Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

British Sugar PLC

Wissington Sugar Factory
College Road
Wissington
Kings Lynn
Norfolk
PE33 9QG

Variation application number

EPR/BX2108IQ/V011

Permit number

EPR/BX2108IQ

Wissington Sugar Factory
Permit number EPR/BX2108IQ

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. All the conditions of the permit have been varied and are subject to the right of appeal.

This consolidated permit has been issued following a full review against the best available techniques (BAT) conclusions for the Food, Drink and Milk Industries published on 4th December 2019 in the official journal of the European Union.

We have also implemented the requirements of the relevant BAT Conclusions from the Large Combustion Plant, Cement, Lime and Minerals, and Waste Treatment Brefs.

The Medium Combustion Plant Directive has also been considered, and we have incorporated post-dated requirements for 2025.

The schedules specify the changes made to the permit.

The main features of the permit are as follows.

The British Sugar factory at Wissington produces white sugar that it supplies to customers throughout the UK as a bagged or bulk crystal product, or in the form of a liquid sugar or glucose blend. In addition to the usual sugar products the site is able to extract and sell syrups high in amino acids through the use of a chromatographic separation plant.

The installation also produces and sells as co-products: animal feed (from the beet residues after extraction of the sugar), lime products for agricultural use and on soils (from the lime used to purify the sugar juice), topsoil for agricultural and horticultural use (reclaimed from the soil that comes in with the beet), stones (that come in with the beet) for use by the construction industry, and bioethanol from the fermentation of sugar syrups.

Beet is typically delivered from September to late February (a period known as the ‘campaign’). During the campaign both sugar and concentrated sugar juice (thick juice) are produced in a twenty-four-hour process. The thick juice is stored and processed into crystalline sugar during the juice refining period, usually between April and July, and for about two weeks prior to the start of the campaign.

Outside the campaign and juice refining period the sugar production process closes down, and maintenance is carried out.

The sugar production process comprises:

- Receipt, handling, unpacking and storage of sugar beet. The beet is stored on a concrete flat pad until it is required in the process. It is transported to the beet slicing station by water flume.
- Feedstock cleaning. The beet is cleaned during fluming. Soil, stones and weed/leaf material is removed and reclaimed. Pieces of broken beet are recovered via screens and returned to the process. The water used in the flume is known as the transport water and is treated and re-used repeatedly. Alkali and antifoam are added to the transport water to maintain the quality of the water and improve the fluming.
- Beet slicing. The beet is sliced into cossettes using power driven rotary slicers.
- Extraction (diffusion and pulp pressing). The cossettes and reclaimed broken beet pieces are passed into a continuous counter-current extraction process that uses recycled pressed pulp water

supplemented by recycled condensed vapour. The pH is adjusted with sulphuric acid. Microbial growth is inhibited with biocides. Antifoam is added to control foaming caused by saponins from the beet. Wet pulp from the extractor goes to mechanical pulp presses. After the addition of pressing aids, the pulp is mechanically pressed, the pressed pulp going on to conversion into animal feed, the water pressed from the process passing through screens to reclaim pieces of pulp, with the water being recycled into the diffuser. The sugar juice emerging from the extraction process is called ‘raw juice’ and passes to the purification stage.

- Purification, including beet end filtration. Soluble and insoluble impurities are removed by a two stage carbonation process. The raw juice is treated with milk of lime from the lime slaking process, then passed to a gassing tank where carbon dioxide from the limekilns is added. Impurities are removed by the calcium carbonate, which is formed by the reaction between the milk of lime and the carbon dioxide. The calcium carbonate is allowed to settle in a clarifier. The juice from the clarifier goes through a second gassing tank where addition of further carbon dioxide precipitates out the remainder of the milk of lime. The calcium carbonate from this stage is filtered out. Calcium carbonate from the first clarifier is pressed to increase dry substance in the lime cake, which is sold as LimeX. Water from the LimeX filter press (‘sweet water’) is recycled to make the slaked lime. Calcium rich clear juice is passed through decalcification columns to remove soluble calcium salts from the juice. Small amounts of antifoam, flocculants, colour inhibitor, alkali and filtration aids may be added to assist processing.
- Sulphitation (decolourisation of sugar juices). Solid sulphur is burned in an enclosed stove, to form sulphur dioxide. The sulphur dioxide is added to the sugar juice via a counter-current juice absorption column before the evaporator station to inhibit the colour forming reactions that take place at high temperatures.
- Evaporation. The thin juice is concentrated from 16% dry solids to 68% by a series of evaporators. These are heated by steam from the onsite combined heat and power plant and incorporate a high degree of heat reclamation.
- Filtration and dissolving – sugar end. The thick juice is filtered in a two stage process using a filter aid to remove any small particles prior to crystallisation. Out of specification crystallised sugar and sugar syrups are recycled to the main process flow via a continuous high shear dissolving process.
- Thick juice export. During the campaign thick juice is sent to store for later processing (normally out of campaign). The export system conditions the juice for this by concentrating the juice to within a tightly controlled range of solids content (‘brix’), correcting the pH, and reducing its temperature to below 20°C.
- Thick juice import. The thick juice import system ensures the juice is returned in the correct condition for further processing by pre-heating the juice using recycled condensate, correcting the pH with alkali and sometimes the addition of a colour inhibitor.
- Sugar crystallisation and centrifuging. Crystallisation takes place in batch pans with up to three stages. Syrup is boiled under vacuum (to minimise the temperature required and to reduce colour formation). The batch is seeded with very fine sugar crystals dispersed in a small quantity of polyethylene glycol that promotes the formation of sucrose crystals. These are removed from the liquid phase by centrifuging and washing with recycled condensate. The syrup is recycled for further crystallisation. In the event of the sugar crystal being out of specification, it is recycled back into the process stream via the dissolvers. As well as crystalline sugar, the process produces molasses.
- Sugar drying and cooling. The hot, damp sugar is dried in rotary dryers in a counter-current stream of warm air. The dried sugar is cooled with filtered ambient air in rotary or fluidised bed coolers. Sugar dust from the process is trapped in filters and recycled.
- Bulk sugar is stored on site in 7 silos.
- Liquids/blends of sugars are prepared by dissolving granulated sugar in hot water, filtration and cooling. Glucose blends are produced to various customer recipes by inversion of sucrose with acid and subsequent neutralisation with alkali.
- The Phoenix chromatographic separation plant is able to extract more sugar out of low grade sugar juice/syrup than the normal crystallisation process. The syrups are sourced from the adjacent crystallisation house and similar off-site facilities. Low grade syrup is pre-treated by heating to 80°C, by dilution and by filtration in a multiple stage filtration station. Separation is carried out by resins acting as molecular sieves. The syrup is separated into four main fractions, namely Extract (similar to thick juice, which can be refined to white granulated sugar through the same process), Raffinate (similar to

molasses with the sugar removed, added to pulp before drying), Betaine (a pro-vitamin added to animal feeds) and the D fraction (which is recycled to dilute the incoming syrup in the pre-treatment stage). Betaine is further refined to a purity suitable for sale.

- The bioethanol plant produces ethanol by yeast fermentation of sugar syrups. The main feedstock is extract syrup produced in the Phoenix resin separation plant. There are 5 main stages to the process 1) Pre-treatment – pH and density adjustment of feedstock, 2) Fermentation – feedstock fermented to a beer liquor, 3) Distillation – alcohol is distilled from the liquor, 4) Dehydration – final concentration of alcohol using a molecular sieve and 5) Storage and out loading – ethanol stored then denatured prior to despatch. CO_2 from the fermentation process is utilised in the site purification process or captured by the onsite CO_2 liquification plant. The plant has a vent to be used in an emergency.
- Animal feed drying. Following extraction of sugar, the sugar beet cossettes are mechanically pressed to reduce the water content. They may then be sold immediately as wet animal feed, or thermally dehydrated (dried). Syrup may be mixed with the pressed pulp prior to drying to increase the nutritional value of the final feed and to reduce the formation of particulate during drying. The pulp is dried in rotary dryers, using hot gases generated by the burning of natural gas. The exhaust gases from the dryers are discharged via cyclones to remove particulates. Pressed pulp can be imported from other British Sugar installations for drying.
- Animal feed pelleting and coating. Dried animal feed (shreds) directly from the driers, is mixed with additional syrup and extruded to form pellets. These are cooled in ambient air and screened to remove fines, which are recycled. The pellets are transferred by a conveyor to the warehouse for despatch. The exhaust gas from the coolers is discharged via cyclones to remove particulates.

