

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

K3 CHP Operations Limited
Kemsley Generating Station
Sittingbourne
Kent
ME10 2TD

Variation application number

EPR/JP3135DK/V004

Permit number

EPR/JP3135DK

Kemsley Generating Station

Permit number EPR/JP3135DK

Introductory note

This introductory note does not form a part of the permit

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 permits an increase in throughput of waste from 550,000 tonnes per annum to 657,000 tonnes per annum, and updates the short term emission limit value for carbon monoxide (CO) to the limit for 95th percentile of 10 minute averages in a day as per Annex VI, Part 3, paragraph 1.5 of the Industrial Emissions Directive.

The increase in throughput will be achieved through an increase of available operating hours from 8,000 hours to 8,760 hours per annum. This is as a result of an increase in the amount of time between routine maintenance. There may also be changes in the composition of waste received that could lead to an increase in the amount of waste needed to produce the same energy output.

Whilst waste deliveries and throughput will increase, quantities of waste stored on site will be unaffected.

The use of the IBA facility is also removed from this permit, as it hasn't been constructed.

The main features of the installation are as follows:

The Installation will incinerate up to 657,000 tonnes of waste per year in two incineration lines. The wastes incinerated will be treated municipal waste, treated commercial and industrial waste, Shredded Recovered Fuel (SRF) and waste from the adjacent paper mill.

The Installation will form part of the Kemsley Paper Mill installation which currently comprises the St Regis Kemsley Paper Mill and the E.On combined heat and power facility. It will be located at grid reference 592170,166640 which is to the east of Kemsley, 3 km north of Sittingbourne and 2.5 km south east of Iwade. The nearest houses are ~0.7 km away. 'The Swale' (Special Protection Area and Site of Special Scientific Interest) is ~100 m away at the nearest point. Other ecological receptors lie within the relevant screening distances from the Installation.

Waste will be delivered to the facility in covered vehicles or containers. Waste acceptance procedures will form part of the environmental management system. Paperwork will be inspected to ensure that the waste is acceptable. Non-conforming loads will not be accepted. Vehicles are weighed on entry and exit to determine the amount of waste being received.

The vehicles will move to the tipping hall where their load will be discharged into the waste storage bunker. A crane will be used to mix and move the waste to ensure a good consistency and to prevent the development of anaerobic conditions to minimise odour generation. In order to prevent odour escaping from the plant, the tipping hall will be fitted with self-closing doors, and will be under negative air pressure so that the combustion air for the two incinerator lines will be drawn from the hall. In this way, any potentially odorous air will be incinerated. Unacceptable waste will be removed from the bunker and returned to the producer.

The crane will also be used to load waste into the waste hopper, from where the waste is directed into the furnace via a feed chute. A hydraulic ram will be used to deliver the waste from the feed chute to the combustion grate. An automatic interlock will prevent waste feed to the furnace should the temperature fall below 850°C. This interlock will also be activated at start-up until 850°C is reached. The connection between the feed hopper and chute will be as air tight as possible to prevent escape of fumes or excess air flows. Level detection will be provided in the chute and a low level alarm will sound if the level is too low.

The facility will use a moving grate system. Primary combustion air will be supplied to the furnace from under the grate. Secondary combustion air will be injected via a series of nozzles to achieve turbulence within the combustion chamber. The combustion chamber is provided with a light (low sulphur) fuel oil-fired auxiliary burner. This will be operated during times of start-up and shut-down, or automatically whenever the temperature falls below 850°C at the 2 second point, in order to maintain the required incineration temperature.

Hot gases from the furnace will pass to a boiler to raise steam, which will be used to drive a steam turbine and generate electricity. Steam will also be provided to the adjacent paper mill. When the paper mill is running at capacity 45 MW of electricity will be supplied to the grid and 55 MW of steam to the paper mill. About 6.4 MW of electricity will be used for internal demand. When the paper mill is not running at capacity, more steam will be used to generate electricity for export to the grid. In some situations, more than 55 MW of steam could be supplied to the Mill. Heat from the steam turbine will be used to heat the boiler feed water and air. Air cooled condensers will be used for cooling.

Each furnace will be fitted with a dry urea injection system in order to reduce the facility's emissions of oxides of nitrogen (NOx) to air through selective non-catalytic reduction (SNCR). A dry gas treatment system will be used to neutralise acid flue gases with the injection of calcium hydroxide into the reaction chamber. Activated carbon will also be injected into the flue gases in order to reduce the concentrations of heavy metals and dioxins in the combustion gases emitted to air. Bag filters will be used to separate out the resulting particulate matter from the cooled and treated gases. The installation will have two 90 m stacks from which combustion gases will be released to air. The stacks will be equipped with a Continuous Emissions Monitoring System (CEMS). The CEMS will continuously monitor particulate matter, oxides of nitrogen (NOx), sulphur dioxide (SO₂), carbon monoxide (CO), TOC (total organic carbon in the form of volatile organic compounds), hydrogen chloride (HCl), nitrous oxide and ammonia (NH₃) in the combustion gases in order to ensure that the permit emission limits are complied with.

Residue from the bag filters (the flue gas treatment (FGT) or otherwise known as air pollution control (APC) residues) will be classified as hazardous waste. APC residues will be handled within an enclosed system. It will be stored in silos discharged via sealed connections to fully contained disposal vehicles. The sealed systems will prevent the release of these residues during storage and handling.

