application form.	01/04/10
Variation Application EPR/BR7607IP/V002	Sections 6.4, 6.7 and 6.8 of the application document 'Emissions to Air', Water and Land' in response to section 2B, Table 5 – General Requirements, Part C of the application form	01/04/10
Variation Application EPR/BR7607IP/V002	Sections 6.4, 6.7 and 6.8 of the application document 'Emissions to Air', Water and Land' detailing abatement equipment	01/04/10
Variation Application EPR/BR7607IP/V002	Section 10 of the application document 'Environmental Management Systems'	01/04/10
E-mail titled 'Progress Towards EPR Variation'	Attachment 'Updated Bund Specifications'	22/10/10

Table S1.2 Operating techniques		
Description	Parts	Date Received
Variation Application EPR/BR7607IP/V004	Application Document - Permit Variation TERP-60595031-2019-002 dated 3 May 2019	07/05/19
Schedule 5 notice EPR/BR7607IP/V004	Response to questions: 2, 3, 4, 6, 7, 9, 10, 11, 13, 14	07/08/19
Response to Regulation 61 notice	BAT Assessment. AECOM Report 60580927-001 Dated 8 August 2018. Section 2 BAT Conclusions Assessment and Section 3 BAT Conclusion Action Plan.	09/08/18
Response to Regulation 61 notice	Environmental Impact Screening Assessment to Water. AECOM report 60580927-002 Dated 8 August 2018. Section 5 Summary and Recommendations.	09/08/18
Response to Regulation 61 notice	Environmental Risk Assessment (ERA). Report 60580927-003 Dated 8 August 2018. Section 6 ERA Conclusions and Section 7 Recommendations.	09/08/18
Response to Regulation 61 notice	EPC Permit Review AECOM Report TESRP-60595031 Dated 24 January 2019. All Sections.	24/01/19
Request for further information	Response to questions 1-3 and scrubber design parameters in request for further information e-mail sent 16/09/19	18/10/19

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC6	The Operator shall submit a report to the Agency detailing the measures to be taken to implement Best Available Techniques for controlling the discharges to water. A H1 BAT assessment of the options shall be undertaken. The report shall include timescales for the implementation of individual measures.	Superseded by IC39
IC7	Following the completion of IC6, the Operator shall implement the changes agreed in writing with the Agency. The work shall be completed within 1 year of the submission of the report presented in accordance with IC6.	Superseded by IC39
IC30	<p>The operator shall submit a report to the Environment Agency detailing the results of sampling and analysis of the vent from the acid vapour scrubber on the Direct Dilution Plant. The report shall include, but not be limited to:</p> <ul style="list-style-type: none"> • Evidence to show that the Direct Dilution Plant was running at design capacity under typical operating condition at the time of sampling. • Measurement of flow. • Measurement and analysis of total oxides of sulphur as sulphuric acid • Measurement and analysis of total oxides of nitrogen as nitric acid <p>On receipt of the report the Environment Agency shall confirm in writing any change to the sulphuric acid sampling frequency and limit in table S3.1.</p>	Complete
IC31	<p>The operator shall submit a post re-commissioning report to the Environment Agency for the acid recovery plant which shall include, but not be limited to:</p> <ul style="list-style-type: none"> • a review of effect of performance of the facility against any relevant conditions of this permit. • details of procedures developed during commissioning for achieving and demonstrating satisfactory process control. • An energy use baseline of the optimised process. <p>On receipt of the report the Environment Agency shall confirm in writing any change to the W2 emission to water flow volume and discharge rate and suspended solids content in table S3.2.</p>	Superseded by derogation application IC40
IC32	<p>The operator shall submit a report to the Environment Agency of plans for re-commissioning of the acid recovery plant which shall include, but not be limited to:</p> <ul style="list-style-type: none"> • A summary of the hazard assessment studies. • Controls required to address potential significant safety and environmental impacts. • Identification of, and dates for, critical points in the project implementation. • An assessment of the expected performance of the re-commissioned plant. <p>On written approval from the Environment Agency the re-commissioning shall be implemented in accordance with the plans.</p>	Superseded by derogation application IC40
IC33	The operator shall submit a report to the Environment Agency detailing the results of sampling and analysis of the outlet to air of the 2-EHN reactor to support the conclusion that running with the reactor naturally breathing directly to atmosphere is equivalent to the BAT of using the original design with abatement equipment. (LVOC BATc 2 and 10)	Complete

