Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Avonmouth Resource Park

Avonmouth Resource Park Limited
Merebank Road
Kings Weston Lane
Avonmouth
Bristol

Permit number

EPR/LP3637GL

Avonmouth Resource Park
Permit number EPR/LP3637GL

Introductory note

This introductory note does not form a part of the permit.

The site incorporates two regulated facilities, a waste operation and an installation, and this permit covers both. The Installation comprises the thermal treatment of a range of commercial, industrial and municipal wastes by batch gasification and subsequent combustion of the synthesis gas produced by the gasification process for the generation of electricity. The plant has a capacity of 100,000 tonnes per annum at 8,000 hours of operation. The relevant listed activity is 5.1 Part A(1) (a) the incineration of hazardous waste in an incineration plant. The Installation extends to include the generation of electricity using a steam turbine package, storage of waste inputs and raw materials, and storage of residual wastes pending off-site disposal and recovery. The maximum electrical output is 13.2MWe. Steam or hot water pass-outs will be maintained and opportunities for CHP must be kept under periodic review such that they may be capitalised upon should it become practicable to do so. There are five lines operating in parallel. Each line comprises four primary gasification chambers (PGC) operating sequentially on a batch basis, a secondary combustion chamber (SCC) in which the synthesis gas is combusted, a boiler and a flue-gas treatment package. The turbine and generator are designed to serve all five lines. All five flues are contained within a common windshield 25m in height.

The conditions detailed in this document apply to the Installation. The Waste Operation that is conducted at this site is subject to standard rules which, although also part of this permit (see page 1) are not themselves reproduced in this document. Instead they are freely downloadable from our website. See further on this matter under the heading 'The Waste Operation' on page iii of this document.

Process Description – The Installation

Thermal Treatment Process

The Operator has chosen a batch gasification process; however in its fundamentals the Installation is not significantly different from a more traditional waste incineration Installation, in that the waste is gasified and ultimately combusted. The Installation will employ sequential batch technology whereby each gasifier is operated on a sequential batch cycle to provide a regulated flow of gas to each secondary combustion chamber. Waste will be thermally decomposed in each gasifier in an oxygen deficient atmosphere to produce synthesis gas (syngas). Each process line supplies syngas to a secondary combustion chamber (SCC) dedicated to that process line. Syngas is combusted by introduction of combustion air into each SCC comprising air extracted from the main building and recirculated flue gas. Primary abatement of oxides of nitrogen (NO_x) will be achieved through the recirculation of approximately 15% of each flue gas stream back to each SCC. Urea solution will also be injected into each SCC after the secondary air injection nozzles to facilitate secondary NO_x abatement by chemically reducing it to nitrogen and water (Selective Non-Catalytic Reduction – SNCR).

Energy Recovery

Heat energy is recovered and utilised in a conventional boiler and steam turbine arrangement for the generation of electricity. The process will generate approximately 13.2MW of electrical power and there is the potential for further recovery of energy through the use of waste heat.

Gas Cleaning

The plant is designed to meet the requirements of all relevant legislation for releases to air by a combination of main process design and operation of abatement equipment. NO_x abatement takes

place in each SCC as described previously. Exhaust gases pass from each boiler to the gas cleaning equipment. The design of the boilers is such that de novo dioxin formation is minimised. After passing through a boiler the flue gas is treated in abatement plant with sodium bicarbonate (to remove acid gases) in a dry process and powdered activated carbon (PAC) for the removal of dioxins and mercury. The final stage of flue gas treatment comprises multiple compartment fabric filters to capture particulate matter derived from the flue gas and from the injection of sodium bicarbonate and PAC. The gas stream from each line then discharges to atmosphere via a 25 metre stack.

Ash Handling

The Air Pollution Control (APC) residue from the particulate abatement is removed in a sealed system to prevent release of residues during storage and handling. It is likely that it will be used as an absorbent in waste water treatment processes and as a buffer for alkalinity. If it is not so used, it will be removed by a licensed waste carrier for disposal in a regulated facility. Gasifier ash (bottom ash) is transferred from each gasifier to an ash conveyor where it is dampened or quenched by waste process water and conveyed to skips. This ash is likely to be sent for recycling for use as a bulking agent in concrete block. If it is not so used, it will also have to be consigned appropriately for disposal. Sampling of the ash will be carried out to ensure compliance with the WID.

Liquid Effluent and Site Drainage

Effluent produced at the Installation will be re-used wherever possible. Where this is not possible, effluent will be discharged to public foul sewer under a trade discharge consent. The generation of trade effluent is limited to boiler system effluents, air compressor condensate, leaks and spillages, drainage from waste storage areas, wash-down water and (in emergency situations) firewater.

Emissions Monitoring

Emissions from each of the 5 flues are continuously monitored for: particulates, carbon monoxide (CO), ammonia (NH_3), nitrous oxide (N_2O), sulphur dioxide (SO_2), hydrogen chloride (HCl), oxygen (O_2), oxides of nitrogen (NO and NO_2 expressed as NO_2) and volatile organic compounds (VOCs as Total Organic carbon [TOC]) and water (H_2O). In addition, periodic sampling and measurement will be carried out for metals, namely cadmium (Cd), thallium (Tl), mercury (Hg), antimony (Sb), arsenic (As), lead (Pb), chromium (Cr), cobalt (Co), copper (Cu), manganese (Mn), nickel (Ni), and vanadium (V), dioxins and furans, dioxin like polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and hydrogen fluoride (HF). The frequencies for periodic measurements are specified in the Permit.

Management

The facility will operate an environmental management system to meet the requirements of ISO14001, and will seek certification against this standard within a year of commissioning.

The Waste Operation

The Waste Operation comprises a waste transfer station (with treatment) with a capacity of 40,000 tpa. It will involve the manual sorting and electromagnetic separation of wastes for baling followed by off-site recycling and recovery. Residual wastes from this operation will be directed to the incineration installation. The Waste Operation will be operated in accordance with standard rules set SR2008No3_75Kte (household, commercial and industrial transfer station with treatment). The rules form part of this permit pursuant to regulation 27(2) as stated on page 1 of this permit but are not themselves reproduced in this document. Instead, they may be freely downloaded from the Environment Agency website. The rules include provisions detailing, for example, the activities that may be conducted by the Waste Operation and the types of waste it may accept. Consequently, the conditions and tables detailed in this document relate only to the activities conducted by the Installation. Tables S1.1 and S1.2, for example, detail only those activities and operating techniques that form part of the Installation and hence there is no reference in Table S1.1 to a Waste Operation alongside the listed activity and DAAs which comprise the Installation.

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

Status Log of the permit		
Detail	**Date**	**Response Date**
Application EPR/LP3637GL/A001	Duly made 09/06/09	
Further Information request	26/11/09	29/12/09
Further Information request	01/02/10	16/02/10
Additional information provided by the Applicant in support of the Application	23/03/10	23/03/10
Further Information request	29/04/10	07/05/10
Further Information request	20/05/10	21/05/10
Application determined	09/09/10	

End of Introductory Note

Permit

Permit number
EPR/LP3637GL

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010

Avonmouth Resource Park Limited ("the operator"),

whose registered office is:

Avonmouth Resource Park Limited
45-51 Chorley New Road
Bolton
Lancashire
BL1 4QR

company registration number **06026334**

to operate a facility comprising an installation and a waste operation at:

Avonmouth Resource Park
Merebank Road
Kings Weston Lane
Avonmouth
Bristol

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

Under regulation 27(2) of the Regulations, standard rules **SR2008No3_75Kte** are conditions of this permit.

Name	Date
M. Bischer	09/09/2010

Principle Permitting Team Leader, National Permitting Service

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The activities shall be managed and operated:

(a) in accordance with a management system, which identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances and closure and those drawn to the attention of the operator as a result of complaints; and

(b) by sufficient persons who are competent in respect of the responsibilities to be undertaken by them in connection with the operation of the activities.

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 Accident management plan

1.2.1 The operator shall:

(a) maintain and implement an accident management plan;

(b) review and record at least every 4 years or as soon as practicable after an accident, (whichever is the earlier) whether changes to the plan should be made;

(c) make any appropriate changes to the plan identified by a review.

1.3 Energy efficiency

1.3.1 The operator shall:

(a) take appropriate measures to ensure that energy is recovered and used efficiently in the activities;

(b) review and record at least every 4 years whether there are suitable opportunities to improve the energy recovery and efficiency of the activities; and

(c) take any further appropriate measures identified by a review.

1.3.2 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.

1.3.3 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.

1.4 Efficient use of raw materials

1.4.1 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 4 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 appropriate further measures identified by a review.

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

1.5.1 The operator shall:

(a) take appropriate measures to ensure that waste produced by the activities is avoided or reduced, or where waste is produced it is recovered wherever practicable or otherwise disposed of in a manner which minimises its impact on the environment;

(b) review and record at least every 4 years whether changes to those measures should be made; and

(c) take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is authorised to carry out the activities specified in Schedule 1 Table S1.1 (the “activities”).

