



# Notice of variation with introductory note

## The Environmental Permitting (England & Wales) Regulations 2010

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British Sugar PLC  
Bury St Edmunds Sugar Factory  
Hollow Road  
PO Box 15  
Bury St Edmunds  
Suffolk  
IP32 7BB

### **Variation application number**

EPR/BX2094IJ/V008

### **Permit number**

EPR/BX2094IJ

# Bury St Edmunds Sugar Factory

## Permit number EPR/BX2094IJ

### Introductory note

#### This introductory note does not form a part of the notice

The following notice gives notice of the variation of an environmental permit.

#### Purpose of Variation EPR/BX2094IJ/V008

The requirements of the Industrial Emissions Directive (IED) 2010/75/EU are given force in England through the Environmental Permitting (England and Wales) Regulations 2010 (the EPR) (as amended).

This Permit, for the operation of large combustion plant (LCP), as defined by articles 28 and 29 of the Industrial Emissions Directive (IED), is varied by the Environment Agency to implement the special provisions for LCP given in the IED, by the 1 January 2016 (Article 82(3)). The IED makes special provisions for LCP under Chapter III, introducing new Emission Limit Values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V.

The variation notice uses an updated LCP number in accordance with the most recent DEFRA references. The LCP reference has changed from **LCP 105** is to **LCP 37**.

The Operator has chosen to operate this LCP (**LCP 37**) under the Transitional National Plan (TNP) compliance route.

#### Purpose of original Permit

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

The British Sugar factory at Bury St Edmunds produces white crystal sugar that it supplies to the adjacent retail packaging plant and the finished products operation for milling, screening, bagging and bulk despatch to the industrial and export markets. The packaging plant has no direct technical connection with the Sugar Factory, and is not included in the scope of this Permit. 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 (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) and stones (that come in with the beet) for construction purposes. Beet is delivered from September to the end of 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. Outside the campaign and juice refining period, the sugar production process closes down and maintenance is carried out.

The site is located in an industrial/rural/residential area approximately 1 km to the north-east of Bury St Edmunds town centre. The River Lark flows from south to north along the western perimeter of the site. There are two Sites of Special Scientific Interest (SSSI) within 2 km, namely Glen Chalk Caves, and Shakers' Lane. The impact at these sites has already been assessed and agreed by Natural England.

The sugar production process comprises:

- Receipt, handling, unloading 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 are 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 anti-foam may be 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 dried 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. Small amounts of antifoam, flocculants, colour inhibitor, alkali and filtration aids may be added to assist processing.
- Sulphitation (colour inhibition 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 15% dry solids to 65% by a series of evaporators. These are heated by steam from the onsite Combined Heat and Power (CHP) 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 waste heat recovery, correcting the pH with alkali, adding an antifoam, and sometimes the addition of a colour inhibitor. Thick juice and other syrups may be imported from other British Sugar sites for processing.
- 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). The batch is seeded with very fine sugar crystals dispersed in a small quantity of isopropanol that promotes the formation of sucrose crystals. At the end of each batch cycle a crystal/syrup mixture is discharged for centrifuging. Sugar crystals are removed from the liquid phase by centrifuging and washing with recycled condensate. The syrup is recycled for further crystallisation. The non-white sugar crystals produced from the second and third stages are recycled to produce white sugar. Syrup from the second stage may also be sold as a product. As well as crystalline sugar, the process produces syrups for sale, or as an additive to animal feed.
- 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 5 silos.

- 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 coal (No 1 and No 2 dryers) or gas (No 3 dryer). In the event of an interruption to the supply of natural gas, dryer No 3 is equipped to burn distillate fuel oil. The exhaust gases from the dryers are discharged via cyclones to remove particulates. Pressed pulp may be imported from other British Sugar installations for drying or sold as wet animal feed.
- Animal feed pelleting and coating. Dried animal feed (shreds) directly from the dryers, is mixed with additional syrup and extruded to form pellets. These are cooled in ambient air and screened to remove fines, which are recycled, before a coating is applied to prevent the pellets sticking together. 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.

LCP 37-The factory operates a Combined Heat and Power (CHP) system, burning natural gas, with distillate fuel oil (DFO) as a back-up, producing steam and electricity for the site. 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 60 metre HRSG stack at emission point A62. The CHP discharges via the separate 30 metre HRSG by-pass stack (separate windshield) at emission point A63 during start-up and periods when the gas turbine is running with the HRSG off-line for repairs or inspections or outside of the two main operating periods.

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.

The installation emits sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), ammonia (NH<sub>3</sub>), particulate and volatile organic compounds (VOCs) to air, and ammonia, nitrate and phosphate to water.

Particulate emissions are abated by cyclones. SO<sub>2</sub> emissions from the sulphur burning stove are abated by a scrubber, with SO<sub>2</sub> emissions from the lime kiln controlled by the choice of fuel. Emissions have been assessed as having no significant environmental impact.

There is an extensive physical and biological treatment system for waste water. This includes clarifiers (from which soil is reclaimed), settlement ponds (which are dug out annually and the soil reclaimed), an anaerobic digester, an aerobic treatment plant (Polcon). Final discharge of the treated waste water is either to controlled water, namely the River Lark, or to land, via the Large Open Soakaway Lagoon (LOSL).

There is extensive recycling of treated waste water within the process. All process water is treated by the effluent treatment plant before discharge.

The installation is operated under an EMS which is accredited to ISO14001.

The schedules specify the changes made to the permit.