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC34	<p>The operator shall submit a baseline report compliant with Article 22 of the IED to the Environment Agency, containing information necessary to determine the current state of soil and groundwater contamination. This shall enable a quantified comparison to be made with the state of soil and groundwater contamination upon definitive cessation of activity.</p> <p>In accordance with the submitted Environmental Risk Assessment 60580927-003 Dated 8 August 2018 Section 7 Recommendations (first bullet section) the report should include, but not be limited to:</p> <ul style="list-style-type: none"> • A review of historic and current potential sources of contamination. • Definition of a Sampling and Monitoring plan for soil and groundwater. • Implementation of the Sampling and Monitoring plan so as to generate a baseline. 	07/12/21
IC35	The operator shall submit a report to the Environment Agency detailing progress towards implementation of the recommendations in Section 7 of the submitted Environmental Risk Assessment 60580927-003 Dated 8 August 2018 (other than the first bullet section). (LVOC BATc 18)	Complete
IC36	<p>The operator shall submit a report to the Environment Agency for approval reviewing the suitability of analytical methods in the permit tables S3.1 and S3.2 (as active after 07/12/21) against (where relevant)</p> <ol style="list-style-type: none"> a) The standards in BAT 4 of Best Available Techniques Conclusions For Common Waste Water/Waste Gas Treatment/Management Systems In The Chemical Sector b) The monitoring standards and methods in our guidance TGN M18 Monitoring of Discharges to Water and Sewer c) The monitoring standards and methods in our guidance M2 Monitoring Of Stack Emissions To Air <p>Where an alternative method has been previously agreed in writing with the Environment Agency justification must be provided for why this equivalent or more appropriate choice is still valid.</p> <p>(CWW BATc 4)</p>	Complete
IC37	<p>Following the re-commissioning of the acid recovery plant (or otherwise as agreed with the Environment Agency) the operator shall carry out relevant investigations and analyses and submit to the Environment Agency a report (or reports) of results addressing:</p> <ol style="list-style-type: none"> a) the composition of the effluent discharged from release point W2. This should include, but not be limited to, Phosphorus, Chromium, Copper, Nickel, Zinc and Lead concentrations. b) a Direct Toxicity Assessment of the materials present in the residual effluent discharged from Release Point W2. c) a benthic survey at and around the discharge point W2. <p>The report should include an explanation of how the effect of the acidity of the effluent has been addressed.</p> <p>If the assessment concludes that any component is other than not significantly toxic, the report should include recommendations and timescales for improvements.</p> <p>On receipt of the report the Environment Agency shall confirm in writing any monitoring requirement based on the assessed risk.</p> <p>(CWW BATc 4)</p>	Superseded by derogation application IC40

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC38	<p>Following the re-commissioning of the acid recovery plant (or otherwise as agreed with the Environment Agency) the operator shall submit to the Environment Agency for approval a report on options for minimisation and/or recovery of the dilute acid stream from 2-EHN product washing. If feasible options are identified, the report shall include recommendations and timescales for improvements.</p> <p>On receipt of approval in writing from the Environment Agency the operator shall implement the improvements.</p> <p>(CWW BATc10)</p>	Superseded by derogation application IC40
IC39	<p>The operator shall submit to the Environment Agency for approval a report on options for preliminary and final treatment and control of effluent discharges addressing the relevant techniques in BAT12 of Best Available Techniques Conclusions For Common Waste Water/Waste Gas Treatment/Management Systems In The Chemical Sector (CWW)</p> <p>The report should include, but not be limited to:</p> <ul style="list-style-type: none"> • Measures to minimise the discharge of acids • Measures to achieve the CWW Table 1 limit for Chemical Oxygen Demand included in Permit Table S3.2 from 07/12/21 • Measures to achieve the CWW Table 3 limits for Cr and Ni included in Permit Table S3.2 from 07/12/21 <p>Where measures are identified, the report shall include recommendations and timescales for improvements.</p> <p>On receipt of approval in writing from the Environment Agency the operator shall implement the improvements in accordance with the agreed timescales</p>	Superseded by derogation application IC40
IC40	<p>The operator shall submit to the Environment Agency for approval reports on progress in implementing the preferred Ferric Sulphate production proposal described in application EPR/BR7607IP/V006 for a derogation from BAT-AELs for COD, Cr and Ni direct discharge to receiving waters until 31 December 2023.</p> <p>The reports shall include, but not be limited to, progress against targets / timelines for reaching compliance by 31/12/23 and any alterations to the initial plans.</p> <p>Approval of reports under this Improvement Condition does not preclude the need for permit variation application to operate the developed process.</p>	<p>Progress reports by:</p> <p>30/06/22 31/12/22 30/06/23 31/12/23</p>