2.1.2 Waste authorised by this permit 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 2 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 Agency.

(b) If notified by the Agency that the activities are giving rise to pollution, the operator shall submit to the 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, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Agency.

2.3.2 No raw materials or fuels listed in Schedule 3 Table S3.1 shall be used unless they comply with 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 3 Table S3.2; and

(b) it conforms to the description in the documentation supplied by the producer and holder.

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 hazard classification associated with the waste; 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 The operator shall burn only those hazardous wastes where the throughputs, calorific values and pollutant compositions are within the ranges specified in the application.

2.3.7 The operator shall ensure that prior to accepting waste subject to condition 2.3.6 at the site, it has obtained sufficient information about the hazardous wastes to be burned to demonstrate compliance with the characteristics described in condition 2.3.6.

2.3.8 The operator shall take representative samples of all hazardous waste deliveries to the site unless otherwise agreed in writing with Agency and test a representative selection of these samples to verify conformity with the information obtained as required by condition 2.3.7. These samples shall be retained for inspection by the Agency for a period of at least 1 month after the material is incinerated and results of any analysis made of such samples will be retained for at least 2 years after the material is incinerated.

2.3.9 No operation of a thermal cycle in the primary gasification chamber shall be commenced if any of the following criteria arise, and already commenced operation of a thermal cycle in the gasification chamber shall cease by quenching of the chamber if any of the following criteria has occurred and persists for 30 minutes or more:

(a) The dedicated secondary combustion chamber temperature is below, or falls below, 850^{o}C (for non-hazardous waste or hazardous waste where the content of halogenated organic substances (as chlorine) does not exceed 1%) or 1100^{o}C (for hazardous waste where the content of halogenated organic substances exceeds 1% (as chlorine); or

(b) any continuous emission limit value in Schedule 4 Table S 4.1(a) is exceeded; or

(c) any continuous emission limit value in Schedule 4 Table S 4.1 is exceeded, other than under WID abnormal operating conditions ;

(d) monitoring results required to demonstrate compliance with any continuous emission limit value in Schedule 4 Table S 4.1 are unavailable other than under WID abnormal operating conditions; or

(e) The by-pass valve is open.

2.3.10 The by-pass valve shall not operate other than where one of the following occurs:

(a) over pressurisation of the secondary combustion chamber as a result of ID fan failure;

(b) boiler tube burst/leak;

(c) boiler water feed failure;

(d) power failure (until such time as the plant is back online as a result of the start-up of the back-up generator);

(e) as a consequence of the emergency isolation of specific process plant as necessary.

2.3.11 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 2.3.9, as long as incompletely burned waste is present in the primary gasification chamber. Unless the temperature specified in condition 2.3.9 is maintained in the secondary 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.

2.3.12 The operator shall record the beginning and end of each period of WID abnormal operation.

2.3.13 During a period of WID abnormal operation, the operator shall restore normal operation of the failed equipment or replace the failed equipment as rapidly as possible.

2.3.14 Where, during WID abnormal operation, any of the following situations arise, the operator shall, as soon as is practicable, cease the burning of waste until normal operation can be restored:

(a) continuous measurement shows that an emission exceeds any emission limit value in Schedule 4 Table S 4.1 due to disturbances or failures of the abatement systems, or continuous emission monitor(s);

(b) the cumulative duration of WID abnormal operation periods over one calendar year exceeds 60 hours on an incineration line;

(c) continuous measurement shows that an emission exceeds any emission limit value in Schedule 4 Table S 4.1 (a) due to disturbances or failures of the abatement systems;

(d) the alternative techniques to demonstrate compliance with the WID abnormal operation emission limit value(s) for particulates, TOC and CO in Schedule 4 Table S4.1(a), as detailed in the application or as agreed in writing with the Agency, are unavailable.

2.3.15 The operator shall interpret the end of the period of WID 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 Agency;

(c) when a period of 4 hours has elapsed from the start of the WID abnormal operation;

(d) when, in any calendar year, an aggregated period of 60 hours WID abnormal operation has been reached for a given incineration line.

2.3.16 Bottom ash (ash from the primary gasification chamber) 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 Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Agency, the operator shall notify the 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 4 Tables S4.1, S4.2 and S4.3 except in WID 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 4 Tables S4.1(a), S4.2 and S4.3.

3.1.2 The limits given in Schedule 4 shall not be exceeded.

3.1.3 Wastes produced at the site shall, as a minimum, be sampled and analysed in accordance with Schedule 4 Table S4.5. 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 Fugitive emissions of substances

3.2.1 Fugitive emissions of substances (excluding odour, noise and vibration) 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 fugitive 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 Agency that the activities are giving rise to pollution, submit to the Agency for approval within the period specified, a fugitive emissions management plan;

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

3.2.3 All liquids, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the 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;

(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 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) (a) if notified by the Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Agency for approval within the period specified, a noise and vibration management plan;

(b) (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Agency.

3.5 Monitoring

3.5.1 The operator shall, unless otherwise agreed in writing by the Agency, undertake the monitoring specified in the following tables in Schedule 4 to this permit:

(a) point source emissions specified in Tables S4.1, S4.1(a), S4.2 and S4.3;

(b) process monitoring specified in Table S4.4;

(c) ash and APC residue monitoring specified in Table S4.5.

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 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 4, Table S4.1. 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 4 Tables S4.1, S4.1a, S4.2 and S4.3 unless otherwise specified in that Schedule.

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 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) matters which affect the condition of the land and groundwater.

4.1.2 All records, plans and the management system required to be maintained by this permit shall be held on the site.

4.2 Reporting

4.2.1 All reports and notifications required by the permit shall be sent to the Agency using the contact details supplied in writing by the Agency.

4.2.2 A report on the performance of the activities over the previous year shall be submitted to the Agency by 31 January (or other date agreed in writing by the Agency) each year. The report 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 5 Table S5.2;

(c) the performance parameters set out in Schedule 5 Table S5.3 using the forms specified in Table S5.4 of that schedule; and

(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 Article 12(2) of the Waste Incineration Directive) give an account of the running of the process and the emissions into air and water compared with the emission standards in the WID.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the 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 5 Table S5.1;

(b) for the reporting periods specified in Schedule 5 Table S5.1 and using the forms specified in Schedule 5 Table S5.4 ; 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 4 years, submit to the Agency, within 6 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 one month of the end of each quarter, the operator shall submit to the 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 Agency shall be notified without delay following the detection of:

(a) any malfunction, breakdown or failure of equipment or techniques, accident, operation of the by-pass valve, or fugitive emission which has caused, is causing or may cause significant pollution;

(b) the breach of a limit specified in the permit; or

(c) any significant adverse environmental effects.

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in Schedule 6 to this permit within the time period specified in that schedule.

4.3.3 Where the 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 Agency when the relevant monitoring is to take place. The operator shall provide this information to the Agency at least 14 days before the date the monitoring is to be undertaken.

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

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

(a) a decision by the Secretary of State not to re-certify the agreement;

(b) a decision by either the operator or the Secretary of State to terminate the agreement; and

(c) any subsequent decision by the Secretary of State to re-certify such an agreement.

4.4 Interpretation

4.4.1 In this permit the expressions listed in Schedule 7 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 reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity and waste types**
A1	Section 5.1 Part A(1)(a)	The incineration of a wide range of commercial, industrial and municipal residual waste streams (including hazardous waste). The thermal treatment technology is gasification which produces a gaseous fuel known as synthesis gas (syngas). The syngas contains the energy from the waste and is combusted in a secondary combustion chamber in accordance with the WID. The facility has a maximum of five process lines with a gross thermal input of 65MW and a capacity of 100,000 tonnes per annum.	From receipt of waste to emission of exhaust gas and disposal of waste arising. Waste types as specified in Table S3.2 of this permit.
Directly Associated Activity			
A2	Back-up generator operation	Production of electricity in the event of power failure at the site	From receipt of fuel to production of electricity.
A3	Electricity generation	Energy recovery from the flue gas using steam boilers dedicated to each process line with the generation of approximately 13.2MW of electrical power using a steam turbine.	The electricity is used on-site and exported.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application EPR/LP3637GL/A001	The following Sections of the Application Management Plan: Section 2.1 (In Process Controls – General) Section 2.2 (In Process Controls – MRF) Section 2.3 (In Process Controls – EGF), excluding sections 2.3.83 to 2.3.88 Section 2.4 (Emissions Control – Installation wide) Section 2.5 (Emissions Control – MRF and office) Section 2.6 (Emissions Control – EGF) Section 2.9 (Waste Handling, Recovery and Disposal – MRF and offices) Section 2.10 (Waste Handling, Recovery and Disposal – EGF) Section 2.11 (Energy – MRF) Section 2.12 (Energy – EGF) Section 2.15 (Monitoring) Section 2.16 (Monitoring – MRF) Section 2.17 (Monitoring – EGF) Section 2.18 (Closure)	09/06/09
Further Information in response to Schedule 5 Notice dated 29/11/09	Response to question 5 (particulate control), question 18 (fugitive dust emissions) and question 19 (waste stockpile turnover).	29/12/09
Further information provided in support of Application by letter	The following items in the letter: • Item 2 (process for the introduction of a balanced waste load into the PGC) • Item 3 (operational hours at full output and energy conversion on turndown) • Item 5a (temperature raising in the SCC) • Item 5c (temperature probe on each PGC to allow safe commencement of de-ashing)	23/03/10

