

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

SABIC UK Petrochemicals Limited

Wilton Olefins Installation
Wilton Site
PO Box 99
Redcar
Cleveland
TS10 4YA

Variation application number

EPR/BS3590IE/V014

Permit number

EPR/BS3590IE

Wilton Olefins Installation

Permit number EPR/BS3590IE

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 changes being made. Only the changes specified in schedule 1 are subject to a right of appeal.

The purpose of the variation is to:

- Add an activity for the treatment of hazardous waste arising from the cleaning and maintenance of the plant carried out at six yearly intervals for major turnarounds and small scale interim turnarounds in the intervening three years;
- Add two gas oil fired boilers, each with a net rated thermal input of 5MW, located temporarily on site to provide steam for the six yearly/three yearly cleaning process;
- Include an additional area of land into the permit boundary.

The cleaning process will be carried out as follows:

During the six/three yearly maintenance plant shutdown the plant will be chemically cleaned. The water used for the cleaning will be heated using steam generated by the temporary boilers and will create an emulsion and an aqueous effluent which will each be treated prior to removal from the site. The treatment at site comprises:

- the separation of the emulsion into aqueous and hydrocarbon layers by the addition of an emulsion breaker so that the water content of the waste is reduced; and
- oil/water separation and filtration to remove particles and filtration through activated carbon to treat the aqueous effluent.

Hydrocarbon wastes generated through the cleaning process will be stored in tanks, in the additional area of land, and the treated aqueous effluent will be discharged via the site's existing permitted drainage system. The hydrocarbon wastes will be removed from site in tankers for off-site treatment, disposal or recovery.

The rest of the installation is unchanged and continues to be operated as follows:

The Wilton Olefins Installation is located on the Wilton Site at Redcar, Teesside. The main production plant is Olefins, a large cracker which breaks down larger hydrocarbon molecules into lighter hydrocarbon molecules, using hydrocarbon as a feedstock, but also having the flexibility to use propane, ethane and butane as well. The cracker produces a variety of aliphatic and aromatic hydrocarbons products which are the feedstocks for other plants on and off the Wilton Site. The site is currently operated by Sabic UK Petrochemicals Ltd and has been regulated under IPC and then EPR since 1993.

Average annual production is in the region of 1,250,000 tonnes of primary products (ethylene and propylene) with around another 1,000,000 tonnes of co-products (predominantly gasoline and mixed C4 olefins) and materials recycled for use as fuel (methane). The process uses furnaces at elevated temperatures to breakdown the feedstocks into the products that are then separated and purified using distillation techniques.

Gasoline is further processed into a range of products in an associated Gasoline Treatment Unit. The mixed C4s are separated into a butadiene product and a raffinate product using a solvent extraction process on the butadiene 3 plant.

The products are then stored in and distributed from the other two parts of the installation - Central Control (CC) and Wilton Ethylene Control (WEC). Central Control is at the north end of the site and consists of above ground storage for liquid and gas products. Wilton Ethylene Control has above ground storage for gases and liquids and below ground cavity storage for ethylene and mixed C4s. Products are distributed from Olefins WEC and CC by pipeline directly to customers or to ship loading facilities outside the installation.

The majority of releases to air are either products of combustion (primarily CO₂ & NO_x) or volatile organic compounds (VOCs). NO_x is released continuously from up to 14 USC furnaces (B1701 A-P), 3 VMR furnaces (B1702A-C), 2 boilers (B1703 C & E) and 3 superheaters (B1704 A-C) within the installation.

A high pressure (HP) steam raising boiler (B1703E) was installed on the site and permitted in 2017, with a net thermal input of 85MW, which means it is a large combustion plant (LCP) under chapter III of the Industrial Emissions Directive and is referred to as LCP648. The boiler is sited in the location previously occupied by boiler (B1703A) which has been demolished. The boiler will be operated independently of, and in parallel with, the only remaining boiler B1703C. B1703E is an efficient, modern design, and improves the reliability of steam supply to the Olefins 6 plant. It has a 40m stack and employ a continuous emission monitoring system (CEMS).

On Olefins 6 Plant, the high pressure (HP) steam produced is used to drive condensing steam turbines which act as mechanical drives for large gas compressors. No electrical power is produced by the turbines which means that the plant is a member of the “combustion plants generating only heat” class. There is no infrastructure currently in place at the site to facilitate any electrical energy export to the National Grid.

There are some point source releases of hydrocarbon feedstocks and products. The majority of potential emissions to air are routed to flare systems and rendered harmless. In addition there are intermittent fugitive releases (e.g. tank breathing etc.). VOC emissions considered “significant” consist of benzene, released from area sources around the installation, together with 1, 3-butadiene, and ethylene released from a combination of area and point sources.

Releases to water from the installation enter into the Wilton Site drains which are owned and operated by SUTL -SembCorp Utilities Teesside Ltd. These drains act as a private sewerage system. Internal ELVs have been set for the principal discharges to drains (W1, W2 and W3) and limits set for potential List 1 and List 2 substances. Effluent from the Wilton drainage system is discharged to the River Tees under Water Resources Act Consent Ref. No. QR.25/04/1528

Although the installation is within 10 km of a Natura 2000 site, no significant environmental impact from the installation is expected there.

The activities carried out at the installation have the potential to cause noise from flaring operations that may be audible beyond the installation boundary and cause annoyance. However this is restricted to intermittent operations not carried out on a daily basis. The activities carried out at the installation also have the potential to cause odour, but in normal operations such odour is not likely to cause annoyance. Waste arisings from the installation are small for the size of operation.

Sabco Petrochemicals has an Environmental Management System which is accredited to RC (Responsible Care) 14001 (incorporating ISO 14001).

The schedules specify the changes made to the permit.