The furnace will be controlled in order to ensure sufficient burn out. Bottom ash will be generated from the furnace grate and combined with boiler ash. The combined ash will be collected at the end of the grate in the water filled bottom ash extractor located beneath the grate where this material is quenched with water from the onsite rainwater containment lagoon. From the ash extractor the ash will be moved firstly via a vibrating separation conveyor to remove large objects that could cause damage or blockage to the system and then via a series of belt conveyors to the bottom ash hall within the Plant where it will be removed for 3rd party disposal. The ash conveyor system includes an inclined belt conveyor which will allow water to drain from the ash back into the onsite waste water system for reuse in the quench bath. Larger items will be removed from the vibrating conveyor will be added back to the bottom ash in the ash hall prior to collection by the 3rd party disposal company.

Rainwater run-off will be collected, stored and used in the process. Any water run-off from area with potential for oil contamination will pass via an interceptor. Rainwater will be emitted to a swale via a storage pond in the event of heavy rainfall.

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

Status log of the permit		
Description	Date	Comments
Application EPR/SP3431KJ/A001	Duly made 07/09/10	
Schedule 5 notice	Issued 27/09/10	Response received 20/10/10.
Request for information	30/09/10	Response received 05/10/10.

Status log of the permit		
Description	Date	Comments
Request for information	17/11/10	Request for noise modelling files – files received but no received date logged.
Request for information	15/12/10	Response received 20/12/10.
Schedule 5 notice	Issued 10/02/11	Response received 31/03/11.
Permit determined EPR/SP3431KJ/A001	27/07/11	
Agency variation determined EPR/SP3431KJ/V002	06/12/13	Agency variation to implement the changes introduced by IED.
Application EPR/XP3637VX/T001 (full transfer of permit EPR/SP3431KJ)	09/07/14	Full Transfer from EEW Energy from Waste UK Ltd to WTI UK Ltd.
Transfer determined EPR/XP3637VX	12/08/14	Transfer issued.
Application for variation EPR/XP3637VX/V002	Duly made 28/11/14	Application for administrative variation to add 7 waste codes.
Variation determined EPR/XP3637VX/V002	11/12/14	Varied permit issued.
Application EPR/JP3135DK/T001 (full transfer of permit EPR/XP3637VX)	Duly Made 20/06/16	Application to transfer the permit in full from WTI UK Ltd. to K3 CHP Operations Limited.
Transfer determined EPR/JP3135DK	05/08/16	Full transfer of permit complete.
Partial surrender application EPR/JP3135DK/S002	Duly made 19/05/17	Application to surrender portions of land that are no longer required for the waste incinerator proposed by K3 CHP Operations Limited (determined in parallel with variation application EPR/JP3135DK/V003).
Partial surrender determined EPR/JP3135DK/S002	07/03/18	Partial Surrender complete.
Application EPR/JP3135DK/V003 (variation and consolidation)	Duly made 08/06/17	Application to vary and update the permit to modern conditions. It also permits changes in the design of the incinerator which have arisen due to a change in technology provider.
Additional information	14/07/17	Response to Schedule 5 notice #1 (sent 16/06/17) providing a Fire Prevention Plan (FPP). In addition to further details regarding source of water used for ash quenching.
Additional information	02/08/17	Further information regarding the Fire Prevention Plan.
Additional Information	20/09/17	Response to Schedule 5 notice #2 (sent 29/08/17) addressing further questions with regards to the FPP.
Additional information	02/10/17	Further information regarding storage of waste in the waste pit.
Additional Information	25/10/17	Updated Installation Boundary Plan.
Variation determined EPR/JP3135DK/V003	07/03/18	Varied permit issued.

Status log of the permit		
Description	Date	Comments
Application EPR/JP3135DK/V004 (variation and consolidation)	Duly made 15/11/19	Application to vary and update the permit to modern conditions. It also increases throughput to 657,000 tonnes annually.
Variation determined EPR/JP3135DK/V004 Billing Ref. ZP3100BT	29/07/20	Varied permit issued.

Other Part A installation permits relating to this installation		
Operator	Permit number	Date of issue
DS Smith Paper Limited	EPR/BJ7468IC	05/11/12
E.On UK CHP Ltd	EPR/BJ7395IG	24/04/02

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/JP3135DK

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016

K3 CHP Operations Limited (“the operator”),

whose registered office is

Wti UK Limited
123 Victoria Street
London
SW1E 6DE

company registration number **09860235**

to operate an installation at

Kemsley Generating Station
Sittingbourne
Kent
ME10 2TD

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

Name	Date
Rebecca Warren	29/07/2020

Authorised on behalf of the Environment Agency

Schedule 1

The following conditions were varied as a result of the application made by the operator

Table S1.4 Pre-operational measures	Amended to reference completed pre-operational measures
Table S2.2 Permitted waste types and quantities for incineration plant	Amended to show increase in maximum quantity of waste annually
Table S3.1 Point source emissions to air – emission limits and monitoring requirements	Amended to include short term emission limit for carbon monoxide to 150mg/m ³ at the 95 th percentile of 10 minute averages in a day.
Table S3.1 Point source emissions to air – emission limits and monitoring requirements	Note to table – Operator to inform EA of change to monitoring of CO to 10 minute average, until then to use 30 minute average.
Condition 2.1.2	Amended to refer to condition 2.3.4
Condition 2.3.8	Amended to refer to condition 2.3.7
Condition 3.5.5.b	Amended to include reference to monitoring of carbon monoxide at 10 minutes averages
Condition 3.5.5.c	Amended to include reference to monitoring of carbon monoxide at 10 minutes averages
Condition 3.5.5.d	Amended to include reference to monitoring of carbon monoxide at 10 minutes averages

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/JP3135DK

This is the consolidated permit referred to in the variation and consolidation notice for application

EPR/JP3135DK/V004

authorising,

K3 CHP Operations Limited (“the operator”),

whose registered office is

Wti UK Limited
123 Victoria Street
London
SW1E 6DE

company registration number **09860235**

to operate an installation at

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Name	Date
Rebecca Warren	29/07/2020

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.

