

# Notice of variation and consolidation with introductory note

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

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Verus Energy Oak Limited

Kelvin Energy  
Giffords Way  
Off Kelvin Way  
West Bromwich  
B70 7JR

### **Variation application number**

EPR/CP3233FB/V003

### **Permit number**

EPR/CP3233FB

# Kelvin Energy

## Permit number EPR/CP3233FB

### Introductory note

#### **This introductory note does not form a part of the permit**

Under the Environmental Permitting (England & Wales) Regulations 2010 (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. All the conditions of the permit have been varied and are subject to the right of appeal.

This variation permits the following changes to the installation:

- The stack height is increased from 42 m to 70.5 m.
- The water-cooling system is replaced with an air-cooled condenser.
- The annual throughput of waste for the gasifier is increased to a maximum of 150,000 tonnes per year. The nature of the feedstock will be unchanged.
- The process orientation will be turned through 180° resulting in the relocation of the stack to the west end of the building.
- Activity S5.4A(1)(a)(ii) is no longer required because the total effluent treatment capacity is reduced to less than 50 m<sup>3</sup>/day. The effluent production rate is now 0.5 l/s as a result of changing to an air-cooled condenser. The reduction in effluent means the effluent treatment plant will now be permitted as a DAA.

This permit is for the operation of an installation, a waste incineration plant, whose purpose is the disposal of waste in a gasification plant. The installation is listed in Section 5.1A(1)(b) of Schedule 1 of the Environmental Permitting (England and Wales) Regulations (EPR) 2010: 'the incineration of non-hazardous waste in an incineration plant with a capacity of 1 tonne per hour or more'. The permit implements the requirements of the EU Directives on Industrial Emissions and Waste.

The site is located in the Kelvin Way Trading Estate and has an area of approximately 1.4 hectares. The Birmingham Canal forms the southern boundary of the site, with Spon Lane Basin located adjacent to the northern boundary. The nearest residential area is approximately 250 m north of the site.

The Fens Pool Special Area of Conservation (SAC) is located within 10 km of the installation. There are no Sites of Special Scientific Interest within 2 km of the site, but there are 6 Local Nature Reserves within this distance.

In outline, the gasification process will be as follows:

Predominantly treated sanitary waste and solid recovered fuel (which conforms to waste acceptance criteria which stipulate the calorific value, moisture content, chlorine and sulphur content and the size distribution) will be delivered to site and stored in the feedstock bunkers within the gasification plant building which is maintained under negative pressure.

The fluid bed gasifier will be fitted with a propane/LPG igniter which will be used to initiate the gasification reaction within the vessel. Once initiated it will be self sustaining as long as the flows of air and feed stock are maintained.

A grab will transfer the feedstock from the feedstock bunkers to a metering bin and then waste will be loaded into the fluid bed gasifier.

Processing of the feedstock within the gasifier will be a continuous mechanical feed process that operates at a nominal capacity of 16.79 tonnes of feedstock per hour.

The syngas produced in the gasification zone will be fully combusted in the thermal oxidation zone, where excess air is added. Ammonia will be injected into the combustion zone of the gasifier in a Selective Non-Catalytic Reduction (SNCR) system.

The hot gases will then pass through a heat recovery steam generator. The steam will then be used to generate electricity in a steam turbine, before being condensed in an air cooled condenser.

The combustion gases will be cleaned in a flue gas treatment plant consisting of dry lime to remove acid gases and activated carbon for dioxins and mercury. A multi-compartment fabric filter will be used to remove particulate matter before being released to atmosphere via a 70.5 m high stack.

The plant will produce three types of residue: bottom ash (tramp), fly ash and air pollution control residues. Bottom ash will be extracted from the bottom of the fluidised bed and transferred to a designated area for conditioning prior to export from the installation. Fly ash will be removed from the flue gases in multi-cyclone prior to the main flue gas treatment plant. The fly ash will either be sent for disposal in landfill or sent for re-use in the construction industry. The air pollution control residue will be collected in the ash silo and sent off-site for disposal in landfill.

Emissions from the stack will be continuously monitored for: particulate, carbon monoxide (CO), ammonia (NH<sub>3</sub>), sulphur dioxide (SO<sub>2</sub>), hydrogen chloride (HCl), oxygen (O<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>) and total organic carbon (TOC).

The gasification process and continuous emissions monitors will be controlled using a DCA system which will automatically shut down operations should the process temperature not be maintained or the emission limit values be exceeded.

Periodic sampling and measurement will also be carried out for hydrogen fluoride (HF), cadmium (Cd), thallium (Tl), mercury (Hg), antimony (Sb), arsenic (As), lead (Pb), chromium (Cr), cobalt (Co), copper (Cu), manganese (Mn), nickel (Ni), vanadium (V), dioxins and furans and dioxin-like PCBs.

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.

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

**Status log of the permit**

Description	Date	Comments
Application EPR/CP3233FB/A001	Duly made 05/05/11	
Additional information Schedule 5 Notice dated 22/06/11	19/07/11 & 19/08/11	Environmental impact assessment for Cr(vi), impact levels of NOx and HF at all relevant habitat sites, the impacts on local non-statutory conservation sites, abnormal operations, BAT assessment for NOx abatement, monitoring, acid gas control BAT assessment, energy efficiency, waste acceptance criteria, water efficiency, re-use of APC, site drainage, firing diagram, TOC or LOI, emissions to surface water and sewer.
Response to Schedule 5 Notice dated 02/11/11	19/12/11	Response to question 2 - reuse of heat & steam.
Response to Schedule 5 Notice dated 18/11/11	19/12/11	Response to question 2 - revised NOx abatement BAT assessment.
Additional information	16/01/12	Fire control strategy, outline commissioning plan.
Additional information	25/01/12	Assessment of PAH's.
Additional Information	12/04/12	Revision to monitoring of HF.
Permit determined EPR/CP3233FB	11/06/12	
Agency variation determined EPR/CP3233FB/V002	23/08/13	Agency variation to implement the changes introduced by IED.
Application EPR/CP3233FB/V003 (variation and consolidation)	Duly made 22/08/14	Application to vary and update the permit to modern conditions. Variation includes an increase in the throughput of the gasifier and change to air cooled condenser.
Response to Schedule 5 Notice dated 01/10/14	21/10/14	Revised noise assessment.
Additional information	28/10/14	Clarifications email number 1 regarding energy, ecological receptors and justification for the air cooled condenser.
Additional information	28/10/14	Clarifications email number 2 regarding energy efficiency
Additional information	29/10/14	Clarifications email number 3 regarding specific energy consumption (SEC).
Additional information	31/10/14	Noise model data.
Additional information	31/10/14	Noise model data – compressed text file with data log of CadnaA model.
Additional information	03/11/14	Two emails providing re-submitted noise model data in correct format.
Additional information	04/11/14	Clarification email regarding noise assessment.
Additional information	17/11/14	Clarification email regarding the effluent treatment plant.
Additional information	24/11/14	Two emails containing revised site plans.
Additional information	27/11/14	Email containing revised and final site plan.
Variation determined EPR/CP3233FB (Billing ref: JP3533WG )	01/12/14	Varied and consolidated permit issued in modern condition format.

End of Introductory Note

# Notice of variation and consolidation

## 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 and consolidates

### Permit number

EPR/CP3233FB

### Issued to

Verus Energy Oak Limited ("the operator")

whose registered office is

**7 - 10 Beaumont Mews**

**London**

**W1G 6BB**

company registration number 07053816

to operate a regulated facility at

**Kelvin Energy**

**Giffords Way**

**Off Kelvin Way**

**West Bromwich**

**B70 7JR**

to the extent set out in the schedules.