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 received (EPR/BS3590IE/A001)	Duly made 20/03/03	
Permit determined EPR/BS3590IE	19/11/03	Permit issued to Huntsman Petrochemicals (UK) Ltd

Status log of the permit		
Description	Date	Comments
Variation issued EPR/BS3590IE/V002	31/01/07	Large Combustion Plant Directive (LCPD)
Variation issued EPR/BS3590IE/V003	01/02/07	Change operator name and registered address (Sabic UK Petrochemicals Limited)
Variation issued EPR/BS3590IE/V004	30/04/07	Inspection and repair of EHS critical drainage system
Variation issued EPR/BS3590IE/V005	17/12/07	National Emissions Reduction Plan (NERP)
Variation issued EPR/BS3590IE/V006	04/04/08	Bring back on-line mothballed boiler B1703A
Application (under EPR 2010) for variation EPR/BS3590IE/V007	Duly made 04/10/2011	Additional storage for p-xylene
Variation issued EPR/BS3590IE/V007	10/10/2011	
Application for variation EPR/BS3590IE/V008	Duly Made 14/09/2015	To increase oxides of nitrogen ELV for Boiler B1703C.
Schedule 5 notice	Issued 28/10/2015	Responses received 13/11/15 and 20/11/15
Variation determined EPR/BS3539IE/V008	18/12/2015	
Regulation 60 Notice sent to the Operator	31/10/2014	Issue of a Notice under Regulation 60(1) of the EPR. Environment Agency Initiated review and variation to vary the permit under IED to implement the special provisions for LCP under Chapter III, introducing new Emission Limit Values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V. The permit is also updated to modern conditions
Regulation 60 Notice response	31/03/2015	Response received from the Operator.
Additional information received	21/12/2015	Response to request for further information (RFI) dated 18/12/15
Variation determined EPR/BS3539IE/V009	24/12/2015	Varied and consolidated permit issued in modern condition format. Variation effective from 01/01/16
Administrative Variation EPR/BS3539IE/V010 (Billing ref: SP3438DU)	18/08/2016	Environment Agency initiated administrative variation, issued to correct errors in LCP variation.
Application for Variation EPR/BS3539IE/V011	Duly made 08/06/2017	Application to add steam raising boiler, B1703E, with a net thermal input of 85MW.
Additional information received	11/10/2017	Response to schedule 5 request for further information dated 28/09/17
Additional information received	28/11/2017	Email providing updated operating techniques documents to replace those in table S1.2

Status log of the permit		
Description	Date	Comments
Variation determined EPR/BS3590IE/V011 (Billing Ref: PP3138YW)	20/12/2017	Varied permit issued.
Variation determined EPR/BS3590IE/V012 (Billing Ref: LP3000SH)	27/04/2020	Varied permit issued to remove LCP 292 from the permit.
Application variation EPR/BS3590IE/V013	30/06/2020	Application returned
Application variation EPR/BS3590IE/V014	Duly made 14/09/20	Application for temporary installation of 2 x 5MW thermal input boilers, waste treatment and storage activities.
Additional information received	18/03/2021	Response to schedule 5 notice dated 15/02/21.
Variation determined EPR/BS3590IE/V014 (Billing ref: PP3105SS)	12/08/2021BS	Varied and consolidated permit issued to SABIC UK Petrochemicals Limited.

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 and consolidates

Permit number

EPR/BS3590IE

Issued to

SABIC UK Petrochemicals Limited (“the operator”)

whose registered office is

The Wilton Centre

Wilton

Redcar

Cleveland

TS10 4RF

company registration number **03767075**

to operate a regulated facility at

Wilton Olefins Installation

Wilton Site

PO Box 99

Redcar

Cleveland

TS10 4YA

to the extent set out in the schedules.

The notice shall take effect from 12/08/2021.

Name	Date
Claire Roberts	12/08/2021

Authorised on behalf of the Environment Agency

Schedule 1

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

Table S1.1, as referenced by conditions 2.1.1, 2.3.2 and 2.5.1, is amended to include the waste treatment activity and the temporary boilers.

Table S1.2, as referenced by conditions 2.3.1, 2.3.3 and 2.3.5, is amended to include the operating techniques for the waste treatment process.

Table S1.3, as referenced by condition 2.4.1, is amended to include a requirement to update the environmental management system to include details of the cleaning activity.

Table S3.1, as referenced by conditions 3.1.1, 3.5.1, 3.5.4 and 3.6.7, is amended to include emissions from the temporary boilers.

Schedule 6, as referenced by condition 4.4.1, is amended to include additional interpretation.

Schedule 7, as referenced by condition 2.2.1, is amended with an updated site plan incorporating additional land.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/BS3590IE

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/BS3590IE/V014 authorising,

SABIC UK Petrochemicals Limited (“the operator”),

whose registered office is

The Wilton Centre

Wilton

Redcar

Cleveland

TS10 4RF

company registration number **03767075**

to operate an installation at

Wilton Olefins Installation

Wilton Site

PO Box 99

Redcar

Cleveland

TS10 4YA

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

Name	Date
Claire Roberts	12/08/2021

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) take appropriate measures to ensure the efficiency of energy generation at the permitted installation is maximised;
 - (c) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
 - (d) take any further appropriate measures identified by a review.
- 1.2.2 The operator shall review the viability of Combined Heat and Power (CHP) implementation at least every 4 years, or in response to any of the following factors, whichever comes sooner:
- (a) new plans for significant developments within 15 km of the installation;
 - (b) changes to the Local Plan;
 - (c) changes to the UK CHP Development Map or similar; and
 - (d) new financial or fiscal incentives for CHP.

The results shall be reported to the Agency within 2 months of each review, including where there has been no change to the original assessment in respect of the above factors.

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;
 - (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 installation, being the land shown shaded in red 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 For the activities referenced in schedule 1, table S1.1: LCP648, without prejudice to condition 2.3.1, the activities shall be operated in accordance with the “Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines” dated December 2015 or any later version unless otherwise agreed in writing by the Environment Agency.
- 2.3.3 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.
- 2.3.4 Any raw materials or fuels listed in schedule 2, table S2.1 shall conform to the specifications set out in that table.
- 2.3.5 The end of the start up period and the start of the shutdown period shall conform to the specifications set out in schedule 1, tables S1.2 and S1.4.