LCP38: The factory operates a combined heat and power (CHP) system, burning natural gas, producing steam and electricity for the site. Distillate oil (DFO) is used as a back-up fuel for the HRSG. The HRSG is also permitted to run on biogas from the site wastewater treatment plant. Excess electricity is exported to the National Grid. The CHP comprises a gas turbine, with a 102 MW thermal input and a Heat Recovery Steam Generator (HRSG) with supplementary firing (106 MW thermal input) discharging via the 60m HRSG stack at emission point A62. The gas turbine discharges via the 30m HRSG by-pass stack at emission point A63 (separate windshield) when the gas turbine operates on its own in open cycle.

AB1 & AB2: Two Maxecon auxiliary steam boilers of 8 and 10 MW thermal input, discharged via two separate flues at emission points A69 and A70. The units are operated from time to time for limited periods for operational security reasons, and to supply steam to the liquid sugar plant.

Slaked lime is produced on site for use in the sugar production process by calcining limestone with coke or anthracite and then slaking it with sweet water recycled from the sugar making process. The carbon dioxide produced during calcining is partly consumed in the sugar production process. Sulphur dioxide is produced on site for use in the sugar production process by burning sulphur in a closed reactor.

There is an extensive physical and biological treatment system for wastewater. This includes a clarifier (from which soil is reclaimed), settlement ponds (which are dug out annually and the soil reclaimed), an anaerobic digester, an aerobic treatment plant and a final pond from whence the treated wastewater is discharged to controlled water, namely the River Wissey. There is extensive recycling of treated wastewater within the process. All process water is treated by the effluent treatment plant before discharge.

The installation emits sulphur dioxide, nitrogen oxides, carbon monoxide, ammonia, particulates and volatile organic compounds to air, and ammonia, nitrate and phosphate to water. Particulate emissions are abated by cyclones. Sulphur dioxide emissions from the sulphur burning stove are abated by a scrubber. Sulphur dioxide emissions from the lime kiln are controlled by the choice of fuel.

There is a single release point to water with continuous monitoring of flow rate, and periodic monitoring of pH, total suspended solids, chemical oxygen demand, biological oxygen demand, ammoniacal nitrogen and total iron.

The installation is operated under an EMS which is certified to ISO1400.

The site is located in a predominantly agricultural area approximately 5 km to the south-east of Downham Market. The River Wissey flows from east to west through the approximate centre of the site.

There are four European habitat sites within 10 km of the installation, namely Ouse Washes Special protection Area (SPA), Ouse Washes candidate Special Area of Conservation (SAC), Ouse Washes Ramsar, and Norfolk Valley Fens (Foulden Common) candidate SAC.

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/BX2108IQ/A001	Duly made 31/03/05	Application for a food and drink installation.
Permit determined EPR/BX2108IQ	20/02/06	Permit issued to British Sugar PLC.
Variation application EPR/BX2108IQ/V002	Duly made 27/10/06	Application to add a bioethanol plant
Variation issued	13/04/07	
Variation application EPR/BX2108IQ/V003	Received 07/08/06	
Variation refused	22/12/06	
Variation notice EPR/BX2108IQ/V004	Issued 18/12/07	National Emissions Reduction Plan
Variation application EPR/BX2108IQ/V005	Withdrawn 30/09/08	
Variation application EPR/BX2108IQ/V006	Received 15/11/10	CO_2 recovery from fermentation
Variation determined	10/02/11	Variation issued
Environment Agency led variation EPR/BX2108IQ/V007	Issued 08/01/14	Implementation of the Industrial Emissions Directive
Variation application EPR/BX2108IQ/V008	Received 01/10/14	Optional operating limits for emissions to water
Variation determined	21/10/14	Variation issued
Issue of a Regulation 60(1) Notice EPR/BX2108IQ/V009	31/10/14	Chapter III permit review
Variation determined	22/12/15	Varied and consolidated permit issued, effective from 01/01/2016.
Environment Agency led variation EPR/BX2108IQ/V010	Issued 03/06/20	Removal of LCP36 from permit and introduce Chapter III requirements, effective from 01/07/20
Application EPR/BX2108IQ/V011 (variation and consolidation)	Regulation 61 response 23/11/21	Environment Agency initiated variation and consolidation following the Food, Drink & Milk Industries sector permit review.
Variation determined and consolidation issued EPR/BX2108IQ (Billing ref: AP3243QF)	30/11/23	Varied and consolidated permit issued in modern format, effective from 04/12/2023.

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/BX2108IQ

Issued to

British Sugar PLC ("the operator")

whose registered office is

Weston Centre
10 Grosvenor Street
London
W1K 4QY

company registration number **00315158**

to operate a regulated facility at

Wissington Sugar Factory
College Road
Wissington
Kings Lynn
Norfolk
PE33 9QG

to the extent set out in the schedules.

The notice shall take effect from 04/12/2023

Name	Date
Stacey Tapsell	**30/11/2023**

Authorised on behalf of the Environment Agency

Schedule 1

All conditions have been varied by the consolidated permit as a result of an Environment Agency initiated variation.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/BX2108IQ

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/BX2108IQ/V011 authorising,

British Sugar PLC ("the operator"),

whose registered office is

Weston Centre
10 Grosvenor Street
London
W1K 4QY

company registration number **00315158**

to operate an installation/part of an installation at

Wissington Sugar Factory
College Road
Wissington
Kings Lynn
Norfolk
PE33 9QG

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

Name	Date
Stacey Tapsell	**30/11/2023**

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.

1.3 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 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 For the following activities referenced in schedule 1, table S1.1: LCP38. The activities shall be operated in accordance with the "Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines" dated May 2021 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 For the following activities referenced in schedule 1, table S1.1: LCP38. Standby fuel DFO may be used for periods of up to 10 days during times of interruption to the gas supply.

2.3.6 For the following activities referenced in schedule 1, table S1.1: LCP38 operating in open cycle mode. The activities shall not operate for more than 500 hours per year.

2.3.7 For the following activities referenced in schedule 1, table S1.1: LCP38. 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.

2.3.8 For the following activities referenced in schedule 1, table S1.1: LCP38. The effective Dry Low NOx threshold shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.5.

2.3.9 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.

2.3.10 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(a), S3.1(b) and S3.2.

3.1.2 The limits given in schedule 3 shall not be exceeded.

3.1.3 For periods of when natural gas is burned in the Gas Turbine at the same time as DFO is burned in the HRSG, the emission limits for DFO shall apply.

3.1.4 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(a), S3.1(b) and S3.2.

(b) process monitoring specified in table 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(a), S3.1(b) S3.2 and 3.3 unless otherwise agreed in writing by the Environment Agency.

3.6 Monitoring for Large Combustion Plant

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 and the Large Combustion Plant Best Available Techniques Conclusions.

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(a); the Continuous Emission Monitors shall be used such that:

(a) for the continuous measurement systems fitted to the LCP release points defined in table(s) S3.1 the validated hourly, monthly, yearly 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. 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.

3.7 Pests

3.7.1 The activities shall not give rise to the presence of pests which are likely to cause pollution, hazard or annoyance outside the boundary of the site. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved pests management plan, have been taken to prevent or where that is not practicable, to minimise the presence of pests on the site.

3.7.2 The operator shall:

(a) if notified by the Environment Agency, submit to the Environment Agency for approval within the period specified, a pests management plan which identifies and minimises risks of pollution from pests;

(b) implement the pests management plan, from the date of approval, 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;

(c) the performance parameters set out in schedule 4 table S4.3A and S4.3B using the forms specified in table S4.4 of that schedule.

(d) where conditions 2.3.5, 2.3.6 and 2.3.7 applies, the hours of operation in any year.