The notice shall take effect from 01/12/2104

Name	Date
Claire Roberts	01/12/2014

Authorised on behalf of the Environment Agency

## **Schedule 1**

All conditions have been varied by the consolidated permit as a result of the application made by the operator.

## **Schedule 2 – consolidated permit**

Consolidated permit issued as a separate document.

# Permit

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

### Permit number

**EPR/CP3233FB**

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/CP3233FB/V003 authorising,

**Verus Energy Oak Limited** ("the operator")

whose registered office is

**7 – 10 Beaumont Mews  
London  
W1G 6BB**

company registration number **07053816**

to operate an installation at

**Kelvin Energy  
Giffords Way  
Off Kelvin Way  
West Bromwich  
B70 7JR**

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

Name	Date
<b>Claire Roberts</b>	<b>01/12/2014</b>

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 recovered with a high level of energy efficiency and energy is used efficiently in the activities.
  - (b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
  - (c) take any further appropriate measures identified by a review.
- 1.2.2 The operator shall provide and maintain steam and/or hot water pass-outs such that opportunities for the further use of waste heat may be capitalised upon should they become practicable.
- 1.2.3 The operator shall review the practicability of Combined Heat and Power (CHP) implementation at least every 2 years. The results shall be reported to the Agency within 2 months of each review.

### 1.3 Efficient use of raw materials

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

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

- 1.4.1 The operator shall take appropriate measures to ensure that:

- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and
  - (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
  - (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.
- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

## **2 Operations**

### **2.1 Permitted activities**

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).
- 2.1.2 Waste authorised by this permit in condition 2.3.3 shall be clearly distinguished from any other waste on the site.

### **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 (a) 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.
- (b) 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 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.
- 2.3.2 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.3 Waste shall only be accepted if:
- (a) it is of a type and quantity listed in schedule 2 table S2.2;
  - (b) it conforms to the description in the documentation supplied by the producer or holder; and
  - (c) it having been separately collected for recycling, it is subsequently unsuitable for recovery by recycling.
- 2.3.4 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:
- (a) the nature of the process producing the waste;
  - (b) the composition of the waste;
  - (c) the handling requirements of the waste;
  - (d) the hazardous property associated with the waste, if applicable; and

- (e) the waste code of the waste.
- 2.3.5 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.
- 2.3.6 Waste shall not be charged, or shall cease to be charged, if:
  - (a) the combustion chamber temperature is below, or falls below, 850°C; or
  - (b) any continuous emission limit value in schedule 3 table S3.1(a) is exceeded; or
  - (c) any continuous emission limit value in schedule 3 table S3.1 is exceeded, other than under abnormal operating conditions; or
  - (d) monitoring results required to demonstrate compliance with any continuous emission limit value in schedule 3 table S3.1 are unavailable other than under abnormal operating conditions.
- 2.3.7 The operator shall have at least one auxiliary burner in each line at start up or shut down or whenever the operating temperature falls below that specified in condition 2.3.6, as long as incompletely burned waste is present in the combustion chamber. Unless the temperature specified in condition 2.3.6 is maintained in the combustion chamber, such burner(s) may be fed only with fuels which result in emissions no higher than those arising from the use of gas oil, liquefied gas or natural gas.
- 2.3.8 The operator shall record the beginning and end of each period of “abnormal operation”.
- 2.3.9 During a period of “abnormal operation”, the operator shall restore normal operation of the failed equipment or replace the failed equipment as rapidly as possible.
- 2.3.10 Where, during “abnormal operation”, on an incineration line, any of the following situations arise, waste shall cease to be charged on that line until normal operation can be restored:
  - (a) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.1 due to disturbances or failures of the abatement systems, or continuous emission monitor(s) are out of service, as the case may be, for a total of 4 hours uninterrupted duration;
  - (b) the cumulative duration of “abnormal operation” periods over 1 calendar year has reached 60 hours;
  - (c) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.1 (a) due to disturbances or failures of the abatement systems.
- 2.3.11 The operator shall interpret the end of the period of “abnormal operation” as the earliest of the following:
  - (a) when the failed equipment is repaired and brought back into normal operation;
  - (b) when the operator initiates a shut down of the waste combustion activity, as described in the application or as agreed in writing with the Environment Agency;
  - (c) when a period of four hours has elapsed from the start of the “abnormal operation”;
  - (d) when, in any calendar year, an aggregated period of 60 hours “abnormal operation” has been reached.
- 2.3.12 Bottom ash and APC residues shall not be mixed.

## **2.4 Improvement programme**

- 2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.
- 2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

## **2.5 Pre-operational conditions**

- 2.5.1 The activities shall not be brought into operation until the measures specified in schedule 1 table S1.4 have been completed.

## **3 Emissions and monitoring**

### **3.1 Emissions to water, air or land**

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.2 and S3.3 except in “abnormal operation”, when 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), S3.2 and S3.3.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 Where a substance is specified in schedule 3 table S3.2 or S3.3 but no limit is set for it, the concentration of such substance in emissions to water from the relevant emission point shall be no greater than the background concentration.
- 3.1.4 Wastes produced at the site shall, as a minimum, be sampled and analysed in accordance with schedule 3 table S3.5. Additional samples shall be taken and tested and appropriate action taken, whenever:
- (a) disposal or recovery routes change; or
  - (b) it is suspected that the nature or composition of the waste has changed such that the route currently selected may no longer be appropriate.

### **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.
- 3.2.4 The Operator shall carry out monitoring of groundwater at least once every 5 years; and of soil at least once every 10 years; to the protocol agreed in writing with the Environment Agency under PO6.

### **3.3 Odour**

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

- (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

### 3.4 Noise and vibration

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

### 3.5 Monitoring

- 3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:
- (a) point source emissions specified in tables S3.1, S3.1(a), S3.2 and S3.3;
  - (b) process monitoring specified in table S3.4;
  - (c) residue quality in table S3.5.
- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing by the Environment Agency. Newly installed CEMs, or CEMs replacing existing CEMs, shall have MCERTS certification and have an MCERTS certified range which is not greater than 1.5 times the daily emission limit value (ELV) specified in schedule 3 table S3.1. The CEM shall also be able to measure instantaneous values over the ranges which are to be expected during all operating conditions. If it is necessary to use more than one range setting of the CEM to achieve this requirement, the CEM shall be verified for monitoring supplementary, higher ranges.
- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.1(a), S3.2 and S3.3 unless otherwise agreed in writing by the Environment Agency.
- 3.5.5 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3 table S3.1; the Continuous Emission Monitors shall be used such that;
- (a) the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed the following percentages:

• Carbon monoxide	10%
• Sulphur dioxide	20%
• Oxides of nitrogen (NO & NO <sub>2</sub> expressed as NO <sub>2</sub> )	20%
• Particulate matter	30%
• Total organic carbon (TOC)	30%

- Hydrogen chloride 40%

- (b) valid half-hourly average values shall be determined within the effective operating time (excluding the start-up and shut-down periods) from the measured values after having subtracted the value of the confidence intervals in condition 3.5.5 (a);
- (c) where it is necessary to calibrate or maintain the monitor and this means that data are not available for a complete half-hour period, the half-hourly average shall in any case be considered valid if measurements are available for a minimum of 20 minutes during the half-hour period. The number of half-hourly averages so validated shall not exceed 5 per day;
- (d) daily average values shall be determined as the average of all the valid half-hourly average values within a calendar day. The daily average value shall be considered valid if no more than five half-hourly average values in any day have been determined not to be valid;
- (e) no more than ten daily average values per year shall be determined not to be valid.