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

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Application EPR/BX2094IJ/A001	31/03/05	Duly Made
Response to request for information	28/10/05	
Response to request for information	01/12/05	
Permit determined EPR/BX2094IJ	29/03/15	Permit issued to British Sugar PLC
Variation Application EPR/BX2094IJ/V002 (GP3337LY)	22/12/06	Application refused
Variation Application EPR/BX2094IJ/V003 (CP3839XR)	17/12/07	To implement the requirements of the National Emission Reduction Plan – to update annual emissions limits to air of particulate matter, sulphur dioxide and oxides of nitrogen
Variation Application EPR/BX2094IJ/V004 (MP3330XB)	15/04/10	To upgrade sugar cooling facilities and update the requirements of the Large Combustion Plant Directive (LCPD) <b>Consolidated</b>
Variation Application EPR/BX2094IJ/V005	05/03/10	To update the site plan
Variation EPR/BX2094IJ/V005 determined	24/08/10	Varied permit issued
Variation Application EPR/BX2094IJ/V006	08/01/14	Environment Agency initiated to implement the requirements of the Industrial Emissions Directive (IED)
Variation Application EPR/BX2094IJ/V007	19/03/14	To remove two Sultzer boiler emission points (A66 & A67)
Variation EPR/BX2094IJ/V007 determined	10/04/14	Varied permit issued

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Regulation 60 Notice sent to the Operator	31/10/14	Issue of a Notice under Regulation 60(1) of the EPR. Environment Agency Initiated review and variation to vary the permit under IED to implement the special provisions for LCP under Chapter III, introducing new Emission Limit Values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V.
Regulation 60 Notice response	27/03/15	Response received from the Operator.
Additional information received	29/07/15	Response to request for further information (RFI) dated 24/07/15 To provide method for derivation of the net rated thermal input
Additional information received	09/10/15	Response to email sent 06/10/15: GT stack (HRSG by-pass) Operational scenarios DFO usage
Email received	21/12/15	Confirming abnormal conditions for HRSG only operation
Variation determined EPR/BX2094IJ/V008 (Billing ref: JP3439WW)	22/12/15	Varied permit issued. Variation effective from 01/01/16.

End of introductory note

# Notice of variation

## The Environmental Permitting (England and Wales) Regulations 2010

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2010 varies

### Permit number

**EPR/BX2094IJ**

### 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

**Bury St Edmunds Sugar Factory  
Hollow Road  
PO Box 15  
Bury St Edmunds  
Suffolk  
IP32 7BB**

to the extent set out in the schedules.

The notice shall take effect from 01/01/2016

<b>Name</b>	<b>Date</b>
<b>Anne Nightingale</b>	<b>22/12/2015</b>

Authorised on behalf of the Environment Agency

## Schedule 1 – conditions to be deleted

The following conditions are deleted following an Environment Agency initiated variation:

Condition 7.1.1 refers to the meaning of expressions (*Interpretation*); the following expression shall be deleted:

“*NERP Register*” means the register maintained by the Environment Agency in accordance with regulation 6(1) of the Large Combustion Plants (National Emission Reduction Plan) Regulations 2007.

## Schedule 2 – conditions to be amended

The following conditions are amended as detailed, following an Environment Agency initiated variation:

Condition 2.1.1 refers to Table S1.1, *Activities* which shall be amended by the inclusion of a new description for the LCP activity:

<b>Table S1.1 activities</b>			
<b>Activity reference</b>	<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
A1	Section 1.1 Part A(1)(a)  Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more	<b>LCP 37</b> Burning natural gas, with distillate fuel oil (DFO) as back up, 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.  Back up fuel may be burned only during (a) interruption by a third party (b) testing and trials with the prior written agreement of the Agency and (c) gas interruption, as implemented by a rise in the price of natural gas causing the price/therm to exceed that of DFO, up to a maximum of 45 days per year.	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 or other customers, the discharge of emissions to air and the disposal of waste arising.
A2	Section 3.1 Part A(1)(b)(i)  Producing lime in kilns or other furnaces with a production capacity of more than 50 tonnes per day.	Producing lime for slaking to be used in the sugar production process.	From the receipt of fuel 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.



<b>Table S1.1 activities</b>			
<b>Activity reference</b>	<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
A3	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 fuel and sulphur to the use of sulphur dioxide in the sugar making process, the emission of exhaust gas to air and the disposal of any ash and solid residues.
A4	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 it's re-use in the process or its disposal to river or via the large open soakaway lagoon to land.
A5	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 it's re-use in the process or its disposal to river or via the large open soakaway lagoon to land.
A6	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 or to tanker.
A7	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. Dryers nos.1 and 2 are coal fired. Dryer no.3 is natural gas fired, with DFO back up fuel. DFO may be burned only during (a) interruption by a third party (b) testing and trials with the prior written agreement of the Agency and (c) gas interruption, as implemented by a rise in the price of natural gas causing the price/therm to exceed that of DFO, up to a maximum of 45 days per year.	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.

<b>Table S1.1 activities</b>			
<b>Activity reference</b>	<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
A8	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 and syrups from sugar juice.	From the transfer of thick juice from the process or from storage or import to the despatch of crystal sugar and syrups, the discharge of dust, vapour and incondensable gases to air and the disposal of waste.
A9	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.
<b>Directly Associated Activity</b>			
A10	Treatment of waste water for the recovery of soil for re-use.	The treatment of waste water by means of a mud clarifier and settlement ponds from which topsoil is recovered.	From the generation of waste water to its return either to the beet fluming clean water tank or to further treatment, the recovery of soil and the disposal of waste arising.
A11	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 dispatch 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 <sup>3</sup> .
A12	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).
A13	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.
A14	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.
A15	Conditioning, storage and handling of soil	The recovery of soil delivered with the beet by washing and settling, conditioning, blending and, where appropriate, screening prior to sale.	From the excavation of soil from the settling ponds to its despatch, and the disposal of waste arising.

