

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Viridor Waste Management Limited
Runcorn Energy from Waste Facility
Barlow Way
Runcorn
Cheshire
WA7 4HG

Variation application number

EPR/RP3638CG/V005

Permit number

EPR/RP3638CG

Runcorn Energy from Waste Facility

Permit number EPR/RP3638CG

Introductory note

This introductory note does not form a part of the notice

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made. All the conditions of the permit have been varied and are subject to the right of appeal.

This variation increases the quantity of waste that the facility is permitted to accept; from 850,000 tonnes per year to 1,100,000 tonnes per year.

This variation also implements amendments to Table S3.1 of the permit, changing the emission limit and monitoring requirements for carbon monoxide from the 100 mg/m³ half hour average to the 150 mg/m³ 10 minute average. Both emission limits and averaging periods are acceptable for demonstrating compliance with the requirements of the Industrial Emissions Directive.

The rest of the installation remains the same and is operated as follows:

The Energy from Waste (EfW) facility is located to the north of the Runcorn site in an area known as Weston Point. The site includes rail sidings along its eastern boundary running parallel to Picow Farm Road. This provides the site with a rail link to the north bound line at Runcorn Railway Station. The Mersey Estuary at its nearest point is located approximately 200 metres to the west of the site, beyond Weston Docks. The estuary is a Special Protection Area (SPA), designated for its nature conservation importance for feeding and roosting ducks and waders and is also a Ramsar site and Site of Special Scientific Interest (SSSI).

The EfW facility has a total capacity of approximately 360 MW (thermal input) and generates approximately 74MW of electrical power and 64 tonnes (53 MW) of steam per hour. This provides approximately 20% of the energy requirements at the adjacent Runcorn Halochemicals installation and replaces energy that is currently derived from natural gas.

Waste material burned at the facility is primarily refuse derived fuel (RDF) and digestate produced from the Mechanical and Biological Treatment (MBT) of Municipal Solid Waste (MSW) but it also includes some appropriately treated commercial and industrial (C&I) waste and biomass. All waste material for processing received at the facility is non-hazardous.

The facility consists of four incinerator lines. In total, accounting for expected losses (primarily in the form of moisture, lost from the waste whilst it is stored in the bunker prior to incineration), the four lines will incinerate up to 1,040,000 tonnes per year of waste with a design average net calorific value (NCV) of approximately 11 MJ/kg.

Waste material arrives either by rail or by road and is weighed before proceeding into the tipping hall where it is tipped into the RDF bunker of sufficient capacity to hold several days waste inputs.

Moving grate technology is used for burning the waste material. The furnace design ensures that a temperature of at least 850°C for a period of at least two seconds is achieved in the combustion chamber. To ensure that the temperature does not fall below 850°C, auxiliary burners firing a fuel of natural gas is automatically triggered by online process monitoring equipment.

Selective Non-Catalytic Reduction (SNCR), involving the injection of ammonia solution, provides for the abatement of nitrogen oxides generated within the furnace.

Hot gases from the furnace pass into a boiler. Steam raised in the boiler is passed to turbines to generate electricity or is exported as steam; both energy streams are used within the Runcorn site processes. The ability to export electricity into the National Grid is also included within the design.

Combustion gases are cleaned before they are released to atmosphere. There are two abatement stages in series. Each stage consists of a reactor where dry lime (to neutralise acid gas components) and activated carbon (to absorb heavy metals, dioxins and furans) are injected and a bag filter unit to remove fine particulates. The residues of the bag filters and the reactor are collected and directed to a residues silo.

Cleaned flue gases exiting the abatement system of each of the incinerator lines are discharged through a four-flue, 105 metre tall stack.

A single process water discharge from the facility, primarily comprising cooling water purge from the cooling towers and excess rainwater, is released directly into the disused Runcorn & Weston Canal.

All plant areas are surfaced to the appropriate standards for the activities within those areas. All liquid tanks and drums, whose emissions to water or land could cause pollution, are contained in adequate bunding constructed in line with industry best practice standards and sized to contain 110% of the tank contents. Materials used for surfacing of process areas and bunds are resistant to the materials they may come into contact with.

There are no direct discharges to groundwater from the facility.

Odour problems are not expected from the facility. Any potential odours from storage of the waste materials are extracted from above the storage bunker and used as combustion air within the furnace, thereby destroying any potentially odorous compounds.

The main solid residues produced by the EfW facility are bottom ash and air pollution control (APC) residues. Bottom ash is processed by contractor and may be sent for incorporation within aggregates or building blocks. APC residues are hazardous and are treated before being disposed of to landfill or recovered as a secondary aggregate.

The schedules specify the changes made to the permit.