- 2.3.6 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.
- 2.3.7 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.

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, S3.2 and S3.3.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 Emissions to the Wilton Drainage System sewer from the specified emission points in Table S3.3 shall only arise from the sources specified in that Table. There shall be no release from the permitted process into any public sewer.
- 3.1.4 The Operator shall notify the Agency in writing if any known introduction or material change in respect of operations on site, occurs that may increase or introduce in to the emissions to the sewer any “dangerous substance” included in List I and List II and in the list of Dangerous Substances (as updated by the Environment Agency from time to time, and notified to the Operator in writing), included in this Permit, or any other substance considered by the Operator as having or likely to have a significant effect on the receiving waters (Controlled water receiving effluent from the Wilton Site outfall).
- 3.1.5 The Operator shall ensure that all emissions from the permitted site, including those listed in Table S3.3 and S3.5 do not cause a water resources Act Discharge Consent compliance failure for the Wilton Site outfall to controlled waters – (consent Ref. No. QR.25/04/15258 or its successor) or be the cause of a non consented release to controlled waters above background concentration levels.
- 3.1.6 The Operator shall record the occasions when, and the reasons for, diversion of the Wilton Drainage System to the Buffer Tanks is made due to abnormal operation occurring on its installation.
- 3.1.7 Visible smoke from A1, A2, A3 and A4 shall not exceed the equivalent of Ringelmann Shade 2 within 15 minutes of starting from cold or from a trip and otherwise shall not exceed the equivalent of Ringelmann Shade 1.
- 3.1.8 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, S3.2 and S3.3.

- 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 continuous), 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, S3.2 and S3.3 unless otherwise agreed in writing by the Environment Agency.

3.6 Monitoring for the purposes of the Industrial Emissions Directive Chapter III

- 3.6.1 All monitoring required by this permit shall be carried out in accordance with the provisions of Annex V of the Industrial Emissions Directive.
- 3.6.2 If the monitoring results for more than 10 days a year are invalidated within the meaning set out in condition 3.6.7, the operator shall:
- (a) within 28 days of becoming aware of this fact, review the causes of the invalidations and submit to the Environment Agency for approval, proposals for measures to improve the reliability of the continuous measurement systems, including a timetable for the implementation of those measures; and
 - (b) implement the approved proposals.
- 3.6.3 Continuous measurement systems on emission points from the LCP shall be subject to quality control by means of parallel measurements with reference methods at least once every calendar year.
- 3.6.4 Unless otherwise agreed in writing by the Environment Agency in accordance with condition 3.6.5 below, the operator shall carry out the methods, including the reference measurement methods, to use and calibrate continuous measurement systems in accordance with the appropriate CEN standards.
- 3.6.5 If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall be used, as agreed in writing with the Environment Agency.
- 3.6.6 Where required by a condition of this permit to check the measurement equipment, the operator shall submit a report to the Environment Agency in writing, within 28 days of the completion of the check.
- 3.6.7 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3, table S3.1; the Continuous Emission Monitors shall be used such that:
- (a) for the continuous measurement systems fitted to the LCP release points defined in Table S3.1 the validated hourly, monthly and daily averages shall be determined from the measured valid hourly average values after having subtracted the value of the 95% confidence interval;
 - (b) the 95% confidence interval for nitrogen oxides and sulphur dioxide of a single measured result shall be taken to be 20%;
 - (c) the 95% confidence interval for dust releases of a single measured result shall be taken to be 30%;
 - (d) the 95% confidence interval for carbon monoxide releases of a single measured result shall be taken to be 10%;
 - (e) an invalid hourly average means an hourly average period invalidated due to malfunction of, or maintenance work being carried out on, the continuous measurement system. However, to

allow some discretion for zero and span gas checking, or cleaning (by flushing), an hourly average period will count as valid as long as data has been accumulated for at least two thirds of the period (40 minutes). Such discretionary periods are not to exceed more than 5 in any one 24-hour period unless agreed in writing. Where plant may be operating for less than the 24-hour period, such discretionary periods are not to exceed more than one quarter of the overall valid hourly average periods unless agreed in writing; and

- (f) any day, in which more than three hourly average values are invalid shall be invalidated.

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 (a)(i), 4.3.1 (b)(i) where the information relates to the breach of a condition specified in the permit, 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:

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

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 30 days' notice before implementation of any part of the site closure plan.

4.3.7 The operator shall inform the Environment Agency in writing of the closure of any LCP within 28 days of the date of closure.

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
A1	Section 4.1 A(1)(a)(i) Producing Hydrocarbons	Production of aliphatic and aromatic hydrocarbon products from hydrocarbon feed-stocks	From receipt of raw materials to despatch of finished products and by products.
A3	Section 1.1 A(1) (a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	Gas fired process heaters Superheaters B1704 A-C	From receipt of fuel gas to discharge of exhaust gases
A4	Section 1.1 A(1) (a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	LCP648: 85MW thermal input gas fired Boiler (B1703E) for the production of steam	From receipt of gas to boiler B1703E, to discharge of exhaust gases and the generation of steam.
A5	Section 5.3 A(1) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day – (ii) physico-chemical treatment (iii) blending or mixing	D9 – Physico-chemical treatment not specified elsewhere which results in final compounds or mixtures are discarded by means of any of the operations numbered D1 to D12 R3 – Recycling/reclamation of organic substances which are not used as solvents	From the pre-treatment of waste, the storage of the treated waste, to dispatch for recovery or disposal Only waste (waste code 07 01 04*) derived from the cleaning of the installation shall be pre-treated. Pre-treatment operations shall be limited to: Heat treatment, chemical treatment, filtration and separation of waste for the purpose of recovery or disposal. Pre-treatment shall only take place in the areas shown on Figure 1 of the Non-technical summary (application EPR/BS3590IE/V014).
A6	Section 5.6 A(1) (a) Temporary storage of hazardous waste with a total capacity exceeding 50 tonnes	D15 and R13 – Storage of hazardous waste	Storage of waste arising from the cleaning of the installation. Storage shall only take place in the areas shown on Figure 1 of the Non-technical summary (application EPR/BS3590IE/V014).