<b>Table S1.1 activities</b>			
<b>Activity reference</b>	<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
A16	Conditioning, storage and handling of stones	The recovery of stones delivered with the beet for use in construction activities.	From the separation of stones from beet to the despatch of stones or onsite use and the disposal of waste arising.
A17	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.
A18	Manufacture, conditioning and storage of Limex 70 co-product.	The recovery of impure calcium carbonate from the carbonation 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.

Condition 2.3.1 refers to Table S1.2, *Operating techniques* which shall be amended by the inclusion of technical standards in the Regulation 60 response, the abnormal operation email response and to remove the Sulzer Boilers which have been decommissioned (EPR/BX2094IJ/V007):

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application	The response to questions 2.1 and 2.2 given in pages 13 – 66 inclusive, as amended for boilers and back up fuel by email 27/03/06, and supplemented by the unit activity descriptions given in Appendix 10 of the application.	31/03/05
Site Protection and Monitoring Programme.	The Operator shall, within two months of the date of this permit, submit a detailed Site Protection and Monitoring Programme. The Operator shall implement and maintain the Site Protection and Monitoring Programme (SPMP) submitted under this condition, and shall carry out regular reviews of it at a minimum frequency of every 2 years. The results of such reviews and any changes made to the SPMP shall be reported to the Agency within 1 month of the review or change.	31/03/05
Limits on use of standby fuel.	Standby fuel, in the form of distillate fuel oil (DFO), may be used for no more than 45 days per year with the Combined Heat and Power (CHP) Plant and Ancillary Steam Boilers. DFO may be used only during: (a) interruption by a third party (b) testing and trials, agreed in writing by the Agency (c) gas interruption by a rise in the price of natural gas causing the price/therm to exceed that of DFO.	
Raw Materials or Fuel Restrictions	No raw material or fuel shall be used unless they comply with specifications set out in table S3.1.	
Justification for burning gas oil in the GT/HRSG during periods of gas shortage (document title "Application for Variation Authorisation AA3034")	Whole	28/10/05
Email limits of mercury and cadmium as trace contaminants of raw materials	Whole	01/12/05
Justification for burning gas oil in no. 3 pulp dryer during periods of gas shortage (document title "Application for Variation Authorisation AG5811")	Whole	13/12/05
Response to Regulation 60 Notice dated 31/10/14	Compliance route and operating techniques identified in response to questions: 29 (TNP compliance route) 31 (mode of operation and fuel options) 33 (start-up and shut-down load)	27/03/15
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%.	21/12/15

Condition 3.1.1 refers to Table S4.1, *Point source emissions to air – emission limits and monitoring requirements* which shall be amended to change monitoring requirements at A62 and A63 in accordance with the IED and to add the standard for monitoring infrastructure at A62 and A63:

<b>Table S4.1 Point source emissions to air – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location on site plan in Schedule 2 of the Permit</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)- these limits do not apply during start up or shut down. Note 2</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
A2	-	Breather vent from antifoam tank	-	-	-	-
A3	-	Local exhaust ventilation (LEV) from the beet slicing machines	-	-	-	-
A4	-	Vent from equipment washer	-	-	-	-
A5	-	Breather vent from biocide tank	-	-	-	-
A6	-	Breather vent from acid storage tank	-	-	-	-
There is no A7	-	-	-	-	-	-
A8	-	Depulpers	-	-	-	-
A9	-	There is no A9	-	-	-	-
A10	-	Pulp presses	-	-	-	-
A11	-	Ammonium bisulphite storage tank	-	-	-	-
A12	-	Breather vent from magnesium oxide storage tank	-	-	-	-
A13	-	Breather vent from soda ash storage tank	-	-	-	-
A14	-	Vent from magnesium oxide reaction tank	-	-	-	-
A15	-	Vent from 1 <sup>st</sup> carbonatation tank	-	-	-	-
A16	-	Vent from 2 <sup>nd</sup> carbonatation tank	-	-	-	-

Table S4.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location on site plan in Schedule 2 of the Permit	Parameter	Source	Limit (including unit)- these limits do not apply during start up or shut down. Note 2	Reference period	Monitoring frequency	Monitoring standard or method
A17	-	Vent from juice clarifier	-	-	-	-
A18	-	DLP station	-	-	-	-
A19	---	Vent from sweet water tank	-	-	-	-
A20	-	DLP wash water tank	-	-	-	-
A21	-	DLP slurry supply tank	-	-	-	-
A22	-	Vent from 1 <sup>st</sup> carbonatation overflow box	-	-	-	-
A23	-	Vent from HCl bulk tank	-	-	-	-
A24	CO	Pressure control vent on line taking kiln gas to the carbonatation tanks	-	-	Continuous Note 1	Infra-red gas sensor.
A25	---	Vent from sulphitation absorption column	---	---	---	-
A26	-	Siphon break in the juice line to thin juice tank	-	-	-	-
A27	-	Incondensable gas vents	-	-	-	-
A28	-	Remelt dust extraction	-	-	-	-
A29	-	Thick juice cooling tower	-	-	-	-
A30	-	Turbine cooling tower	-	-	-	---
A31	---	Thick juice tank vents	---	---	---	-
A32	-	Vacuum pump discharge (#1 Waller Nash)	-	-	-	-
A33	-	Vacuum pump discharge (#2 Waller Nash)	-	-	-	-