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

Status log of the permit		
Description	Date	Comments
Application EPR/EP3731XL/A001	21/10/09	Duly made
Additional Information received	17/11/09	Updated health impact assessment
Additional Information received in respect of Schedule 5 notice #1 dated 14/12/09	29/01/10	Air dispersion issues
Additional Information received in respect of Schedule 5 notice #2 dated 19/01/10	29/01/10	Noise issues
Additional Information received in respect of Schedule 5 notice #3 dated 03/02/10	25/03/10	Controlled waters issues
Additional Information received	14/05/10	Update to noise assessment
Additional Information received	17/05/10	Clarification of basis of hazard quotients used in HHRA
Additional Information received	28/05/10	Firewater control issues
Additional Information received in respect of Schedule 5 notice #4 dated 17/05/10	11/06/10	Consultation response issues
Additional Information received	30/07/10	Information concerning several definitions and impacts on non-statutory conservation sites

Status log of the permit		
Description	Date	Comments
Additional Information received	30/07/10	Typographical error correction re POCP ranking
Additional Information received in respect of Schedule 5 notice #5 dated 06/08/10	13/08/10	Clarification of abnormal operation issues, and the impact of HF on the conservation sites
Additional Information received	27/08/10	Clarification of location of combustion chamber temperature probes
Additional Information received in response to email dated 26/08/10 requesting clarification	10/09/10	Information concerning the fate of the APC residues
Additional Information received	18/11/10	Typographical error correction re emission deposition rate units
Additional Information received in response to email dated 29/11/10 requesting clarification on impact of airport flight path	30/11/10	Clarification received in 2 emails
Additional Information received in response to an email dated 13/12/10	17/12/10	Further noise issues
Additional Information received in response to an email dated 17/01/11	26/01/11	Clarification regarding design operating rates, fire water collection etc.
Permit EPR/EP3731XL determined	17/05/11	
Application EPR/RP3638CG/T001 (full transfer of permit EPR/EP3731XL)	Duly made 16/03/12	Application to transfer the permit in full to Viridor Waste Management Limited
Transfer determined EPR/RP3638CG	29/03/12	Full transfer of permit complete.
Agency variation determined EPR/RP3638CG/V002	15/01/14	Agency variation to implement the changes introduced by IED
Admin variation determined EPR/RP3638CG/V003	24/04/14	Variation issued
Admin variation determined EPR/RP3638CG/V004	13/07/17	Variation issued
Application EPR/RP3638CG/V005 Variation & consolidation	Duly made 17/08/18	
Additional information received in response to Schedule 5 notice #1 dated 09/11/18	27/11/18	Additional air quality assessments and modelling files
Additional information received in response to Schedule 5 notice #2 dated 07/12/18	23/01/19	Updated fire prevention plan, energy efficiency figures and information regarding waste deliveries
Additional information received in response to request for further information dated 11/02/2019	20/02/19	Updated fire prevention plan
Substantial determined EPR/RP3638CG/V005 PAS reference WP3238QA	18/03/19	Varied and consolidated permit issued

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies and consolidates

Permit number

EPR/RP3638CG

Issued to

Viridor Waste Management Limited (“the operator”)

whose registered office is

Peninsula House

Rydon Lane

Exeter

Devon

EX2 7HR

company registration number 00575069

to operate a regulated facility at

Runcorn Energy from Waste Facility

Barlow Way

Runcorn

Cheshire

WA7 4HG

to the extent set out in the schedules.

The notice shall take effect from 18/03/2019

Name	Date
Claire Roberts	18/03/2019

Authorised on behalf of the Environment Agency

Schedule 1

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

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/RP3638CG

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/RP3638CG/V005 authorising,

Viridor Waste Management Limited (“the operator”),

whose registered office is

Peninsula House

Rydon Lane

Exeter

Devon

EX2 7HR

company registration number 00575069

to operate an installation at

Runcorn Energy from Waste Facility

Barlow Way

Runcorn

Cheshire

WA7 4HG

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

Name	Date
Claire Roberts	18/03/2019

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and
- (b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.2 Energy efficiency

1.2.1 The operator shall:

- (a) take appropriate measures to ensure that energy is recovered with a high level of energy efficiency and energy is used efficiently in the activities.
- (b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
- (c) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

1.3.1 The operator shall:

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

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

1.4.1 The operator shall take appropriate measures to ensure that:

- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and
- (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
- (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

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

2.2 The site

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

- 2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.
- 2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.4 Waste shall only be accepted if:
- (a) it is of a type and quantity listed in schedule 2 table S2.2 and
 - (b) it conforms to the description in the documentation supplied by the producer or holder; and
 - (c) it having been separately collected for recycling, it is subsequently unsuitable for recovery by recycling.
- 2.3.5 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:
- (a) the nature of the process producing the waste;
 - (b) the composition of the waste;
 - (c) the handling requirements of the waste;
 - (d) the hazardous property associated with the waste, if applicable; and
 - (e) the waste code of the waste.
- 2.3.6 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.
- 2.3.7 Waste shall not be charged, or shall cease to be charged, if:
- (a) the combustion chamber temperature is below, or falls below, 850°C; or
 - (b) any continuous emission limit value in schedule 3 table S3.1(a) is exceeded; or

- (c) any continuous emission limit value in schedule 3 table S3.1 is exceeded, other than under abnormal operating conditions; or
- (d) monitoring results required to demonstrate compliance with any continuous emission limit value in schedule 3 table S3.1 are unavailable other than under abnormal operating conditions; or
- (e) there is a stoppage, disturbance or failure of the activated carbon abatement system, other than under abnormal operating conditions.