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:

(c) any change in the operator's name or address; and

(d) any steps taken with a view to the dissolution of the operator.

In any other case:

(e) the death of any of the named operators (where the operator consists of more than one named individual);

(f) any change in the operator's name(s) or address(es); and

(g) 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.

4.3.8 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 ref.	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
AR1	**Section 1.1 Part A(1)(a)** Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more	**LCP 38** Burning natural gas, in a gas turbine with 102 MW thermal input and a Heat Recovery Steam Generator (HRSG) with supplementary firing (106 MW thermal input) to generate steam and electricity. Biogas from the site waste water treatment plant can also be used as a fuel in the HRSG. Distillate fuel oil (DFO) Note 1 can be used as a back-up fuel only in the HRSG. **AB1 & AB2** Two Maxecon auxiliary steam boilers, burning natural gas, with DFO Note 1 as back-up, 8 MW and 10 MW thermal input. Note 1: DFO may only be used during interruption to the gas supply.	From the receipt of fuel to the use of steam and electricity in all listed activities and directly associated activities, the export of steam and electricity to other processes on the site, the export of electricity to the National Grid, the discharge of emissions to air and the disposal of waste arising.
AR2	**Section 3.1 Part A(1)(b)** Producing lime in kilns or other furnaces with a production capacity of more than 50 tonnes per day	Producing lime in a mixed feed shaft kiln with a capacity of 600 tonnes per day, for subsequent conversion to slaked lime to be used in the sugar production process.	From the receipt of fuel, anthracite, coke and limestone to the slaking of the lime produced, the use of the kiln gas in the sugar making process, the discharge of kiln gas to air and the disposal of ash and solid residues.
AR3	**Section 4.2 Part A(1)(a)(i)** Producing inorganic chemicals such as gases, such as oxides of sulphur	Producing sulphur dioxide to be used in the sugar production process.	From the receipt of sulphur to the use of sulphur dioxide in the sugar making process, the emission of exhaust gas to air and the disposal of waste.
AR4	**Section 5.4 Part A(1)(a)(i)** Disposal of non-hazardous waste in a facility with a capacity exceeding 50 tonnes per day by biological treatment.	The treatment of waste water by means of anaerobic and aerobic plant.	From the transfer of waste water to the effluent storage lagoons to re-use in the process or its disposal to river.
AR5	**Section 5.4 Part A(1)(a)(ii)** Disposal of non-hazardous waste in a facility with a capacity exceeding 50 tonnes per day by physical treatment.	The treatment of waste water by means of clarifiers and settlement in several lagoons.	From the transfer of waste water to the effluent storage lagoons to re-use in the process or its disposal to river.

Table S1.1 activities			
Activity ref.	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
AR6	**Section 6.8 Part A(1)(d)(ii)** Treating and processing materials intended for the production of food products from vegetable raw materials at plant with a finished product production capacity of more than 300 tonnes per day (average value on a quarterly basis)	The production of sugar juice from sugar beet.	From the receipt of sugar beet to the transfer of thick juice to the filtration and dissolving unit, or to storage tank. Maximum sugar beet processed: 22,000 tonnes per day.
AR7	**Section 6.8 Part A(1)(d)(ii)** Treating and processing materials intended for the production of food products from vegetable raw materials at plant with a finished product production capacity of more than 300 tonnes per day (average value on a quarterly basis)	The production of animal feed from sugar beet.	From the receipt of fuel and the transfer of spent cossettes (pulp) from the sugar diffuser to the despatch of animal feed, emissions to air and disposal of ash and waste, including solid waste from the combustion process used for drying the pulp in three dryers with a thermal capacity of 32 MWth each. Maximum production capacity: Pellets: 1485 t/day Pressed pulp: 1350 t/d
AR8	**Section 6.8 Part A(1)(d)(ii)** Treating and processing materials intended for the production of food products from vegetable raw materials at plant with a finished product production capacity of more than 300 tonnes per day (average value on a quarterly basis)	The production of sugar crystal from sugar juice.	From the transfer of thick juice from the process or from storage to the dispatch of crystal sugar, the discharge of dust, vapour and incondensable gases to air and the disposal of waste arising.
AR9	**Section 3.1 Part B(c)** Slaking lime for the purpose of making calcium hydroxide or calcium magnesium hydroxide	The production of slaked lime to be used in the sugar production process.	From the transfer of lime to the slaker to its use in the sugar making process, the emission of dust to air and the disposal of waste arising.

Table S1.1 activities			
Activity ref.	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
AR10	**Section 4.1 Part A(1)(a)(ii)** Producing organic chemicals such as organic compounds containing oxygen, such as alcohols	The production of bioethanol from sugar syrups.	From the transfer of feed materials from the sugar beet processing and sugar syrup recovery system to the transfer, storage and dispatch of bioethanol and by-products; including disposal of waste arising and carbon dioxide capturing and processing.
Directly Associated Activities			
AR11	Production of betaine and raffinate type products	The production of betaine and raffinate type products from sugar juices/syrups high in amino acids, using the Phoenix Chromatographic Separation Plant, having a production capacity of less than 300 tonnes/day	From the transfer of syrups from the crystallisation house, and the receipt of syrups from off-site sources to the despatch of betaine and raffinate type products and the disposal of waste arising
AR12	Production of glucose syrup	The production of glucose syrups by an inversion process in plant having a production capacity of less than 300 tonnes/day	From the transfer of crystal sugar and the receipt of raw materials to the despatch of glucose syrup and the disposal of waste arising.
AR13	Production of sugar syrup	The production of sugar syrups by the dissolution of crystal sugar in plant having a production capacity of less than 300 tonnes/day	From the transfer of crystal sugar to the despatch of sugar syrup and the disposal of waste arising.
AR14	Thick juice storage	Conditioning of sugar juice and storage for later processing during the juice run	From the concentration and cooling of thick juice (thick juice export) to the return of thick juice to the sugar end (thick juice import).
AR15	Conditioning, storage and despatch of sugar	Conditioning and storage of sugar, and its bagging or transfer to bulk container and despatch	From transfer of sugar into the silos to its despatch or reuse in the process.
AR16	Generation of conditioned air for the sugar storage silos	The cooling, dehumidifying and filtration of air	From intake of air to its emission, and the disposal of waste.

Table S1.1 activities			
Activity ref.	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
AR17	Composting	The composting of green leaf and straw delivered with the beet.	From the removal of green leaf and straw from the beet prior to processing to the despatch or use on-site of compost and the transfer of leachate to the waste water treatment system. The maximum quantity of material be processed at any one time is 1000m^3.
AR18	Conditioning, storage and handling of soil	The recovery of soil delivered with the beet by washing and settling (for agricultural use), conditioning, blending and, where appropriate, screening (for horticultural use).	From the excavation of soil from the settling ponds to its despatch, and the disposal of waste arising.
AR19	Conditioning, storage and handling of stones	The recovery of stones delivered with the beet for use by the construction industry.	From the separation of stones from beet to their despatch or use on-site, and the disposal of waste arising.
AR20	Preparation of wet animal feed as a co-product.	The production of pressed pulp without drying as animal feed.	From the pressing of pulp from the diffuser to the despatch of wet animal feed and the disposal of waste arising.
AR21	Manufacture, conditioning and storage of Limex 70 co-product.	The recovery of impure calcium carbonate from the carbonatation process for use as a treatment to improve agricultural land.	From the filtration of the calcium carbonate from thin juice to its despatch, and the disposal of waste arising.
AR22	Operation of the decalcification columns	The operation of the ion exchange columns.	From the receipt of sodium hydroxide to the transfer of calcium carbonate to the Limex process and the disposal of waste arising.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application EPR/BX2108IQ/A001	The response to questions 2.1 and 2.2 given in pages 14 to 63 inclusive, supplemented by the unit activity descriptions given in Appendix 9 of the application.	31/03/2005
Email regarding production capacity of betaine and glucose syrups EPR/BX2108IQ/A001	Whole	28/10/2005
Report on the burning of alternative fuels EPR/BX2108IQ/A001	Whole	29/11/2005
Email limits of mercury and cadmium as trace contaminants of raw materials EPR/BX2108IQ/A001	Whole	01/12/2005
Variation Application EPR/BX2108IQ/V002	The response to questions C2.1 to C2.12 given in pages 2 to 3 inclusive.	27/10/2006
Response given to Schedule 7 Notification dated 18/01/07	Whole	07/02/2007
Variation Application EPR/BX2108IQ/V006	The response to question 3 of Part C3 of the application.	15/11/2010
Response given to Schedule 5 Notification dated 06/01/11	Whole	18/01/2011
Response to Regulation 60(1) Notice – request for information dated 31/10/14	Compliance route and operating techniques identified in response to questions: 49 xxii (CCGT mode of operation) 49 xxiii (fuel options) 51 (start-up and shut-down load)	25/03/2015
Email confirming abnormal conditions for HRSG only operation	For operation of the HRSG during periods of gas turbine breakdown, trip, maintenance, testing and mapping the oxygen reference condition is 15%.	21/12/2015
Regulation 61 Response	All	23/11/2021