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
Directly Associated Activity			
A7	-	Supply of steam 2 x 5MWth gas-oil boilers	From receipt of fuel to the production of hot water and steam for the use in the cleaning of the installation only. Only to be used for a maximum of 4 weeks at any one time during the cleaning process.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application for Variation EPR/BS3590IE/V011	Supplementary documents provided with the application: Boiler B1703E M1 Assessment	Duly Made 08/06/2017
Response to Schedule 5 Notice Request dated 28/09/2017	Response to: Question 2 confirming net rated thermal input, Question 7 re monitoring, Question 8 re fuel characterisation, and Question 9 re monitoring during other than normal operating conditions.	11/10/2017
Application for Variation EPR/BS3590IE/V011, Updated documentation, replacing existing documentation provided via email.	2.1 Process description; 5 BAT assessment. 2.10 Emissions Monitoring; 2.7 Energy Management Techniques; 2.4 Raw and auxiliary materials (including water usage); 2.5 Avoidance, Recovery and Disposal of Wastes Produced by the Activities; 2.6 Waste handling; 4.2 Waste Management ; 2.9 Noise Management Plan; Odour Management plan.	28/11/2017
Application for Variation EPR/BS3590IE/V014	Non-technical summary – Sections titled: <ul style="list-style-type: none"> • Pre-treatment of Waste activities • Waste handling Best Available Techniques (BAT) Assessment • Temporary steam generating boilers Olefins installation boundary, drawing number OL-546875	21/07/2020

Table S1.2 Operating techniques		
Description	Parts	Date Received
Response to schedule 5 notice dated 15/02/2021	Response to the following questions: 15. Waste tracking 16. General storage and handling 17. Bulk storage	18/03/2021

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC1 to IC30	-	Complete
IC31	The operator shall provide a report in writing to the Environment Agency for acceptance which provides the net total fuel utilisation and the net mechanical energy efficiency of the boiler B1703E (LCP 648). This information will be determined by carrying out a performance test at full load, according to EN standards, after the commissioning of the unit. 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.	Within 6 months of commissioning boiler B1703E
IC32	The Operator shall submit a noise assessment report undertaken by an experienced and suitably qualified person in accordance with the procedures given in BS4142:2014 (Methods for rating and assessing industrial and commercial sound). The assessment shall include the identification and assessment of the impact of noise emissions upon surrounding sensitive receptors arising from the operation of the installation, including an assessment of any change due to the operation of boiler B1703E.	Within 3 months of commissioning boiler B1703E
IC33	The operator shall update the relevant operating procedures and management plans with the details of the measures and processes taken to prevent the release of emissions from the maintenance shut down waste treatment process and the temporary storage of hazardous waste and shall incorporate these into the environmental management system.	6 months prior to the next maintenance shutdown

Table S1.4 Start-up and Shut-down thresholds		
Emission Point and Unit Reference	“Minimum start up load”	“Minimum shut-down load”
	A4b: Steam flow rate in t/h and as percent of maximum continuous rating (%) and when one of the two of the criteria listed below for the LCP have been met	A4b: Steam flow rate in t/h and as percent of maximum continuous rating (%) and when one of the two of the criteria listed below for the LCP have been met
A4B Unit LCP648 (B1703E)	10t/h steam, Boiler load - 10% MCR and Steam pressure - 60 bar(g) or Steam temperature - 375°C	10t/h steam, Boiler load - 10% MCR and Steam pressure - 60 bar(g) or Steam temperature - 375 °C

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
Natural gas	-
Diesel	<0.1% Sulphur

Schedule 3 – Emissions and monitoring

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down. (Note:1)	Reference period	Monitoring frequency	Monitoring standard or method (Note:3)
A1 [Point A1 on emission point plan in schedule 7] (Note:2)	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂) (Note:4)	B1701A-P Furnaces (14 off)	180 mg/m ³	-	Annual	BS EN 14792
A2 [Point A2 on emission point plan in schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂) (Note:4)	B1702 A/B Furnaces (2 off)	180 mg/m ³	-	Annual	BS EN 14792
A3 [Point A3 on emission point plan in schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂) (Note:4)	B1702 C Furnace	180 mg/m ³	-	Annual	BS EN 14792
A4b [Point A4b on emission point plan in schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	200 mg/m ³	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A4b [Point A4b on emission point plan in schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	100 mg/m ³	Daily mean of validated hourly averages	Continuous	BS EN 14181
A4b [Point A4b on emission point plan in schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	100 mg/m ³	Calendar monthly mean	Continuous	BS EN 14181

Table S3.1 Point source emissions to air						
Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down. (Note:1)	Reference period	Monitoring frequency	Monitoring standard or method (Note:3)
A4b [Point A4b on emission point plan in schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	80 mg/m ³	Annual mean of validated hourly averages	Continuous	BS EN 14181
A4b [Point A4b on site plan in schedule 7]	Carbon Monoxide	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	200 mg/m ³	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A4b [Point A4b on site plan in schedule 7]	Carbon Monoxide	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	110 mg/m ³	Daily mean of validated hourly averages	Continuous	BS EN 14181
A4b [Point A4b on site plan in schedule 7]	Carbon Monoxide	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	100 mg/m ³	Calendar monthly mean of validated hourly averages	Continuous	BS EN 14181
A4b [Point A4b on site plan in schedule 7]	Sulphur Dioxide	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	70 mg/m ³	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A4b [Point A4b on emission point plan in schedule 7]	Sulphur Dioxide	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	70 mg/m ³	Daily mean of validated hourly averages	Continuous	BS EN 14181