1.5 Multiple operator installations

- 1.5.1 Where the operator notifies the Environment Agency under condition 4.3.1 (a) or 4.3.1 (c), the operator shall also notify without delay the other operator(s) of the installation of the same information.

2 Operations

2.1 Permitted activities

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).
- 2.1.2 Waste authorised by this permit in condition 2.3.4 shall be clearly distinguished from any other waste produced 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, which is within the area edged in red on the site plan that represents the extent of the installation covered by this permit and that/those of the other operators of the installation.

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 at start up or shut down or whenever the operating temperature falls below that specified in condition 2.3.7, 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) 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.
- 2.3.9 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 monitors 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 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 on an incineration line.

2.3.13 Bottom ash and APC residues shall not be mixed.

2.1 Improvement programme

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

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

2.5 Pre-operational conditions

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

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1 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 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;;
- (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

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

3.2.4 The Operator shall carry out monitoring of soil and groundwater in accordance with IED articles 14(1)(b), 14(1)(e) and 16(2) to the protocol approved in writing with the Environment Agency under PO8.

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;
 - (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;
 - (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), where available, 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 and S3.1(a); 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. 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.
- 3.7.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to a risk of fire, submit to the Environment Agency for approval within the period specified, a fire prevention plan which prevents fires and minimises the risk of pollution from fires;

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

4 Information

4.1 Records

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

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

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

4.2 Reporting

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

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

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

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

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

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report

assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

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

4.3 Notifications

4.3.1 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 A1 (b)	The incineration of non-hazardous waste in a waste incineration plant with a capacity of 3 tonnes per hour or more.	From receipt of waste to emission of exhaust gas and disposal of waste arising. Waste types as specified in Table S2.2 of this permit.
Directly Associated Activity		
Electricity and steam generation	Generation of electrical power using a steam turbine from energy recovered from the flue gases.	The export of electricity to the grid and for on-site operations. The export of steam to adjacent paper mill.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application	<p>Application forms:</p> <ul style="list-style-type: none"> Response to question 1 on form B3 <p>Application document:</p> <ul style="list-style-type: none"> Section 1.2 (paragraphs 1.13 to 1.34) <ul style="list-style-type: none"> 1.19 - excluding reference to waste storage volumes 1.22 – excluding reference to ammonia solution 1.29 – excluding steam offtake pressures 1.32 and 1.33 – excluding reference to ash treatment building. 1.34 – excluding off-site disposal of boiler ash Section 2.4 (paragraphs 2.48, 2.52 and 2.53) <ul style="list-style-type: none"> 2.48 – include targeting of residual general wastes Section 3.1 (paragraphs 3.1 to 3.10, 3.12, 3.14 to 3.16 and 3.18) <ul style="list-style-type: none"> 3.7 – excluding reference to waste storage volumes Section 3.2 (paragraphs 3.19 to 3.26) Section 3.4 (paragraphs 3.30 to 3.45) Section 3.8 (paragraph 3.58) Section 3.9 (paragraphs 3.59 to 3.62) Section 3.10 (paragraphs 3.63 to 3.83) <ul style="list-style-type: none"> 3.79 – excluding steam offtake pressures Section 3.11 (paragraphs 3.84 to 3.96) Section 4.1 (paragraphs 4.3 to 4.6, 4.13, 4.15, 4.20, 4.22 to 4.23 and 4.29 to 4.32) <ul style="list-style-type: none"> 4.17-4.19 – urea solution is used in place of ammonia within the SNCR NO_x abatement system. Section 4.2 (paragraphs 4.35 to 4.36) Section 4.4 (paragraphs 4.40 and 4.42 to 4.50) <ul style="list-style-type: none"> 4.42 to 4.50 – excluding reference to rainwater tank Section 4.7 (paragraph 4.74) <ul style="list-style-type: none"> 4.74 excluding reference to ammonia hydroxide Process diagram fig 4a showing recirculation of material to dry sorption reactor 	07/09/10

Table S1.2 Operating techniques		
Description	Parts	Date Received
Response to Schedule 5 Notice dated 27/09/10	Item 12	20/10/10
Application EPR/JP3135DK/V003	Section 2 of the application document (Application to Vary Permit Ref. EPR/JP3135DK, For: K3 CHP Operations Limited March 2017) provided in response to section 6, Part C3 of the application form.	Duly Made 08/06/17
Response to Schedule 5 Notice dated 16/06/17	Response to Schedule 5 notice (dated 16/06/17) providing a Fire Prevention Plan. In addition to further details regarding source of water used for ash quenching.	14/07/17
Additional information dated 25/07/17	Response to request for information providing further information regarding the Fire Prevention Plan.	02/08/17