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC1	The operator shall submit a post-commissioning report to the Agency which shall include: - the end date for commissioning and the start of plant operations; - a review of performance of the Installation against the conditions of this permit and the design parameters set out in the application. This review must include a comparison of actual emissions to the environment during the commissioning period against expected emissions and detail the duration of each commissioning activity. Any actions taken to protect the environment in the event that actual emissions exceed expected emissions during the commissioning period must also be detailed; - the methodology to be used to optimise primary control measures for NO_x formation - the methodology to be used to optimise secondary control measures for NO_x and N_2O formation, in particular, reagent dosing rates - the methodology to be used to optimise reagent dosing for acid gas abatement - the methodology to be used to optimise reagent dosing for dioxin and heavy metal abatement - assessment of noise impact of the site in line with the proposal agreed as a result of pre-operational condition PO05 within Table S1.4 of this Permit and proposed improvements to reduce noise levels to that assessed within the application, where necessary; - details of procedures developed during commissioning for achieving and demonstrating satisfactory process control.	Within 4 months of completion of commissioning.
IC2	The Operator shall submit a written proposal to the 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 to A5, identifying the fractions within the PM_{10}, $PM_{2.5}$ and $PM_{1.0}$ ranges. The proposal shall include a timetable to carry out such tests and produce a report on the results. The Operator shall carry out the tests as approved by the Agency and submit to the Agency a report on the results.	Proposal to be submitted to the Agency within 6 months of completion of commissioning. Report to be submitted within the period specified in the Agency's approval.
IC3	The Operator shall submit a written summary report to the Agency to confirm by the results of calibration and verification testing whether the performance of Continuous Emission Monitors for parameters as specified in Table S4.1 and Table S4.1(a) complies with the requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3.	Initial calibration report to be submitted to the Agency within 3 months of completion of commissioning. Full summary evidence compliance report to be submitted within 18 months of commissioning.

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC4	The Operator shall carry out checks to verify the residence time and minimum temperature of the exhaust gases in the secondary combustion chamber whilst operating under the anticipated most unfavourable operating conditions. The results shall be submitted in writing to the Agency.	Within 3 months of completion of commissioning.
IC5	The Operator shall carry out a revised assessment of the impact of emissions to air through the use of monitoring data collected during the first year of operation and air dispersion modelling. The assessment shall have regard to the impact of emissions to air of arsenic, nickel and chromium (VI) using the Environmental Assessment Level (EAL) for the metal compounds in the PM_{10} fraction. A report on the revised assessment shall be submitted to the Agency.	Within 15 months of completion of commissioning.

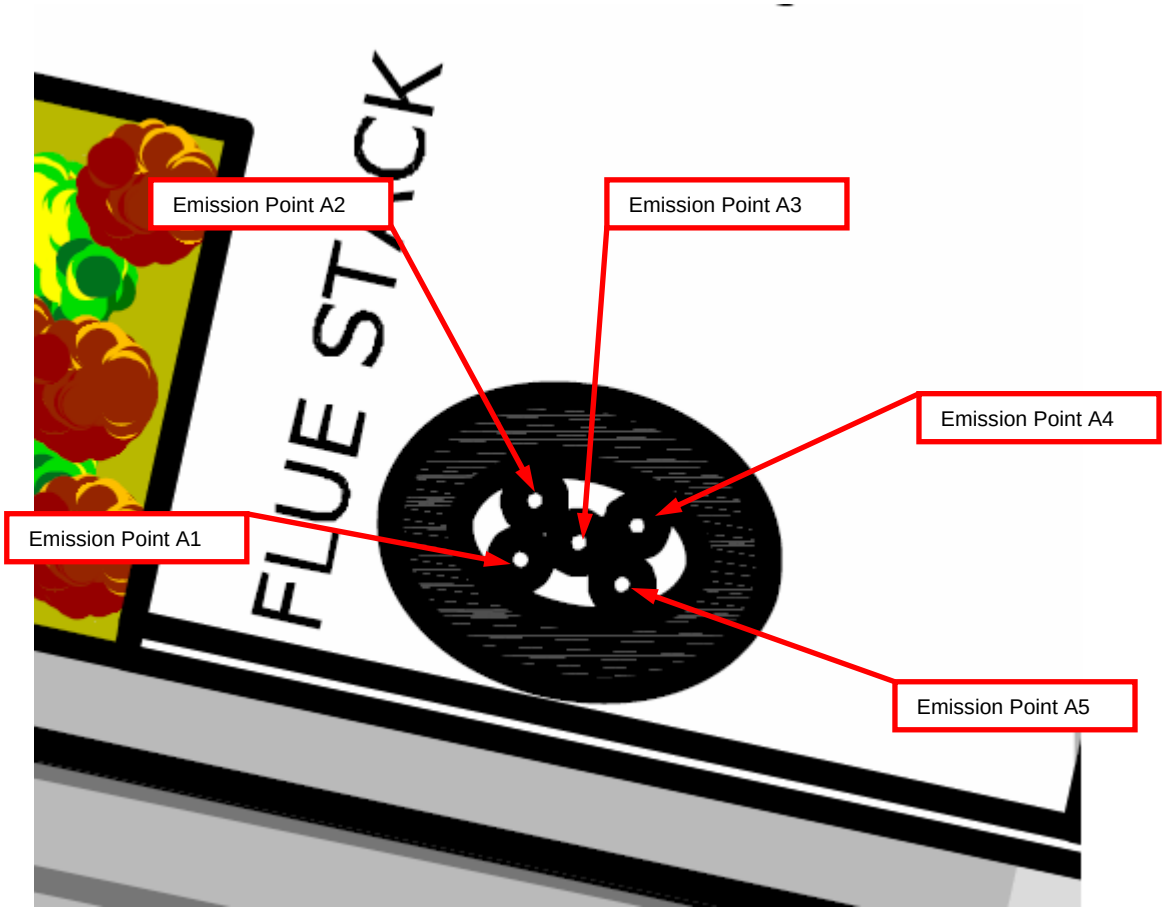
Table S1.4 Pre-operational measures		
Reference	**Requirement**	**Date**
PO01	The Operator shall submit a written site accident management plan to the Agency for approval in accordance with the requirements set out in Section 1.1 of Sector Guidance Note EPR 5.01. Commissioning shall not commence until receipt of the Agency's written approval.	At least 6 months before the start of commissioning.
PO02	The Operator shall submit a commissioning plan to the Agency designed to demonstrate that permit conditions will be met under all anticipated operating conditions. The plan shall have regard to commissioning undertaken at the gasification Installation located at Dargavel and it shall: • confirm the commissioning programme with timescales for implementation and plant monitoring protocols; • 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 Agency in the event that actual emissions exceed expected emissions. Commissioning shall be carried out in accordance with the commissioning plan as approved. The commissioning plan shall be designed such that it will provide for the gathering of information required to be submitted to the Agency under Improvement Condition IC1 in Table S1.3 of this permit. The plan shall specify a phased approach to the types of waste to be treated and shall ensure that each phase is concluded with successful results before the initiation of subsequent phases.	At least 3 months before treating any waste.

Table S1.4 Pre-operational measures		
Reference	**Requirement**	**Date**
PO03	The Operator shall submit a written plan to the Agency detailing the ash sampling protocol to be used for Air Pollution Control (APC) residues and bottom ash, in accordance with Agency Guidance.	At least 2 months before treating any waste.
PO04	Prior to the acceptance of any waste stream defined in Table S3.2 of this permit the operator shall submit written waste pre-acceptance and acceptance procedures in accordance with the requirements set out in sections 2.1.1 and 2.1.2 of Sector Guidance Note IPPC 5.06. These procedures shall be agreed in writing by the Agency prior to the acceptance of the waste.	Prior to the acceptance of waste.
PO05	At least 2 months prior to start of commissioning at the Installation, the Operator shall provide the Agency with a written report for approval describing the detailed programme of noise monitoring that will be carried out at the site at the commissioning stage and when the plant is fully operational. The report shall include confirmation of locations, time, frequency and methods of noise monitoring. The monitoring programme shall be carried out in accordance with the Agency's written approval.	Prior to the start of commissioning
PO06	The operator shall submit a report for approval to the Agency specifying arrangements for the storage of the bottom ash produced by the Installation.	Prior to the acceptance of waste.
PO07	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 – Getting the basics right. 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.	At least 3 months prior to the start of commissioning

Schedule 2 - Site plans

Site and installation boundary, air emission points A6-A10, water emission points W1-W2 and sewer emission point S1

Stack detail plan showing air emission points A1-A5



Schedule 3 - Waste types, raw materials and fuels

Table S3.1 Raw materials and fuels	
Raw materials and fuel description	**Specification**
Gas oil	Less than 0.1% sulphur
Sodium hydroxide	<0.1 mg/kg mercury content <0.1 mg/kg cadmium content

Table S3.2 Permitted waste types and quantities for gasification

The maximum quantity of waste to be treated at the Installation is 100,000 tonnes per annum. Maximum quantity of waste to be stored on-site at any given time for the purposes of treatment at the Installation is 2000 tonnes. Each consignment of hazardous wastes shall not be stored for longer than 2 days. Each consignment of non-hazardous waste shall not be stored for longer than 7 days. Hazardous wastes must be stored in accordance with Table 2 (General Recommendations for the Separation or Segregation of Different Classes of Dangerous Substances) of the Health and Safety Executive's chemical warehousing guidance, HSG 71.