Table S3.1 Point source emissions to air						
Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down. (Note:1)	Reference period	Monitoring frequency	Monitoring standard or method (Note:3)
A4b [Point A4b on site plan in schedule 7]	Sulphur Dioxide	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	35 mg/m ³	Calendar monthly mean of validated hourly averages	Continuous	BS EN 14181
A4b [Point A4b on emission point plan in schedule 7]	Sulphur Dioxide	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	10 mg/m ³	Annual mean of validated hourly averages	Continuous	BS EN 14181
A4b [Point A4b on site plan in schedule 7]	Dust	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	4 mg/m ³	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A4b [Point A4b on site plan in schedule 7]	Dust	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	2 mg/m ³	Daily mean of validated hourly averages	Continuous	BS EN 14181
A4b [Point A4b on site plan in schedule 7]	Dust	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	2 mg/m ³	Calendar monthly mean of validated hourly averages	Continuous	BS EN 14181

Table S3.1 Point source emissions to air						
Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down. (Note:1)	Reference period	Monitoring frequency	Monitoring standard or method (Note:3)
A4b [Point A4b on emission point plan in schedule 7]	Dust	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	2 mg/m ³	Annual mean of validated hourly averages	Continuous	BS EN 14181
A4b [Point A4b on emission point plan in schedule 7]	Hydrogen chloride	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	1 mg/m ³	-	Each time that a change of the fuel characteristics may have an impact on the emissions	BS EN 1911 Parts 1, 2 and 3
A4b [Point A4b on emission point plan in schedule 7]	Hydrogen fluoride	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	1 mg/m ³	-	Each time that a change of the fuel characteristics may have an impact on the emissions	BS ISO 15713
A4b [Point A4b on emission point plan in schedule 7]	Total volatile organic carbon (TVOC) as carbon	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	-	-	At least every 12 months, or each time that a change of the fuel characteristics may have an impact on the emissions	BS EN 12619

Table S3.1 Point source emissions to air						
Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down. (Note:1)	Reference period	Monitoring frequency	Monitoring standard or method (Note:3)
A4b [Point A4b on emission point plan in schedule 7]	Oxygen	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	-	-	Periodic as appropriate to reference	BS EN 14789
A4b [Point A4b on emission point plan in schedule 7]	Water Vapour	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	-	-	Periodic as appropriate to reference	BS EN 14790
A4b [Point A4b on emission point plan in schedule 7]	Stack gas volume flow	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	-	-	Periodic as appropriate to reference	BS EN 16911 & TGN M2
A4b [Point A4b on emission point plan in schedule 7]	As required by the Method Implementation Document for BS EN 15259	LCP No. 648 Boiler plant B1703E fired on process generated off gas/ natural gas	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A5 [Point A5 on emission point plan in schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	B1704 A-C Superheaters	300 mg/m ³	-	Annual	BS EN 14792
A6 L1712 Caustic OWS [Point A6 on emission point plan in schedule 7]	No parameters set	L1712 Caustic OWS	-	-	-	-

Table S3.1 Point source emissions to air						
Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down. (Note:1)	Reference period	Monitoring frequency	Monitoring standard or method (Note:3)
A7 L1748 OWS [Point A7 on emission point plan in schedule 7]	No parameters set	L1748 OWS	-	-	-	-
A8 BFS OWS [Point A8 on site plan No 1.9]	No parameters set	BFS OWS	-	-	-	-
A9 Olefins analysers [Points A9 on emission point plan in schedule 7]	No parameters set	Olefins analysers	-	-	-	-
A10 Olefins L1719 A/B Flares [Points A10 on emission point plan in schedule 7]	No parameters set	Olefins L1719 A/B Flares	-	-	-	-
A11 WEC L1009A Flare [Point A11 on site plan No 1.8]	No parameters set	WEC L1009A Flare	-	-	-	-
A12 RBS B1945 Flare [Point A12 on site plan No 1.8]	No parameters set	RBS B1945 Flare	-	-	-	-
A13 F1962 A/B Naphtha tanks [Point A13 on site plan No 1.7]	No parameters set	F1962 A/B Naphtha tanks	-	-	-	-
A14 F1961 Pyrolysis gasoline tank [Point A14 on site plan No 1.7]	No parameters set	F1961 Pyrolysis gasoline tank	-	-	-	-

Table S3.1 Point source emissions to air						
Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down. (Note:1)	Reference period	Monitoring frequency	Monitoring standard or method (Note:3)
A15 F1781 Naphtha tank [Point A15 on site plan No 1.7]	No parameters set	F1781 Naphtha tank	-	-	-	-
A16 Recovered oil tanks [Point A16 on emission point plan in schedule 7]	No parameters set	Recovered oil tanks	-	-	-	-
A17 FA 1721 GTU surge tank [Point A17 on emission point plan in schedule 7]	No parameters set	FA 1721 GTU surge tank	-	-	-	-
A18 Bf5 Naphtha tank [Point A18 on site plan No 1.8]	No parameters set	Bf5 Naphtha tank	-	-	-	-
A19 Nf1 &Nf3 Raw C5s tanks [Point A19 on site plan No 1.9]	No parameters set	Nf1 &Nf3 Raw C5s tanks	-	-	-	-
A20 Bf1 Bf2 DPHG (2 off) [Point A20 on site plan No 1.9] Nf24, Nf29 P-Xylene (2 off) [Points Nf24 and Nf29 on drawing OL-531432]	No parameters set	Bf1 Bf2 DPHG (2 off) Nf24, Nf29 P-Xylene (2 off)	-	-	-	-

Table S3.1 Point source emissions to air						
Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down. (Note:1)	Reference period	Monitoring frequency	Monitoring standard or method (Note:3)
Temporary Boilers Shown on Figure 1 of Non-technical summary of Application EPR/BS3590IE/V014)	No parameters set	Exhaust from the boilers	-	-	-	-

Note 1: See Schedule 6 for reference conditions.

Note 2: A minimum of two Spot samples from furnaces B1701 A-P, one cracking gas feeds and the second cracking liquid feeds shall be considered representative for Emission Point A1.

Note 3: Monitoring standard or method as specified in table or otherwise agreed in writing with the Environment Agency.