## 3.6 Pests

- 3.6.1 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.
- 3.6.2 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, hazards or annoyance 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; and
  - (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.
  - (d) the functioning and monitoring of the incineration plant in a format agreed with the Environment Agency. The report shall, as a minimum requirement (as required by Chapter IV of the Industrial Emissions Directive) give an account of the running of the process and the emissions into air and water compared with the emission standards in the IED.
- 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.
- 4.2.5 Within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

## 4.3 Notifications

- 4.3.1 The Operator shall
- (a) in the event 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) in the event 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) in the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.
- 4.3.2 Any information provided under condition 4.3.1 (a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.
- 4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:
- Where the operator is a registered company:
- (a) any change in the operator's trading name, registered name or registered office address; and
  - (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.
- Where the operator is a corporate body other than a registered company:
- (a) any change in the operator's name or address; and
  - (b) any steps taken with a view to the dissolution of the operator.
- In any other case:
- (a) the death of any of the named operators (where the operator consists of more than one named individual);
  - (b) any change in the operator's name(s) or address(es); and
  - (c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.
- 4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:
- (a) the Environment Agency shall be notified at least 14 days before making the change; and
  - (b) the notification shall contain a description of the proposed change in operation.
- 4.3.6 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.

## 4.4 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 "without delay", in which case it may be provided by telephone.

# Schedule 1 - Operations

Table S1.1 activities		
Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
S5.1 A (1) (b)	The incineration of non-hazardous waste in an incineration plant with a capacity of 1 tonne per hour or more.	From receipt of waste to emission of exhaust gas and disposal of waste arising. Waste types and quantities as specified in Table S2.2 of this permit.
<b>Directly Associated Activities</b>		
Electricity Generation	Generation of 17 MWe electrical power using a steam turbine from energy recovered from the flue gases.	
Effluent Treatment Plant	Effluent Treatment plant for disposal of non-hazardous waste water from air cooling plant and boiler blow down in a facility with a capacity of less than 50 tonnes per day.	From receipt of effluent to discharge to sewer.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application	The response to sections 2, 3, 4, 5 and Appendices A, B, C, F, H, L, M in the EPR Application.	05/05/11
Response to Schedule 5 Notice dated 22/06/11	All	19/07/11 & 19/08/11
Response to Schedule 5 Notice dated 02/11/11	Response to question 2 - reuse of heat & steam	19/12/11
Response to Schedule 5 Notice dated 18/11/11	Response to question 2 - revised NOx abatement BAT assessment	19/12/11
Additional information	Fire control Strategy , outline commissioning plan	16/01/12
Additional information	Assessment of PAH's	25/01/12
Additional information	Monitoring method for HF	12/04/12
Application EPR/CP3233FB/V003	Response to not duly made letter question, revised process diagram – Figure 7a	22/08/14
Additional	Clarifications email #1, response to question 3	28/10/14

**Table S1.2 Operating techniques**

Description	Parts	Date Received
information	regarding air cooled condenser.	

**Table S1.3 Improvement programme requirements**

Reference	Requirement	Date
IC1	The Operator shall submit a written report to the Environment Agency on the implementation of its Environmental Management System and the progress made in the accreditation of the system by an external body or if appropriate submit a schedule by which the EMS will be subject to accreditation.	Within 12 months of the date on which waste is first burnt
IC2	The operator shall undertake a review of the potential options for recovery of the gasifier ash. A report detailing the outcome of the review, and a timetable for the implementation of any identified improvements where relevant shall be submitted to the Environment Agency in writing.	Within 4 months of the completion of commissioning
IC3	The Operator shall submit a written report to the Environment Agency on the commissioning of the installation. The report shall summarise the environmental performance of the plant as installed against the design parameters set out in the Application. The report shall also include a review of the performance of the facility against the conditions of this permit and details of procedures developed during commissioning for achieving and demonstrating compliance with permit conditions.	Within 4 months of the completion of commissioning.
IC4	The Operator shall carry out checks to verify the residence time, minimum temperature and oxygen content of the exhaust gases in the furnace whilst operating under the anticipated most unfavourable operating conditions. The results shall be submitted in writing to the Environment Agency.	Within 4 months of the completion of commissioning.
IC5	<p>The Operator shall submit a written report to the Environment Agency describing the performance and optimisation of the Selective Non Catalytic Reduction (SNCR) system and combustion settings to minimise oxides of nitrogen (NO<sub>x</sub>) emissions, within the emission limit values described in this permit, with the minimisation of ammonia and nitrous oxide emissions. The report shall include an assessment of the level of NO<sub>x</sub> and N<sub>2</sub>O emissions that can be achieved under optimum operating conditions.</p> <p>The report shall also provide details of the optimisation (including dosing rates) for the control of acid gases and dioxins.</p>	Within 4 months of the completion of commissioning.
IC6	The Operator shall carry out an assessment of the impact of emissions to air of the metals subject to emission limit values, i.e. As, Cd, Hg, Pb, Cr, Co and Mn. The assessment shall predict the impact of each metal against the relevant EQS/EAL through the use of emissions monitoring data during the first year of operation and air dispersion modelling. A report on the assessment shall be made to the Environment Agency.	15 months from commencement of operations

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IC7	<p>Following commissioning of normal operations, as listed in Table S1.1 of the permit, the operator shall provide an H1 assessment for actual aqueous emissions from the effluent treatment plant compared to the design details submitted with the application.</p> <p>The report should include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• Determination of the physical and chemical characteristics of the emissions.</li> <li>• Heavy metals fraction.</li> </ul>	6 months from date of installation commissioning
IC8	<p>The Operator shall submit a written proposal to the Environment Agency to carry out tests to determine the size distribution of the particulate matter in the exhaust gas emissions to air from emission points A1, identifying the fractions within the PM10 and PM2.5 ranges. The proposal shall include a timetable for approval by the Environment Agency to carry out such tests and produce a report on the results.</p> <p>On receipt of written agreement by the Environment Agency to the proposal and the timetable, the operator shall carry out the tests and submit to the Environment Agency a report on the results.</p>	Within 6 months of the completion of commissioning.
IC9	<p>The Operator shall submit a written summary report to the Agency to confirm by the results of calibration and verification testing that the performance of Continuous Emission Monitors for parameters as specified in Table S3.1 and Table S3.1(a) complies with the requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3.</p>	<p>Initial calibration report to be submitted to the Agency within 3 months of completion of commissioning.</p> <p>Full summary evidence compliance report to be submitted within 18 months of commissioning.</p>

<b>Table S1.4 Pre-operational measures</b>	
<b>Reference</b>	<b>Pre-operational measures</b>
PO1	<p>Prior to the commencement of commissioning, the Operator shall send a summary of the site Environment Management System (EMS) to the Environment Agency and make available for inspection all documents and procedures which form part of the EMS. The EMS shall be developed in line with the requirements set out in Section 1 of How to comply with your environmental permit. The documents and procedures set out in the EMS shall form the written management system referenced in condition 1.1.1 (a) of the permit.</p>
PO2	<p>Prior to the commencement of commissioning, the Operator shall send a report to the Environment Agency which will contain a comprehensive review of the options available for utilising the heat generated by the waste incineration process in order to ensure that it is recovered as far as practicable. The review shall detail any identified proposals for improving the recovery and utilisation of waste heat and shall provide a timetable for their implementation.</p>