2.3.8 The operator shall have at least one auxiliary burner in each line which shall be operated at start up, shut down and as required during operation to ensure that the operating temperature specified in condition 2.3.7 is maintained as long as incompletely burned waste is present in the combustion chamber. Unless the temperature specified in condition 2.3.7 is maintained in the combustion chamber, such burner(s) shall 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.

2.3.9 The operator shall record the beginning and end of each period of “abnormal operation”.

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

2.3.11 Where, during “abnormal operation”, on an incineration line, any of the following situations arise, waste shall cease to be charged on that line until normal operation can be restored:

- (a) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.1 due to stoppages, disturbances or failures of the abatement plant, or continuous emission monitor(s) are out of service, as the case may be, for a total of 4 hours uninterrupted duration;
- (b) there is a technically unavoidable stoppage, disturbance or failure of the activated carbon abatement system for a total of 4 hours uninterrupted duration;
- (c) the cumulative duration of “abnormal operation” periods over 1 calendar year has reached 60 hours;
- (d) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.1 (a).
- (e) continuous emission monitors or alternative techniques to demonstrate compliance with the emission limit value(s) for particulates, TOC and / or CO in schedule 3 table S3.1 (a), as detailed in the application or as agreed in writing with the Environment Agency, are unavailable.

2.3.12 The operator shall interpret the end of the period of “abnormal operation” as the earliest of the following:

- (a) when the failed equipment is repaired and brought back into normal operation;
- (b) when the operator initiates a shut down of the waste combustion activity, as described in the application or as agreed in writing with the Environment Agency;
- (c) when a period of four hours has elapsed from the start of the “abnormal operation”;
- (d) when, in any calendar year, an aggregated period of 60 hours “abnormal operation” has been reached.

2.3.13 Bottom ash and APC residues shall not be mixed.

2.3 Improvement programme

2.3.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.3.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

3 Emissions and monitoring

3.1 Emissions to water, air or land

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1 and S3.2 except in “abnormal operation”, when there shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1(a) and S3.2.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 In respect of schedule 3 table S3.2, a measured value in the zone between the emission target and emission limit shall not on any one occasion remain within that zone for a period longer than 2 hours and cumulatively for no longer than 4 hours in any month.
- 3.1.4 Wastes produced at the site shall, as a minimum, be sampled and analysed in accordance with schedule 3 table S3.4. Additional samples shall be taken and tested and appropriate action taken, whenever:
- (a) disposal or recovery routes change; or
 - (b) it is suspected that the nature or composition of the waste has changed such that the route currently selected may no longer be appropriate.

3.2 Emissions of substances not controlled by emission limits

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.2.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;
 - (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.
- 3.2.4 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.3 Odour

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

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

3.4 Noise and vibration

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

3.5 Monitoring

- 3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:
- (a) point source emissions specified in tables S3.1, S3.1(a), and S3.2;
- (b) process monitoring specified in table S3.3;
- (c) residue quality in table S3.4.
- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing by the Environment Agency. Newly installed CEMs, or CEMs replacing existing CEMs, shall have MCERTS certification and have an MCERTS certified range which is not greater than 1.5 times the daily emission limit value (ELV) specified in schedule 3 table S3.1. The CEM shall also be able to measure instantaneous values over the ranges which are to be expected during all operating conditions. If it is necessary to use more than one range setting of the CEM to achieve this requirement, the CEM shall be verified for monitoring supplementary, higher ranges.
- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.1(a) and S3.2 unless otherwise agreed in writing by the Environment Agency.
- 3.5.5 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3 table S3.1; the Continuous Emission Monitors shall be used such that:
- (a) the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed the following percentages of the emission limit values:
- | | |
|---|-----|
| • Carbon monoxide | 10% |
| • Sulphur dioxide | 20% |
| • Oxides of nitrogen (NO & NO ₂ expressed as NO ₂) | 20% |
| • Particulate matter | 30% |

- Total organic carbon (TOC) 30%
 - Hydrogen chloride 40%
- (b) valid half-hourly average values or 10-minute averages shall be determined within the effective operating time (excluding the start-up and shut-down periods) from the measured values after having subtracted the value of the confidence intervals in condition 3.5.5 (a);
- (c) where it is necessary to calibrate or maintain the monitor and this means that data are not available for a complete half-hour or 10 minute period, the half-hourly average or 10-minute average shall in any case be considered valid if measurements are available for a minimum of 20 minutes or 7 minutes during the half-hour or 10-minute period respectively. The number of half-hourly or 10-minute averages so validated shall not exceed 5 or 15 respectively per day;
- (d) daily average values shall be determined as the average of all the valid half-hourly average or 10-minute average values within a calendar day. The daily average value shall be considered valid if no more than five half-hourly average or 15 10-minute average values in any day have been determined not to be valid;
- (e) no more than ten daily average values per year shall be determined not to be valid.