Note 4: A note shall be taken while monitoring the NOx emissions of the hydrogen content of the combined fuel gas feeding the combustion plant.

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location	Parameter	Source	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
-	-	-	-	-	-	-

Table S3.3 Point source emissions to sewer						
Emission point ref. & location	Parameter	Source	Limit (incl. Unit)	Reference period	Monitoring frequency	Monitoring standard or method (Note 4)
W1 on site plan in schedule 7 emission to Wilton Site Drainage System	Benzene	Olefins Area	18 mg/l	24 hr composite sample	Daily	Note 3
W1 on site plan in schedule 7 emission to Wilton Site Drainage System	Toluene	Olefins Area	7 mg/l	24 hr composite sample	Daily	Note 3
W1 on site plan in schedule 7 emission to Wilton Site Drainage System	Xylenes (total)	Olefins Area	5 mg/l	24 hr composite sample	Daily	Note 3
W1 on site plan in schedule 7 emission to Wilton Site Drainage System	EDC - 1,2 Dichloroethane	Olefins Area	No limit	Spot sample	Monthly	Note 3
W1 on site plan in schedule 7 emission to Wilton Site Drainage System	Ammoniacal Nitrogen (as N)	Olefins Area	No limit	Spot sample	Monthly	Note 3
W1 on site plan in schedule 7 emission to Wilton Site Drainage System	Cadmium	Olefins Area	No limit	Spot sample	Monthly	Note 3
W1 on site plan in schedule 7 emission to Wilton Site Drainage System	Mercury	Olefins Area	No limit	Spot sample	Monthly	Note 3
W1 on site plan in schedule 7 emission to Wilton Site Drainage System	Zinc	Olefins Area	No limit	Spot sample	Monthly	Note 3
W1 on site plan in schedule 7 emission to Wilton Site Drainage System	Phenol	Olefins Area	No limit	Spot sample	Monthly	Note 3
W1 on site plan in schedule 7 emission to Wilton Site Drainage System	Chloroform	Olefins Area	No limit	Spot sample	Monthly	Note 3

Table S3.3 Point source emissions to sewer						
Emission point ref. & location	Parameter	Source	Limit (incl. Unit)	Reference period	Monitoring frequency	Monitoring standard or method (Note 4)
W1 on site plan in schedule 7 emission to Wilton Site Drainage System	TOC	Olefins Area	1400 kg	24 hr composite sample	Daily	Note 3
W1 on site plan in schedule 7 emission to Wilton Site Drainage System	Suspended Solids	Olefins Area	1800 kg	24 hr composite sample	Daily	Note 3
W2 on site plan in schedule 7 emission to Wilton Site Drainage System	Benzene	Wilton Ethylene Control Area Drainage	No limit	Spot sample	Daily	Note 3
W2 on site plan in schedule 7 emission to Wilton Site Drainage System	Toluene	Wilton Ethylene Control Area Drainage	No limit	Spot sample	Daily	Note 3
W2 on site plan in schedule 7 emission to Wilton Site Drainage System	Xylenes (total)	Wilton Ethylene Control Area Drainage	No limit	Spot sample	Daily	Note 3
W3 on site plan in schedule 7 emission to Wilton Site Drainage System	Benzene	Central Control Area Drainage	No limit	Spot sample	Daily	Note 3
W3 on site plan in schedule 7 emission to Wilton Site Drainage System	Toluene	Central Control Area Drainage	No limit	Spot sample	Daily	Note 3
W3 on site plan in schedule 7 emission to Wilton Site Drainage System	Xylenes (total)	Central Control Area Drainage	No limit	Spot sample	Daily	Note 3

Note1: Limits for cadmium, mercury, and zinc are expressed as the respective total metals.

Note 2: Limits for benzene, toluene, xylenes are based on 5 day moving average.

Note 3: Method as agreed with the Environment Agency.

Note 4: Monitoring standard or method as specified in table, or otherwise agreed in writing with the Environment Agency

Table S3.4 Annual limits for discharge to sewer	
Substance	Annual limit - kg
Cadmium	0.50
Mercury	0.60
Zinc	4000

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
Oxides of nitrogen	A4b	Every 3 months for continuous monitoring	1 January, 1 April, 1 July, 1 October
	A1, A2, A3, A5	Annual	1 January
Carbon monoxide	A4b	Every 3 months for continuous monitoring	1 January, 1 April, 1 July, 1 October
Sulphur dioxide	A4b	Every 3 months for continuous monitoring	1 January, 1 April, 1 July, 1 October
Dust	A4b	Every 3 months for continuous monitoring	1 January, 1 April, 1 July, 1 October
Hydrogen chloride	A4b	Every 12 months	1 January
Hydrogen fluoride	A4b	Every 12 months	1 January
Total volatile organic carbon, expressed as carbon (TVOC)	A4b	Every 12 months	1 January
Benzene	W1,W2,W3	Every 6 months	1 January, 1 July
Toluene	W1,W2,W3	Every 6 months	1 January, 1 July
Xylenes (total)	W1,W2,W3	Every 6 months	1 January, 1 July
EDC-1.2 Dichloroethane	W1	Every 6 months	1 January, 1 July
Ammoniacal nitrogen (as N)	W1	Every 6 months	1 January, 1 July
Cadmium	W1	Every 12 months	1 January
Mercury	W1	Every 12 months	1 January
Zinc	W1	Every 12 months	1 January
Phenol	W1	Every 12 months	1 January
Chloroform	W1	Every 12 months	1 January
TOC	W1	Every 6 months	1 January, 1 July
Suspended solids	W1	Every 6 months	1 January, 1 July

Table S4.2 Annual production/treatment	
Parameter	Units
Annual production tonnage not required to be disclosed but made available on inspection	-

Table S4.3 Performance parameters		
Parameter	Frequency of assessment	Units
Thermal Input Capacity for LCP648	Annually	MW
Annual Fuel Usage for LCP648	Annually	TJ
Total Emissions to Air of NO _x for LCP648	Annually	tonnes
Total Emissions to Air of SO ₂ for LCP648	Annually	tonnes
Total Emissions to Air of dust for LCP648	Annually	tonnes
Operating Hours for LCP648	Annually	hours
BOD	Monthly	mg/l
COD	Monthly	mg/l
Waste Hazard Score	Annually	
Waste Disposal Score	Annually	