Table S1.4 Pre-operational measures for future development		
Reference	Operation	Pre-operational measures
PO1	Metals Recovery Plant (MRP)	<p>Prior to restarting the MRP, the Operator shall improve the dust abatement serving Emission Point A1 so as to meet the current benchmark of 5mg/m³ for bag filters. A H1 assessment shall be undertaken in order to determine the Best Available Technique for abating the emission to air.</p> <p>At least 4 weeks before the restart, the Operator shall submit to the Environment Agency, a protocol for undertaking analysis and assessment of the emissions from A1. Once agreed with the Agency, the protocol shall be implemented, and the findings of the assessment should be used to revise, if necessary, the calculation</p>

Table S1.4 Pre-operational measures for future development		
Reference	Operation	Pre-operational measures
		methods for determining the concentrations of Nickel and Vanadium. The calculation methods shall be submitted in writing to the Agency.
PO2	Metals Recovery Plant (MRP)	<p>Prior to restarting the MRP, the Operator shall submit to the Environment Agency an assessment for the restarted process against the Best Available Techniques current at the time.</p> <p>This assessment should include, but not be limited to:</p> <ul style="list-style-type: none"> • an estimate of the annual discharge of Nickel from discharge point W1. • assessment against all the CWW BAT-AEL concentrations in Tables 1-3 • A review of the applicability of the techniques for reducing channelled dust emissions to air described in the LVOC BATc11 or equivalent BATc current at the time.

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
-	-

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on site plan in Schedule 7]	Combined dust extraction and drier stack in the Metals Recovery Plant	Total Particulates	5 mg/m ³	Daily	Continuous	PCME/DT770 continuous monitor. ^{Note 1}
				Spot Sample	Annually	BS EN 13284-1
		Nickel (as soluble compounds)	2 mg/m ³	Calculated result	Quarterly	Calculated from Total Particulates results as agreed in writing with the Environment Agency
		Nickel (as insoluble compounds)	5 mg/m ³	Calculated result	Quarterly	Calculated from Total Particulates results as agreed in writing with the Environment Agency
		Vanadium (as soluble compounds)	2 mg/m ³	Calculated result	Quarterly	Calculated from Total Particulates results as agreed in writing with the Environment Agency
		Vanadium (as insoluble compounds)	5 mg/m ³	Calculated result	Quarterly	Calculated from Total Particulates results as agreed in writing with the Environment Agency
A30 (point A30 on plan in Schedule 7)	Acid recycle pilot plant/ Direct Dilution tank Scrubber	Oxides of Nitrogen	200mg/m ³	Spot Sample	Quarterly	BS EN 14792 ^{Note 2}
		Sulphuric Acid	75mg/m ³	Spot Sample	Quarterly	USA EPA Method 8 or otherwise as agreed in writing with the Environment Agency
A32	RSA Plant Scrubber	No parameter set	-	-	-	-
A33	RSA Plant Scrubber	No Parameter set	-	-	-	-

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
Note 1: Monitor to be calibrated using extractive sampling and analysis in accordance with BS6069 on an annual basis.						
Note 2 Certification to the MCERTS performance standards indicates compliance with BS EN 14792.						