Table S4.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location on site plan in Schedule 2 of the Permit	Parameter	Source	Limit (including unit)- these limits do not apply during start up or shut down. Note 2	Reference period	Monitoring frequency	Monitoring standard or method
A34	-	Vacuum pump discharge (#3 Waller Nash)	-	-	-	-
A35	-	White centrifuges vapour extraction	-	-	-	-
A36	-	White sugar scrolls vapour extraction	-	-	-	---
A37	---	Vacuum pump discharge (Siemens pump)	---	---	---	-
A38	-	Dryer exit air	-	-	-	-
A39	-	Cooler exit air	-	-	-	-
A40	-	No 1 silo air conditioning reactivation air	-	-	-	-
A41	-	No 2 silo air conditioning reactivation air	-	-	-	-
A42	-	No 3 silo air conditioning reactivation air	-	-	-	---
A43	---	No 4 silo air conditioning reactivation air	---	---	---	-
A44	-	No 5 silo air conditioning reactivation air	-	-	-	-
A50	-	Main process cooling towers	-	-	-	-
A51	SO <sub>2</sub>	Animal feed dryer No 1	500 mg/Nm <sup>3</sup>	Periodic over a minimum 4 hour period, expressed as 15 minute average	Annual, during the campaign	BS6069-4.1:1990 or BS ISO 11632:1998 or BS6069-4.4:1993 or ASTM6348-03 or US EPA Method 320

<b>Table S4.1 Point source emissions to air – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location on site plan in Schedule 2 of the Permit</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)- these limits do not apply during start up or shut down. Note 2</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
A51	NOx	Animal feed dryer No 1	540 mg/Nm <sup>3</sup>	Periodic over a minimum 4 hour period, expressed as half hour average	Annual, during the campaign	ISO10849 or ASTM D6348-03 or US EPA Method 320



<b>Table S4.1 Point source emissions to air – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location on site plan in Schedule 2 of the Permit</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)- these limits do not apply during start up or shut down.</b> <small>Note 2</small>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
A51	CO	Animal feed dryer No 1	3000 mg/Nm <sup>3</sup>	Periodic over a minimum 4 hour period, expressed as 10-minute average	Annual, during the campaign	ISO12039
A51	Total Particulate.	Animal feed dryer No 1	200 mg/Nm <sup>3</sup>	Periodic over minimum 1 hour period.	Annual, during the campaign	-
A52	SO <sub>2</sub>	Animal feed dryer No 2	500 mg/Nm <sup>3</sup>	Periodic over a minimum 4 hour period, expressed as 15 minute average	Annual, during the campaign	BS6069-4.1:1990 or BS ISO 11632:1998 or BS6069-4.4:1993 or ASTM6348-03 or US EPA Method 320
A52	NO <sub>x</sub>	Animal feed dryer No 2	540 mg/Nm <sup>3</sup>	Periodic over a minimum 4 hour period, expressed as half hour average	Annual, during the campaign	ISO10849 or ASTM D6348-03 or US EPA Method 320
A52	CO	Animal feed dryer No 2	3000 mg/Nm <sup>3</sup>	Periodic over a minimum 4 hour period, expressed as 10-minute average	Annual, during the campaign	ISO12039
A52	Total particulate	Animal feed dryer No 2	200 mg/Nm <sup>3</sup>	Periodic over minimum 1 hour period.	Annual, during the campaign	-
A53	SO <sub>2</sub>	Animal feed dryer No 3	500 mg/Nm <sup>3</sup>	Periodic over a minimum 4 hour period, expressed as 15 minute average	Annual, during the campaign	BS6069-4.1:1990 or BS ISO 11632:1998 or BS6069-4.4:1993 or ASTM6348-03 or US EPA Method 320

Table S4.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location on site plan in Schedule 2 of the Permit	Parameter	Source	Limit (including unit)- these limits do not apply during start up or shut down. Note 2	Reference period	Monitoring frequency	Monitoring standard or method
A53	NO <sub>x</sub>	Animal feed dryer No 3	540 mg/Nm <sup>3</sup>	Periodic over a minimum 4 hour period, expressed as half hour average	Annual, during the campaign	ISO10849 or ASTM D6348-03 or US EPA Method 320
A53	CO	Animal feed dryer No 1	3000 mg/Nm <sup>3</sup>	Periodic over a minimum 4 hour period, expressed as 10-minute average	Annual, during the campaign	ISO12039
A53	Total particulate	Animal feed dryer No 3	150 mg/Nm <sup>3</sup>	Periodic over minimum 1 hour period.	Annual, during the campaign	-
A53 (Burning Gas)	SO <sub>2</sub>	Animal feed dryer No 3	35 mg/Nm <sup>3</sup>	Periodic over a minimum 4 hour period, expressed as 15 minute average	Annual, during the campaign	BS6069-4.1:1990 or BS ISO 11632:1998 or BS6069-4.4:1993 or ASTM6348-03 or US EPA Method 320
A53 (Burning Gas)	NO <sub>x</sub>	Animal feed dryer No 3	80 mg/Nm <sup>3</sup>	Periodic over a minimum 4 hour period, expressed as half hour average	Annual, during the campaign	ISO10849 or ASTM D6348-03 or US EPA Method 320
A53 (Burning Gas)	CO	Animal feed dryer No 1	3000 mg/Nm <sup>3</sup>	Periodic over a minimum 4 hour period, expressed as 10-minute average	Annual, during the campaign	ISO12039
A54	-	Vent from pellet cooler cyclones 1-4.	-	-	-	-
A55	-	Vent from pellet cooler cyclones 5-8.	-	-	-	-
A56	-	Nuisance dust cyclone.	-	-	-	-