Table S4.4 Reporting forms				
Media/ parameter	Reporting format	Starting Point	Agency recipient	Date of form
Air & Energy	Form IED AR1 – SO ₂ , NO _x and dust mass emission and energy	01/01/16	National and area office	31/12/15 or as agreed in writing with the Environment Agency
LCP	Form IED HR1 – operating hours	01/01/16	National and area office	31/12/15
Air	Form IED CON 1 – continuous monitoring.	01/01/16	Area Office	31/12/15
CEMs	Form IED CEM – Invalidation Log	01/01/16	Area Office	31/12/15
Air	Form IED PM1 – discontinuous monitoring and load.	01/01/16	Area Office	31/12/15
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	01/01/16	Area Office	31/12/15
Sewer	Form sewer 1 or other form as agreed in writing by the Environment Agency	01/01/16	Area Office	31/12/15
Flaring Events	Form B2 or other form as agreed in writing by the Environment Agency	01/01/16	Area Office	19/11/03
Air	Form A1	01/01/17	Area Office	10/11/16
Energy	Form E1	19/11/03	Area Office	N/A
Waste return	Form R1	19/11/03	Area Office	N/A

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	EPR/BS3590IE
Name of operator	Sabir UK Petrochemicals Limited
Location of Facility	Wilton Olefins Installation
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 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.

“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.

“background concentration” means such concentration of that substance as is present in:

- water supplied to the site; or
- where more than 50% of the water used at the site is directly abstracted from ground or surface water on site, the abstracted water; or
- where the Permitted Installation uses no significant amount of supplied or abstracted water, the precipitation on to the site.

for emissions to surface water, the surface water quality up-gradient of the site; or

for emissions to sewer, the surface water quality up-gradient of the sewage treatment works discharge.

“base load” means: (i) as a mode of operation, operating for >4000hrs pa; and (ii) as a load, the maximum load under ISO conditions that can be sustained continuously, i.e. maximum continuous rating.

“breakdown” has the meaning given in the ESI IED Compliance Protocol for Utility Boilers and Gas Turbines.

“calendar monthly mean” means the value across a calendar month of all validated hourly means.

“CEN” means Comité Européen de Normalisation.

“Combustion Technical Guidance Note” means IPPC Sector Guidance Note Combustion Activities, version 2.03 dated 27th July 2005 published by Environment Agency.

“D” or “disposal” means any of the operations provided for in Annex I to 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.

“DLN” means dry, low NO_x burners.

“energy efficiency” the annual net plant energy efficiency means the value calculated from the operational data collected over the year.

“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.

“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 or background concentration limit.

“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 given in Schedule 3 of the Hazardous Waste (England and Wales) Regulations 2005 No.894 and the Hazardous Waste (Wales) Regulations 2005 No. 1806 (W.138).

“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 combustion plant” or “LCP” is a combustion plant or group of combustion plants discharging waste gases through a common windshield or stack, where the total thermal input is 50 MW or more, based on net calorific value. The calculation of thermal input, excludes individual combustion plants with a rated thermal input below 15MW.

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

“MCR” means maximum continuous rating.

“MSDL” means minimum shut-down load as defined in Implementing Decision 2012/249/EU.

“MSUL” means minimum start-up load as defined in Implementing Decision 2012/249/EU.

“natural gas” means naturally occurring methane with no more than 20% by volume of inert or other constituents.

“ncv” means net calorific value.

“operational hours” are whole hours commencing from the first unit ending start up and ending when the last unit commences shut down.

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

“R” or “recovery” means any of the operations provided for in Annex II to 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.

“SI” means site inspector.

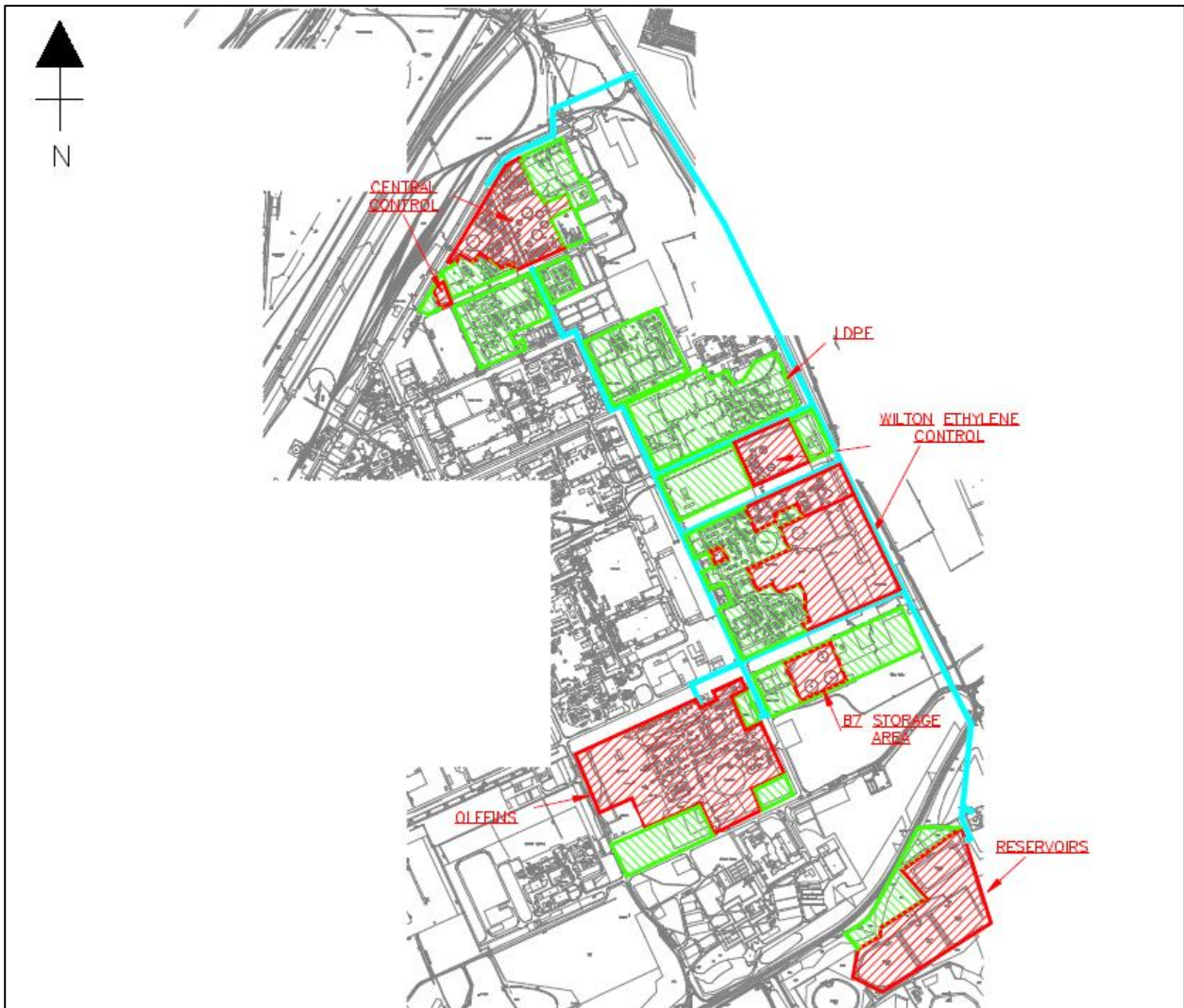
“year” means calendar year ending 31 December.