3.6 Pests

- 3.6.1 The activities shall not give rise to the presence of pests which are likely to cause pollution, hazard or annoyance outside the boundary of the site. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved pests management plan, have been taken to prevent or where that is not practicable, to minimise the presence of pests on the site.
- 3.6.2 The operator shall:
- (a) if notified by the Environment Agency, submit to the Environment Agency for approval within the period specified, a pests management plan which identifies and minimises risks of pollution from pests;
 - (b) implement the pests management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.7 Fire prevention

- 3.7.1 The operator shall take all appropriate measures to prevent fires on site and minimise the risk of pollution from them including, but not limited to, those specified in any approved fire prevention plan.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

- (a) be legible;
- (b) be made as soon as reasonably practicable;
- (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
- (d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
 - (i) off-site environmental effects; and
 - (ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:

- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
- (b) the annual production /treatment data set out in schedule 4 table S4.2; and
- (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.
- (d) the functioning and monitoring of the incineration plant in a format agreed with the Environment Agency. The report shall, as a minimum requirement (as required by Chapter IV of the Industrial Emissions Directive) give an account of the running of the process and the emissions into air and water compared with the emission standards in the IED.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;
- (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4 ; and
- (c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.2.5 Within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.3 Notifications

4.3.1 In the event:

- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
 - (i) inform the Environment Agency,
 - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
 - (iii) take the measures necessary to prevent further possible incidents or accidents;
- (b) of a breach of any permit condition the operator must immediately—
 - (i) inform the Environment Agency, and
 - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
- (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 (a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

- (a) any change in the operator's trading name, registered name or registered office address; and
- (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

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

In any other case:

- (a) the death of any of the named operators (where the operator consists of more than one named individual);
- (b) any change in the operator's name(s) or address(es); and
- (c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

- 4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:
- (a) the Environment Agency shall be notified at least 14 days before making the change; and
 - (b) the notification shall contain a description of the proposed change in operation.
- 4.3.6 The Environment Agency shall be given at least 14 days' notice before implementation of any part of the site closure plan.

4.4 Interpretation

- 4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.
- 4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities		
Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
S5.1 A(1)(b)	The incineration of non-hazardous waste in a waste incineration plant with a capacity of 3 tonnes per hour or more.	The incineration of non-hazardous waste including the operation of incineration lines, boilers and auxiliary burners; facilities for the treatment of exhaust gases; on-site facilities for treatment, storage and disposal of residues, surface water and waste water; systems for controlling and monitoring incineration operations; and receipt, storage and handling of wastes and raw materials (including fuels).
Directly Associated Activity		
Steam and electrical power supply	The generation of electricity using a stream turbine and export of steam.	The electricity is used on-site and exported to the Runcorn Halochemicals installation and the grid. Steam is exported to the Runcorn Halochemicals installation.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application	The operating techniques in Sections 1 (Introduction), 2 (Techniques for pollution control), 3 (Emissions), 4 (Impact) and 5 (BAT Assessment) of the application document.	21/10/09
Response to Schedule 5 Notice #4 dated 17/05/10	Response to questions concerning ash handling.	11/06/10
Response to Schedule 5 Notice #5 dated 06/08/10	Response to questions regarding CEM arrangements to cope with abnormal operation and bag breakage detectors.	13/08/10
Response to emailed request for information dated 17/01/11	Response to questions about floodwater handling.	26/01/11
Variation EPR/RP3638CG/V005 Response to request for further information dated 11/02/2019	Fire prevention plan.	20/02/19

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC1	The operator shall submit a written proposal to the Environment Agency to carry out tests to determine the size distribution of the particulate matter in the exhaust gas emissions to air from emission points A1, A2, A3 and A4 identifying the fractions within the PM10, PM2.5 and PM1.0 ranges. The proposal shall include a timetable for approval by the	Complete