Table S4.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location on site plan in Schedule 2 of the Permit	Parameter	Source	Limit (including unit)- these limits do not apply during start up or shut down. Note 2	Reference period	Monitoring frequency	Monitoring standard or method
A57	-	Nuisance dust cyclone.	-	-	-	-
A58	-	Palm acid storage tank	-	-	-	-
A59	-	Kiln fans	-	-	-	-
A60	Total particulate	Lime slaker vent	35 mg/Nm <sup>3</sup>	Periodic	Annual, during the campaign	BS ISO10155 or BS EN 13284-1 or BS ISO 9096
A61		Vent from milk of lime tank	-	-	-	-
Fired on Natural gas						
A62  <b>(HRSG stack)</b>	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	<b>LCP 37</b> GT & HRSG	50 mg/Nm <sup>3</sup>	Monthly mean of validated hourly averages	Continuous	BS EN 14181
		<b>LCP 37</b> HRSG only <sup>Note 8</sup>	85 mg/Nm <sup>3</sup>	Calendar monthly mean		
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	<b>LCP 37</b> GT & HRSG	55 mg/Nm <sup>3</sup>	95% of validated daily means within a calendar year	Continuous	BS EN 14181
		<b>LCP 37</b> HRSG only <sup>Note 8</sup>	85 mg/Nm <sup>3</sup>			
Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	<b>LCP 37</b> GT & HRSG	75 mg/Nm <sup>3</sup>	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181	
	<b>LCP 37</b> HRSG only <sup>Note 8</sup>	85 mg/Nm <sup>3</sup>				
A62  <b>(HRSG stack)</b>	Carbon Monoxide	<b>LCP 37</b> GT & HRSG	100 mg/Nm <sup>3</sup>	Monthly mean of validated hourly averages	Continuous	BS EN 14181
		<b>LCP 37</b> HRSG only <sup>Note 8</sup>	100 mg/Nm <sup>3</sup>	Calendar monthly mean		

Table S4.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location on site plan in Schedule 2 of the Permit	Parameter	Source	Limit (including unit)- these limits do not apply during start up or shut down. Note 2	Reference period	Monitoring frequency	Monitoring standard or method
	Carbon Monoxide	LCP 37 GT & HRSG	100 mg/Nm <sup>3</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181
		LCP 37 HRSG only <sup>Note 8</sup>	100 mg/Nm <sup>3</sup>			
	Carbon Monoxide	LCP 37 GT & HRSG	100 mg/Nm <sup>3</sup>	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
		LCP 37 HRSG only <sup>Note 8</sup>	100 mg/Nm <sup>3</sup>			
A62 <b>(HRSG stack)</b>	Oxygen	LCP 37 GT & HRSG LCP 37 HRSG only	-	-	Continuous As appropriate to reference	BS EN 14181
A62 <b>(HRSG stack)</b>	Water Vapour	LCP 37 GT & HRSG LCP 37 HRSG only	-	-	Continuous As appropriate to reference	BS EN 14181
A62 <b>(HRSG stack)</b>	Stack gas temperature	LCP 37 GT & HRSG LCP 37 HRSG only	-	-	Continuous As appropriate to reference	Traceable to national standards
A62 <b>(HRSG stack)</b>	Stack gas pressure	LCP 37 GT & HRSG LCP 37 HRSG only	-	-	Continuous As appropriate to reference	Traceable to national standards

<b>Table S4.1 Point source emissions to air – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location on site plan in Schedule 2 of the Permit</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)- these limits do not apply during start up or shut down. Note 2</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
A62  <b>(HRSG stack)</b>	Stack Gas Volume Flow	<b>LCP 37</b>	-	-	Continuous	BS EN 16911 & TGN M2
		GT & HRSG				
		<b>LCP 37</b>				
		HRSG only				
A62  <b>(HRSG stack)</b>	As required by the Method Implementation Document for BS EN 15259	<b>LCP 37</b>	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
		GT & HRSG				
		<b>LCP 37</b>				
		HRSG only				

Table S4.1 Point source emissions to air – emission limits and monitoring requirements							
Emission point ref. & location on site plan in Schedule 2 of the Permit	Parameter	Source	Limit (including unit)- these limits do not apply during start up or shut down. Note 2	Reference period	Monitoring frequency	Monitoring standard or method	
A62 (HRSG stack)	Sulphur dioxide	LCP 37	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency	
		GT & HRSG					
		LCP 37					
		HRSG only					
A62 (HRSG stack)	Dust	LCP 37	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency	
		HRSG only					
Fired on DFO							
A62 (HRSG stack)	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP 37	90 mg/Nm <sup>3</sup>	Monthly mean of validated hourly averages	Continuous	BS EN 14181	
		GT & HRSG					
		LCP 37	180 mg/Nm <sup>3</sup>				
			HRSG only <sup>Note 8</sup>				
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP 37	99 mg/Nm <sup>3</sup>	95% of validated daily means within a calendar year	Continuous	BS EN 14181	
		GT & HRSG					
LCP 37		180 mg/Nm <sup>3</sup>					
		HRSG only <sup>Note 8</sup>					
Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP 37	180 mg/Nm <sup>3</sup>	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181		
	GT & HRSG						
	LCP 37	180 mg/Nm <sup>3</sup>					
		HRSG only <sup>Note 8</sup>					
	Carbon Monoxide	LCP 37		Monthly mean of	Continuous	BS EN 14181	
		GT & HRSG	100				