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IP5	The operator shall submit a submit a report on a feasibility study for the steam drying of beet pulp. The study shall consider the effects on the reduction in emissions of key emission parameters, including particulates and odour, as well as the impact on the energy efficiency of the installation.	By 30/08/2024 or otherwise agreed in writing by the Environment Agency
IP6	The operator shall submit a report to the Environment Agency of a review the sources of particulate emissions to air and identify proposals for reduction. The review shall include comprehensive monitoring of emissions of PM10 and PM2.5 from significant emission points on site under representative operating conditions and shall be in accordance with EN ISO 23210 including, but not limited to, those points identified in the Regulation 61 response. The monitoring shall determine the concentration and release rates from these emission points. The operator shall use the results of the monitoring to undertake a feasibility study and develop an action plan to reduce the emissions of particulates to air from the permitted installation.	By 30/11/2025 or otherwise agreed in writing by the Environment Agency
IP7	The operator shall submit a report to the Environment Agency of a review the sources of ammonia emissions to air and identify proposals for reduction. The review shall include comprehensive monitoring of emissions of ammonia from significant emission points on site under representative operating conditions and shall be in accordance with BS EN ISO 21877 including, but not limited to, those points identified in the Regulation 61 response. The monitoring shall determine the concentration and release rates from these emission points. The operator shall use the results of the monitoring to undertake a feasibility study and develop an action plan to reduce the emissions of ammonia to air from the permitted installation.	By 30/11/2025 or otherwise agreed in writing by the Environment Agency
IP8	The operator shall submit a report of an investigation into the emissions of carbon monoxide and other relevant substances (such as methane and formaldehyde) from the existing beet pulp dryers. The report shall provide an impact assessment of the emissions to air of these parameters and where appropriate consider measures to reduce the emissions.	By 30/11/2025 or otherwise agreed in writing by the Environment Agency
IP9	The operator shall submit a report to the Environment Agency of monitoring carried out to determine the size distribution of particulate matter in the exhaust gas emissions to air from emission point A55 identifying the fractions within the PM10 and PM2.5 ranges. The monitoring shall be carried out under representative operating conditions and shall be in accordance with EN ISO 23210.	By 30/05/2025 or otherwise agreed in writing by the Environment Agency
IP10	The operator shall submit a report of a review the sources of input of EDTA into the waste water stream and identify proposals to reduce the input of this parameter in accordance with BAT 8 of the Food, Drink and Milk Industries BAT Conclusions.	By 30/05/2025 or otherwise agreed in writing by the Environment Agency
IP11	The operator shall submit a report in writing to the Environment Agency for approval. The report shall define an output load or operational parameters and provide a written justification for when the dry low NO_x operation is effective. The report shall also include the NO_x profile through effective dry low NO_x to 70% and then to full load	By 30/05/2024 or otherwise agreed in writing by the Environment Agency

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IP12	The operator shall undertake an investigation into the fate of the lime kiln gases, including but not limited to: • The most representative location of their release into the environment. • The characteristics and composition of the gases as released. • An assessment of the characteristics and composition of the gases against typical lime kiln vent gases, and the representative nature of the release. • An assessment of the concentrations of emissions against the CLM BAT-AELs. The operator shall submit a report detailing their investigation for review by the Environment Agency.	By 30/11/2025 or otherwise agreed in writing by the Environment Agency
IP13	The operator shall undertake a Hydrogeological Risk Assessment for the effluent treatment lagoons on site and submit a report to the Environment Agency. The report should demonstrate, where identified, the improvements that can be made to the infrastructure to minimise the impacts of the connectivity of the lagoons with the River Wissey. Where further monitoring measures are required, including ongoing groundwater and surface water quality monitoring; these shall form part of the routine monitoring and assessment requirements, in accordance with the site protection and monitoring programme.	By 30/11/2024 or otherwise agreed in writing by the Environment Agency
IP14	The operator shall undertake a comprehensive review and assessment of the containment provisions for any tanks as part of the effluent treatment system. The operator shall submit a written report to the Environment Agency for approval which outlines the results of the review and provides details of: • Current secondary/tertiary containment measures • Any deficiencies identified in comparison to relevant standards • Improvements proposed timescale for implementation of improvements. The operator shall implement the proposed improvements in line with the timescales agreed by the Environment Agency and incorporate an ongoing inspection and maintenance programme as part of the EMS.	By 30/05/2025 or otherwise agreed in writing by the Environment Agency

Table S1.4 Start-up and Shut-down thresholds		
Emission Point and Unit Reference	**"Minimum start up load"** **When two of the criteria listed below for the LCP or unit have been met.**	**"Minimum shut-down load"** **When two of the criteria listed below for the LCP or unit have been met.**
LCP 38	• HRSG Boiler pressure above 26barg (minimum boiler operational pressure) • HRSG Boiler temperature above 400°C • HRSG Boiler feed water flow above 30 tonnes per hour (tph).	• HRSG Boiler pressure below 26barg (minimum boiler operational pressure) • HRSG Boiler temperature below 400°C • HRSG Boiler feed water flow below 30 tph.

Table S1.5 Dry Low NOx effective definition	
Emission Point and Unit Reference	**Dry Low NOx effective definition**
LCP 38	As per IP11.

Schedule 2 – Raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	**Specification**
Gas oil / Distillate fuel oil	Not exceeding 0.1% w/w sulphur content

Schedule 3 – Emissions and monitoring

Table S3.1(a) Point source emissions to air from Gas Turbines - LCP 38						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit) - these limits do not apply during start up or shut down**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A62	Oxides of nitrogen (NO and NO2 expressed as NO2)	**LCP 38** HRSG stack Firing GT and HRSG on **gas**	55 mg/m^3	Yearly average	Continuous	BS EN 14181
			50 mg/m^3	Monthly mean of validated hourly averages		
			55 mg/m^3	Daily mean of validated hourly averages		
			75 mg/m^3	95% of validated hourly averages within a calendar year		
		LCP 38 HRSG stack Firing HRSG alone on **gas**	100 mg/m^3 Note 2	Yearly average	Continuous	BS EN 14181
			85 mg/m^3 Note 2	Monthly mean of validated hourly averages		
			85 mg/m^3 Note 2	Daily mean of validated hourly averages		
			85 mg/m^3 Note 2	95% of validated hourly averages within a calendar year		
A62	Oxides of nitrogen (NO and NO2 expressed as NO2)	**LCP 38** HRSG stack Firing HRSG alone on **DFO**	125 mg/m^3 Note 2	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			125 mg/m^3 Note 2	Daily mean of validated hourly averages		