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location <small>Note 2</small>	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
W1 on site plan in schedule 7 emission to Bramble Creek within Hamford Water TM 2200 2610	Process effluent from Metals Recovery Plant	Maximum flow rate	3.5l/s	daily	continuous	MCERTS self-monitoring of effluent flow
		Maximum flow rate	8m ³ /hr	monthly average	continuous	MCERTS self-monitoring of effluent flow
		Maximum temperature	30°C	daily	continuous	Continuous temperature and pH probe EXA pH 202 Yokogawa
		pH	7.0 – 8.5	daily	continuous	Continuous temperature and pH probe EXA Ph 202 Yokogawa BS ISO 10623
		Vanadium	2.0mg/l	Per batch, prior to discharge	Spot sample	Operator Method QCP408
		Nickel	5.0 µg/l <small>Note 3</small>	Per batch, prior to discharge	Spot sample	Operator Method QCP408
W2 on site plan in schedule 7 emission to Bramble Creek within Hamford Water TM 2200 2610	Process effluent from Fuel Additives Plant	Maximum volume discharged in any period of 24 hours <small>Note 1</small>	280m ³ until 31/12/23	24 hours	Continuous	MCERTS self-monitoring of effluent flow
			50m ³ from 01/01/24			
		Maximum rate of discharge	8.0 l/s until 31/12/23	daily	Continuous	MCERTS self-monitoring of effluent flow
			6.0 l/s from 01/01/24			

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements

Emission point ref. & location <small>Note 2</small>	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
		Chemical Oxygen Demand (COD)	1,400 mg/l until 31/12/23	Composite samples based on daily aliquots from the flow proportional sampler	Monthly until 31/12/23	Operator method QCP408 BS ISO 6060 or 15705
			100 mg/l from 01/01/24		Weekly from 01/01/24	
		Suspended solids	100 mg/l	Composite samples based on daily aliquots from the flow proportional sampler	Monthly until 06/12/21	Operator Method QCP408 EN872
					Weekly from 07/12/21	EN 872
		Cadmium	0.01 mg/l	Composite samples based on daily aliquots from the flow proportional sampler	Monthly	BS EN ISO 5961
		Mercury	0.008 mg/l	Composite samples based on daily aliquots from the flow proportional sampler	Monthly	BS EN 12846
		Total Acidity – as sulphuric acid	16.6 w/w%	Composite samples based on daily aliquots from the flow proportional sampler	Monthly	Operator Method QCP408
		Total Nitrogen – as N	2,200 mg/l	Composite samples based on daily aliquots from the flow proportional sampler	Monthly until 06/12/21	EN 12260
Weekly from 06/12/21	EN 12260					

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location <small>Note 2</small>	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
		Chromium	250 µg/l until 31/12/23	Composite samples based on daily aliquots from the flow proportional sampler	Monthly	BS EN 11885 (or as agreed in writing with the Environment Agency)
			5.0 µg/l from 01/01/24 <small>Note4</small>			
		Nickel	200 µg/l until 31/12/23	Composite samples based on daily aliquots from the flow proportional sampler	Monthly	BS EN ISO 11885 (or as agreed in writing with the Environment Agency)
			5.0 µg/l from 01/01/24 <small>Note5</small>			
W3 via a number of site drainage ditches, where it mixes with surface water prior to discharge into Bramble Creek within Hamford Water grid reference TM2200 2610	Indirect cooling water from the Fuel Additives Plant	No parameters set	No limit set	-	-	-
<p>Note 1: The discharge shall only be made during the period starting two hours before local high water and finishing three hours after local high water.</p> <p>Note 2: For emission point W1, spot samples shall be taken from the surge tank in the Metals Recycling Plant. The Operator shall ensure that the sample is taken in such a manner that it is representative of the effluent that is passing into Bramble Creek from the installation.</p> <p>For emission point W2, samples shall be taken from the sampling point located at Grid Reference TM2144 2643. The Operator shall ensure that any sample taken is representative of the effluent that is passing into Bramble Creek from the installation.</p> <p>Note 3: If the assessment submitted under Pre-operational Condition PO2, as approved by the Environment Agency, concludes that emission Point W1 will emit less than the threshold of 5.0 kg Nickel per year then the Emission Limit will be 2 mg/l.</p> <p>Note 4: The BAT-AEL of 5.0 µg/l shall apply unless evidence is submitted and approved in writing by the Environment Agency that the discharge of chromium will not exceed the threshold of 2.5 kg/yr.</p> <p>Note 5: The BAT-AEL of 5.0 µg/l shall apply unless evidence is submitted and approved in writing by the Environment Agency that the discharge of nickel will not exceed the threshold of 5 kg/yr.</p>						

Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.5.1.	A1, A30	Every 3 months	1 January
Emissions to water Parameters as required by condition 3.5.1	W1, W2	Every 3 months	1 January
Emissions to water annual total (kgs) for Nickel, Vanadium	W1	Annually	1 January
Emissions to water annual total (kgs) for Cadmium, Mercury, Total Nitrogen as N, Suspended Solids, Chemical Oxygen Demand and Sulphuric Acid	W2	Annually	1 January

Table S4.2: Annual production/treatment	
Parameter	Units
Production of 2-ethyl hexyl nitrate (Fuel Additives Plant)	tonnes
Production of nickel and vanadium compounds (Metal Recovery Plant)	tonnes

Table S4.3 Performance parameters		
Parameter	Frequency of assessment	Units
Total water used per tonne of product	Annually	m ³ /tonne
Total energy used per tonne of product	Annually	MW/tonne
Waste disposal and/or recovery per tonne of product	Annually	Tonne/tonne
Chemical Oxygen Demand/tonne of product (FAP)	Annually	COD/tonne
Acid Used/tonne of product (FAP)	Annually	Tonne/tonne
Nitric Acid released to water/tonne product (FAP)	Annually	Tonne/tonne
Sulphuric Acid released to water/tonne product (FAP)	Annually	Tonne/tonne
Total chromium and chromium compounds (expressed as Cr) released to water	Annually	kg
Total nickel and nickel compounds (expressed as Ni) released to water	Annually	kg

Table S4.4 Reporting forms		
Media/parameter	Reporting format	Date of form
Air	Form Air 1 or other form as agreed in writing by the Environment Agency	01/04/20
Water and Land	Form Water 1 or other form as agreed in writing by the Environment Agency	01/11/21
Other performance indicators	Form Performance 1 or other form as agreed in writing by the Environment Agency	01/11/21

Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	BR7607IP
Name of operator	EPC United Kingdom PLC
Location of Facility	Great Oakley Works
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) Notification requirements for the breach of permit conditions not related to limits	
To be notified within 24 hours of detection	
Condition breached	
Date, time and duration of breach	
Details of the permit breach i.e. what happened including impacts observed.	
Measures taken, or intended to be taken, to restore permit compliance.	

(d) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	

Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“annually” means once every year.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“BAT-AELs” means BAT-associated emission levels, i.e. the emission levels associated with the best available techniques for emissions to air and/or water, as set out in

“Common waste water and waste gas treatment/management systems in the chemical sector BAT Conclusions or CWW” means Commission Implementing Decision (EU) 2016/902 of 30 May 2016 establishing Best Available Techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for Common Waste Water And Waste Gas Treatment/ Management Systems in the Chemical Sector, as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016

“diffuse emissions” means non-channelled emissions which can result from ‘area’ sources (e.g. tanks) or ‘point’ sources (e.g. pipe flanges).

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission limit.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“fugitive emissions” means diffuse VOC emissions from ‘point’ sources.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“Hazardous property” has the meaning in Annex III of the Waste Framework Directive.

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions, as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016.

“Large Volume Organic Chemicals BAT Conclusions or LVOC” means The Commission Implementing Decision (EU) 2017/2117 of 21 November 2017 establishing Best Available Techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for the Production of Large Volume Organic Chemicals, as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016.

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“Waste Framework Directive” or “WFD” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste, as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016.