Exclusions

Wastes having any of the following characteristics shall not be accepted:

Liquid wastes (apart from liquid wastes forming an unavoidable component of mixed loads of commercial/industrial or other wastes)

Wastes with hazard properties defined in Schedule 3 of the Hazardous Waste Regulations 2005.

- H1- explosive
- H2 - Oxidising substances
- H3A - Highly flammable
- H3B - Flammable liquid substances
- H12 - Substances or preparations which release toxic or very toxic gases in contact with water, air or an acid

Waste code	Description
02	**WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING**
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 03	plant-tissue waste
02 01 04	waste plastics (except packaging)
02 01 07	wastes from forestry
02 01 08*	agrochemical waste containing dangerous substances
02 01 09	agrochemical waste other than those mentioned in 02 01 08
02 03	**wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation**
02 03 02	wastes from preserving agents
02 03 03	wastes from solvent extraction
02 03 04	materials unsuitable for consumption or processing
02 05	**wastes from the dairy products industry**
02 05 01	materials unsuitable for consumption or processing
02 06	**wastes from the baking and confectionery industry**
02 06 01	materials unsuitable for consumption or processing
02 06 02	wastes from preserving agents
02 07	**wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)**

Table S3.2 Permitted waste types and quantities for gasification

The maximum quantity of waste to be treated at the Installation is 100,000 tonnes per annum. Maximum quantity of waste to be stored on-site at any given time for the purposes of treatment at the Installation is 2000 tonnes. Each consignment of hazardous wastes shall not be stored for longer than 2 days. Each consignment of non-hazardous waste shall not be stored for longer than 7 days. Hazardous wastes must be stored in accordance with Table 2 (General Recommendations for the Separation or Segregation of Different Classes of Dangerous Substances) of the Health and Safety Executive's chemical warehousing guidance, HSG 71.

Exclusions

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Liquid wastes (apart from liquid wastes forming an unavoidable component of mixed loads of commercial/industrial or other wastes)

Wastes with hazard properties defined in Schedule 3 of the Hazardous Waste Regulations 2005.

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- H2 - Oxidising substances
- H3A - Highly flammable
- H3B - Flammable liquid substances
- H12 - Substances or preparations which release toxic or very toxic gases in contact with water, air or an acid

Waste code	Description
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials
02 07 02	wastes from spirits distillation
02 07 03	wastes from chemical treatment
02 07 04	materials unsuitable for consumption or processing
03	**WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD**
03 01	**wastes from wood processing and the production of panels and furniture**
03 01 01	waste bark and cork
03 01 04*	sawdust, shavings, cuttings, wood, particle board and veneer containing dangerous substances
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03	**wastes from pulp, paper and cardboard production and processing**
03 03 01	waste bark and wood
03 03 07	mechanically separated rejects from pulping of waste paper and cardboard
03 03 08	wastes from sorting of paper and cardboard destined for recycling
03 03 10	fibre rejects, fibre-, filler- and coating-sludges from mechanical separation
04	**WASTES FROM THE LEATHER, FUR AND TEXTILE INDUSTRIES**
04 01	**wastes from the leather and fur industry**
04 01 02	liming waste
04 01 03*	degreasing wastes containing solvents without a liquid phase
04 01 09	04 01 09 wastes from dressing and finishing
04 02	**wastes from the textile industry**
04 02 09	wastes from composite materials (impregnated textile, elastomer, plastomer)
04 02 10	organic matter from natural products (for example grease, wax)
04 02 14*	wastes from finishing containing organic solvents
04 02 15	wastes from finishing other than those mentioned in 04 02 14
04 02 16*	dyestuffs and pigments containing dangerous substances
04 02 17	dyestuffs and pigments other than those mentioned in 04 02 16
04 02 21	wastes from unprocessed textile fibres

Table S3.2 Permitted waste types and quantities for gasification

The maximum quantity of waste to be treated at the Installation is 100,000 tonnes per annum. Maximum quantity of waste to be stored on-site at any given time for the purposes of treatment at the Installation is 2000 tonnes. Each consignment of hazardous wastes shall not be stored for longer than 2 days. Each consignment of non-hazardous waste shall not be stored for longer than 7 days. Hazardous wastes must be stored in accordance with Table 2 (General Recommendations for the Separation or Segregation of Different Classes of Dangerous Substances) of the Health and Safety Executive's chemical warehousing guidance, HSG 71.

Exclusions

Wastes having any of the following characteristics shall not be accepted:

Liquid wastes (apart from liquid wastes forming an unavoidable component of mixed loads of commercial/industrial or other wastes)

Wastes with hazard properties defined in Schedule 3 of the Hazardous Waste Regulations 2005.

- H1- explosive
- H2 - Oxidising substances
- H3A - Highly flammable
- H3B - Flammable liquid substances
- H12 - Substances or preparations which release toxic or very toxic gases in contact with water, air or an acid

Waste code	Description
04 02 22	wastes from processed textile fibres
05	**WASTES FROM PETROLEUM REFINING, NATURAL GAS PURIFICATION AND PYROLYTIC TREATMENT OF COAL**
05 01	**wastes from petroleum refining**
05 01 08*	other tars
05 01 16	sulphur-containing wastes from petroleum desulphurisation
05 01 17	bitumen
07	**WASTES FROM ORGANIC CHEMICAL PROCESSES**
07 01	**wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals**
07 01 08*	other still bottoms and reaction residues
07 01 10*	07 01 10* other filter cakes and spent absorbents
07 02	**wastes from the MFSU of plastics, synthetic rubber and man-made fibres**
07 02 08*	other still bottoms and reaction residues
07 02 10*	other filter cakes and spent absorbents
07 02 13	waste plastic
07 02 15	wastes from additives other than those mentioned in 07 02 14
07 03	**wastes from the MFSU of organic dyes and pigments (except 06 11)**
07 03 08*	other still bottoms and reaction residues
07 03 10*	other filter cakes and spent absorbents
07 04	**wastes from the MFSU of organic plant protection products (except 02 01 08 and 02 01 09), wood preserving agents (except 03 02) and other biocides**
07 04 08*	Other still bottoms and reaction residues
07 04 10*	Other filter cakes and spent absorbents
07 05	**wastes from the MFSU of pharmaceuticals**
07 05 08*	Other still bottoms and reaction residues
07 05 10*	Other filter cakes and spent absorbents
07 05 14	solid wastes other than those mentioned in 07 05 13
07 06	**wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics**
07 06 08*	other still bottoms and reaction residues

Table S3.2 Permitted waste types and quantities for gasification

The maximum quantity of waste to be treated at the Installation is 100,000 tonnes per annum. Maximum quantity of waste to be stored on-site at any given time for the purposes of treatment at the Installation is 2000 tonnes. Each consignment of hazardous wastes shall not be stored for longer than 2 days. Each consignment of non-hazardous waste shall not be stored for longer than 7 days. Hazardous wastes must be stored in accordance with Table 2 (General Recommendations for the Separation or Segregation of Different Classes of Dangerous Substances) of the Health and Safety Executive's chemical warehousing guidance, HSG 71.

Exclusions

Wastes having any of the following characteristics shall not be accepted:

Liquid wastes (apart from liquid wastes forming an unavoidable component of mixed loads of commercial/industrial or other wastes)

Wastes with hazard properties defined in Schedule 3 of the Hazardous Waste Regulations 2005.