Table S4.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location on site plan in Schedule 2 of the Permit	Parameter	Source	Limit (including unit)- these limits do not apply during start up or shut down. Note 2	Reference period	Monitoring frequency	Monitoring standard or method
A62  (HRSG stack)		LCP 37 HRSG only <sup>Note 8</sup>	mg/Nm <sup>3</sup>	validated hourly averages		
	Carbon Monoxide	LCP 37 GT & HRSG	110 mg/Nm <sup>3</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181
		LCP 37 HRSG only <sup>Note 8</sup>	100 mg/Nm <sup>3</sup>			
	Carbon Monoxide	LCP 37 GT & HRSG	200 mg/Nm <sup>3</sup>	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
		LCP 37 HRSG only <sup>Note 8</sup>	100 mg/Nm <sup>3</sup>			
	A62  (HRSG stack)	Sulphur dioxide	LCP 37 GT & HRSG	-	-	At least every 6 months
LCP 37 HRSG only <sup>Note 8</sup>						
A62  (HRSG stack)	Dust	LCP 37 GT & HRSG	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
		LCP 37 HRSG only <sup>Note 8</sup>				

Table S4.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location on site plan in Schedule 2 of the Permit	Parameter	Source	Limit (including unit)- these limits do not apply during start up or shut down. Note 2	Reference period	Monitoring frequency	Monitoring standard or method
<b>Fired on Natural Gas/DFO</b>						
A63  <b>GT stack (HRSG by-pass)</b>	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	<b>LCP 37</b>  GT only	No limits set Note 7	-	Concentration by calculation, every 4380 operational hours or 2 years, whichever is sooner.	Agreed in writing with the Environment Agency
	Carbon Monoxide	<b>LCP 37</b>  GT only		-		
	Sulphur dioxide	<b>LCP 37</b>  GT only		-		
	Dust	<b>LCP 37</b>  GT only		-		
A64	-	De-aerator vent.	-	-	-	-
A65	-	Blowdown tank vent	-	-	-	-
A66	-	Decommissioned				
A67	-	Decommissioned				
A68	-	There is no A68	-	-	-	-
A69	-	There is no A69	-	-	-	-
A70	-	Vent from caustic soda storage tank for the demineraliser	-	-	-	-
A71	-	Degasser	-	-	-	-
A72	-	There is no A72	-	-	-	-
A73	-	There is no A73	-	-	-	-
A74	-	Anaerobic digester	-	-	-	-
A75	-	Sugar end extraction fan	-	-	-	-
A76	-	No.1 VC Cooling Tower	-	-	-	-
A77	-	Sugar Cooling vent	-	-	-	-



- Note 1: This point shall be taken as the point at which continuous monitoring for carbon monoxide takes place in all references to monitoring at point A24
- Note 2: See Section 7 for reference conditions, except for particulate/dust emissions from emission points A51, A52, and A53, see Note 3 and A62 and A63 see Note 4.
- Note 3: Reference conditions for emission points A51 and A52 are 17% oxygen for particulate and 6% oxygen for gaseous species, and for A53 reference conditions are 17% oxygen for particulate and 3% oxygen for gaseous species, with no correction for water content.
- Note 4: Methods to calibrate automated measurement systems, such as CEMs, shall be carried out as specified by the appropriate CEN standards. If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality, as agreed in writing with the Agency, shall apply. The reference methods used shall be agreed in writing with the Agency. The results of the assessment shall be submitted to the Agency in writing within one month of completion of the assessment.
- Note 5: For periods when DFO is burned in the gas turbine at the same time as natural gas is burned in the HRSG, or vice versa, the emission limits for DFO shall apply.
- Note 6: These limits do not apply during start up or shut down.
- Note 7: Refer to condition 2.3.4 of this permit.
- Note 8: 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.

Condition 3.1.3 refers to Table S4.4, *Annual limits*, which shall be amended in accordance with the IED:

<b>Table S4.4 Annual limits (excluding start up and shut down except where otherwise stated).</b>				
<b>Substance</b>	<b>Medium</b>	<b>Limit (including unit)</b>		<b>Emission Points</b>
Dust, Sulphur dioxide and Oxides of nitrogen	Air	Assessment year	<b>LCP 37</b> TNP Limit	A62 & 63
		01/01/16 and subsequent years until 31/12/19	Emission allowance figure shown in the TNP Register as at 30 April the following year	<b>LCP 37</b>
		01/01/20-30/06/20		GT/HRSG

Condition 3.6.1 shall be amended in accordance with the IED:

All monitoring required by this permit shall be carried out in accordance with the provisions of Annex V of the Industrial Emissions Directive.