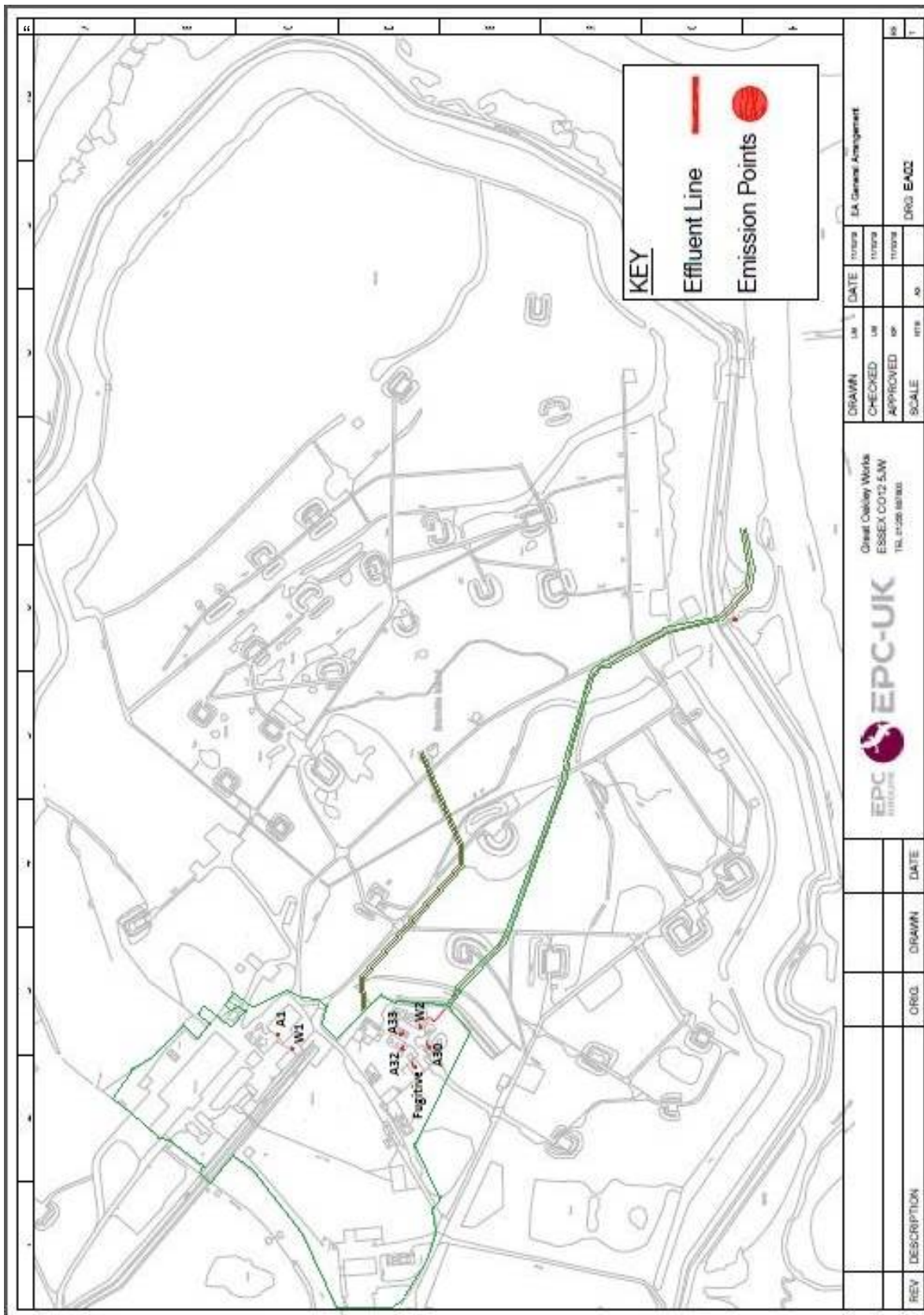
“year” means calendar year ending 31 December.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