<b>Table S1.4 Pre-operational measures</b>	
<b>Reference</b>	<b>Pre-operational measures</b>
PO3	Prior to the commencement of commissioning, the Operator shall submit to the Environment Agency for approval a protocol for the sampling and testing of incinerator bottom ash for the purposes of assessing its hazard status. Sampling and testing shall be carried out in accordance with the protocol as approved.
PO4	Prior to the commencement of commissioning the Operator shall provide a written commissioning plan, including timelines for completion, for approval by the Environment Agency. The commissioning plan shall include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the actions to be taken to protect the environment and report to the Environment Agency in the event that actual emissions exceed expected emissions. Commissioning shall be carried out in accordance with the commissioning plan as approved.
PO5	After completion of furnace design and at least three calendar months before any furnace operation the operator shall submit a written report to the Environment Agency of the details of the computational fluid dynamic (CFD) modelling. The report shall demonstrate whether the design combustion conditions comply with the residence time and temperature requirements as defined by the Industrial Emissions Directive.
PO6	Prior to the commencement of commissioning, the Operator shall submit a report on the baseline conditions of soil and groundwater at the installation. The report shall contain the information necessary to determine the state of soil and groundwater contamination so as to make a quantified comparison with the state upon definitive cessation of activities provided for in Article 22(3) of the IED. The report shall contain information, supplementary to that already provided in application Site Condition Report, needed to meet the information requirements of Article 22(2) of the IED.

## Schedule 2 - Waste types, raw materials and fuels

**Table S2.1 Raw materials and fuels**

Raw materials and fuel description	Specification
Propane	< 0.1% sulphur content

**Table S2.2 Permitted waste types and quantities for gasification plant**

<b>Maximum quantity</b>	150,000 tonnes per annum
<b>Waste code</b>	<b>Description</b>
<b>02</b>	<b>Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing</b>
<b>02 01</b>	<b>wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing</b>
02 01 07	wastes from forestry
<b>03</b>	<b>Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard</b>
<b>03 01</b>	<b>wastes from wood processing and the production of panels and furniture</b>
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
<b>17</b>	<b>Construction and demolition wastes (including excavated soil from contaminated sites)</b>
<b>17 02</b>	<b>wood, glass and plastic</b>
17 02 01	wood
<b>18</b>	<b>Wastes from human or animal health care and/or related research (except kitchen and restaurant wastes not arising from immediate health care)</b>
<b>18 01</b>	<b>wastes from natal care, diagnosis, treatment or prevention of disease in humans</b>
18 01 04	wastes whose collection and disposal is not subject to special requirements in order to prevent infection (for example dressings, plaster casts, linen, disposable clothing, diapers)
<b>19</b>	<b>Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use</b>
<b>19 06</b>	<b>wastes from anaerobic treatment of waste</b>
19 06 04	digestate from anaerobic treatment of municipal waste
19 06 06	digestate from anaerobic treatment of animal and vegetable waste
<b>19 12</b>	<b>wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified</b>

<b>Table S2.2 Permitted waste types and quantities for gasification plant</b>	
<b>Maximum quantity</b>	150,000 tonnes per annum
<b>Waste code</b>	<b>Description</b>
19 12 01	paper and cardboard
19 12 04	plastic and rubber
19 12 07	wood other than that mentioned in 19 12 06
19 12 10	combustible waste (refuse derived fuel)
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
<b>20</b>	<b>Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions</b>
<b>20 01</b>	<b>separately collected fractions (except 15 01)</b>
20 01 38	wood other than that mentioned in 20 01 37

## Schedule 3 – Emissions and monitoring

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
A1	Particulate matter	Incineration exhaust gases	30 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181
A1	Particulate matter	Incineration exhaust gases	10 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181
A1	Total Organic Carbon (TOC)	Incineration exhaust gases	20 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181
A1	Total Organic Carbon (TOC)	Incineration exhaust gases	10 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181
A1	Hydrogen chloride	Incineration exhaust gases	60 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181
A1	Hydrogen chloride	Incineration exhaust gases	10 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181
A1	Hydrogen fluoride	Incineration exhaust gases	2 mg/m <sup>3</sup>	periodic over minimum 1-hour period	Quarterly in the first year of operation, then bi-annual	BS ISO 15713
A1	Carbon monoxide	Incineration exhaust gases	100 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181
A1	Carbon monoxide	Incineration exhaust gases	50 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard(s) or method(s)</b>
A1	Sulphur dioxide	Incineration exhaust gases	200 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181
A1	Sulphur dioxide	Incineration exhaust gases	50 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181
A1	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	Incineration exhaust gases	400 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181
A1	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	Incineration exhaust gases	180 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181
A1	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	Incineration exhaust gases	150 mg/m <sup>3</sup>	monthly average	Continuous	BS EN 14181
A1	Cadmium & thallium and their compounds (total)	Incineration exhaust gases	0.05 mg/m <sup>3</sup>	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in the first year of operation, then bi-annual	BS EN 14385
A1	Mercury and its compounds	Incineration exhaust gases	0.05 mg/m <sup>3</sup>	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in the first year of operation, then bi-annual	BS EN 13211
A1	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	Incineration exhaust gases	0.5 mg/m <sup>3</sup>	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in the first year of operation, then bi-annual	BS EN 14385
A1	Exhaust gas water vapour content unless gas is dried before analysis of emissions	-	-	continuous	-	BS EN 14181

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard(s) or method(s)</b>
A1	Ammonia (NH <sub>3</sub> )	Incineration exhaust gases	10 mg/m <sup>3</sup>	½-hr average and daily average	Continuous	BS EN 14181 and BS EN 15267-3
A1	Nitrous oxide (N <sub>2</sub> O)	Incineration exhaust gases	-	periodic over minimum 1-hour period	Quarterly in the first year of operation, then bi-annual	BS EN ISO 21258
A1	Dioxins / furans (I-TEQ)	Incineration exhaust gases	0.1 ng/m <sup>3</sup>	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in the first year of operation, then bi-annual	BS EN 1948 Parts 1, 2 and 3
A1	Dioxins / furans (WHO-TEQ Humans / Mammals)	Incineration exhaust gases	-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in the first year of operation, then bi-annual	BS EN 1948 Parts 1, 2 and 3
A1	Dioxins / furans (WHO-TEQ Fish)	Incineration exhaust gases	-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in the first year of operation, then bi-annual	BS EN 1948 Parts 1, 2 and 3
A1	Dioxins / furans (WHO-TEQ Birds)	Incineration exhaust gases	-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in the first year of operation, then bi-annual	BS EN 1948 Parts 1, 2 and 3
A1	Dioxin-like PCBs (WHO-TEQ Humans / Mammals)	Incineration exhaust gases	-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in the first year of operation, then bi-annual	BS EN 1948-4

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
A1	Dioxin-like PCBs (WHO-TEQ Fish)	Incineration exhaust gases	-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in the first year of operation, then bi-annual	BS EN 1948-4
A1	Dioxin-like PCBs (WHO-TEQ Birds)	Incineration exhaust gases	-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in the first year of operation, then bi-annual	BS EN 1948-4
A1	Specific individual poly-cyclic aromatic hydrocarbons (PAHs), as specified in Schedule 6.	Incineration exhaust gases	-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in the first year of operation, then bi-annual	BS ISO 11338 Parts 1 and 2.