			125 mg/m^3 Note 2	95% of validated hourly averages within a calendar year		
A62	Carbon monoxide	**LCP 38** HRSG stack Firing GT and HRSG on **gas**	100 mg/m^3	Yearly average	Continuous	BS EN 14181
			100 mg/m^3	Monthly mean of validated hourly averages		
			100 mg/m^3	Daily mean of validated hourly averages		
			100 mg/m^3	95% of validated hourly averages within a calendar year		
		LCP 38 HRSG stack Firing HRSG alone on **gas**	100 mg/m^3 Note 2	Yearly average	Continuous	BS EN 14181
			100 mg/m^3 Note 2	Monthly mean of validated hourly averages		
			100 mg/m^3 Note 2	Daily mean of validated hourly averages		
			100 mg/m^3 Note 2	95% of validated hourly averages within a calendar year		
		LCP 38 HRSG stack Firing HRSG alone on **DFO**	100 mg/m^3 Note 2	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			100 mg/m^3 Note 2	Daily mean of validated hourly averages		
			100 mg/m^3 Note 2	95% of validated hourly averages within a calendar year		
A62	Oxygen	HRSG stack Firing GT and HRSG on **gas**	-	-	Continuous As appropriate to reference	BS EN 14181
		HRSG stack Firing HRSG alone on **gas/DFO**				

A62	Water vapour	HRSG stack Firing GT and HRSG on **gas** HRSG stack Firing HRSG alone on **gas/DFO**	-	-	Continuous As appropriate to reference	BS EN 14181
A62	Stack gas temperature	HRSG stack Firing GT and HRSG on **gas** HRSG stack Firing HRSG alone on **gas/DFO**	-	-	Continuous As appropriate to reference	Traceable to national standards
A62	Stack gas pressure	HRSG stack Firing GT and HRSG on **gas** HRSG stack Firing HRSG alone on **gas/DFO**	-	-	Continuous As appropriate to reference	Traceable to national standards
A62	Stack gas volume flow	HRSG stack Firing GT and HRSG on **gas** HRSG stack Firing HRSG alone on **gas/DFO**	-	-	At least annually, or as agreed in writing with the Environment Agency	By calculation, or as agreed in writing with the Environment Agency
A62	As required by the Method Implementation Document for BS EN 15259	HRSG stack	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A62	Sulphur dioxide	HRSG stack Firing HRSG alone on **gas**	38.5 mg/m^3	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
A62	Sulphur dioxide	HRSG stack Firing HRSG alone on **DFO**	No limit set	-		

A62	Particulate matter	HRSG stack Firing HRSG alone on **gas**	5.5 mg/m^3	-		
A62	Particulate matter	HRSG stack Firing HRSG alone on **DFO**	No limit set	-		
A63	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	**LCP 38** HRSG by-pass stack Note 1 Firing GT on **gas**	-	-	Concentration by calculation every 2 years	Agreed in writing with the Environment Agency
A63	Carbon Monoxide	**LCP 38** HRSG by-pass stack Note 1 Firing GT on **gas**	-		Concentration by calculation every 2 years	Agreed in writing with the Environment Agency
A63	Sulphur Dioxide	**LCP 38** HRSG by-pass stack Note 1 Firing GT on **gas**	-	-	Concentration by calculation every 2 years	Agreed in writing with the Environment Agency

Note 1: Refer to condition 2.3.6 of this permit.

Note 2: The Oxygen reference condition is 15% under abnormal operation, where the GT is taken off-line and where there is a credible plan to recover operation of the GT; otherwise 3% oxygen shall apply as detailed in Schedule 7 of this permit. Abnormal operation is incorporated into Table S1.2 of this permit.

Table S3.1(b) Point source emissions to air from non LCP plant						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A1	-	Breather vent from caustic tank	-	-	-	-
A2	-	Transport water antifoam oil tank vent	-	-	-	-
A3	-	Local exhaust ventilation (LEV) from the beet slicing machines	-	-	-	-
A4	-	Knife washing area LEV	-	-	-	-
A5	-	Breather vent from formaldehyde tank	-	-	-	-
A6	-	Breather vent from sulphuric acid storage tank	-	-	-	-
A7	-	Extract Tank Breather	-	-	-	-
A8	-	Vent from depulpers	-	-	-	-
A9	-	Vent from diffuser supply header tank	-	-	-	-
A10	-	Diffuser vapour extraction vents	-	-	-	-
A11	-	ABS storage tank vent	-	-	-	-
A12	-	Breather vent from magnesium oxide storage tank abated by filter	-	-	-	-
A13	-	Breather vent from soda ash storage tank abated by filter	-	-	-	-
A14	-	Magox reaction tank vents	-	-		
A15	Carbon Monoxide	Vent from 1st carbonatation tank	No limit set	--	Continuous	BS EN 14181

Table S3.1(b) Point source emissions to air from non LCP plant						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A16	-	Vent from 2nd carbonatation tank	-	-	-	-
A17	-	Clarifier overflow vent	-	-	-	-
A18	-	Hoesch press LEV	-	-	-	-
A19	-	Vent from sweet water tank	-	-	-	-
A20	-	Hoesch wash water tank vent	-	-	-	-
A21	-	Hoesch slurry supply tank vent	-	-	-	-
A22	-	1st carbonatation overflow tank vent	-	-	-	-
A23	-	Hydrochloric acid tank vent abated by scrubber	-	-	-	-
A24	-	Pressure control vent on line taking kiln gas to the carbonatation tanks	-	-	-	-
A25	--	Vent from sulphitation absorption column	-	-	-	-
A27	--	Incondensable gas vents	-	-	-	-
A28	-	Anti-scalant storage tank vent	-	-	-	-
A29	-	EDTA tank vent	-	-	-	-
A30	-	Vent from dissolver	-	-	-	-
A31	-	Melter vapour extraction	-	-	-	-
A32	-	Thick juice storage tank vents	-	-	-	-
A33	-	Thick juice cooling tower vents	-	-	-	-
A34	-	Vacuum pump vent Waller Nash #1	-	-	-	-
A35	-	Vacuum pump vent Waller Nash #2	-	-	-	-
A36	-	Vacuum pump vent Waller Nash #3	-	-	-	-
A37	-	Vacuum pump vent Siemens	-	-	-	-

Table S3.1(b) Point source emissions to air from non LCP plant						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A39	-	White centrifugal scroll vapour extraction	-	-	-	-
A40	-	Vacuum pump cooling tower vents	-	-	-	-
A41	-	V/C cooling tower vents	-	-	-	-
A42	-	Sugar dryer wet scrubber vent	-	-	-	-
A43	-	Sugar cooler wet de-duster vent	-	-	-	-
A44	-	Sugar cooler dry de-duster vent	-	-	-	-
A49	-	Dry de-duster vents on sugar silos	-	-	-	-
A50	-	Liquid sugar cooling tower vents	-	-	-	-
A51	-	Condenser cooling tower vents	-	-	-	-
A52	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	#1 dryer flue duct abated by cyclones	100 mg/m^3	Average over sampling period	Annually	BS EN 14792
A53		#2 dryer flue duct abated by cyclones	100 mg/m^3			
A54		#3 dryer flue duct abated by cyclones	100 mg/m^3			
A52	Carbon monoxide	#1 dryer flue duct abated by cyclones	1500 mg/m^3	Average over sampling period	Annually	BS EN 15058
A53		#2 dryer flue duct abated by cyclones	1500 mg/m^3			
A54		#3 dryer flue duct abated by cyclones	1500 mg/m^3			
A52	Particulate matter	#1 dryer flue duct abated by cyclones	80 mg/m^3 [Note1]	Average over sampling period	Annually	BS EN 13284-1
A53		#2 dryer flue duct abated by cyclones	80 mg/m^3 [Note1]			
A54		#3 dryer flue duct abated by cyclones	80 mg/m^3 [Note1]			
A52	PM_{10}	#1 dryer flue duct abated by cyclones	No limit set	Average over sampling period	Annually	BS EN ISO 23210