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC1	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.	Within 12 months from commencement of operations
IC2	The Operator shall submit a written report to the Agency on the commissioning of the installation. The report shall summarise the environmental performance of the plant as installed against the design parameters set out in the Application. The report shall also include a review of the performance of the facility against the conditions of this permit and details of procedures developed during commissioning for achieving and demonstrating compliance with permit conditions.	Within 6 months of the completion of commissioning.
IC3	The Operator shall submit a written report to the Agency describing the performance and optimisation of the Selective Non Catalytic Reduction (SNCR) system and combustion settings to minimise oxides of nitrogen (NOx) emissions within the emission limit values described in this permit with the minimisation of nitrous oxide emissions. The report shall include an assessment of the level of NOx and N2O emissions that can be achieved under optimum operating conditions. The report shall also provide details of the optimisation (including dosing rates) for the control of acid gases and dioxins.	Within 6 months of the completion of commissioning.
IC4	The Operator shall carry out an assessment of the impact of emissions to air of all the component metals subject to emission limit values, i.e. Cd, Th, Hg, Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V. The assessment shall predict the impact of each metal against the relevant EQS/EAL through the use of emissions monitoring data during the first year of operation and air dispersion modelling. A report on the assessment shall be made to the Environment Agency.	18 months from commencement of operations
IC5	The Operator shall carry out checks to verify the residence time, minimum temperature and oxygen content of the exhaust gases in the furnace	Within 3 months of completion of commissioning.

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	whilst operating under the anticipated most unfavourable operating conditions. The results shall be submitted in writing to the Environment Agency.	
IC6	The Operator shall carry out the first review, required by condition 1.2.1. In considering energy efficiency measures, the effect of those measures on energy efficiency of the whole Kemsley Paper Mill installation shall be considered.	Within 2 years of commencement of operations
IC7	The Operator shall carry out a review of the option of incinerating sludge wastes from the paper mill. The Operator shall submit a summary of the review to the Environment Agency.	Within 15 months of commencement of operations

Table S1.4 Pre-operational measures		
Reference	Operation	Date
PO01	Prior to the commencement of commissioning, the Operator shall send a summary of the site Environment Management System (EMS) to the 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 Environment Agency web guide on developing a management system for environmental permits (found on www.gov.uk). 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.	Complete (see CAR 0343882 dated 16/10/19)
PO02	The Operator shall submit a written plan to the Agency for approval detailing the ash sampling protocol to be used for APC residues and bottom ash, in conformance to Agency Guidance. The plan shall be implemented in accordance with the Agency's written approval.	Complete (reference CAR 0318813 dated 13/11/18)
PO03	Prior to the commencement of commissioning; the Operator shall provide a written commissioning plan, including timelines for completion, for approval by the Agency. The commissioning plan shall include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the actions to be taken to protect the environment and report to the Agency in the event that actual emissions exceed expected emissions. Commissioning shall be carried out in accordance with the commissioning plan as approved.	Complete (reference CAR 0323354 dated 02/01/19)
PO04	At least 3 months before operation, the Operator shall carry out Computational Fluid Dynamics (CFD) modelling, to demonstrate whether the design combustion conditions comply with the residence time and temperature requirements of the Waste Incineration Directive. The operator	Ongoing (reference CAR 0309609 dated 27/06/18, and

	shall submit a report on the results of the CFD modelling to the Agency for approval.	CAR 0312577 dated 12/07/18)
PO05	At least 2 months before operation, The Operator shall submit the final drainage plan to the Environment Agency for approval. The drainage plan shall include details of secondary containment for any drains that could carry contaminated liquid and also details of secondary containment for underground rainwater and firewater tanks.	Ongoing (reference CAR 0347761 dated 03/12/19)
PO06	<p>Prior to the commencement of commissioning, the Operator shall submit a report on the baseline conditions of soil and groundwater at the installation. The report shall contain the information necessary to determine the state of soil and groundwater contamination so as to make a quantified comparison with the state upon definitive cessation of activities provided for in Article 22(3) of the IED. The report shall contain information, supplementary to that already provided in application Site Condition Report, needed to meet the information requirements of Article 22(2) of the IED.</p> <p>This shall include work to establish whether there is a link between the adjacent landfill site and contamination found in the shallow groundwater (with particular attention to levels of metals, ammonia, sulphite and chloride). The report shall also update the risk assessment for cadmium in saline water based on the correct EQS for saline water of 2.5 µg/l.</p>	Complete (reference CAR 0311205 dated 24/07/18)
PO7	<p>At least 6 months (or any other date as agreed in writing with the Environment Agency) prior to the commencement of commissioning of each activity in Table S1.1 of the permit, the Operator shall submit a revised fire prevention plan to the Environment Agency and obtain the Environment Agency's written approval to it, unless otherwise agreed in writing. The plan shall take into account the Environment Agency's technical guidance, Fire prevention plans (dated November 2016).</p> <p>The appropriate measures for fire prevention shall, aim to meet the following objectives:</p> <ul style="list-style-type: none"> • minimise the likelihood of a fire happening; • aim for a fire to be extinguished within 4 hours; • minimise the spread of fire within the site and to neighbouring sites. <p>The Operator shall implement the procedures and measures as approved by the Environment Agency.</p>	Complete (reference CAR 0305238 dated 17/04/18)
PO8	The Operator shall submit the written protocol referenced in condition 3.2.4 for the monitoring of soil and groundwater for approval by the Environment Agency. The protocol shall demonstrate how the Operator will meet the requirements of Articles 14(1)(b), 14(1)(e) and 16(2) of the IED. The procedure shall be implemented in accordance with the written approval from the Environment Agency.	Complete (reference CAR 0318834 dated 13/11/18)

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
Fuel Oil	< 0.1% sulphur content

