



ENVIRONMENT  
AGENCY

## Variation Notice with introductory note

Pollution Prevention and Control (England & Wales) Regulations 2000

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Energy from Waste Plant  
SITA Tees Valley Limited  
Haverton Hill Road  
Billingham  
TS23 1PY

Variation Notice Number  
FP3832UU

Permit number  
VP3034SG

# Energy from Waste Plant

## Permit Number VP3034SG

### Introductory note

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

The following notice is issued under regulation 17 of The Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I.2000 No. 1973 (as amended) (the Regulations) to vary the conditions of a permit issued under the Regulations to operate an installation. The notice comprises schedule 1 containing conditions to be deleted, schedule 2 conditions to be amended and schedule 3 conditions to be added.

The changes introduced by this Variation notice follow an application by the Operator, 'SITA Tees Valley Limited' to operate an additional incineration process line (line 3) in order to increase the operational capacity of the Teeside municipal waste incinerator plant by approximately 50 percent.

The proposed line will be located in an extension to the existing building with emissions to atmosphere being discharged via a redundant flue within the existing stack. Line 3 will be completely independent and will produce an additional source of power via a separate steam turbine linked to an electricity generator. It is anticipated that this line will allow the additional processing of a nominal feed rate of 16 t.hr<sup>-1</sup> municipal solid waste (MSW) at a typical gross calorific value (C.V.) of around 9.5Mj.kg<sup>-1</sup>.

Although similar in process to lines 1 and 2, line 3 will adopt various alternative technologies reflecting advances in technology.

The main changes concern the abatement of air emissions, whereby hydrated lime is utilised as an alternative to lime slurry within the flue gas treatment system, and the use of air for cooling as an alternative to water from the River Tees. These technologies, together with the sharing of other technologies and operations from lines 1 and 2 will ensure that the Operator meets Best Available Techniques (BAT) and complies with the Waste Incineration Directive (WID).

Status Log of the permit		
Detail	Date	Response Date
Application VP3034SG	Duly made 24/03/05	
Schedule 4 Notice request for information	Request dated 08/06/05	22/06/05
Letter from Applicant	31/08/05	
Letter from Applicant	31/08/05	
Letter from Applicant	12/10/05	
E-mail from Applicant	22/11/05	
E-mail from Incineration Sector Co-ordinator	25/11/05	
Plan of release points and visit report	25/11/05	
Permit determined	25/11/05	
Application for variation (FP3832UU)	Duly made 08/06/07	
Additional information	Request dated 15/11/07	21/11/07
Additional information	Request dated 15/11/07	22/11/07
Letter from Applicant – amendments		Dated 21/11/07, Received 22/11/07.
Schedule 4 Notice request for information	Request dated 18/12/07	Dated 21/12/07, Received 24/12/07
Schedule 4 Notice request for information	Request dated 05/03/08	Dated 08/04/08.
Variation notice FP3832UU issued	22/08/08	

Other PPC permits relating to this installation		
Operator	Permit Number	Date of Issue
Not Applicable	-	-

Superseded Licences/Authorisations/Consents relating to this installation			
Holder	Reference Number	Date of Issue	Fully or Partially Superseded
SITA Holdings UK Ltd	AW4380	01/08/94	Fully superseded

Other existing Licences/Authorisations/Registrations relating to this site			
Holder	Reference Number	Date of issue	
Abstraction Consent	1/25/04/161	03/01/95	
Consent to Discharge trade effluent (site drainage)	254/1891	31/10/05	
Consent to Discharge septic tank effluent	254/1897	31/10/05	

End of Introductory Note

**Variation Notice**

Pollution Prevention and Control  
(England and Wales) Regulations 2000

## Variation Notice

Permit number

**VP3034SG**

Variation number

**FP3832UU**

The Environment Agency (the Agency) in exercise of its powers under Regulation 17 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (SI 2000 No 1973) hereby varies the permit held by you

**SITA Tees Valley Limited** ("the operator"),

whose principal office is

**Haverton Hill Road**

**Billingham**

**Teeside**

**TS23 1PY**

company registration number **2669578**

to operate an installation at

**Energy from Waste Plant**

**Haverton Hill Road**

**Billingham**

**Teeside**

**TS23 1PY**

to the extent set out in schedules 1 to 3 of this variation notice.

The notice shall take effect from 22/08/2008.

Signed	Date

J. M. Ingram

Authorised to sign on behalf of the Agency

## SCHEDULE 1 – CONDITIONS AND SCHEDULES TO BE DELETED

None.