**Table S3.1(a) Point source emissions to air during abnormal operation of incineration plant – emission limits and monitoring requirements**

Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1	Particulate matter	Incineration exhaust gases	150 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 15267-3 during abatement plant failure
A1	Total Organic Carbon (TOC)	Incineration exhaust gases	20 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 15267-3 during abatement plant failure
A1	Carbon monoxide	Incineration exhaust gases	100 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 15267-3 during abatement plant failure

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

Emission point ref. & location	Parameter	Source	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
W1 (Point W1 on site plan in schedule 7) Emission to surface water drains	No limit set	Surface water run-off	No limit set	-	-	-

**Table S3.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements**

Emission point ref. & location	Parameter	Source	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
S1 (Point S1 on site plan in Schedule 7)	Total metal (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc)	Effluent Treatment plant	No limits set	-	Monthly in the first year of operation then quarterly	-

**Table S3.4 Process monitoring requirements**

Location or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
As identified in the Application	Wind Speed and Direction	Continuous	Anemometer	-
Location close to the Combustion Chamber inner wall.	Temperature (° C)	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A1	Exhaust gas temperature	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A1	Exhaust gas pressure	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A1	Exhaust gas oxygen content	Continuous	BS EN 15267-3 BS EN 14181	-
A1	Exhaust gas water vapour content	Continuous	BS EN 15267-3 BS EN 14181	Unless gas is dried before analysis of emissions.

<b>Table S3.5 Residue quality</b>					
<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Limit</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method *</b>	<b>Other specifications</b>
Bottom Ash	TOC	<3%	Monthly in the first year of operation. Then Quarterly	TGN M4 Guidelines for Ash Sampling and Analysis	-
Bottom Ash	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	-	Monthly in the first year of operation. Then Quarterly	Sampling and analysis as per TGN M4 Guidelines for Ash Sampling and Analysis	-
Bottom Ash	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	-	Before use of a new disposal or recycling route	Sampling and analysis as per TGN M4 Guidelines for Ash Sampling and Analysis	-
APC Residues	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	-	Monthly in the first year of operation. Then Quarterly	Sampling and analysis as per TGN M4 Guidelines for Ash Sampling and Analysis	-

Table S3.5 Residue quality					
Emission point reference or source or description of point of measurement	Parameter	Limit	Monitoring frequency	Monitoring standard or method *	Other specifications
APC Residues	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions		Before use of a new disposal or recycling route	Sampling and analysis as per TGN M4 Guidelines for Ash Sampling and Analysis	

\* Or other equivalent standard as agreed in writing with the Environment Agency

## Schedule 4 - Reporting

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

**Table S4.1 Reporting of monitoring data**

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.5.1	A1	Quarterly	1 Jan, 1 Apr, 1 Jul and 1 Oct
Emissions to sewer Parameters as required by condition 3.5.1	S1	Annually	1 Jan
TOC Parameters as required by condition 3.5.1	Bottom Ash	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.5.1	Bottom Ash	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.5.1	Bottom Ash	Before use of a new disposal or recycling route	
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.5.1	APC Residues	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.5.1	APC Residues	Before use of a new disposal or recycling route	

**Table S4.1 Reporting of monitoring data**

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Functioning and monitoring of the incineration plant as required by condition 4.2.2		Annually	1 Jan

**Table S4.2: Annual production/treatment**

Parameter	Units
Total Waste Incinerated	tonnes
Total Autoclaved Sanitary Waste Incinerated	tonnes
Electrical energy produced	kWhrs
Thermal energy exported	kWhrs
Electrical energy exported	kWhrs
Electrical energy used on installation	kWhrs
Waste heat utilised by the installation	kWhrs

**Table S4.3 Performance parameters**

Parameter	Frequency of assessment	Units
Electrical energy exported, imported and used at the installation	Quarterly	kWhrs / tonne of waste incinerated
LPG/Propane consumption	Quarterly	kgs / tonne of waste incinerated
Mass of Bottom Ash produced	Quarterly	kgs / tonne of waste incinerated
Mass of APC residues produced	Quarterly	kgs / tonne of waste incinerated
Mass of Other solid residues produced	Quarterly	kgs / tonne of waste incinerated
Ammonia consumption	Quarterly	kgs / tonne of waste incinerated
Sand consumption	Quarterly	kgs / tonne of waste incinerated
Activated Carbon consumption	Quarterly	kgs / tonne of waste incinerated
Lime consumption	Quarterly	kgs / tonne of waste incinerated
Water consumption	Quarterly	kgs / tonne of waste incinerated
Periods of IED abnormal operation	Quarterly	No. of occasions and cumulative hours for current calendar year for each line.

**Table S4.4 Reporting forms**

Media/parameter	Reporting format	Date of form
Air	Forms air 1-7 or other form as agreed in writing by the Environment Agency	01/12/14
Water and other raw materials used	Form WU/RM1 or other form as agreed in writing by the Environment Agency	01/12/14
Residues	Form residues1-2 or other form as agreed in writing by the Environment Agency	01/12/14
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	01/12/14
Other performance indicators	Form performance R1 or other form as agreed in writing by the Environment Agency	01/12/14

# 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	
Measures taken, or intended to	

be taken, to stop the emission	
--------------------------------	--

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

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

## Part B - to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

<b>Name*</b>	
<b>Post</b>	
<b>Signature</b>	
<b>Date</b>	

\* authorised to sign on behalf of the operator

## Schedule 6 - Interpretation

“abatement equipment” means that equipment dedicated to the removal of polluting substances from releases from the installation to air or water media.

“abnormal operation” means any technically unavoidable stoppages, disturbances, or failures of the abatement plant or the measurement devices [other than continuous emission monitors for releases to air of particulates, TOC and/or CO], during which the emissions into the air and the discharges of waste water may exceed the prescribed emission limit values

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

“APC residues” means air pollution control residues

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

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

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

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

“bi-annual” means twice per year with at least five months between tests;

“bottom ash” means gasifier ash falling through the grate

“CEM” Continuous emission monitor

“CEN” means Comité Européen de Normalisation

“daily average” for releases of substances to air means the average of valid half-hourly averages over a calendar day during normal operation.

“dioxin and furans” means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

“disposal” means any of the operations provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“emissions to land” includes emissions to groundwater.

“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.

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

controlled by an emission or background concentration limit..

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

“incineration line” means all of the incineration equipment related to a common discharge to air location.

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

“infectious clinical waste” means clinical waste incorporating substances containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms

“ISO” means International Standards Organisation.

“LOI” means loss on ignition a technique used to determine the combustible material by heating the ash residue to a high temperature

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

“PAH” means Poly-cyclic aromatic hydrocarbon, and comprises Anthanthrene, Benzo[a]anthracene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[b]naph(2,1-d)thiophene, Benzo[c]phenanthrene, Benzo[ghi]perylene, Benzo[a]pyrene, Cholanthrene, Chrysene, Cyclopenta[c,d]pyrene, Dibenzo[ah]anthracene, Dibenzo[a,i]pyrene Fluoranthene, Indo[1,2,3-cd]pyrene, Naphthalene

“PCB” means Polychlorinated Biphenyl. Dioxin-like PCBs are the non-ortho and mono-ortho PCBs listed in the table below.

“quarterly” for reporting/sampling means after/during each 3 month period, January to March; April to June; July to September and October to December and, when sampling, with at least 2 months between each sampling date.

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

“recovery” means any of the operations provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“shut down” is any period where the plant is being returned to a non-operational state

“start up” is any period, where the plant has been non-operational, after igniting the auxiliary burner until waste has been fed to the plant to initiate steady-state conditions as described in the application or agreed in writing with the Environment Agency.

“TOC” means Total Organic Carbon. In respect of releases to air, this means the gaseous and vaporous organic substances, expressed as TOC. In respect of Bottom Ash, this means the total carbon content of all organic species present in the ash (excluding carbon in elemental form).