Table S2.2 Permitted waste types and quantities for incineration plant	
Maximum quantity	657,000 tonnes per year
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 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 01	sludges from washing, cleaning, peeling, centrifuging and separation
02 03 02	wastes from preserving agents
02 03 03	wastes from solvent extraction
02 03 04	materials unsuitable for consumption or processing
02 03 05	sludges from on-site effluent treatment
02 05	wastes from the dairy products industry
02 05 01	materials unsuitable for consumption or processing
02 05 02	sludges from on-site effluent treatment
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 06 03	sludges from on-site effluent treatment
02 07	wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)
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
02 07 05	sludges from on-site effluent treatment
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 02	green liquor sludge (from recovery of cooking liquor)
03 03 05	de-inking sludges from paper recycling
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
03 03 11	sludges from on-site effluent treatment other than those mentioned in 03 03 10
04 02	wastes from the textile industry
04 02 15	wastes from finishing other than those mentioned in 04 02 14
04 02 21	wastes from unprocessed textile fibres
04 02 22	wastes from processed textile fibres
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 (only if contaminated and unsuitable for recycling at the paper mill)
15 01 02	plastic packaging
15 01 03	wooden 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
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 19	plastic
17	Construction and demolition wastes (including excavated soil from contaminated sites)
17 02	wood, glass and plastic
17 02 01	wood
17 02 03	plastic
17 09	other construction and demolition wastes
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 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 (only if contaminated and unsuitable for recycling at the paper mill)
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
20	Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions
20 01	separately collected fractions (except 15 01)
20 01 01	paper and cardboard (only if contaminated and unsuitable for recycling at the paper mill)
20 01 08	biodegradable kitchen and canteen waste
20 01 10	clothes
20 01 11	textiles
20 01 25	edible oil and fat
20 01 28	paint, inks, adhesives and resins other than those mentioned in 20 01 27
20 01 38	wood other than that mentioned in 20 01 37
20 01 39	plastics
20 02	garden and park wastes (including cemetery waste)
20 02 01	biodegradable waste
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 04	septic tank sludge
20 03 06	waste from sewage cleaning
20 03 07	bulky waste

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
A1 & A2 (shown on fig 5 in application)	Particulate matter	Incineration exhaust gases via heat recovery boiler and APC plant	30 mg/m ³	½-hr average	Continuous measurement	BS EN 15267-3 and BS EN 14181
A1 & A2 (shown on fig 5 in application)	Particulate matter	Incineration exhaust gases via heat recovery boiler and APC plant	10 mg/m ³	daily average	Continuous measurement	BS EN 15267-3 and BS EN 14181
A1 & A2 (shown on fig 5 in application)	Total Organic Carbon (TOC)	Incineration exhaust gases via heat recovery boiler and APC plant	20 mg/m ³	½-hr average	Continuous measurement	BS EN 15267-3 and BS EN 14181
A1 & A2 (shown on fig 5 in application)	Total Organic Carbon (TOC)	Incineration exhaust gases via heat recovery boiler and APC plant	10 mg/m ³	daily average	Continuous measurement	BS EN 15267-3 and BS EN 14181
A1 & A2 (shown on fig 5 in application)	Hydrogen chloride	Incineration exhaust gases via heat recovery boiler and APC plant	60 mg/m ³	½-hr average	Continuous measurement	BS EN 15267-3 and BS EN 14181
A1 & A2 (shown on fig 5 in application)	Hydrogen chloride	Incineration exhaust gases via heat recovery boiler and APC plant	10 mg/m ³	daily average	Continuous measurement	BS EN 15267-3 and BS EN 14181

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

Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
A1 & A2 (shown on fig 5 in application)	Hydrogen fluoride	Incineration exhaust gases via heat recovery boiler and APC plant	2 mg/m ³	periodic over minimum 1-hour period	Quarterly in first year. Then Bi-annual	BS ISO 15713
A1 & A2 (shown on fig 5 in application)	Carbon monoxide	Incineration exhaust gases via heat recovery boiler and APC plant	150 mg/m ³	95% of all 10-minute averages in a calendar day	Continuous measurement	BS EN 14181
A1 & A2 (shown on fig 5 in application)	Carbon monoxide	Incineration exhaust gases via heat recovery boiler and APC plant	50 mg/m ³	daily average	Continuous measurement	BS EN 15267-3 and BS EN 14181
A1 & A2 (shown on fig 5 in application)	Sulphur dioxide	Incineration exhaust gases via heat recovery boiler and APC plant	200 mg/m ³	½-hr average	Continuous measurement	BS EN 15267-3 and BS EN 14181
A1 & A2 (shown on fig 5 in application)	Sulphur dioxide	Incineration exhaust gases via heat recovery boiler and APC plant	50 mg/m ³	daily average	Continuous measurement	BS EN 15267-3 and BS EN 14181
A1 & A2 (shown on fig 5 in application)	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	Incineration exhaust gases via heat recovery boiler and APC plant	400 mg/m ³	½-hr average	Continuous measurement	BS EN 15267-3 and BS EN 14181
A1 & A2 (shown on fig 5 in application)	Oxides of nitrogen (NO and NO ₂)	Incineration exhaust gases via heat recovery	200 mg/m ³	daily average	Continuous measurement	BS EN 15267-3 and BS EN 14181