	<p>Environment Agency to carry out such tests and produce a report on the results.</p> <p>On receipt of written agreement by the Environment Agency to the proposal and the timetable, the operator shall carry out the tests and submit to the Environment Agency a report on the results.</p>	
IC2	<p>The operator shall submit a written summary report to the Environment Agency to confirm by the results of calibration and verification testing whether the performance of Continuous Emission Monitors for parameters as specified in Table S3.1 and Table S3.1(a) complies with the requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3.</p>	Complete
IC3	<p>The operator shall carry out checks to verify the residence time, minimum temperature and oxygen content of the exhaust gases in each furnace whilst operating under the anticipated most unfavourable operating conditions.</p> <p>The results shall be submitted in writing to the Environment Agency.</p>	Complete
IC4	<p>The operator shall submit a written report to the Environment Agency which shall include:</p> <ul style="list-style-type: none"> • a review of performance of the facility against the conditions of this permit. • details of optimisation of acid gas, dioxin and mercury emission abatement systems including reagent dosing rates. • details of optimisation of the NOx emission abatement system; how the Selective Non Catalytic Reduction (SNCR) system and combustion settings are controlled to optimise NOx and N₂O emissions whilst also maintaining optimum NH₃ emissions. • details of procedures developed during commissioning for achieving and demonstrating satisfactory process control and covering the range of designed operating rates. 	Complete
IC5	<p>The operator shall carry out an assessment of the impact of emissions to air of Arsenic, Nickel and Chromium (VI) having regard to the 2009 report of the Expert Panel on Air Quality Standards – Guidelines for Metal and Metalloids in Ambient Air for the Protection of Human Health. The assessment shall predict the impact of Arsenic, Nickel and Chromium (VI) against the guidelines through the use of emissions monitoring data during the first year of operation of each construction phase and air dispersion modelling. A report on the assessment shall be made to the Environment Agency.</p>	Complete
IC6	<p>The operator shall submit a written report to the Agency on the implementation of its Environmental Management System and the progress made in the accreditation of the system by an external body or if appropriate submit a schedule by which the EMS will be subject to accreditation.</p>	Complete

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
-	-

Table S2.2 Permitted waste types and quantities for incineration plant	
Maximum quantity	1,100,000 tonnes per annum
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 07	wastes from forestry
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 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 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
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
15 01 02	plastic packaging
15 01 03	wooden packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 09	textile packaging
15 02	absorbents, filter materials, wiping cloths and protective clothing
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02

Table S2.2 Permitted waste types and quantities for incineration plant	
Maximum quantity	1,100,000 tonnes per annum
Waste code	Description
17	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)
17 02	wood, glass and plastic
17 02 01	wood
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 dechromatation, decyanidation, neutralisation)
19 02 03	premixed wastes composed only of non-hazardous wastes
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09
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
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 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 07	wood other than that mentioned in 19 12 06
19 12 08	textiles
19 12 10	combustible waste (refuse derived fuel)
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standards or methods
A1, A2, A3, A4 As shown in Schedule 7	Particulate matter	Waste incineration plant stack. Stack windshield containing four flues, one for each incineration line.	30 mg/m ³	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1, A2, A3, A4 As shown in Schedule 7	Particulate matter		10 mg/m ³	Daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1, A2, A3, A4 As shown in Schedule 7	Total Organic Carbon (TOC)		20 mg/m ³	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1, A2, A3, A4 As shown in Schedule 7	Total Organic Carbon (TOC)		10 mg/m ³	Daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1, A2, A3, A4 As shown in Schedule 7	Hydrogen chloride		60 mg/m ³	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1, A2, A3, A4 As shown in Schedule 7	Hydrogen chloride		10 mg/m ³	Daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1, A2, A3, A4 As shown in Schedule 7	Hydrogen fluoride		2 mg/m ³	Periodic over minimum 1-hour period	Quarterly in first year. Then Bi-annual	BS ISO 15713

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standards or methods
A1, A2, A3, A4 As shown in Schedule 7	Carbon monoxide		150 mg/m ³	95% of all 10-minute averages in any 24-hour period	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1, A2, A3, A4 As shown in Schedule 7	Carbon monoxide		50 mg/m ³	Daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1, A2, A3, A4 As shown in Schedule 7	Sulphur dioxide		200 mg/m ³	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1, A2, A3, A4 As shown in Schedule 7	Sulphur dioxide		50 mg/m ³	Daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1, A2, A3, A4 As shown in Schedule 7	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)		400 mg/m ³	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1, A2, A3, A4 As shown in Schedule 7	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)		200 mg/m ³	Daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1, A2, A3, A4 As shown in Schedule 7	Cadmium & thallium and their compounds (total)		0.05 mg/m ³	Periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
A1, A2, A3, A4 As shown in Schedule 7	Mercury and its compounds		0.05 mg/m ³	Periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 13211
A1, A2, A3, A4 As shown in Schedule 7	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their		0.5 mg/m ³	Periodic over minimum 30 minute,	Quarterly in first year. Then Bi-annual	BS EN 14385