Condition 4.2.3 refers to Table S5.1, *Reporting of monitoring data* which shall be amended in accordance with the IED (A62 & A63) and to remove emission points A54, A55, A56, A57, A66, A67 and A68:

<b>Table S5.1 Reporting of monitoring data</b>			
Parameter	Emission point	Reporting period	Period begins
Emissions to air	A51, A52, A53, A60	Every 12 months	01/01/16
Dust and SO <sub>2</sub> using emission factors	A62 , A63		
Emissions to air	A62, A63	Every 3 months	01/01/16
Nitrogen dioxide mg/Nm <sup>3</sup> Continuous monitoring			
Emissions to air	A62, A63	Every 3 months	01/01/16
Carbon monoxide mg/Nm <sup>3</sup> Continuous monitoring			
Emissions to water Parameters as required by condition 3.5.1	W1, E7	Every 3 months	01/01/06
Emissions to water Parameters as required by condition 3.5.1	W1: Total copper mg/l	Every 12 months	01/01/06
Emissions to water Parameters as required by condition 3.5.1	W1: Total nickel mg/l	Every 12 months	01/01/06

Condition 4.2.2 refers to Table S5.3, *Performance Parameters* which shall be amended to include additional parameters for LCP:

<b>Table S5.3 Chapter III Performance parameters for reporting to DEFRA and other Performance parameters</b>		
Parameter	Frequency of assessment	Units
Net energy use	Annually	MWh/t beet processed
Potable water use	Annually	m <sup>3</sup> /t beet processed
Non potable water use	Annually	m <sup>3</sup> /t beet processed
Waste disposal and/or recovery.	Annually	Tonnes
Annual energy input to GT/HRSG	Annually	MWh
Thermal input capacity for LCP 37	Annually	MW
Annual fuel usage for LCP 37	Annually	Tj

<b>Table S5.3 Chapter III Performance parameters for reporting to DEFRA and other Performance parameters</b>		
Total emissions to air of NO <sub>x</sub> for LCP 37 (A62, A63)	Annually	Tonnes
Total emissions to air of Dust for LCP 37 (A62, A63)	Annually	Tonnes
Total emissions to air of SO <sub>2</sub> for LCP 37 (A62, A63)	Annually	Tonnes
Operating hours for LCP 35 (A62, A63) GT/HRSG (gas/DFO) GT (gas/DFO) HRSG (gas/DFO)	Annually	hours

Condition 4.2.3 refers to Table S5.4, *Reporting forms* which shall be amended to update forms for emissions to air:

<b>Table S5.4 Reporting forms</b>				
<b>Media/ parameter</b>	<b>Reporting format</b>	<b>Starting Point</b>	<b>Agency recipient</b>	<b>Date of form</b>
<b>LCP</b>				
Air & Energy	Form IED AR1 – SO <sub>2</sub> , NO <sub>x</sub> and dust mass emission and energy	01/01/16	National	31/12/15
Air	Form IED RTA1 –TNP quarterly emissions summary log	01/01/16	National	31/12/15
LCP	Form IED HR1 – operating hours	01/01/16	National	31/12/15
Air	Form IED CON 1 – continuous monitoring.	01/01/16	Area Office	31/12/15
Air	Form IED CON 2 – continuous monitoring	01/01/16	Area Office	31/12/15
CEMs	Form IED CEM – Invalidation Log	01/01/16	Area Office	31/12/15
Air	Form IED PM1 - discontinuous monitoring and load.	01/01/16	Area Office	31/12/15
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	01/01/16	Area Office	31/12/15
<b>OTHER</b>				
Air	MP3330XB/A1/060228		Area Office	01/07/08
Water (excluding sewer)	MP3330XB /W1/060228		Area Office	01/07/08
Water (excluding sewer)	MP3330XB /W2/060228		Area Office	01/07/08

<b>Table S5.4 Reporting forms</b>				
<b>Media/ parameter</b>	<b>Reporting format</b>	<b>Starting Point</b>	<b>Agency recipient</b>	<b>Date of form</b>
To effluent treatment plant	MP3330XB /ET1/060228		Area Office	01/07/08
Energy	MP3330XB /E1/060228		Area Office	01/07/08
Energy supplied to LCP	MP3330XB /E2/060228		Area Office	01/07/08
Waste Return	MP3330XB /R1/060228		Area Office	01/07/08
Water usage	MP3330XB /WU1/060228		Area Office	01/07/08
Performance indicators	MP3330XB /PI1/060228		Area Office	01/07/08

Conditions 4.3.1 and 4.3.2 shall be amended in accordance with the IED:

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.

Any information provided under condition 4.3.1 (a)(i), 4.3.1 (b)(i) where the information relates to the breach of a condition specified in the permit shall be confirmed by sending the information listed in schedule 6 to this permit within the time period specified in that schedule.

Condition 7.1.1 refers to the meaning of expressions (*Interpretation*), the following expression shall be amended:

“large combustion plant” or “LCP” is a combustion plant or group of combustion plants discharging waste gases through a common windshiled 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.

Condition 7.1.3.3 shall be amended to:

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;

### Schedule 3 – conditions to be added

The following conditions are added following an Environment Agency initiated variation:

Condition 1.3.2 shall be added in accordance with the IED:

For activity LCP 37 referenced in Table S1.1; the operator shall take appropriate measures to ensure the efficiency of energy generation at the permitted installation is maximised.

Condition 2.3.3 shall be added in accordance with the IED:

For activity LCP 37 referenced in table 1.1.1, standby fuel HFO may be used but for no more than 45 days per year.

Condition 2.3.4 shall be added:

For activity A1, LCP 37, referenced in schedule 1, table S1.1, operating in open cycle mode. The activity shall not operate for more than 500 hours per year.

Condition 2.3.5 shall be added in accordance with the IED:

For activity A1, LCP 37, referenced in schedule 1, table S1.1, 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.