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

Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
	expressed as NO ₂)	boiler and APC plant				
A1 & A2 (shown on fig 5 in application)	Cadmium & thallium and their compounds (total)	Incineration exhaust gases via heat recovery boiler and APC plant	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 (shown on fig 5 in application)	Mercury and its compounds	Incineration exhaust gases via heat recovery boiler and APC plant	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 (shown on fig 5 in application)	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	Incineration exhaust gases via heat recovery boiler and APC plant	0.5 mg/m ³	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
A1 & A2 (shown on fig 5 in the application)	Dioxins / furans (I-TEQ)	Incineration exhaust gases via heat recovery boiler and APC plant	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 (shown on fig 5 in the application)	Ammonia	Incineration exhaust gases via heat recovery boiler and APC plant	No limit set	Record Daily average and half-hourly average	Continuous	BS EN 15267-3 and BS EN 14181
A1 & A2 (shown on fig 5 in the application)	Nitrous oxide (N ₂ O)	Incineration exhaust gases via heat recovery boiler and APC plant	No limit set	Record Daily average and half-hourly average	Continuous	BS EN 15267-3 and BS EN 14181

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

Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
A1 & A2 (shown on fig 5 in the application)	Dioxin-like PCBs (WHO-TEQ Humans / Mammals)	Incineration exhaust gases via heat recovery boiler and APC plant	No limit set	Average value over sample period of between 6 and 8 hours.	Quarterly in the first year of operation, then bi-annual periodic measurement	BS EN/TS 1948-4
A1 & A2 (shown on fig 5 in the application)	Dioxin-like PCBs (WHO-TEQ Fish)	Incineration exhaust gases via heat recovery boiler and APC plant	No limit set	Average value over sample period of between 6 and 8 hours.	Quarterly in the first year of operation, then bi-annual periodic measurement	BS EN/TS 1948-4
A1 & A2 (shown on fig 5 in the application)	Dioxin-like PCBs (WHO-TEQ Birds)	Incineration exhaust gases via heat recovery boiler and APC plant	No limit set	Average value over sample period of between 6 and 8 hours.	Quarterly in the first year of operation, then bi-annual periodic measurement	BS EN/TS 1948-4
A1 & A2 (shown on fig 5 in the application)	Specific individual poly-cyclic aromatic hydrocarbons (PAHs), as specified in Schedule 6.	Incineration exhaust gases via heat recovery boiler and APC plant	No limit set	Average value over sample period of between 6 and 8 hours.	Quarterly in the first year of operation, then bi-annual periodic measurement	Procedure shall use BS ISO 11338-1 and BS-ISO 11338-2.
A1 & A2 (shown on fig 5 in the application)	Dioxins / furans (WHO-TEQ Humans / Mammals)	Incineration exhaust gases via heat recovery boiler and APC plant	No limit set	Average value over sample period of between 6 and 8 hours.	Quarterly in the first year of operation, then bi-annual periodic measurement	BS EN 1948 Parts 1, 2 and 3
A1 & A2 (shown on fig 5 in the application)	Dioxins / furans (WHO-TEQ Fish)	Incineration exhaust gases via heat recovery boiler and APC plant	No limit set	Average value over sample period of between 6 and 8 hours.	Quarterly in the first year of operation, then bi-annual periodic measurement	BS EN 1948 Parts 1, 2 and 3

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

Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
A1 & A2 (shown on fig 5 in the application)	Dioxins / furans (WHO-TEQ Birds)	Incineration exhaust gases via heat recovery boiler and APC plant	No limit set	Average value over sample period of between 6 and 8 hours.	Quarterly in the first year of operation, then bi-annual periodic measurement	BS EN 1948 Parts 1, 2 and 3
A3 as shown on the Emissions Point Plan Ref. 9677-0077-01, as submitted with application EPR/JP3135DK/V003	No parameter set	Emergency Diesel Generator	No limit set	--	--	--
A4 as shown on the Emissions Point Plan Ref. 9677-0077-01, as submitted with application EPR/JP3135DK/V003	Air and Water Vapour as Steam	Ventilation pipe from bottom ash discharger	No limit set	--	--	--

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

Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 & A2 (shown on fig 5 in application)	Particulate matter	Incineration exhaust gases via heat recovery boiler and APC plant	150 mg/m ³	½-hr average	Continuous measurement	BS EN 15267-3 and BS EN 14181 during abatement plant failure
A1 & A2 (shown on fig 5 in application)	Total Organic Carbon (TOC)	Incineration exhaust gases via heat recovery boiler and APC plant	20 mg/m ³	½-hr average	Continuous measurement	BS EN 15267-3 and BS EN 14181 during abatement plant failure
A1 & A2 (shown on fig 5 in application)	Carbon monoxide	Incineration exhaust gases via heat recovery boiler and APC plant	150 mg/m ³	95% of all 10-minute averages in a calendar day	Continuous measurement	BS EN 15267-3 and BS EN 14181 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 (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
W1 (outfall to The Swale shown on fig 7 in the application)	Uncontaminated rainwater runoff	No parameters set	No limit set	--	--	--

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
As agreed in writing with the Agency	Wind Speed and Direction	Continuous	Anemometer	
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 Agency.
A1 & A2 (shown on fig 5 in application)	Exhaust gas temperature	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A1 & A2 (shown on fig 5 in application)	Exhaust gas pressure	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A1 & A2 (shown on fig 5 in application)	Exhaust gas oxygen content	Continuous	BS EN 15267-3 BS EN 14181	
A1 & A2 (shown on fig 5 in application)	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	LOI	<5%	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	--

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	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds	No limit set	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	--
	Dioxins/furans				
	Dioxin-like PCBs.				
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,	No limit set	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	--
	Dioxins/furans				
	Dioxin-like PCBs.				