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standards or methods
	compounds (total)			maximum 8 hour period		
A1, A2, A3, A4 As shown in Schedule 7	Water vapour content		-	-	Continuous	BS EN 14181 and BS EN 15267-3
A1, A2, A3, A4 As shown in Schedule 7	Ammonia (NH ₃)		-	Daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1, A2, A3, A4 As shown in Schedule 7	Nitrous oxide (N ₂ O)		-	Daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1, A2, A3, A4 As shown in Schedule 7	Dioxins / furans (I-TEQ)		0.1 ng/m ³	Periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A1, A2, A3, A4 As shown in Schedule 7	Dioxins / furans (WHO-TEQ Humans / Mammals)		-	Periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A1, A2, A3, A4 As shown in Schedule 7	Dioxins / furans (WHO-TEQ Fish)		-	Periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A1, A2, A3, A4 As shown in Schedule 7	Dioxins / furans (WHO-TEQ Birds)		-	Periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A1, A2, A3, A4 As shown in Schedule 7	Dioxin-like PCBs (WHO-TEQ Humans / Mammals)		-	Periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standards or methods
A1, A2, A3, A4 As shown in Schedule 7	Dioxin-like PCBs (WHO-TEQ Fish)		-	Periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi- annual	BS EN 1948-4
A1, A2, A3, A4 As shown in Schedule 7	Dioxin-like PCBs (WHO-TEQ Birds)		-	Periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi- annual	BS EN 1948-4
A1, A2, A3, A4 As shown in Schedule 7	Specific individual poly- cyclic aromatic hydrocarbons (PAHs), as specified in Schedule 6.		-	Periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi- annual	BS ISO 11338 Parts 1 and 2.

Table S3.1(a) Point source emissions to air during abnormal operation of incineration plant – emission limits and monitoring requirements						
Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standards or methods
A1, A2, A3, A4 As shown in Schedule 7	Particulate matter	Stack of waste incineration plant – stack windshield containing four flues, one for each incineration line	150 mg/m ³	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3 during abatement plant failure
A1, A2, A3, A4 As shown in Schedule 7	Total Organic Carbon (TOC)		20 mg/m ³	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3 during abatement plant failure
A1, A2, A3, A4 As shown in Schedule 7	Carbon monoxide		150 mg/m ³	10 minute average	Continuous measurement	BS EN 14181 and BS EN 15267-3 during abatement plant failure

Table S3.2 Point source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit	Emission Target	Monitoring frequency	Monitoring standards or methods
W1 As shown in Schedule 7	Cooling tower water purge and surface rainwater	Total suspended solids (Note [1])	150 mg/l	100 mg/l	Weekly	BS EN 872
W1 As shown in Schedule 7		pH	4 – 11	5 – 9	Weekly	BS 6068-2.50
W1 As shown in Schedule 7		Temperature	40 °C	24 °C	Weekly	--
W1 As shown in Schedule 7		Oil and grease	None visible	--	Weekly	--
W1 As shown in Schedule 7		Available chlorine	20 mg/l	5 mg/l	Weekly	Sampling and analysis to ISO 17025 by idiometric titrimetry

Note [1]: Emission limits and targets for suspended solids do not apply during or immediately after heavy rainfall or the testing of a fire water main.

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Location close to the Combustion Chamber inner wall or as identified and justified in Application	Temperature (°C)	Continuous	Traceable to national standards	As agreed in writing with the Environment Agency.
A1, A2, A3, A4 As shown in Schedule 7	Exhaust gas temperature	Continuous	Traceable to national standards	As agreed in writing with the Environment Agency.
A1, A2, A3, A4	Exhaust gas pressure	Continuous	Traceable to national standards	As agreed in writing with the Environment Agency.
As shown in Schedule 7	Exhaust gas oxygen content	Continuous	BS EN 15267-3 BS EN 14181	
A1, A2, A3, A4	Exhaust gas water vapour content	Continuous	BS EN 15267-3 BS EN 14181	Unless gas is dried before analysis of emissions.

Table S3.4 Residue quality					
Emission point reference or source or description of point of measurement	Parameter	Limit	Monitoring frequency	Monitoring standard or method *	Other specifications
Bottom Ash	Loss On Ignition (LOI)	<5%	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-
Bottom Ash	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	No limit set	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-
Bottom Ash	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	No limit set	Before use of a new disposal or recycling route	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-
APC Residues	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	No limit set	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-
APC Residues	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	No limit set	Before use of a new disposal or recycling route	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-

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

Schedule 4 – Reporting

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

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.5.1	A1, A2, A3, A4	Quarterly	1 Jan, 1 Apr, 1 Jul and 1 Oct
Emissions to water Parameters as required by condition 3.5.1	W1	Quarterly	1 Jan, 1 Apr, 1 Jul and 1 Oct
LOI Parameters as required by condition 3.5.1	Bottom Ash	Quarterly	1 Jan, 1 Apr, 1 Jul and 1 Oct
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.5.1	Bottom Ash	Quarterly	1 Jan, 1 Apr, 1 Jul and 1 Oct
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.5.1	Bottom Ash	Before use of a new disposal or recycling route	
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.5.1	APC Residues	Quarterly	1 Jan, 1 Apr, 1 Jul and 1 Oct
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.5.1	APC Residues	Before use of a new disposal or recycling route	
Functioning and monitoring of the incineration plant as required by condition 4.2.2	-	Annually	1 Jan