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes (England) Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.

“Waste Framework Directive” or “WFD” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste

"year" means calendar year ending 31 December.

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

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

- (a) 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

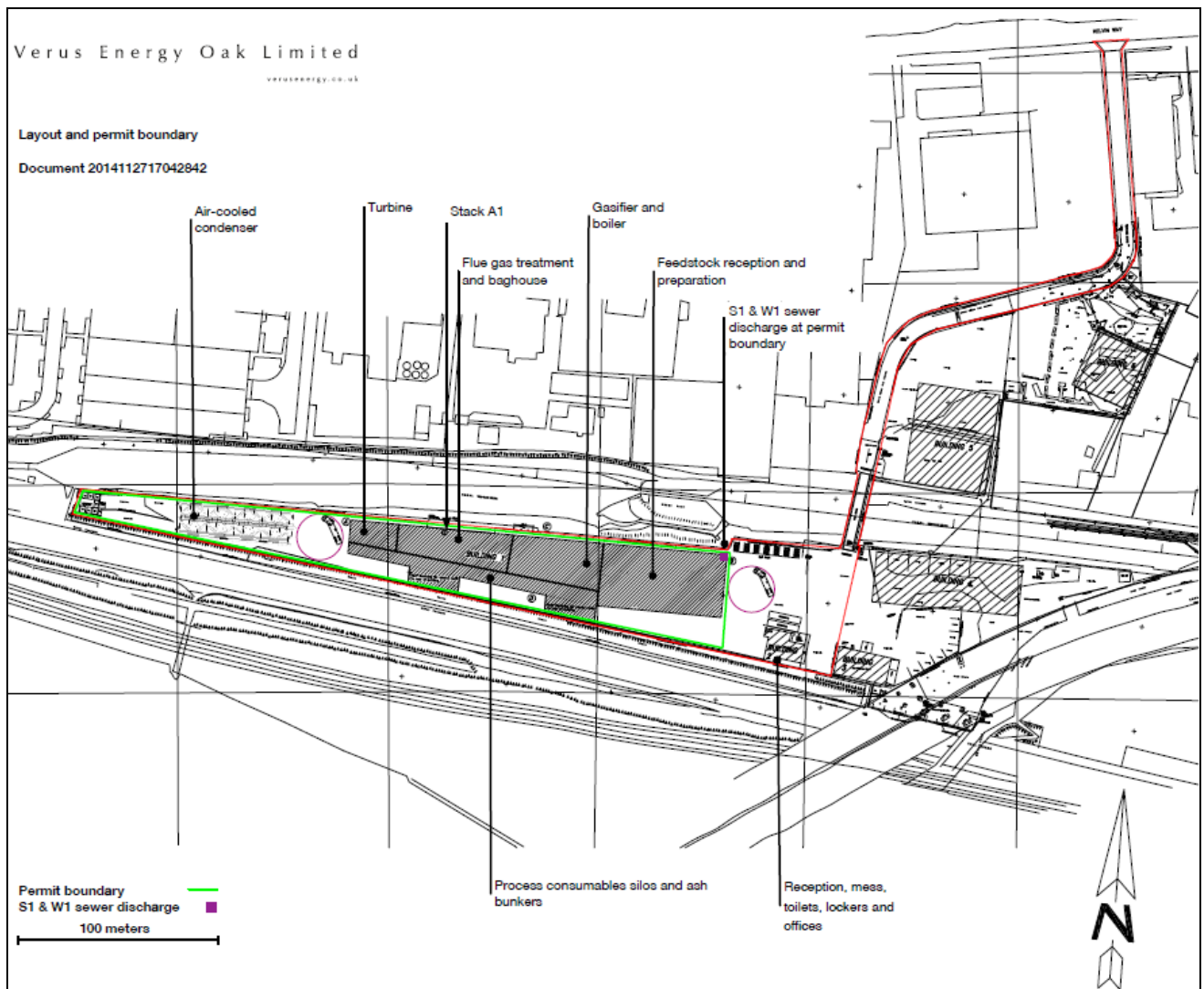
For dioxins/furans and dioxin-like PCBs the determination of the toxic equivalence concentration (I-TEQ, & WHO-TEQ for dioxins/furans, WHO-TEQ for dioxin-like PCBs) stated as a release limit and/ or reporting requirement, the mass concentrations of the following congeners have to be multiplied with their respective toxic equivalence factors before summing. When reporting on measurements of dioxins/furans and dioxin-like PCBs, the toxic equivalence concentrations should be reported as a range based on: all congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit assumed to be at the detection limit as a maximum. However the minimum value should be used when assessing compliance with the emission limit value in table S3.1.

TEF schemes for dioxins and furans				
Congener	I-TEF	WHO-TEF		
	1990	2005	1997/8	
		Humans / Mammals	Fish	Birds
<b>Dioxins</b>				
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
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	-	-
<b>Furans</b>				
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
<b>Non-ortho PCBs</b>			

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
<b>Mono-ortho PCBs</b>			
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 plan



END OF PERMIT

Permit Number: EPR/CP3233FB

Operator:

Facility: Kelvin Energy

Form Number: Air 1 / 01/12/14

**Reporting of Continuously Monitored Emissions to Air for Particulates for the month of ....., 20\_\_**

Daily and Half-hourly Average Monitoring Data																																		
Monthly summary			Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Half-hourly average		Half-Hour average ELV		30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
	Monthly maximum	0	Maximum half hourly average																															
	Monthly mean	####	Mean half hourly average																															
	Monthly minimum	0	Minimum half hourly average																															
	Total invalid results	0	No. of invalid results																															
	Sum of exceedances	0	No. of exceedances of ELV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Daily average		Daily average ELV		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	Monthly maximum	0	Daily Average																															
	No. of invalid days	0	Value valid? (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	Sum of exceedances	0	Value exceeds ELV (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Signed .....  
(authorised to sign as representative of the Operator)

Date.....