Schedule 7 Site plan



END OF PERMIT

Annex to conditions – Derogation under Industrial Emissions Directive

Derogation under Article 15(4) of Industrial Emissions Directive

DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016

<p>Operating techniques</p>	<p>We have considered the Operator's proposed techniques and its comparison against other relevant techniques as described in best available techniques (BAT) conclusions (BATc) for</p> <p>a) Production of Large Volume Organic Chemicals and notified under document reference 2017/7469EU.</p> <p>b) Common waste water and waste gas treatment/management systems in the chemical sector and notified under document reference 2016/3127EU.</p> <p>Our full reasoning is given in our decision document that accompanies the permit determination.</p> <p>The Operator requested a time limited derogation until 31/12/23 from BAT Associated Emission Levels (BAT-AELs) for Chemical Oxygen Demand, Nickel and Chromium from a single discharge point to water under BAT Conclusions for Common Waste Water/Waste Gas Treatment/Management Systems in the Chemical Sector published 09/06/2016 (CWW). The decision is made on the basis of technical characteristics of the acid recovery plant with supporting geographical characteristics of the site.</p> <p>The Operator's application considered thirteen options for meeting the BAT-AEL, with three being taken forward for detailed assessment. They have proposed to develop and implement a new strong acid recovery plant to remove this stream from the current discharge to water, enabling the remaining discharge to meet all BAT-AELs.</p> <p>The Environment Agency has reviewed the request and concluded that:</p> <ul style="list-style-type: none"> The Operator has supplied a valid derogation request against BAT-AELs for Chemical Oxygen Demand, Nickel and Chromium from a single discharge point to water in best available techniques for Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector (published 09/06/2016). The derogation request is based on an interlinked combination of technical characteristics with secondary geographical location factors. The Operator has described 13 relevant options for achieving the BAT AELs (plus business as usual (BAU)), and justified screening out 10 options. 3 options, plus BAU and meeting BAT-AELs by ceasing operations were taken forward to conduct a cost benefit analysis (CBA). The options include BAU i.e. doing nothing by continuing to emit COD, Cr and Ni (although with ELVs tightened to currently achievable levels), meeting BAT-AELs by ceasing operation for 2 years, and three options for treating a current waste strong acid stream by 31/12/23 to generate a saleable product, including the operator's preferred option of producing ferric sulphate for water treatment, and therefore divert it from the W2 discharge point and achieve BAT-AEL compliance for this discharge to water. The Operator has provided a credible argument that the increased costs linked to the technical characteristics and geographical location are disproportionate for achieving the BAT AELs. Viable options were taken forward for Cost Benefit Analysis (CBA), were adequately described data for the CBA and the cost of the BAT AEL option and other options was confirmed as disproportionate compared to the environmental benefits. The CBA using central assumptions shows a negative net present value (NPV) for the BAT AEL of £47m and for the other options of £93m to £106m and therefore the cost of
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compliance is disproportionate compared to the environmental benefit achieved.

The outcome of the CBA therefore supports the operator's choice of the preferred option (ferric sulphate production) for the proposed time-limited derogation.

- The Operator has demonstrated that the assessment of derogation impacts shows they are not likely to be significant.

Evidence from surveys of the macrobenthic communities in Bramble and Oakley Creeks under the current discharge supports the conclusion that allowing the proposed derogation would not cause any significant pollution or prevent a high level of protection of the environment as a whole to be achieved.

The Environment Agency is therefore minded to allow this derogation request subject to the following:

- An improvement condition to regularly report progress with the works required for the proposed derogation option and achieving the BAT-AELs.
- The Emission Limit Values for COD, Cr and Ni will be amended to reflect currently achievable concentrations for the period 07/12/21 to 31/12/23, as proposed by the applicant and reviewed by us; and monitoring to ensure emissions remain below the thresholds for BAT-AELs thereafter.

Permit Number: BR7607IP

Operator: EPC UK Ltd

Facility: Great Oakley Works

Form Number: Air1 01/04/20

Reporting of emissions to air for the period from DD/MM/YYYY to DD/MM/YYYY

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result ^[1]	Test Method ^[2]	Sample Date and Times ^[3]	Uncertainty ^[4]
A1	Total Particulates	5 mg/m ³	Daily		PCME/DT770 Continuous Monitor		
A1	Total Particulates	5 mg/m ³	Annual Spot Sample		BS EN 13284-1		
A1	Nickel (as soluble compounds)	2 mg/m ³	Calculated result		Calculated from Total Particulates results as agreed in writing with the Environment Agency		
A1	Nickel (as insoluble compounds)	5 mg/m ³	Calculated result				
A1	Vanadium (as soluble compounds)	2 mg/m ³	Calculated result				
A1	Vanadium (as insoluble compounds)	5 mg/m ³	Calculated result				
A30	Oxides of Nitrogen	200 mg/m ³	Spot Sample		BS EN 14792		
A30	Sulphuric Acid	75 mg/m ³ [5]	Spot Sample		USA EPA Method 8 or otherwise as agreed in writing with the Environment Agency		

Operator's comments:

1. The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.
2. Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.
3. For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.
4. The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.
5. The monthly sampling frequency and 75mg/m³ limit apply until deletion or change on completion of Improvement Condition 30.

Signed

Date.....