- H1- explosive
- H2 - Oxidising substances
- H3A - Highly flammable
- H3B - Flammable liquid substances
- H12 - Substances or preparations which release toxic or very toxic gases in contact with water, air or an acid

Waste code	Description
07 06 10*	other filter cakes and spent absorbents
07 07	**wastes from the MFSU of fine chemicals and chemical products not otherwise specified**
07 07 08*	other still bottoms and reaction residues
07 07 10*	other filter cakes and spent absorbents
08	WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS
08 01	wastes from MFSU and removal of paint and varnish
08 01 12	waste paint and varnish other than those mentioned in 08 01 11
08 01 18	wastes from paint or varnish removal other than those mentioned in 08 01 17
08 01 21*	waste paint or varnish remover
08 02	**wastes from MFSU of other coatings (including ceramic materials)**
08 02 01	Waste coating powders
08 03	**Wastes from MFSU of printing inks**
08 03 12*	Waste ink containing dangerous substances
08 03 13	Waste inks other than those mentioned in 08 03 12*
08 03 17*	Waste printing toner containing dangerous substances
08 03 18	Waste printing toner other than those mentioned in 08 03 17*
08 04	**wastes from MFSU of adhesives and sealants (including waterproofing products)**
08 04 09*	waste adhesives and sealants containing organic solvents or other dangerous substances
08 04 10	waste adhesives and sealants other than those mentioned in 08 04 09
09	**WASTES FROM THE PHOTOGRAPHIC INDUSTRY**
09 01	**wastes from the photographic industry**
09 01 08	09 01 08 photographic film and paper free of silver or silver compounds
09 01 10	single-use cameras without batteries
12	**WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS**

Table S3.2 Permitted waste types and quantities for gasification

The maximum quantity of waste to be treated at the Installation is 100,000 tonnes per annum. Maximum quantity of waste to be stored on-site at any given time for the purposes of treatment at the Installation is 2000 tonnes. Each consignment of hazardous wastes shall not be stored for longer than 2 days. Each consignment of non-hazardous waste shall not be stored for longer than 7 days. Hazardous wastes must be stored in accordance with Table 2 (General Recommendations for the Separation or Segregation of Different Classes of Dangerous Substances) of the Health and Safety Executive's chemical warehousing guidance, HSG 71.

Exclusions

Wastes having any of the following characteristics shall not be accepted:

Liquid wastes (apart from liquid wastes forming an unavoidable component of mixed loads of commercial/industrial or other wastes)

Wastes with hazard properties defined in Schedule 3 of the Hazardous Waste Regulations 2005.

- H1- explosive
- H2 - Oxidising substances
- H3A - Highly flammable
- H3B - Flammable liquid substances
- H12 - Substances or preparations which release toxic or very toxic gases in contact with water, air or an acid

Waste code	Description
12 01	**wastes from shaping and physical and mechanical surface treatment of metals and plastics**
12 01 05	plastics shavings and turnings
12 01 12*	spent waxes and fats
15	**WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**
15 01	**packaging (including separately collected municipal packaging waste)**
15 01 01	paper and cardboard packaging, but only when contaminated and otherwise destined for landfill
15 01 02	Plastic packaging, but only when contaminated and otherwise destined for landfill
15 01 03	wooden packaging, but only when contaminated and otherwise destined for landfill
15 01 04	metallic packaging, but only when contaminated and otherwise destined for landfill
15 01 05	composite packaging, but only when contaminated and otherwise destined for landfill
15 01 06	mixed packaging, but only when contaminated and otherwise destined for landfill
15 01 09	textile packaging, but only when contaminated and otherwise destined for landfill
15 01 10*	packaging containing residues of or contaminated by dangerous substances (M), but only when contaminated and otherwise destined for landfill
15 02	**absorbents, filter materials, wiping cloths and protective clothing**
15 02 02*	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
16	**WASTES NOT OTHERWISE SPECIFIED IN THE LIST**
16 01	**end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**
16 01 03	end-of-life tyres
16 01 07*	Oil filters
16 01 19	plastic
16 03	**off-specification batches and unused products**
16 03 05*	Organic wastes containing dangerous substances
16 03 06	organic wastes other than those mentioned in 16 03 05

Table S3.2 Permitted waste types and quantities for gasification

The maximum quantity of waste to be treated at the Installation is 100,000 tonnes per annum. Maximum quantity of waste to be stored on-site at any given time for the purposes of treatment at the Installation is 2000 tonnes. Each consignment of hazardous wastes shall not be stored for longer than 2 days. Each consignment of non-hazardous waste shall not be stored for longer than 7 days. Hazardous wastes must be stored in accordance with Table 2 (General Recommendations for the Separation or Segregation of Different Classes of Dangerous Substances) of the Health and Safety Executive's chemical warehousing guidance, HSG 71.

Exclusions

Wastes having any of the following characteristics shall not be accepted:

Liquid wastes (apart from liquid wastes forming an unavoidable component of mixed loads of commercial/industrial or other wastes)

Wastes with hazard properties defined in Schedule 3 of the Hazardous Waste Regulations 2005.

- H1- explosive
- H2 - Oxidising substances
- H3A - Highly flammable
- H3B - Flammable liquid substances
- H12 - Substances or preparations which release toxic or very toxic gases in contact with water, air or an acid

Waste code	Description
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 02	**wood, glass and plastic**
17 02 01	wood, but only when contaminated and otherwise destined for landfill
17 02 03	Plastic, but only when contaminated and otherwise destined for landfill
17 02 04*	Glass, plastic and wood containing or contaminated with dangerous substances
17 03	**bituminous mixtures, coal tar and tarred products**
17 03 01*	bituminous mixtures containing coal tar (M)
17 03 02	bituminous mixtures other than those mentioned in 17 03 01
17 03 03*	coal tar and tarred products
17 09	**Other construction and demolition wastes**
17 09 03*	other construction and demolition wastes (including mixed wastes) containing dangerous substances
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
19	**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**
19 02	**wastes from physico/chemical treatments of waste (including decyanidation and neutralisation but excluding dechromatation)**
19 02 03	premixed wastes composed only of non-hazardous wastes
19 02 09*	solid combustible wastes containing dangerous substances
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09
19 03	**stabilised/solidified wastes**
19 03 05	stabilised wastes other than those mentioned in 19 03 04
19 03 07	solidified wastes other than those mentioned in 19 03 06
19 05	**wastes from aerobic treatment of solid wastes**
19 05 01	non-composted fraction of municipal and similar wastes
19 05 02	non-composted fraction of animal and vegetable waste
19 05 03	off-specification compost

Table S3.2 Permitted waste types and quantities for gasification

The maximum quantity of waste to be treated at the Installation is 100,000 tonnes per annum. Maximum quantity of waste to be stored on-site at any given time for the purposes of treatment at the Installation is 2000 tonnes. Each consignment of hazardous wastes shall not be stored for longer than 2 days. Each consignment of non-hazardous waste shall not be stored for longer than 7 days. Hazardous wastes must be stored in accordance with Table 2 (General Recommendations for the Separation or Segregation of Different Classes of Dangerous Substances) of the Health and Safety Executive's chemical warehousing guidance, HSG 71.

Exclusions

Wastes having any of the following characteristics shall not be accepted:

Liquid wastes (apart from liquid wastes forming an unavoidable component of mixed loads of commercial/industrial or other wastes)

Wastes with hazard properties defined in Schedule 3 of the Hazardous Waste Regulations 2005.

- H1- explosive
- H2 - Oxidising substances
- H3A - Highly flammable
- H3B - Flammable liquid substances
- H12 - Substances or preparations which release toxic or very toxic gases in contact with water, air or an acid

Waste code	Description
19 06	**wastes from anaerobic treatment of waste**
19 06 04	digestate from anaerobic treatment of municipal waste
19 06 06	digestate from anaerobic treatment of animal and vegetable waste
19 08	**wastes from waste water treatment plants not otherwise specified**
19 08 01	screenings
19 08 06*	saturated or spent ion exchange resins (A)
19 08 09	grease and oil mixture from oil/water separation containing only edible oil and fats
19 08 10*	grease and oil mixture from oil/water separation other than those mentioned in 19 08 09
19 09	**wastes from the preparation of water intended for human consumption or water for industrial use**
19 09 05	saturated or spent ion exchange resins
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 01	paper and cardboard
19 12 04	plastic and rubber
19 12 06*	wood containing dangerous substances (M)
19 12 07	wood other than that mentioned in 19 12 06
19 12 08	textiles
19 12 10	combustible waste (refuse derived fuel)
19 12 11*	other wastes (including mixtures of materials) from mechanical treatment of waste containing dangerous substances
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 01	**Separately collected fractions (except 15 01 packaging)**
20 01 01	Separately collected fractions of paper and cardboard, but only when contaminated and otherwise destined for landfill
20 01 08	Separately collected fractions of biodegradable kitchen and canteen waste, but only when contaminated and otherwise destined for landfill

Table S3.2 Permitted waste types and quantities for gasification

The maximum quantity of waste to be treated at the Installation is 100,000 tonnes per annum. Maximum quantity of waste to be stored on-site at any given time for the purposes of treatment at the Installation is 2000 tonnes. Each consignment of hazardous wastes shall not be stored for longer than 2 days. Each consignment of non-hazardous waste shall not be stored for longer than 7 days. Hazardous wastes must be stored in accordance with Table 2 (General Recommendations for the Separation or Segregation of Different Classes of Dangerous Substances) of the Health and Safety Executive's chemical warehousing guidance, HSG 71.

Exclusions

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Wastes with hazard properties defined in Schedule 3 of the Hazardous Waste Regulations 2005.