Table S3.1(b) Point source emissions to air from non LCP plant						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A53		#2 dryer flue duct abated by cyclones	No limit set	Average over sampling period	Annually	BS EN ISO 23210
A54		#3 dryer flue duct abated by cyclones	No limit set	Average over sampling period	Annually	BS EN ISO 23210
A52	$PM_{2.5}$	#1 dryer flue duct abated by cyclones	No limit set	Average over sampling period	Annually	BS EN ISO 23210
A53		#2 dryer flue duct abated by cyclones	No limit set	Average over sampling period	Annually	BS EN ISO 23210
A54		#3 dryer flue duct abated by cyclones	No limit set	Average over sampling period	Annually	BS EN ISO 23210
A52	TVOCs	#1 dryer flue duct abated by cyclones	No limit set	Average over sampling period	Annually	BS EN 12619
A53		#2 dryer flue duct abated by cyclones	No limit set	Average over sampling period	Annually	BS EN 12619
A54		#3 dryer flue duct abated by cyclones	No limit set	Average over sampling period	Annually	BS EN 12619
A55	Particulate matter	Pellet cooler cyclone vents	20 mg/m^3	Average over sampling period	Annually	BS EN 13284-1
A56	-	Animal feed LEV cyclone vents with monitoring	-	-	-	-
A57	-	Airpol bag filter vents with monitoring	-	-	-	-
A58	-	Lime kiln air intake / vent pipe	-	-	-	-
A59	Particulate matter	Lime slaker wet scrubber vent with cyclone	20 mg/m^3	Average over sampling period	Annually	BS EN 13284-1
A60	-	Milk of lime tank vent	-	-	-	-
A64	-	Duct to glasshouse	-	-	-	-
A65	-	De-aerator vent	-	-	-	-

Table S3.1(b) Point source emissions to air from non LCP plant						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A69	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	**AB1** Maxecon boiler #1 flue duct firing on natural gas	Until 31/12/2024: 300 mg/m^3	Periodic	Annually	BS EN 14792
			From 01/01/2025: 200 mg/m^3	Periodic	Annually	BS EN 14792
		AB1 Maxecon boiler #1 flue duct firing on DFO	Until 31/12/2024: 650 mg/m^3	Periodic	Annually	BS EN 14792
			From 01/01/2025: 200 mg/m^3	Periodic	Annually	BS EN 14792
	Carbon monoxide	**AB1** Maxecon boiler #1 flue duct firing on natural gas	100 mg/m^3	Periodic	Annually	BS EN 15058
		AB1 Maxecon boiler #1 flue duct firing on DFO	100 mg/m^3	Periodic	Annually	BS EN 15058
A70	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	**AB2** Maxecon boiler #2 flue duct firing on natural gas	Until 31/12/2024: 300 mg/m^3	Periodic	Annually	BS EN 14792
			From 01/01/2025: 200 mg/m^3	Periodic	Annually	BS EN 14792
		AB2 Maxecon boiler #2 flue duct firing on DFO	Until 31/12/2024: 650 mg/m^3	Periodic	Annually	BS EN 14792
			From 01/01/2025: 200 mg/m^3	Periodic	Annually	BS EN 14792

Table S3.1(b) Point source emissions to air from non LCP plant						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
	Carbon monoxide	**AB2** Maxecon boiler #2 flue duct firing on natural gas	100 mg/m^3	Periodic	Annually	BS EN 15058
		AB2 Maxecon boiler #2 flue duct firing on DFO	100 mg/m^3	Periodic	Annually	BS EN 15058
A71	-	Heavy Fuel Storage Tank Vent	-	-	-	-
A72	-	Gas-Oil Storage Tank Vents	-	-	-	-
A75	-	Blowdown tank vent	-	-	-	-
A76	-	Phoenix vacuum pump vent	-	-	-	-
A77	-	Phoenix cooling tower vents	-	-	-	-
A78	-	Phoenix extract storage tank vents	-	-	-	-
A79	-	Phoenix raffinate storage tank vents	-	-	-	-
A80	-	Phoenix betaine molasses storage tank vents	-	-	-	-
A81	-	Phoenix betaine storage tank vents	-	-	-	-
A82	-	Anaerobic digester flare stack	-	-	-	-
A83	-	Caustic soda tank vent	-	-	-	-
A84	-	Antifoam oil tank vent	-	-	-	-
A85	-	De-cal column vents	-	-	-	-
A86	-	De-cal pipe to soft juice breather	-	-	-	-
A87	-	Soft juice tank vent	-	-	-	-
A88	-	Gassing tank vent	-	-	-	-
A89	-	Regenerant tank vent	-	-	-	-
A90	-	Regenerant storage tank vent	-	-	-	-
A91	-	Bioethanol Cooling Tower Vent	-	-	-	-

Table S3.1(b) Point source emissions to air from non LCP plant						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A92	-	Bioethanol Cooling Tower Vent	-	-	-	-
A93	-	Bioethanol Scrubber Vent	-	-	-	-
A94	-	Bioethanol Scrubber Vent	-	-	-	-
A95	-	Bioethanol Vacuum Pump Vent	-	-	-	-
A96	-	Biofuel Vacuum Pump Vent	-	-	-	-
A97	-	Ethanol Storage Vent	-	-	-	-
A98	-	Methanol Storage Vent	-	-	-	-
A99	-	Fuel Oil Storage Vent	-	-	-	-
A101	-	Carbon dioxide scrubber in CO_2 liquefaction plant	-	-	-	-
A102	-	Carbon dioxide scrubber in CO_2 liquefaction plant	-	-	-	-
Note 1: The Oxygen reference condition is 16-vol % with no correction for water.						

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements							
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit) during the periods below as specified [Note 1]**		**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
			Beet processing campaign period	**Non-beet processing period**			
W1 on site plan in Schedule 7 - emission to River Wissey	Discharge volume	Final pond of waste water treatment plant	10,500 m^3/day	7,800 m^3/day	Daily	Continuous	Electro-magnetic flow
	Discharge rate		127 l/s	90 l/s	Daily	Continuous	Electro-magnetic flow
	BOD concentration		40 mg/l	25 mg/l	Spot sample	Weekly	BS EN ISO 5815-1
	BOD mass emission load		185 kg/d	110 kg/d	Calculated daily load	Daily	--
	COD concentration		155 mg/l [Note 3]	155 mg/l [Note 3]	Spot sample	Daily	BS EN ISO 6060
	COD mass emission load		1,100 kg/d	1,200 kg/d	Calculated daily load	Daily	--
	Ammonia concentration		20 mg/l	12 mg/l	Spot sample	Daily	BS EN ISO 11732
	Ammonia mass emission load		100 kg/d	40 kg/d	Calculated daily load	Daily	--
	Total N concentration		30 mg/l [Note 3]	30 mg/l [Note 3]	Spot sample	Daily	BS EN 20236
	Total N mass emission load		285 kg/d	234 kg/d	Calculated daily load	Daily	--
	Suspended solids concentration		50 mg/l	50 mg/l	Spot sample	Daily	BS EN 872

	Suspended solids mass emission load		380 kg/d	220 kg/d	Mass balance	Daily	--
	Total P concentration		2 mg/l	2 mg/l	Spot sample	Daily	BS EN ISO 6878
	Total P mass emission load		19 kg/d	15 kg/d	Calculated daily load	Daily	--
	Total Fe concentration		5 mg/l	5mg/l	Spot sample	Weekly	As agreed by the Environment Agency
	Chloride		No limit set	No limit set	Spot sample	Monthly	BS EN ISO 15682
	pH		7.0 – 9.0	7.0 – 9.0	Spot sample	Daily	BS ISO 10523
	Neonicotinoids [Note2]		No limit set	N/A	Spot sample	Twice per campaign with a minimum of 28 days between samples	As agreed by the Environment Agency

Note1: Beet processing period: Typically October to February, Non-beet processing period: Typically March to September, including start-up and shut down.

Note 2: Monitoring of parameter only required when crop has been dressed with neonicotinoids.

Note 3: Based on a yearly average and calculated on a flow weighted basis. For TN if the annual average removal efficiency is <80% then the TN ELV will be 20 mg/l. If the COD removal efficiency is <95% then the COD ELV will be 100 mg/l.