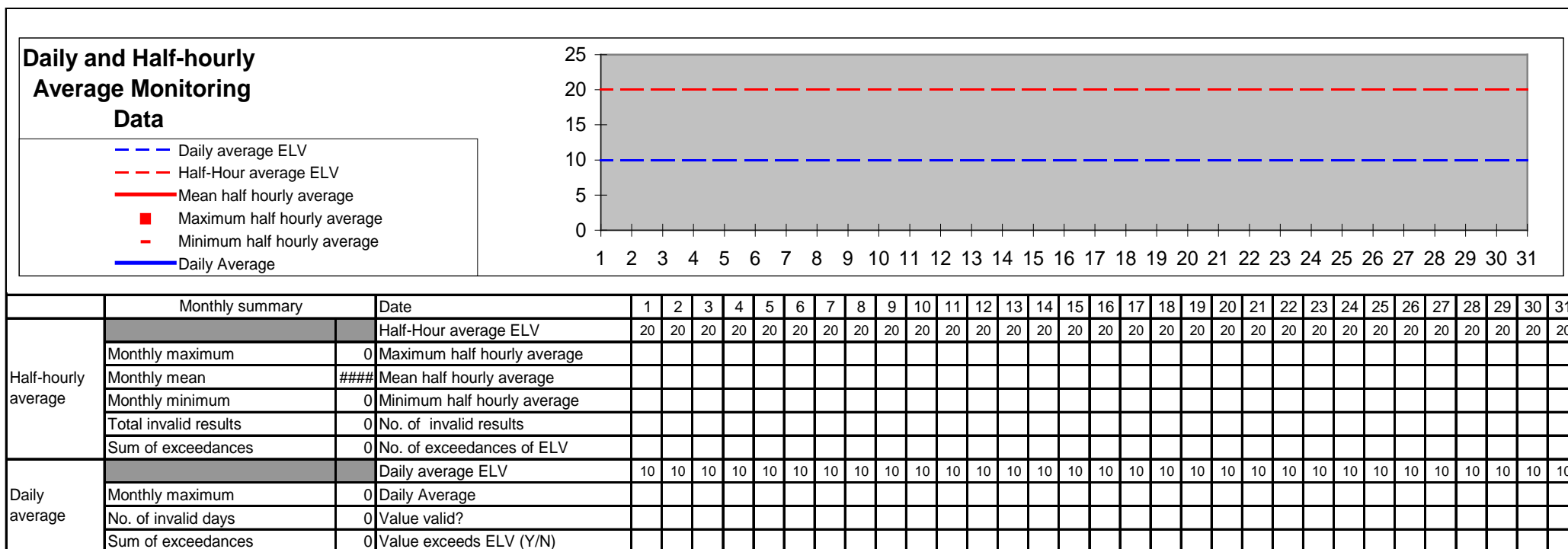
Permit Number: EPR/CP3233FB

Operator:

Facility: Kelvin Energy

Form Number: Air 2/ 01/12/14

**Reporting of Continuously Monitored Emissions to Air for TOC for the month of ....., 20\_\_**



Signed .....  
(authorised to sign as representative of the Operator)

Date.....

Permit Number: EPR/CP3233FB  
Facility: Kelvin Energy

Operator:  
Form Number: Air 3 / 01/12/14

**Reporting of Continuously Monitored Emissions to Air for Hydrogen Chloride for the month of ....., 20\_\_**

Daily and Half-hourly Average Monitoring Data																																		
-- Daily average ELV - - - Half-Hour average ELV — Mean half hourly average ■ Maximum half hourly average - - - Minimum half hourly average — Daily Average																																		
Monthly summary			Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Half-hourly average			Half-Hour average ELV	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
	Monthly maximum	0	Maximum half hourly average																															
	Monthly mean	####	Mean half hourly average																															
	Monthly minimum	0	Minimum half hourly average																															
	Total invalid results	0	No. of invalid results																															
	Sum of exceedances	0	No. of exceedances of ELV																															
Daily average			Daily average ELV	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	Monthly maximum	0	Daily Average																															
	No. of invalid days	0	Value valid?																															
	Sum of exceedances	0	Value exceeds ELV (Y/N)																															

Signed .....  
(authorised to sign as representative of the Operator)

Date.....

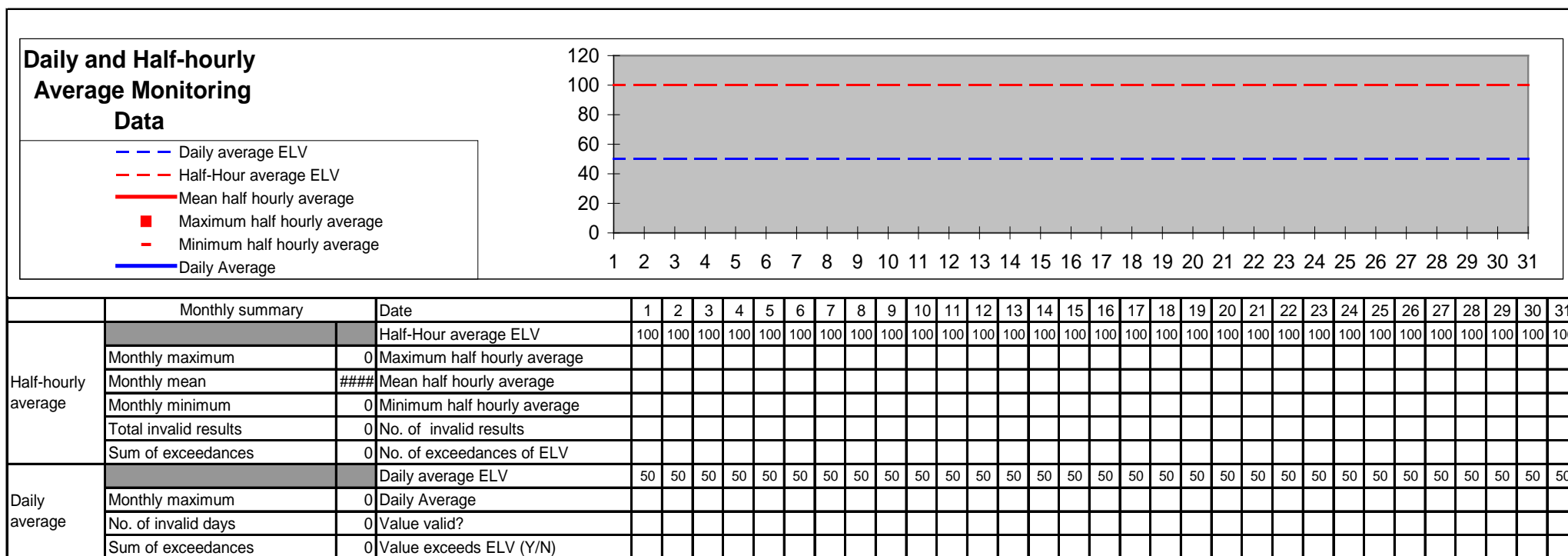
Permit Number: EPR/CP3233FB

Operator:

Facility: Kelvin Energy

Form Number: Air 4 / 01/12/14

**Reporting of Continuously Monitored Emissions to Air for Carbon Monoxide for the month of ....., 20\_\_**



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

Permit Number: EPR/CP3233FB  
Facility: Kelvin Energy

Operator:  
Form Number: Air 5 / 01/12/14

**Reporting of Continuously Monitored Emissions to Air for Sulphur Dioxide for the month of ....., 20\_\_**

Daily and Half-hourly Average Monitoring Data																																		
-- Daily average ELV - - Half-Hour average ELV — Mean half hourly average ■ Maximum half hourly average - - Minimum half hourly average — Daily Average																																		
Monthly summary			Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Half-hourly average		Half-Hour average ELV	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	Monthly maximum	0	Maximum half hourly average																															
	Monthly mean	####	Mean half hourly average																															
	Monthly minimum	0	Minimum half hourly average																															
	Total invalid results	0	No. of invalid results																															
	Sum of exceedances	0	No. of exceedances of ELV																															
Daily average		Daily average ELV	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	Monthly maximum	0	Daily Average																															
	No. of invalid days	0	Value valid?																															
	Sum of exceedances	0	Value exceeds ELV (Y/N)																															

Signed .....  
(authorised to sign as representative of the Operator)

Date.....

Permit Number: EPR/CP3233FB

Operator:

Facility: Kelvin Energy

Form Number: Air 6 / 01/12/14

**Reporting of Continuously Monitored Emissions to Air for Oxides of Nitrogen for the month of ....., 20\_\_**

Daily and Half-hourly Average Monitoring Data																																		
<div> <div>--- Daily average ELV</div> <div>--- Half-Hour average ELV</div> <div>— Mean half hourly average</div> <div>■ Maximum half hourly average</div> <div>- - - Minimum half hourly average</div> <div>— Daily Average</div> </div>																																		
Monthly summary			Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Half-hourly average			Half-Hour average ELV	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
	Monthly maximum	0	Maximum half hourly average																															
	Monthly mean	####	Mean half hourly average																															
	Monthly minimum	0	Minimum half hourly average																															
	Total invalid results	0	No. of invalid results																															
	Sum of exceedances	0	No. of exceedances of ELV																															
Daily average			Daily average ELV	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
	Monthly maximum	0	Daily Average																															
	No. of invalid days	0	Value valid?																															
	Sum of exceedances	0	Value exceeds ELV (Y/N)																															

Signed .....  
(authorised to sign as representative of the Operator)

Date.....