Table S4.2: Annual production/treatment	
Parameter	Units
Total digestate incinerated (a)	tonnes
Total biomass incinerated (b)	tonnes
Total refuse derived fuel incinerated (c)	tonnes
Total Commercial and Industrial waste incinerated (d)	tonnes
Total waste incinerated (a + b + c +d)	tonnes
Electrical energy exported (e)	KWh
Electrical energy used on installation (f)	KWh
Steam (energy) exported from the installation (g)	KWh
Total electrical and heat energy generated (e + f +g)	KWh

Table S4.3 Performance parameters		
Parameter	Frequency of assessment	Units
Electrical energy Imported to site	Quarterly	KWh / tonne of waste incinerated
Fuel gas consumption	Quarterly	Kg / tonne of waste incinerated
Mass of Bottom Ash produced	Quarterly	Kg / tonne of waste incinerated
Mass of APC residues produced	Quarterly	Kg / tonne of waste incinerated
Mass of Other solid residues produced	Quarterly	Kg / tonne of waste incinerated
Ammonia consumption	Quarterly	Kg / tonne of waste incinerated
Activated Carbon consumption	Quarterly	Kg / tonne of waste incinerated
Lime consumption	Quarterly	Kg / tonne of waste incinerated
Water consumption	Quarterly	Kg / tonne of waste incinerated
Periods of abnormal operation	Annually	No of occasions and cumulative hours for current calendar year for each line.

Table S4.4 Reporting forms		
Media/parameter	Reporting format	Date of form
Air	Form air 1 - 9 or other form as agreed in writing by the Environment Agency	18/03/19
Water	Form water 1 or other form as agreed in writing by the Environment Agency	18/03/19
Water and raw material usage	Form WU/RM1 1 or other form as agreed in writing by the Environment Agency	18/03/19

Table S4.4 Reporting forms		
Media/parameter	Reporting format	Date of form
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	18/03/19
Waste disposal/recovery	Form R1 or other form as agreed in writing by the Environment Agency	18/03/19
Residue quality	Form residue 1 & 2 or other form as agreed in writing by the Environment Agency	18/03/19
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	18/03/19

Schedule 5 – Notification

These pages outline the information that the operator must provide.

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

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

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Measures taken, or intended to be taken, to stop the emission	

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

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

Part B – to be submitted as soon as practicable

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

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

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

“*abnormal operation*” means any technically unavoidable stoppages, disturbances, or failures of the abatement plant or the measurement devices, during which the emissions into the air and the discharges of waste water may exceed the prescribed emission limit values

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

“APC residues” means air pollution control residues

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

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

“bottom ash” means ash falling through the grate;

“CEM” Continuous emission monitor

“CEN” means Comité Européen de Normalisation

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

“Commissioning” means testing of the new incineration plant that involves any operation of the furnace

“daily average” for releases of substances to air means the average of valid half-hourly averages or 10 minute averages for CO over a calendar day during normal operation.

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

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

“emissions to land” includes emissions to groundwater.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

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

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

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

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

“ISO” means International Standards Organisation.

‘*List of Wastes*’ means the list of wastes established by Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste, as amended from time to time

“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, Dibenz[ah]anthracene, Dibenz[a,i]pyrene Fluoranthene, Indo[1,2,3-cd]pyrene, Naphthalene

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

Pests” means Birds, Vermin and Insects.

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

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

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

“start up” is any period, where the plant has been non-operational, until waste has been fed to the plant [in sufficient quantity to cover the grate and] to initiate steady-state.

“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 and in relation to hazardous waste, includes the asterisk

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

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; and/or
- (c) in relation to gases from incineration plants other than those burning waste oil, 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.

“Year” means calendar year ending 31 December.