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
A56	Particulate Matter	Continuous	Not applicable	Alarmed in the event of cyclone failure.
A57	Particulate Matter	Continuous	Not applicable	Alarmed to automatic shut-down system in the event of filter bag failure.
LCP 38	Net electrical efficiency; Net total fuel utilisation.	After each modification that could significantly affect these parameters	EN Standards or equivalent, or by calculation	--
W1	Abatement efficiency - COD & TN % removal	Calculated annually from October to September	Refer to Table S3.2	Annual average and calculated on a flow weighted basis, excluding start up and shutdown as defined in EMS
Biogas in digester(s) and storage tank(s)	Pressure	Continuous	None specified	--
	Flow	Continuous	None specified	--
	Quantity of gas sent to combustion plant	Continuous	Quantity can be estimated from gas flow composition, heat content, ratio of assistance, velocity, purge gas flow rate, pollutant emissions.	Process monitoring to be recorded using a SCADA system where relevant. Gas monitors to be calibrated every 6 months or in accordance with the manufacturer's recommendations
	Quantity of gas vented	Continuous	Quantity can be estimated from gas flow composition, heat content, ratio of assistance, velocity, purge gas flow rate, pollutant emissions.	

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Digester(s) and storage tank(s)	Integrity checks	Weekly	Visual assessment	In accordance with design specification and tank integrity checks.
Diffuse emissions from all sources identified in the Leak Detection and Repair (LDAR) programme	VOCs including methane	Every 6 months or otherwise agreed in accordance with the LDAR programme	BS EN 15446 In accordance with the LDAR programme	Monitoring points as specified in a DSEAR risk assessment and LDAR programme. Limit as agreed with the Environment Agency as a percentage of the overall gas production.
Emergency flare	Operating hours	Continuous	Recorded duration and frequency. Recording using a SCADA system or similar system	Date, time and duration of use of auxiliary flare shall be recorded.
	Quantity of gas sent to emergency flare			Quantity can be estimated from gas flow composition, heat content, ratio of assistance, velocity, purge gas flow rate, pollutant emissions.
Pressure relief valves and vacuum systems	Gas pressure	Continuous	Recording using a SCADA system	Continuous gas pressure shall be monitored.
	Re-seating	Weekly inspection	Visual	Operator must ensure that valves are re-seated after release in accordance with the manufacturer's design.
	Inspection, maintenance, calibration, repair and validation	Following foaming or overtopping or at 3 yearly intervals whichever is sooner	Written scheme of examination in accordance with condition 1.1.1	After a foaming event or sticking, build-up of debris, obstructions or damage, operator must ensure that pressure relief valve function remains within designed gas pressure in accordance with the manufacturer's design by suitably trained and qualified personnel.

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
	Inspection, calibration and validation report	In accordance with design and construction specifications or after over topping or foaming event	Written scheme of examination in accordance with condition 1.1.1	Operator must ensure that valves are re-seated after release, after a foaming event or sticking, build-up of debris, obstructions or damage. Operator must ensure that PRV function remains within designed operation gas pressure in accordance with the manufacturer's design by suitably trained/qualified personnel. Inspection, calibration and validation report. In accordance with industry Approved Code of Practice
Storage lagoons and storage tanks	Volume	Weekly (minimum)	Visual	Records of volume must be maintained, and the levels adequately controlled to prevent "over-topping"
	Flow	Daily	Flow meter measurement	

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	A52, A53, A54, A62, A63, A69, A70	Every 3 months for continuous monitoring Every 6 months for periodic monitoring Every year where there is an annual average Every 2 years for concentration by calculation	1 January, 1 April, 1 July, 1 October 1 January, 1 July 1 January 1 January
Carbon monoxide	A15, A52, A53, A54, A62, A63, A69, A70	Every 3 months for continuous monitoring Every 6 months for periodic monitoring Every year where there is an annual average Every 2 years for concentration by calculation	1 January, 1 April, 1 July, 1 October 1 January, 1 July 1 January 1 January
Sulphur dioxide	A62, A63	Every 3 months for continuous monitoring Every 6 months for periodic monitoring	1 January, 1 April, 1 July, 1 October 1 January, 1 July
Particulate matter	A52, A53, A54, A55, A59, A62	Annually	1 January
PM_{10}	A52, A53, A54	Annually	1 January
$PM_{2.5}$	A52, A53, A54	Annually	1 January
Total Volatile Organic Compounds	A52, A53, A54	Annually	1 January
Process monitoring requirements	As specified by Table S3.4	Annually	1 January unless otherwise specified
Discharge volume	W1	Every 3 months	1 January, 1 April, 1 July, 1 October

Table S4.1 Reporting of monitoring data			
Parameter	**Emission or monitoring point/reference**	**Reporting period**	**Period begins**
Discharge rate	W1	Every 3 months	1 January, 1 April, 1 July, 1 October
BOD	W1	Every 3 months	1 January, 1 April, 1 July, 1 October
COD	W1	Every 3 months	1 January, 1 April, 1 July, 1 October
Ammonia	W1	Every 3 months	1 January, 1 April, 1 July, 1 October
Total nitrogen	W1	Every 3 months	1 January, 1 April, 1 July, 1 October
Suspended solids	W1	Every 3 months	1 January, 1 April, 1 July, 1 October
Total phosphorus	W1	Every 3 months	1 January, 1 April, 1 July, 1 October
Total iron	W1	Every 3 months	1 January, 1 April, 1 July, 1 October
Chloride	W1	Annually	1 January
pH	W1	Every three months	1 January, 1 April, 1 July, 1 October
Neonicotinoids (as required)	W1	Annually (as required)	1 January

Table S4.2 Annual production/treatment	
Parameter	**Units**
Sugar beet processed	tonnes
Production of crystal sugar	tonnes
Production of wet animal feed	tonnes
Production of dry animal feed	tonnes
Production of glucose syrup	tonnes
Production of betaine/raffinate	tonnes
Production of bioethanol	tonnes
Production of soil	tonnes
Production of stones	tonnes
Production of “Lime X”	tonnes
Recovery of CO2 from bioethanol plant	tonnes

Table S4.3A Large Combustion Plant Performance parameters for reporting to DEFRA		
Parameter	**Frequency of assessment**	**Units**
Thermal Input Capacity for each LCP	Annually	MW
Annual Fuel Usage for each LCP	Annually	TJ
Total Emissions to Air of NOx for each LCP	Annually	t
Total Emissions to Air of SO2 for each LCP	Annually	t
Total Emissions to Air of Dust for each LCP	Annually	t
Operating Hours for each LCP	Annually	hr

Table S4.3B Other Performance parameters for reporting to the Environment Agency		
Parameter	**Frequency of assessment**	**Units**
Water usage	Annually	m^3
Specific waste water discharge	Annually	m^3 / tonne of beets.
Energy usage	Annually	MWh
Specific energy usage	Annually	MWh/tonne of beets.
Annual energy input into GT/HRSG	Annually	MWh
Power generated	Annually	GWh
Food waste	Annually	tonnes
Total particulate matter to air/tonne beet sliced	Annually	Kg/t
Total PM2.5 to air/tonne beet sliced	Annually	Kg/t

Table S4.3B Other Performance parameters for reporting to the Environment Agency		
Parameter	**Frequency of assessment**	**Units**
Initial date of use of DFO (for LCP 38) for any period, and the no. of days and hours used before reverting to natural gas	Annually	Date Days/hours
No. of hours operating in open cycle mode	Annually	hours

Table S4.4 Reporting forms		
Media/ parameter	**Reporting format**	**Agency recipient**
LCP		
Air & Energy	Form IED AR1 – SO_2, NO_x and dust mass emission and energy. Form as agreed in writing by the Environment Agency. For all LCPs	National and Area Office
LCP	Form IED HR1 – operating hours. Form as agreed in writing by the Environment Agency. For all LCPs	National and Area Office
Air	Form IED CON 1 – continuous monitoring. Form as agreed in writing by the Environment Agency. CEMs reporting for Utility Boilers Only	Area Office
Air	Form IED CON 2 – continuous monitoring. Form as agreed in writing by the Environment Agency CEMs reporting for Gas Turbines Only	Area Office
Air	Form IED PM1 – discontinuous monitoring and load. Form as agreed in writing by the Environment Agency. Only for sites with periodic monitoring requirements.	Area Office
CEMs	Form IED CEM – Invalidation Log. Form as agreed in writing by the Environment Agency. Only for LCPs with CEMs	Area Office
OTHER		
Air emissions	Air1 Reporting Form, or other form as agreed in writing by the Environment Agency	Area Office
Water emissions	Water1 Reporting Form, or other form as agreed in writing by the Environment Agency	Area Office
Water usage	Water Usage Reporting Form, or other form as agreed in writing by the Environment Agency	Area Office
Energy usage	Energy Usage Reporting Form, or other form as agreed in writing by the Environment Agency	Area Office
Food Waste	Food waste Reporting Form, or other form as agreed in writing by the Environment Agency	Area Office
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency.	Area Office

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	
Name of operator	
Location of Facility	
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.