- H1- explosive
- H2 - Oxidising substances
- H3A - Highly flammable
- H3B - Flammable liquid substances
- H12 - Substances or preparations which release toxic or very toxic gases in contact with water, air or an acid

Waste code	Description
20 01 10	Separately collected fractions of clothes, but only when contaminated and otherwise destined for landfill
20 01 11	Separately collected fractions of textiles, but only when contaminated and otherwise destined for landfill
20 01 25	Separately collected fractions of edible oil and fat, but only when contaminated and otherwise destined for landfill
20 01 26*	Separately collected fractions of oil and fat, other than those mentioned in 20 01 25, but only when contaminated and otherwise destined for landfill
20 01 27*	Separately collected fractions of paint, inks, adhesives and resins containing dangerous substances, but only when contaminated and otherwise destined for landfill
20 01 28	Separately collected fractions of paint, inks, adhesives and resins other than those mentioned in 20 01 27, but only when contaminated and otherwise destined for landfill
20 01 37*	Separately collected fractions of wood containing dangerous substances, but only when contaminated and otherwise destined for landfill
20 01 38	Separately collected fractions of wood, other than that mentioned in 20 01 37, but only when contaminated and otherwise destined for landfill
20 01 39	Separately collected fractions of plastics, but only when contaminated and otherwise destined for landfill
20 02	**Garden and park wastes (including cemetery waste)**
20 02 01	biodegradable wastes
20 03	**other municipal wastes**
20 03 01	mixed municipal waste
20 03 02	waste from markets
20 03 03	street-cleaning residues
20 03 07	Bulky waste

Schedule 4 – Emissions and monitoring

Table S4.1 Point source emissions to air except during WID abnormal operation– emission limits and monitoring requirements

Emission point ref. & location	Parameter	Source	Limit (including unit) [Note 1]	Reference Period [Note 12]	Monitoring frequency	Monitoring standard or method [Notes 3 and 5]
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 13]	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Incineration gases via heat recovery boiler and APC plant	200 mg/m^3	Daily Mean	Continuous [Note 8]	BS EN 15267-3
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 13]	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Incineration gases via heat recovery boiler and APC plant	400 mg/m^3	½-hour mean	Continuous [Note 8]	BS EN 15267-3

Table S4.1 Point source emissions to air except during WID abnormal operation– emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit) [Note 1]**	**Reference Period [Note 12]**	**Monitoring frequency**	**Monitoring standard or method [Notes 3 and 5]**
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 13]	Particulate matter	Incineration gases via heat recovery boiler and APC plant	10 mg/m^3	Daily Mean	Continuous [Note 7]	BS EN 15267-3
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 13]	Particulate matter	Incineration gases via heat recovery boiler and APC plant	30 mg/m^3	½-hour mean	Continuous [Note 7]	BS EN 15267-3

Table S4.1 Point source emissions to air except during WID abnormal operation– emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit) [Note 1]**	**Reference Period [Note 12]**	**Monitoring frequency**	**Monitoring standard or method [Notes 3 and 5]**
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 13]	Total organic carbon (TOC)	Incineration gases via heat recovery boiler and APC plant	10 mg/m^3	Daily Mean	Continuous [Note 7]	BS EN 15267-3
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 13]	Total organic carbon (TOC)	Incineration gases via heat recovery boiler and APC plant	20 mg/m^3	½-hour mean	Continuous [Note 7]	BS EN 15267-3

Table S4.1 Point source emissions to air except during WID abnormal operation– emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit) [Note 1]**	**Reference Period [Note 12]**	**Monitoring frequency**	**Monitoring standard or method [Notes 3 and 5]**
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 13]	Hydrogen chloride (HCl)	Incineration gases via heat recovery boiler and APC plant	10 mg/m^3	Daily Mean	Continuous [Note 4]	BS EN 15267-3
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 13]	Hydrogen chloride (HCl)	Incineration gases via heat recovery boiler and APC plant	60 mg/m^3	½-hour mean	Continuous [Note 4]	BS EN 15267-3

Table S4.1 Point source emissions to air except during WID abnormal operation– emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit) [Note 1]**	**Reference Period [Note 12]**	**Monitoring frequency**	**Monitoring standard or method [Notes 3 and 5]**
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 13]	Sulphur dioxide (SO_2)	Incineration gases via heat recovery boiler and APC plant	50 mg/m^3	Daily Mean	Continuous [Note 8]	BS EN 15267-3
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 13]	Sulphur dioxide (SO_2)	Incineration gases via heat recovery boiler and APC plant	200 mg/m^3	½-hour mean	Continuous [Note 8]	BS EN 15267-3

Table S4.1 Point source emissions to air except during WID abnormal operation– emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit) [Note 1]**	**Reference Period [Note 12]**	**Monitoring frequency**	**Monitoring standard or method [Notes 3 and 5]**
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 13]	Carbon monoxide (CO)	Incineration gases via heat recovery boiler and APC plant	50 mg/m^3	Daily Mean	Continuous [Note 2]	BS EN 15267-3
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 13]	Carbon monoxide (CO)	Incineration gases via heat recovery boiler and APC plant	100 mg/m^3	½-hour mean	Continuous [Note 2]	BS EN 15267-3

Table S4.1 Point source emissions to air except during WID abnormal operation– emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit) [Note 1]**	**Reference Period [Note 12]**	**Monitoring frequency**	**Monitoring standard or method [Notes 3 and 5]**
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 13]	Hydrogen fluoride (HF)	Incineration gases via heat recovery boiler and APC plant	2 mg/m^3	Mean over minimum 1 hour period	Quarterly [Note 6]	ISO 15713
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 13]	Cadmium and thallium and their compounds (total) [Note 9]	Incineration gases via heat recovery boiler and APC plant	0.05 mg/m^3	Mean over period minimum 30 minutes maximum 8 hours	Quarterly [Note 6]	BS EN 14385

Table S4.1 Point source emissions to air except during WID abnormal operation– emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit) [Note 1]**	**Reference Period [Note 12]**	**Monitoring frequency**	**Monitoring standard or method [Notes 3 and 5]**
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 13]	Mercury and its compounds [Note 9]	Incineration gases via heat recovery boiler and APC plant	0.05 mg/m^3	Mean over period minimum 30 minutes maximum 8 hours	Quarterly [Note 6]	BS EN 13211
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 13]	Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V and their compounds (total) [Note 9]	Incineration gases via heat recovery boiler and APC plant	0.5 mg/m^3	Mean over period minimum 30 minutes maximum 8 hours	Quarterly [Note 6]	BS EN 14385

Table S4.1 Point source emissions to air except during WID abnormal operation– emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit) [Note 1]**	**Reference Period [Note 12]**	**Monitoring frequency**	**Monitoring standard or method [Notes 3 and 5]**
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 13]	Dioxins / furans (I-TEQ) [Note 10]	Incineration gases via heat recovery boiler and APC plant	0.1 ng/m^3	Mean over period minimum 6 hours maximum 8 hours	Quarterly [Note 6, Note 11]	BS EN 1948 1-3
A6, A7 and A8, A9 and A10 (by-pass vents for process lines A1, A2, A3, A4 and A5 respectively)	No parameters set	Incineration gases via SCC	No limit set	-	-	Permanent sampling access not required
Vents from storage tanks	Raw material vapours	All vents from raw materials storage tanks	No limit set	-	-	Permanent sampling access not required
Back-up generator	Combustion gases	Back-up generator	No limit set	-	-	Permanent sampling access not required

Note 1: See Schedule 7 for reference conditions.

Note 2: The Continuous Emission Monitors used shall be such that the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed 10%. 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 interval (10%). Where it is necessary to calibrate or maintain the monitor and this means that data is not available for a complete half-hour period, the half-hourly average shall nonetheless 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 8 per day). 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 will be considered valid if no more than five half-hourly average values in any day have been determined not to be valid. No more than ten daily average values per year shall be determined not to be valid.

Note 3: MCERTS certification to the appropriate ranges and determinands is a demonstration of compliance to the applicable standards.

Note 4: As Note 2, except that the value of the confidence interval is 40% in place of 10%.

Note 5: The certification range for MCERTS equipment should be not more than 1.5 times the daily emission limit value. The CEM shall also be able to measure instantaneous values over the ranges that 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.

Note 6: After the first 12 months of operation the measurement frequency for emission points A1, A2, A3, A4 and A5 shall be bi-annual.

Note 7: As Note 2, except that the value of the confidence interval is 30% in place of 10%.

Note 8: As Note 2, except that the value of the confidence interval is 20% in place of 10%.

Note 9: Metals include gaseous, vapour and solid phases as well as their compounds (expressed as the metal or the sum of the metals as specified). Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V mean antimony, arsenic, lead, chromium, cobalt, copper, manganese, nickel and vanadium respectively.

Note 10: The TEQ sum of the equivalence factors 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.

Note 11: At least one monitoring result shall be reported within three months of first burning waste.

Note 12: The reference period shall be a period of representative operation for periodic monitoring.

Note 13: All monitoring requirements are relevant to emission points A1, A2, A3, A4 and A5 from each process line.