Condition 2.3.5 refers to Table S1.4, *Start-up and shut-down thresholds*, which shall be added in accordance with the IED:

<b>Table S1.4 Start-up and Shut-down thresholds</b>		
<b>Emission Point and Unit Reference</b>	<b>“Minimum start up load” When two of the criteria listed below for the LCP or unit have been met.</b>	<b>“Minimum shut-down load” When two of the criteria listed below for the LCP or unit have been met.</b>
A62 & A63 <b>LCP 37</b>	<p>The 3 operational parameters that indicate startup has been completed are:</p> <ul style="list-style-type: none"> <li>• HRSG Boiler pressure above 26barg (minimum boiler operational pressure).</li> <li>• HRSG Boiler temperature above 400 deg C.</li> <li>• HRSG Boiler Feed water flow above 30 tph</li> </ul>	<p>The 3 operational parameters that indicate Shutdown has been completed are:</p> <ul style="list-style-type: none"> <li>• HRSG Boiler pressure below 26barg (minimum boiler operational pressure).</li> <li>• HRSG Boiler temperature below 400 deg C.</li> <li>• HRSG Boiler Feed water flow below 30 tph.</li> </ul>

Condition 2.3.6 shall be added in accordance with the IED:

For activity LCP 37 referenced in Table S1.1; without prejudice to condition 2.3.1, the activity shall be operated in accordance with the “Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines” revision 1 dated February 2015 or any later version unless otherwise agreed in writing by the Environment Agency.

Condition 2.4.1 refers to Table S1.3, *Improvement programme*, which shall include an additional condition IC25 for the thermal input and IC26 for submission of emissions data:

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IC25	<p>The operator shall provide a report in writing to the Environment Agency for acceptance which provides the net rated thermal input for <b>LCP 37</b>. The net rated thermal input is the 'as built' value unless the plant has been modified significantly resulting in an improvement of the plant efficiency or output that increases the rated thermal input (which typically requires a performance test to demonstrate that guaranteed improvements have been realised).</p> <p>Evidence to support this figure, in order of preference, shall be in the form of:-</p> <ul style="list-style-type: none"> <li>a) Performance test results* during contractual guarantee testing or at commissioning (quoting the specified standards or test codes),</li> <li>b) Performance test results after a significant modification (quoting the specified standards or test codes),</li> <li>c) Manufacturer's contractual guarantee value,</li> <li>d) Published reference data, e.g., Gas Turbine World Performance Specifications (published annually);</li> <li>e) Design data, e.g., nameplate rating of a boiler or design documentation for a burner system;</li> <li>f) Operational efficiency data as verified and used for heat accountancy purposes,</li> <li>g) Data provided as part of Due Diligence during acquisition,</li> </ul> <p>*Performance test results shall be used if these are available.</p>	31/12/16
IC26	<p>For LCPD LCP 105 (now <b>LCP 37</b> under IED). Annual emissions of dust, sulphur dioxide and oxides of nitrogen including energy usage for the year 01/01/2015 to 31/12/2015 shall be submitted to the Environment Agency using form AAE1 via the NERP Registry. If the LCPD LCP was a NERP plant the final quarter submissions shall be provided on the RTA 1 form to the NERP Registry.</p>	28/01/16

Condition 3.1.3 shall be added to include reference to Table S4.4, *Annual limits*:

Total annual emissions from the LCP emission points set out in schedule 4 table S4.1 of a substance listed in schedule 4 table S4.4 shall not exceed the relevant limit in table S4.4.

Condition 3.1.4 shall be added in accordance with the IED:

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.

Condition 3.6.7 shall be added in accordance with the IED:

Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 4, table S4.1; the Continuous Emission Monitors shall be used such that:

- a) for the continuous measurement systems fitted to the LCP release points defined in Table S4.1 the validated hourly, monthly and daily averages shall be determined from the measured valid hourly average values after having subtracted the value of the 95% confidence interval;
- b) the 95% confidence interval for nitrogen oxides and sulphur dioxide of a single measured result shall be taken to be 20%;
- c) the 95% confidence interval for dust releases of a single measured result shall be taken to be 30%;
- d) the 95% confidence interval for carbon monoxide releases of a single measured result shall be taken to be 10%;
- e) an invalid hourly average means an hourly average period invalidated due to malfunction of, or maintenance work being carried out on, the continuous measurement system. However, to allow some discretion for zero and span gas checking, or cleaning (by flushing), an hourly average period will count as valid as long as data has been accumulated for at least two thirds of the period (40 minutes). Such discretionary periods are not to exceed more than 5 in any one 24-hour period unless agreed in writing. Where plant may be operating for less than the 24-hour period, such discretionary periods are not to exceed more than one quarter of the overall valid hourly average periods unless agreed in writing; and
- f) any day, in which more than three hourly average values are invalid shall be invalidated.

Condition 4.2.5 shall be added to enable quarterly reporting of mass emissions.

For activity LCP 37 referenced in schedule 1, table S1.1; unless otherwise agreed in writing with the Environment Agency, within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form IED RTA1, listed in table S5.4, the information specified on the form relating to the site's mass emissions.

Condition 4.3.8 shall be added in accordance with the IED:

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

Condition 7.1.1 refers to the meaning of expressions (*Interpretation*), the following expressions shall be added:

“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.

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

“CEN” means Comité Européen de Normalisation.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

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



“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions.

“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.

“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.

“TNP Register” means the register maintained by the Environment Agency in accordance with regulation 4 of the Large Combustion Plants (Transitional National Plan) Regulations 2015 SI2015 No.1973.

Condition 7.1.3.7 shall be added:

in relation to emissions from combustion processes comprising a gas turbine with a HRSG, 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 HRSG is operating alone, in which case, with an oxygen content of 3% dry for liquid and gaseous fuels.