“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.

“average over the sampling period” means the average value of three consecutive measurements of at least 30 minutes each or as agreed in writing with the Environment Agency.

“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 Commité 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.

“daily average” means the average over a period of 24 hours of validated hourly averages obtained by continuous measurements.

“DLN” means dry, low NO_x burners.

“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.

“Energy efficiency” means the annual net plant energy efficiency, the value for which is 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.

“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.

“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.

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

“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.

“Net electrical efficiency” means the ratio between the net electrical output (electricity produced minus the imported energy) and the fuel/feedstock energy input (as the fuel/feedstock lower heating value) at the combustion unit boundary over a given period of time.

“Net total fuel utilisation” means the ratio between the net produced energy minus the imported electrical and/or thermal energy and the fuel/feedstock energy input at the gasification unit boundary over a given period of time.

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

“pests” means Birds, Vermin and Insects.

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

“SI” means site inspector.

“Standby fuel” means alternative liquid fuels that are used in emergency situations when the gas fuel which is normally used, is not available.

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; and/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.

“year” means calendar year ending 31 December.

“yearly average” means the average over a period of one year of validated hourly averages obtained by continuous measurements.

For dioxins/furans the determination of the toxic equivalence concentration (I-TEQ, & WHO-TEQ for dioxins/furans, WHO-TEQ for dioxin-like PCBs) stated as a release limit and/ or reporting requirement, the mass concentrations of the following congeners have to be multiplied with their respective toxic equivalence factors before summing.

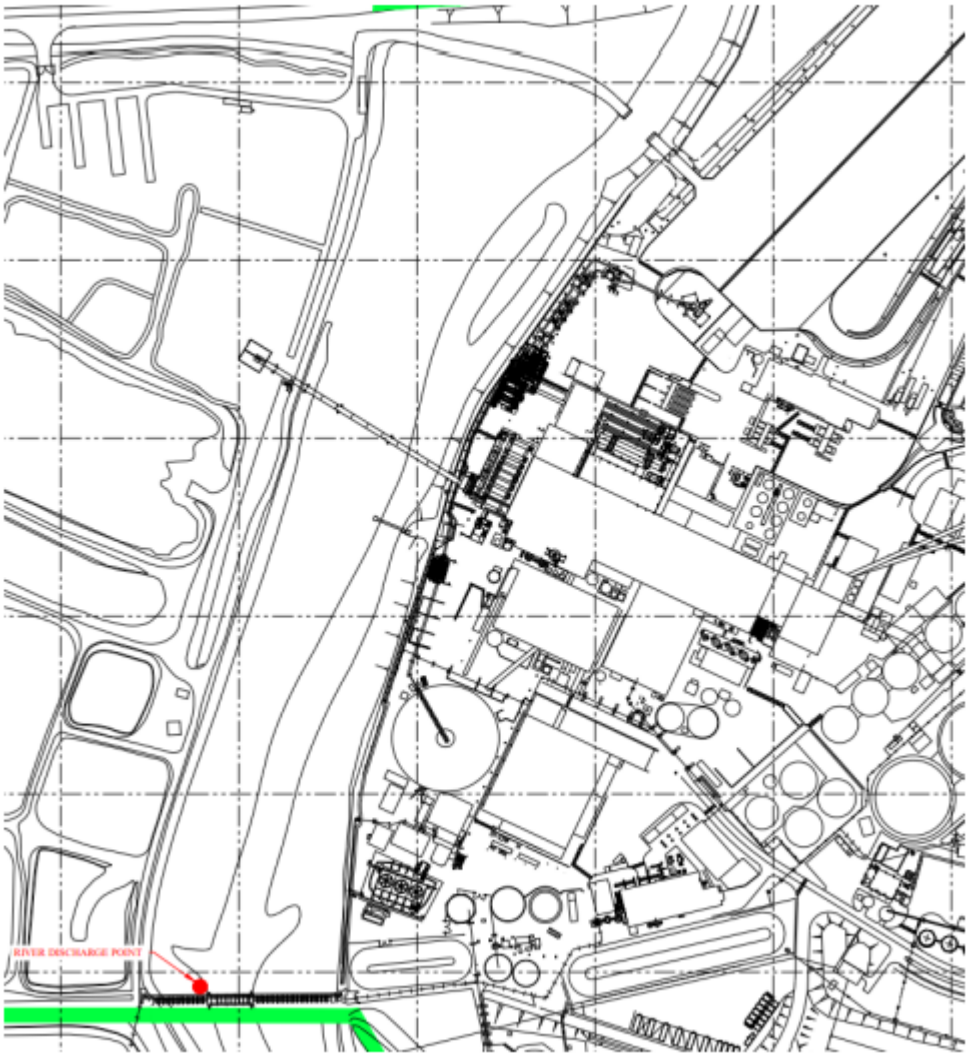
TEF schemes for dioxins and furans				
Congener	**I-TEF**	**WHO-TEF**		
	1990	**2005**	**1997/8**	
		Humans / Mammals	**Fish**	**Birds**
Dioxins				
2,3,7,8-TCDD	1	1	1	1
1,2,3,7,8-PeCDD	0.5	1	1	1
1,2,3,4,7,8-HxCDD	0.1	0.1	0.5	0.05

TEF schemes for dioxins and furans				
Congener	**I-TEF**	**WHO-TEF**		
	1990	**2005**	**1997/8**	
1,2,3,6,7,8-HxCDD	0.1	0.1	0.01	0.01
1,2,3,7,8,9-HxCDD	0.1	0.1	0.01	0.1
1,2,3,4,6,7,8-HpCDD	0.01	0.01	0.001	<0.001
OCDD	0.001	0.0003	-	-
Furans				
2,3,7,8-TCDF	0.1	0.1	0.05	1
1,2,3,7,8-PeCDF	0.05	0.03	0.05	0.1
2,3,4,7,8-PeCDF	0.5	0.3	0.5	1
1,2,3,4,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,7,8,9-HxCDF	0.1	0.1	0.1	0.1
1,2,3,6,7,8-HxCDF	0.1	0.1	0.1	0.1
2,3,4,6,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,4,6,7,8_HpCDF	0.01	0.01	0.01	0.01
1,2,3,4,7,8,9-HpCDF	0.01	0.01	0.01	0.01
OCDF	0.001	0.0003	0.0001	0.0001

TEF schemes for dioxin-like PCBs			
Congener	**WHO-TEF**		
	2005	**1997/8**	
	Humans / mammals	**Fish**	**Birds**
Non-ortho PCBs			
3,4,4',5-TCB (81)	0.0001	0.0005	0.1
3,3',4,4'-TCB (77)	0.0003	0.0001	0.05
3,3',4,4',5 - PeCB (126)	0.1	0.005	0.1
3,3',4,4',5,5'-HxCB(169)	0.03	0.00005	0.001
Mono-ortho PCBs			
2,3,3',4,4'-PeCB (105)	0.00003	<0.000005	0.0001
2,3,4,4',5-PeCB (114)	0.00003	<0.000005	0.0001
2,3',4,4',5-PeCB (118)	0.00003	<0.000005	0.00001
2',3,4,4',5-PeCB (123)	0.00003	<0.000005	0.00001
2,3,3',4,4',5-HxCB (156)	0.00003	<0.000005	0.0001
2,3,3',4,4',5'-HxCB (157)	0.00003	<0.000005	0.0001
2,3',4,4',5,5'-HxCB (167)	0.00003	<0.000005	0.00001
2,3,3',4,4',5,5'-HpCB (189)	0.00003	<0.000005	0.00001

Schedule 7 – Site plans

E2: Site plan detailing location of water emission point W1



END OF PERMIT