Table S4.1(a) Point source emissions to air during WID abnormal operation of incineration plant – emission limits and monitoring requirements

Emission point ref. & location	Parameter	Source	Limit (including unit) [Note 1]	Reference period	Monitoring frequency	Monitoring standard or method
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 4]	Particulate matter	Incineration gases via heat recovery boiler and APC plant	150 mg/m^3	½-hourly mean	Continuous [Note 3]	BS EN 15267-3

A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 4]	Total Organic Carbon (TOC)	Incineration gases via heat recovery boiler and APC plant	20 mg/m^3	½-hourly mean	Continuous [Note 3]	BS EN 15267-3
A1, A2, A3, A4 and A5 from each process line (contained within a common windshield) defined on site plan in Schedule 2 of this permit [Note 4]	Carbon monoxide (CO)	Incineration gases via heat recovery boiler and APC plant	100 mg/m^3	½-hourly mean	Continuous [Note 2]	BS EN 15267-3
Vents from storage tanks	Raw material vapours	All vents from raw materials storage tanks	No limit set	-	-	Permanent sampling access not required

Note 1: See Schedule 7 for reference conditions.

Note 2: The Continuous Emission Monitors used shall be such that the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed 10%. 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 interval (10%). Where it is necessary to calibrate or maintain the monitor and this means that data is not available for a complete half-hour period, the half-hourly average shall nonetheless 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 8 per day).

Note 3: As Note 2, except that the value of the confidence interval is 30% in place of 10%.

Note 4: All monitoring requirements are relevant to emission points A1, A2, A3, A4 and A5 during WID abnormal operation.

Table S4.2 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 (emission to rhine close to southern boundary) [Note 1]	No parameters set	Uncontaminated surface water from installation	No limit set	-	-	Permanent sampling access not required
W2 (emission to rhine close to southern boundary) [Note 1]	No parameters set	Uncontaminated surface water from installation	No limit set	-	-	Permanent sampling access not required

Note 1: Location of inspection chamber to be agreed with the Agency.

Table S4.3 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 (emission to public foul sewer) [Note 1]	No parameters set	Boiler blow-down, air compressor condensate, drainage from storage areas and wash-down water.	No limit set	–	–	Permanent sampling access not required

Note 1: Location of inspection chamber to be agreed with the Agency.

Table S4.4 Process monitoring requirements

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method [Notes 1 & 2]	Other specifications
Installation	Wind speed and direction	Continuous	Anemometer	-
Secondary combustion chambers	Combustion temperature	Continuous	As agreed in writing with the Agency	-
A1, A2, A3, A4 and A5 from each process line contained within a common windshield [Note 4]	Exhaust gas temperature	Continuous	As agreed in writing with the Agency	-
A1, A2, A3, A4 and A5 from each process line contained within a common windshield [Note 4]	Exhaust gas pressure	Continuous	As agreed in writing with the Agency	-

Table S4.4 Process monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method [Notes 1 & 2]**	**Other specifications**
A1, A2, A3, A4 and A5 from each process line contained within a common windshield [Note 4]	Exhaust gas water content	Continuous	BS EN 15267-3	-
A1, A2, A3, A4 and A5 from each process line contained within a common windshield [Note 4]	Exhaust gas oxygen concentration	Continuous	BS EN 15267-3	-
A1, A2, A3, A4 and A5 from each process line contained within a common windshield [Note 4]	Exhaust gas flow rate	Continuous	BS EN 15267-3	-
A1, A2, A3, A4 and A5 from each process line contained within a common windshield [Note 4]	Dioxin-like PCBs (WHO-TEQ Humans / Mammals) [Note 3]	Quarterly. Mean value over minimum 6 hour, maximum 8 hour reference period [Note 5]	To be determined utilising sampling and analytical techniques developed for dioxins/ furans (BS EN 1948 1-3) and BS EN TS 1948-4	-
A1, A2, A3, A4 and A5 from each process line contained within a common windshield [Note 4]	Dioxin-like PCBs (WHO-TEQ Fish) [Note 3]	Quarterly. Mean value over minimum 6 hour, maximum 8 hour reference period [Note 5]	To be determined utilising sampling and analytical techniques developed for dioxins/ furans (BS EN 1948 1-3) and BS EN TS 1948-4	-
A1, A2, A3, A4 and A5 from each process line contained within a common windshield [Note 4]	Dioxin-like PCBs (WHO-TEQ Birds) [Note 3]	Quarterly. Mean value over minimum 6 hour, maximum 8 hour reference period [Note 5]	To be determined utilising sampling and analytical techniques developed for dioxins/ furans (BS EN 1948 1-3) and BS EN TS 1948-4	-
A1, A2, A3, A4 and A5 from each process line contained within a common windshield [Note 4]	Specific individual polycyclic aromatic hydrocarbons (PAHs), as defined in Schedule 7	Quarterly. Mean value over minimum 6 hour, maximum 8 hour reference period [Note 5]	BS ISO 11338-1 and BS-ISO 11338-2	-
A1, A2, A3, A4 and A5 from each process line contained within a common windshield [Note 4]	Dioxins / furans (WHO-TEQ Humans / Mammals) [Note 3]	Quarterly. Mean value over minimum 6 hour, maximum 8 hour reference period [Note 5]	To be determined utilising sampling and analytical techniques developed for dioxins/ furans (BS EN 1948 1-3)	-
A1, A2, A3, A4 and A5 from each process line contained within a common windshield [Note 4]	Dioxins / furans (WHO-TEQ Fish) [Note 3]	Quarterly. Mean value over minimum 6 hour, maximum 8 hour reference period [Note 5]	To be determined utilising sampling and analytical techniques developed for dioxins/ furans (BS EN 1948 1-3)	-
A1, A2, A3, A4 and A5 from each process line contained within a common windshield [Note 4]	Dioxins / furans (WHO-TEQ Birds) [Note 3]	Quarterly. Mean value over minimum 6 hour, maximum 8 hour reference period [Note 5]	To be determined utilising sampling and analytical techniques developed for dioxins/ furans (BS EN 1948 1-3)	-

Table S4.4 Process monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method [Notes 1 & 2]**	**Other specifications**
A1, A2, A3, A4 and A5 from each process line contained within a common stack [Note 4]	N_2O	Continuous	BS EN 15267-3	Record daily mean and half-hourly mean
A1, A2, A3, A4 and A5 from each process line contained within a common stack [Note 4]	NH_3	Continuous	BS EN 15267-3	Record daily mean and half-hourly mean

Note 1: MCERTS certification to the appropriate ranges and determinands is a demonstration of compliance to the applicable standards.

Note 2: The CEM shall be able to measure instantaneous values over the ranges that 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.

Note 3: The TEQ sum of the equivalence factors 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.

Note 4: All monitoring requirements are relevant to emission points A1, A2, A3, A4 and A5 from each process line.

Note 5: After the first 12 months of operation the measurement frequency for emission points A1, A2, A3, A4 and A5 shall be bi-annual.

Table S4.5 Ash quality					
Emission point reference or source or description of point of measurement	**Parameter**	**Limit**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Bottom Ash from each line	Loss on Ignition (LOI)	5%	Monthly for the first year of operation and quarterly thereafter	-	Ash sampling protocol to be agreed in writing by the Agency
Bottom Ash from each line	Total heavy metal content (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds	Record	Monthly for the first year of operation and quarterly thereafter	-	Ash sampling protocol to be agreed in writing by the Agency
Bottom Ash from each line	Total dioxin/furan content	Record	Monthly for the first year of operation and quarterly thereafter	-	Ash sampling protocol to be agreed in writing by the Agency
Bottom Ash from each line	Total dioxin-like PCBs content	Record	Monthly for the first year of operation and quarterly thereafter	-	Ash sampling protocol to be agreed in writing by the Agency
Bottom Ash from each line	Total soluble fraction and heavy metal content of that fraction	Record	Before use of a new disposal or recycling route	Analysis for total soluble fraction using EA NEN 7371:2004 and PR/CEN/TS 14429.	Ash sampling protocol to be agreed in writing by the Agency

Table S4.5 Ash quality					
Emission point reference or source or description of point of measurement	**Parameter**	**Limit**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
APC residues from each line	Total heavy metal content (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds	Record	Monthly for the first year of operation and quarterly thereafter	-	Ash sampling protocol to be agreed in writing by the Agency
APC residues from each line	Total dioxin/furan content	Record	Monthly for the first year of operation and quarterly thereafter	-	Ash sampling protocol to be agreed in writing by the Agency
APC residues from each line	Total dioxin-like PCBs content	Record	Monthly for the first year of operation and quarterly thereafter	-	Ash sampling protocol to be agreed in writing by the Agency
APC residues from each line	Total soluble fraction and heavy metal content of that fraction	Record	Before use of a new disposal or recycling route	Analysis for total soluble fraction using EA NEN 7371:2004 and PR/CEN/TS 14429.	Ash sampling protocol to be agreed in writing by the Agency