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
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'	--

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	Quarterly	1 Jan, 1 Apr, 1 Jul and 1 Oct
Process monitoring requirements Parameters as required by condition 3.5.1	As described in table S3.3	As requested by an authorised officer of the Environment Agency.	Start of commissioning
Residue quality Parameters as required by condition 3.5.1	Bottom Ash APC Residues	Monthly in 1 st year of operation, quarterly thereafter	Start of commissioning
		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 Municipal Waste incinerated	tonnes
Total Commercial Waste incinerated	tonnes
Total SRF waste incinerated	tonnes
Total other wastes incinerated	tonnes
Electrical energy exported	KWh
Electrical energy used on installation	KWh
Energy exported as heat to Paper Mill	KWh

Table S4.3 Performance parameters		
Parameter	Frequency of assessment	Units
Electrical energy exported, imported and used at the installation	Quarterly	KWh / tonne of waste incinerated (dry basis)
Fuel oil consumption	Quarterly	Litres / tonne of waste incinerated (dry basis)
Mass of Bottom Ash produced	Quarterly	Kgs / tonne of waste incinerated (dry basis)
Mass of APC residues produced	Quarterly	Kgs / tonne of waste incinerated (dry basis)

Table S4.3 Performance parameters		
Parameter	Frequency of assessment	Units
Dry Urea consumption	Quarterly	Litres / tonne of waste incinerated (dry basis)
Activated Carbon consumption	Quarterly	Kg / tonne of waste incinerated (dry basis)
Lime consumption	Quarterly	Kg / tonne of waste incinerated (dry basis)
Water consumption	Quarterly	Litres / tonne of waste incinerated (dry basis)

Table S4.4 Reporting forms		
Media/parameter	Reporting format	Date of form
Air	Forms air 1 to air 7 or other forms as agreed in writing by the Environment Agency	29/07/20
Water and raw material usage	Form WU/RM1 1 or other form as agreed in writing by the Environment Agency	29/07/20
Energy usage/export	Form E 1 or other form as agreed in writing by the Environment Agency	29/07/20
Waste disposal/recovery	Form R1 or other form as agreed in writing by the Environment Agency	29/07/20
Residue monitoring	Form residue 1 or other form as agreed in writing by the Environment Agency	29/07/20
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	29/07/20

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 or as agreed with the Environment Agency.

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

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

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

“emissions to land” includes emissions to groundwater.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 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 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.

“Hazardous property” has the meaning in Annex III of the Waste Framework Directive

“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 and there is no waste being burned as described in the application or agreed in writing with the Environment Agency.

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

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

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes 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
- (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.

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.

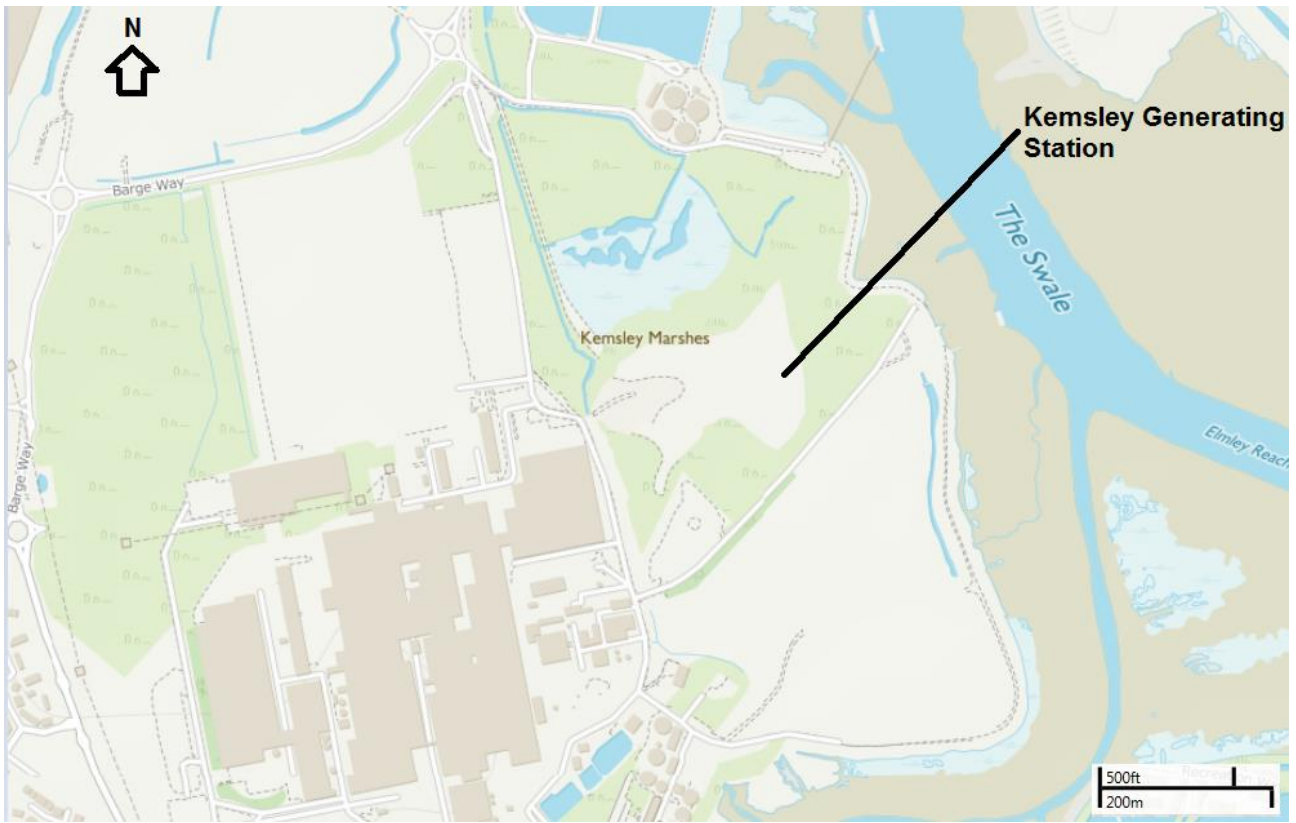
TEF schemes for dioxins and furans				
Congener	I-TEF	WHO-TEF		
	1990	2005	1997/8	
		Humans / Mammals	Fish	Birds
Dioxins				
2,3,7,8-TCDD	1	1	1	1
1,2,3,7,8-PeCDD	0.5	1	1	1
1,2,3,4,7,8-HxCDD	0.1	0.1	0.5	0.05
1,2,3,6,7,8-HxCDD	0.1	0.1	0.01	0.01
1,2,3,7,8,9-HxCDD	0.1	0.1	0.01	0.1
1,2,3,4,6,7,8-HpCDD	0.01	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