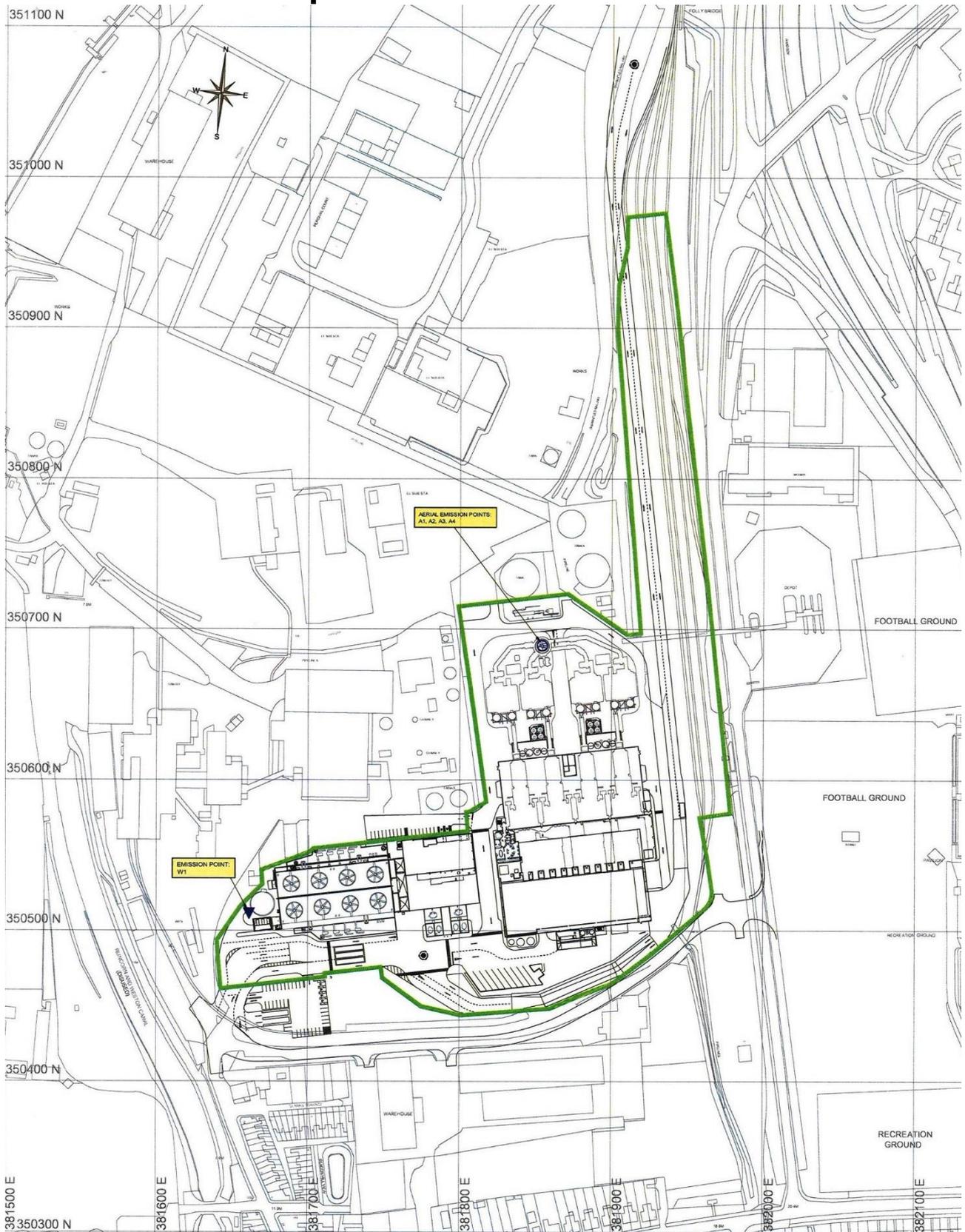
For dioxins/furans and dioxin-like PCBs the determination of the toxic equivalence concentration (I-TEQ, & WHO-TEQ for dioxins/furans, WHO-TEQ for dioxin-like PCBs) stated as a release limit and/ or reporting requirement, the mass concentrations of the following congeners have to be multiplied with their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

TEF schemes for dioxins and furans				
Congener	I-TEF	WHO-TEF		
	1990	2005	1997/8	
		Humans / Mammals	Fish	Birds
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	0.0003	-	-
Furans				
2,3,7,8-TCDF	0.1	0.1	0.05	1
1,2,3,7,8-PeCDF	0.05	0.03	0.05	0.1
2,3,4,7,8-PeCDF	0.5	0.3	0.5	1
1,2,3,4,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,7,8,9-HxCDF	0.1	0.1	0.1	0.1
1,2,3,6,7,8-HxCDF	0.1	0.1	0.1	0.1
2,3,4,6,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,4,6,7,8-HpCDF	0.01	0.01	0.01	0.01
1,2,3,4,7,8,9-HpCDF	0.01	0.01	0.01	0.01
OCDF	0.001	0.0003	0.0001	0.0001

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

TEF schemes for dioxin-like PCBs			
Congener	WHO-TEF		
	2005	1997/8	
	Humans / mammals	Fish	Birds
2,3',4,4',5-PeCB (118)	0.00003	<0.000005	0.00001
2',3,4,4',5-PeCB (123)	0.00003	<0.000005	0.00001
2,3,3',4,4',5-HxCB (156)	0.00003	<0.000005	0.0001
2,3,3',4,4',5'-HxCB (157)	0.00003	<0.000005	0.0001
2,3',4,4',5,5'-HxCB (167)	0.00003	<0.000005	0.00001
2,3,3',4,4',5,5'-HpCB (189)	0.00003	<0.000005	0.00001

Schedule 7 – Site plan



END OF PERMIT