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:

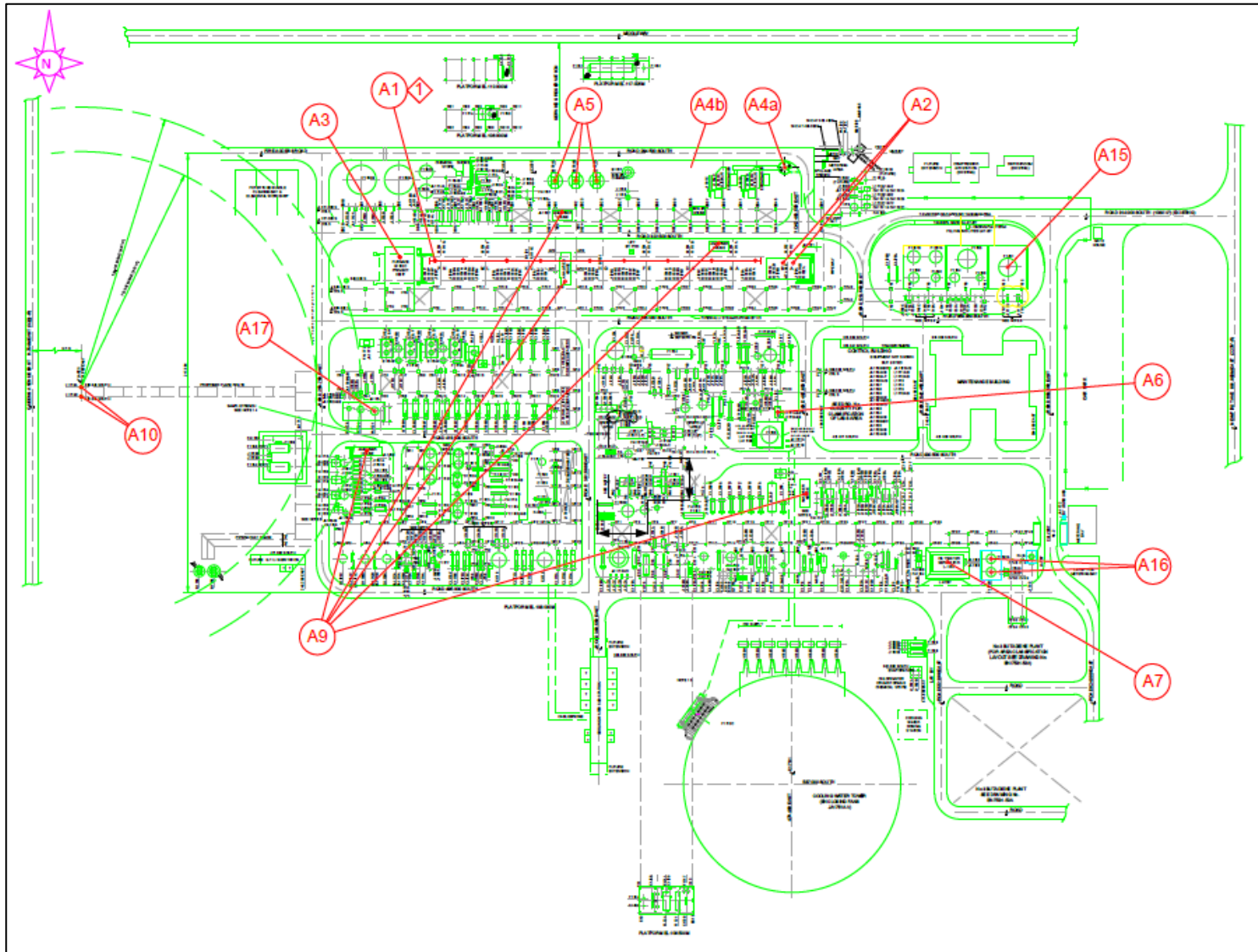
- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from gas turbine or compression ignition engine combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 15% dry for liquid and gaseous fuels; or
- in relation to emissions from combustion processes comprising a gas turbine with a waste heat boiler, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 15% dry, unless the waste heat boiler is operating alone, in which case, with an oxygen content of 3% dry for liquid and gaseous 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



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EMISSION POINT PLAN



END OF PERMIT