(Authorised to sign as representative of Operator)

Permit Number: BR7607IP

Operator: EPC UK Ltd

Facility: Great Oakley Works

Form Number: Water1 01/11/21

Reporting of emissions to water (other than to sewer) and land for the period from DD/MM/YYYY to DD/MM/YYYY

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result ^[1]	Test Method ^{[2] [5]}	Sample Date and Times ^[3]	Uncertainty ^[4]
W1	Maximum Flowrate	3.5 litres/s	Daily		MCERTS		
W1	Average Monthly Flowrate	8 m ³ /hr	Based on monthly average		MCERTS		
W1	Maximum Temperature	30 degC	Daily		EXA pH 202 Yokogowa		
W1	pH	7 – 8.5	Daily		EXA pH 202 Yokogowa		
W1	Nickel	5.0 µg/l ^[6]	Spot sample per batch		Operator Method QP408		
W1	Vanadium	2.0 mg/l	Spot sample per batch		Operator Method QP408		
W2	Maximum volume discharged in any period of 24 hours	280m ³ until 31/12/23 50m ³ from 01/01/24	24 hours		MCERTS		
W2	Maximum rate of discharge	8.0 l/s until 31//12/23 6.0 l/s from 01/01/24	Daily		MCERTS		

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result ^[1]	Test Method ^[2] ^[5]	Sample Date and Times ^[3]	Uncertainty ^[4]
W2	Chemical Oxygen Demand	1,400 mg/l until 31/12/23 100 mg/l from 01/01/24	Composite samples based on daily aliquots from the flow proportional sampler		Operator method QCP408 BS ISO 6060 or 15705		
W2	Suspended solids	100 mg/l			Operator Method QCP408 or EN782 until 31/12/23 EN872 from 01/01/24		
W2	Cadmium	0.01 mg/l			BS EN ISO 5961		
W2	Mercury	0.008 mg/l			BS EN 12846		
W2	Total Acidity – as sulphuric acid	16.6 %w/w			Operator Method QCP408		
W2	Total Nitrogen – as N	2,200 mg/l			EN12260		
W2	Chromium	250 µg/l until 31/12/23 5.0 µg/l from 01/01/24 ^[7]			BS EN 11885 (or as agreed in writing with the Environment Agency)		
W2	Nickel	200 µg/l until 31/12/23 5.0 µg/l from 01/01/24 ^[8]			BS EN ISO 11885 (or as agreed in writing with the Environment Agency)		

Operator's comments:

1. The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.
2. Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.
3. For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.
4. The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.
5. Or as agreed in writing with the Environment Agency.
6. If the assessment submitted under Pre-operational Condition PO2, as approved by the Environment Agency, concludes that emission Point W1 will emit less than the threshold of 5.0 kg Nickel per year then the Emission Limit will be 2 mg/l
7. The BAT-AEL of 5.0 µg/l shall apply unless evidence is submitted and approved in writing by the Environment Agency that the discharge of chromium will not exceed the threshold of 2.5 kg/yr.
8. The BAT-AEL of 5.0 µg/l shall apply unless evidence is submitted and approved in writing by the Environment Agency that the discharge of nickel will not exceed the threshold of 5 kg/yr.

Signed

Date.....

(Authorised to sign as representative of Operator)

Permit Number: BR7607IP

Operator: EPC UK Ltd

Facility: Great Oakley Works

Form Number: Performance1 01/04/20

Reporting of Performance Indicators for YYYY

Parameter	Result	Units
Production of 2-ethyl hexyl nitrate (Fuel Additives Plant)		tonnes
Production of nickel and vanadium compounds (Metal Recovery Plant)		tonnes
Total water used per tonne of product		m ³ /tonne
Total energy used per tonne of product		MW/tonne
Waste disposal and/or recovery per tonne of product		Tonne/tonne
Chemical Oxygen Demand/tonne of product (FAP)		COD/tonne
Acid Used/tonne of product (FAP)		Tonne/tonne
Nitric Acid released to water/tonne product (FAP)		Tonne/tonne
Sulphuric Acid released to water/tonne product (FAP)		Tonne/tonne
Total chromium and chromium compounds (expressed as Cr) released to water		kg
Total nickel and nickel compounds (expressed as Ni) released to water		kg

Operator's comments:

Signed

Date..... (authorised to sign as representative of Operator)