Schedule 5 - Reporting

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

Table S5.1 Reporting of monitoring data

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air of NO_x, particulate matter, TOC, HCl, SO_2, CO, N_2O and NH_3 continuous monitoring as required by condition 3.5.1.	A1, A2, A3, A4 and A5	Quarterly	From the first date that waste is treated in the installation
Emissions to air of HF, Cd/Tl, Hg, Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V and their compounds (total), dioxins/ furans (I-TEQ), dioxin-like PCBs (WHO-TEQ Humans/ Mammals), dioxin-like PCBs (WHO-TEQ Fish), dioxin-like PCBs (WHO-TEQ Birds), specific individual poly-cyclic aromatic hydrocarbons (PAHs), dioxins/furans (WHO-TEQ Humans/Mammals), dioxins/furans (WHO-TEQ Fish), dioxins/furans (WHO-TEQ Birds) periodic monitoring as required by condition 3.5.1.	A1, A2, A3, A4 and A5	Quarterly for the first year of operation and bi-annually thereafter.	From the first date that waste is treated in the installation
Exhaust gas temperature, pressure, oxygen content, water content and flow rate, continuous monitoring as required by condition 3.5.1	A1, A2, A3, A4 and A5	As requested by Agency site inspector [Note 1]	From the first date that waste is treated in the installation
Secondary combustion chamber temperature continuous monitoring as required by condition 3.5.1	Secondary combustion chamber	As requested by Agency site inspector [Note 1]	From the first date that waste is treated in the installation
Wind speed and direction continuous monitoring as required by condition 3.5.1	Installation	As requested by Agency site inspector [Note 1]	From the first date that waste is treated in the installation
LOI of bottom ash as required by condition 3.5.1	Bottom ash from each line	Monthly for the first year of operation, and quarterly thereafter	From the first date that waste is treated in the installation
Content of heavy metals, dioxins/furans and dioxin-like PCBs of bottom ash as required by condition 3.5.1	Bottom ash from each line	Monthly for the first year of operation, and quarterly thereafter	From the first date that waste is treated in the installation
Content of heavy metals, dioxins/furans and dioxin-like PCBs of APC residues as required by condition 3.5.1	APC residues from each line	Monthly for the first year of operation, and quarterly thereafter	From the first date that waste is treated in the installation

Note 1: These parameters would not normally require to be reported, but would be available for inspection at the site. Only where there is an operational need for a report to be made should one be required.

Table S5.2: Annual treatment	
Parameter	**Units**
Total mass of waste received at the installation	tonnes
Total mass of non-hazardous waste treated at the installation	tonnes
Total mass of hazardous waste treated at the installation	tonnes
Electricity generated	MWh
Electricity exported	MWh
Heat exported	MWh

Table S5.3 Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Number of WID abnormal operation events and total of WID abnormal operation hours	Quarterly	Number of events and cumulative hours
Water usage	Annually	m^3/tonne waste treated
Energy usage	Annually	MWh/tonne waste treated
Auxiliary fuel oil consumption	Annually	kg/tonne waste treated
Total urea consumption	Annually	kg/tonne waste treated
Sodium bicarbonate consumption	Annually	kg/tonne waste treated
Total activated carbon consumption	Annually	kg/tonne waste treated
Total Air Pollution Control residues disposed of	Annually	kg/tonne waste treated
Total bottom ash generated	Annually	kg/tonne waste treated
Total bottom ash recycled	Annually	kg/tonne waste treated
Total bottom ash disposed of	Annually	kg/tonne waste treated

Table S5.4 Reporting forms	
Media/parameter	**Reporting format**
Emissions to air	Form Air 1 or other form as agreed in writing by the Agency
Residues – Bottom ash/APC	Form Performance 1 or other form as agreed in writing by the Agency
Annual Waste Treatment	Form Production 1 or other form as agreed in writing by the Agency
Water consumption	Form Water Usage 1 or other form as agreed in writing by the Agency
Energy generation and consumption	Form Energy 1 or other form as agreed in writing by the Agency
Other Performance Indicators	Form Performance 2 or other form as agreed in writing by the Agency

Schedule 6 - Notification

These pages outline the information that the operator must provide.

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

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

Part A

Permit Number	EPR/LP3637GL
Name of operator	Avonmouth Resource Park Limited
Location of Facility	Merebank Road, Kings Weston Lane, Avonmouth
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission 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.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of Avonmouth Resource Park Limited

Schedule 7 - Interpretation

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

"*accident*" means an accident that may result in pollution.

"*annually*" means once every year.

“a*pplication*” 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.

“*APC residues*” means air pollution control residues

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

“*BAT*” means best available techniques means the most effective and advanced stage of development of activities and their methods of operation which indicates the practical suitability of particular techniques to prevent and where that is not practicable to reduce emissions and the impact on the environment as a whole. For these purposes: “available techniques” means “those techniques which have been developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the cost and advantages, whether or not the techniques are used or produced inside the United Kingdom, as long as they are reasonably accessible to the Operator”; “best” means “in relation to techniques, the most effective in achieving a high general level of protection of the environment as a whole” and “techniques” “includes both the technology used and the way in which the Installation is designed, built, maintained, operated and decommissioned”.

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

“*bottom ash*” means ash falling through the grate or transported by the grate;

“*CEM*” Continuous emission monitor

“*CEN*” means Commité Européen de Normalisation

‘’*Commissioning*’’ will commence at the point at which waste is received at the site and end on completion of the commissioning plan.

“*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 IIA to Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 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.

“*fugitive emission*” means an emission to air, water or land from the activities which is not controlled by an emission limit.

"*Gas oil*" means low sulphur content hydrocarbon fuel oil, not arising as waste from some other process, used for furnace support and during start up procedures.

"*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.

"*ISO*" means International Standards Organisation.

"*I-TEF*" means international toxic equivalent factors.

"*I-TEQ*" means international toxic equivalent concentration

"*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 at the end of this schedule

"*PM10, PM2.5, PM1.0*" mean respectively the mass of particulate matter contained in particles of less than 10, 2.5 and 1.0 micrometres aerodynamic diameter.

"Primary gasification chamber (PGC)" means gasification unit into which waste is charged.

"*quarter*" means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

"*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.

"*recovery*" means any of the operations provided for in Annex IIB to Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on Waste.

"Secondary combustion chamber (SCC)" means chamber in which syngas produced by the PGC is combusted.

"*shutdown*" is any period where the plant is being returned to a non-operational state as described in the application.

"*start-up*" is any period, where the plant has been non-operational, after igniting the auxiliary burner until waste has been fed to the incinerator to initiate steady-state conditions as described in the application.

"*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 Incineration Directive or WID*" means Directive 2000/76/EC on the incineration of waste (O.J. L 332, 28.12.2000

"*WID 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 concentrations in the discharges into air may exceed the normal emission limit values.

"*WFD*" means Waste Framework Directive (Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 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

(b) in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content

(c) in relation to gases from incineration plants, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 11% dry.

(d) where hazardous wastes are burned in an incineration or co-incineration plant and the emissions of pollutants are reduced by gas treatment, standardisation of the gas with respect to oxygen content shall be carried out only if the oxygen concentration measured over the same period exceeds the relevant oxygen content defined in conditions [(a) – (c)] above. In other cases, the measured emissions shall be standardised only for moisture, pressure and temperature.

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.

TEF schemes for dioxins and furans				
Congener	I-TEF(1990)	WHO-TEF (1997/8)		
		Humans / Mammals	Fish	Birds
Dioxins				
2,3,7,8-TCDD	1	1	1	1
1,2,3,7,8-PeCDD	0.5	1	1	1
1,2,3,4,7,8-HxCDD	0.1	0.1	0.5	0.05
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	0.0001	-	-
Furans				
2,3,7,8-TCDF	0.1	0.1	0.05	1
1,2,3,7,8-PeCDF	0.05	0.05	0.05	0.1
2,3,4,7,8-PeCDF	0.5	0.5	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	0.0001	0.0001	0.0001

TEF schemes for dioxin-like PCBs			
Congener	WHO-TEF (1997/8)		
	Humans / mammals	Fish	Birds
Non-ortho PCBs			
3,4,4',5-TCB (81)	0.0001	0.0005	0.1
3,3',4,4'-TCB (77)	0.0001	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)	0.01	0.00005	0.001
Mono-ortho PCBs			
2,3,3',4,4'-PeCB (105)	0.0001	<0.000005	0.0001
2,3,4,4',5-PeCB (114)	0.0005	<0.000005	0.0001
2,3',4,4',5-PeCB (118)	0.0001	<0.000005	0.00001
2',3,4,4',5-PeCB (123)	0.0001	<0.000005	0.00001
2,3,3',4,4',5-HxCB (156)	0.0005	<0.000005	0.0001
2,3,3',4,4',5'-HxCB (157)	0.0005	<0.000005	0.0001
2,3',4,4',5,5'-HxCB (167)	0.00001	<0.000005	0.00001
2,3,3',4,4',5,5'-HpCB (189)	0.0001	<0.000005	0.00001

END OF PERMIT