Permit Number: EPR/CP3233FB

Operator:

Facility: Kelvin Energy

Form Number: Air 7 / 01/12/14

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

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result <sup>[1]</sup>	Test Method	Result Date and Time <sup>[2]</sup>	Uncertainty <sup>[3]</sup>
A1	Hydrogen Fluoride	2 mg/m <sup>3</sup>	Periodic over minimum 1-hour period		BS ISO 15713		
A1	Cadmium & thallium and their compounds (total)	0.05 mg/m <sup>3</sup>	over minimum 30 minute, maximum 8 hour period		BS EN 14385		
A1	Mercury and its compounds	0.05 mg/m <sup>3</sup>	over minimum 30 minute, maximum 8 hour period		BS EN 13211		
A1	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5 mg/m <sup>3</sup>	over minimum 30 minute, maximum 8 hour period		BS EN 14385		
A1	Dioxins / Furans (I-TEQ)	0.1 ng/m <sup>3</sup>	over minimum 6 hour period, maximum 8 hour period		BS EN 1948 Parts 1, 2 and 3		
A1	Dioxin-like PCBs (WHO-TEQ Humans / Mammals)	No limit applies	over minimum 6 hour period, maximum 8 hour period		BS EN/TS 1948-4		
A1	Dioxin-like PCBs (WHO-TEQ Fish)	No limit applies	over minimum 6 hour period, maximum 8 hour period		BS EN/TS 1948-4		
A1	Dioxin-like PCBs (WHO-TEQ Birds)	No limit applies	over minimum 6 hour period, maximum 8 hour period		BS EN/TS 1948-4		
A1	Dioxins / furans (WHO-TEQ Humans / Mammals)	No limit applies	over minimum 6 hour period, maximum 8 hour period		BS EN/TS 1948-4		

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result <sup>[1]</sup>	Test Method	Result Date and Time <sup>[2]</sup>	Uncertainty <sup>[3]</sup>
A1	Dioxins / furans (WHO-TEQ Fish)	No limit applies	over minimum 6 hour period, maximum 8 hour period		BS EN/TS 1948-4		
A1	Dioxins / furans (WHO-TEQ Birds)	No limit applies	over minimum 6 hour period, maximum 8 hour period		BS EN/TS 1948-4		
A1	Poly-cyclic aromatic hydrocarbons (PAHs) Total	No limit applies	over minimum 6 hour period, maximum 8 hour period		BS ISO 11338-1 and BS ISO 1138-2		
A1	Anthanthrene	No limit applies					
A1	Benzo[a]anthracene	No limit applies					
A1	Benzo[b]fluoranthene	No limit applies					
A1	Benzo[k]fluoranthene	No limit applies					
A1	Benzo[b]naph(2,1-d)thiophene	No limit applies					
A1	Benzo[c]phenanthrene	No limit applies					
A1	Benzo[ghi]perylene	No limit applies					
A1	Benzo[a]pyrene	No limit applies					
A1	Cholanthrene	No limit applies					
A1	Chrysene	No limit applies					
A1	Cyclopenta(c,d)pyrene	No limit applies					
A1	Dibenzo[ah]anthracene	No limit applies					
A1	Dibenzo[a,i]pyrene	No limit applies					
A1	Fluoranthene	No limit applies					
A1	Indo[1,2,3-cd]pyrene	No limit applies					
A1	Naphthalene	No limit applies					

[1] For dioxins and dioxin-like PCBs, the result are to be reported as a range based on: All congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit assumed to be at the detection limit as a maximum

[2] The date and time of the sample that produced the result is given.

[3] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed .....  
(authorised to sign as representative of the Operator)

Date.....

Permit Number: EPR/CP3233FB

Operator:

Facility: Kelvin Energy

Form Number: R1 / 01/12/14

**Reporting of Waste Disposal and Recovery for the year .....**

Waste Description	Disposal Route	Tonnes	Recovery Tonnes
1) Hazardous Wastes			
APC Residues			
Bottom Ash which is classified as hazardous waste			
Fly Ash			
Total hazardous waste			
2) Non-Hazardous Wastes			
Bottom Ash			
Fly Ash			
Other non-hazardous wastes			
Total non-hazardous waste			
TOTAL WASTE			

Operator's comments :

Signed .....  
(authorised to sign as representative of the Operator)

Date.....

Permit Number: EPR/CP3233FB

Operator:

Facility: Kelvin Energy

Form Number: WU/RM1 / 01/12/14

**Reporting of Water and Other Raw Material Usage for the year .....**

Raw Material	Usage	Unit	Specific Usage	Unit
Mains water		m <sup>3</sup>		m <sup>3</sup> /t
Total water usage		m <sup>3</sup>		m <sup>3</sup> /t
Ammonia		Tonnes		kg/t
Activated carbon		Tonnes		kg/t
Sand		Tonnes		Kg/t
Hydrated lime		Tonnes		kg/t

Operator's comments :

Signed .....  
(authorised to sign as representative of the Operator)

Date.....

Permit Reference Number: EPR/CP3233FB

Operator:

Facility: Kelvin Energy

Form Number: E1 / 01/12/14

**Reporting of Energy Usage/Export for the year .....**

Energy Source	Energy Usage	Unit	Contained Energy (MWh)
Electricity produced		MWh	
Electricity imported		MWh	
Electricity Exported		MWh	
Natural Gas		tonnes	
Propane		tonnes	
Steam/hot water exported		MWh	

Operator's comments :

Signed .....  
(authorised to sign as representative of the Operator)

Date.....

Permit Number: EPR/CP3233FB

Operator:

Facility: Kelvin Energy

Form Number: Residue 1 / 01/12/14

Reporting of residue quality for the period from .....to.....

Ash Composition (TOC)		
	LOI (%)	% Carbon (TOC) <sup>w/w</sup>
Bottom Ash	*	*

\* At least one of LOI or TOC to be reported.

Ash Composition (Metals, Dioxins, etc.)																
	Cd mg/kg	Tl mg/kg	Hg mg/kg	Pb mg/kg	Cr mg/kg	Cu mg/kg	Mn mg/kg	Ni mg/kg	As mg/kg	Co mg/kg	V mg/kg	Zn Mg/kg	DIOXIN I-TEQ ng/kg	DIOXIN WHO-TEQ ng/kg		
														Humans/ mammals	Birds	Fish
Bottom Ash																
Fly Ash																
APC Residues																
Other solid residues																

Signed .....  
(authorised to sign as representative of the Operator)

Date.....

Permit Number: EPR/CP3233FB

Operator:

Facility: Kelvin Energy

Form Number: Residue 2 / 01/12/14

**Reporting of Ash Solubility for the period from .....to.....**

Ash solubility (Metals)												
	Cd mg/kg	Tl mg/kg	Hg mg/kg	Pb mg/kg	Cr mg/kg	Cu mg/kg	Mn mg/kg	Ni mg/kg	As mg/kg	Co mg/kg	V mg/kg	Zn mg/kg
Bottom Ash												
Fly Ash												
APC Residues												
Other solid residues												

Signed .....  
(authorised to sign as representative of the Operator)

Date.....