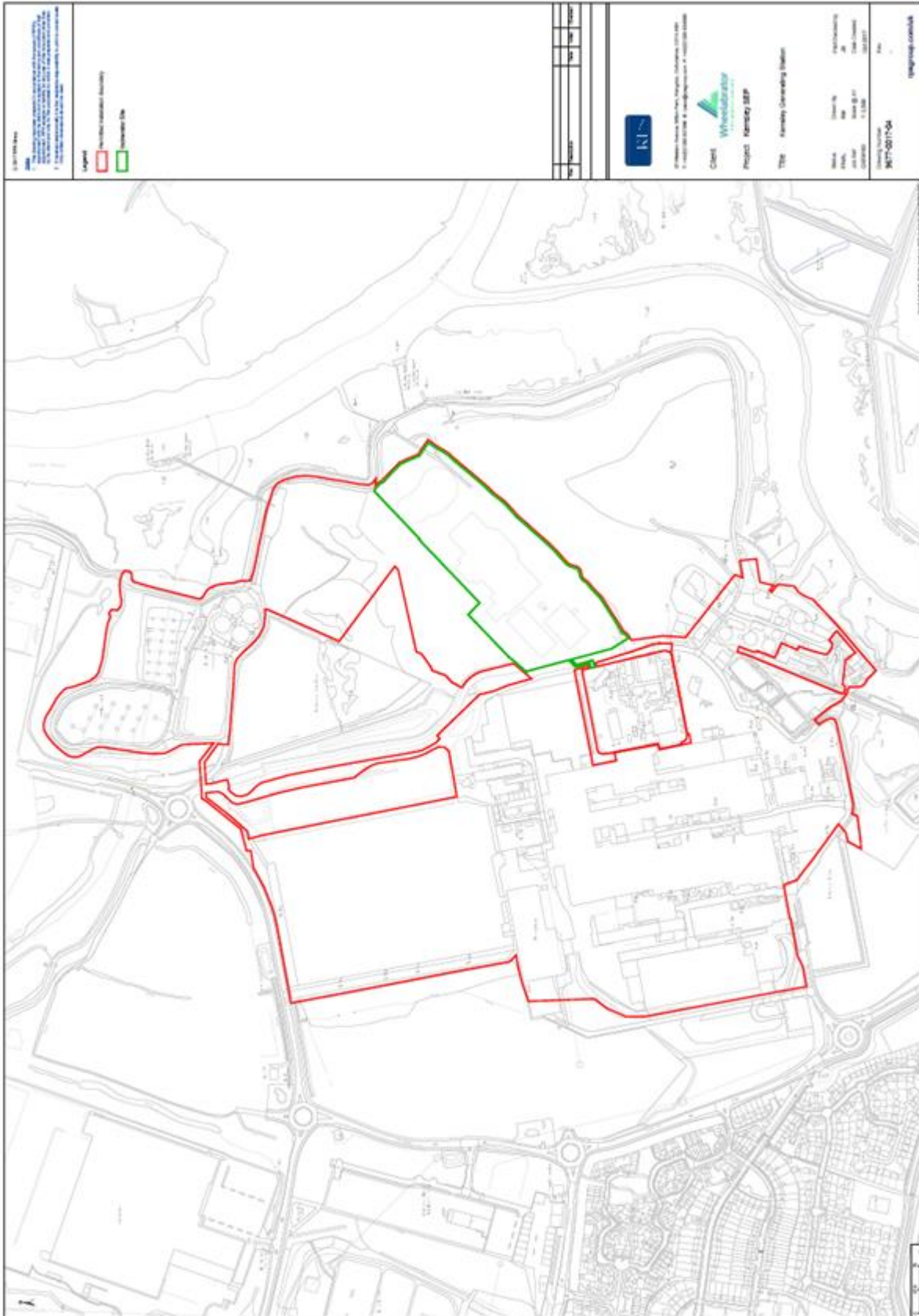
TEF schemes for dioxin-like PCBs			
Congener	WHO-TEF		
	2005	1997/8	
	Humans / mammals	Fish	Birds
2,3',4,4',5-PeCB (118)	0.00003	<0.000005	0.00001
2',3,4,4',5-PeCB (123)	0.00003	<0.000005	0.00001
2,3,3',4,4',5-HxCB (156)	0.00003	<0.000005	0.0001
2,3,3',4,4',5'-HxCB (157)	0.00003	<0.000005	0.0001
2,3',4,4',5,5'-HxCB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

Site Location Plan



Installation Boundary Plan



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