## SCHEDULE 2 – CONDITIONS AND SCHEDULES TO BE AMENDED

The following conditions are amended as follows

# Conditions

## 1 General

### 1.1 Permitted Activities

1.1.1 The Operator is authorised to carry out the activities and the associated activities specified in Table 1.1.1.

**Table 1.1.1 - Permitted Activities**

Activity listed in Schedule 1 of the PPC Regulations or Directly- Associated Activity	Description of specified activity	Limits of specified activity
Section 5.1 Part A(1)(c)	The Incineration of non-hazardous waste in an incineration plant with a capacity of 1 tonne or more per hour.	The entire incineration plant including all incineration lines, waste reception, storage, on site pre-treatment facilities, waste-fuel and air-supply systems, boiler, facilities for the treatment of exhaust gases, on-site facilities for treatment or storage of residues and waste water, stack, devices and systems for controlling incineration operations recording and monitoring incineration conditions.  Maximum throughput of 456,000 tonnes per annum.  Does not include the adjacent bottom ash recycling plant.
<b>Directly Associated Activity</b>		
Directly Associated Activity	Operation of power plants including boilers and steam turbines.	A significant proportion of which is exported to the National Grid. Emissions to water and periodically to sewer.

### 1.2 Site

1.2.1 The activities authorised under condition 1.1.1 shall not extend beyond the Site, being the land shown edged in green on the Site Plan at Schedule 5 to this Notice.

## 1.4 Improvement Programme

- 1.4.1 The Operator shall complete the improvements specified in Table 1.4.1 by the date specified in that table, and shall send written notification of the date of completion of each requirement to the Agency within 14 days of the completion of each such requirement.

Table 1.4.1: Improvement programme		
Reference	Requirement	Date
IC1	<p>The operator shall analyse the composition of boiler blow-down water utilising representative samples from lines A1 and A2, and line A3.</p> <p>A report shall be submitted to the Agency detailing the methods used and results obtained, together with data relating to the discharge frequencies of this effluent to emission point SW4.</p> <p>The report shall also include an impact assessment (for example H1) for the discharge of this stream to the River Tees. The results from this assessment may be used for the setting of limits or any additional monitoring requirements within Permit condition 2.2.2.8.</p>	6 months from date of permit issue.
IC2	<p>The Operator shall undertake an environmental impact assessment (for example H1) for emissions of Nitrous Oxide (N<sub>2</sub>O) from the Installation taking into account potential contributions of N<sub>2</sub>O towards Global Warming.</p> <p>The results shall be submitted to the Agency together with a report detailing any identified improvements. This shall include, but not be limited to, proposals for the monitoring of Nitrous Oxide (N<sub>2</sub>O) emissions for incinerator lines 1 and 2, in accordance with Indicative BAT requirements for the control of point-source emissions to air (2.2.1.2 – 36) SGN S5.01 "Guidance for the Incineration of Waste and Fuel Manufactured from or Including Waste".</p> <p>Future monitoring requirements may be imposed within condition 2.10.4 of the Permit following completion of this condition.</p>	6 months from date of permit issue.
IC3	<p>The Operator shall verify the residence time, the minimum combustion temperature, and the oxygen content of the exhaust gases from line 3 in accordance with Article 11(3) of the Waste Incineration Directive.</p> <p>A summary report shall be provided to the Agency documenting the findings.</p>	6 months from date of permit issue.
IC4	<p>The Operator shall calibrate and verify the performance of Continuous Emissions Monitors for release point A3 and parameters specified within table 2.2.2 to BS EN 14181 and submit a summary report to the Environment Agency as evidence of compliance with the requirements of BS EN 14181.</p>	6 months from the commissioning of incineration line A3
IC5	<p>The Operator shall undertake a noise assessment during normal operations for incineration line A3 in accordance with the procedures given in BS4142: 1997 (Rating industrial noise affecting mixed residential and industrial areas) and BS7445: 2003 (Description and measurement of environmental noise) or other methodology as agreed with the Agency - in order to verify the assessment provided within the application. The assessment shall include, but not be limited to:</p> <p>A review of the noise sources from the facility. Where any noise source(s) are identified as exhibiting tonal contributions, they shall be quantified by means of frequency analysis.</p> <p>A review of noise levels from static plant,</p> <p>A review of predicted noise levels from Line A3 in order to substantiate those stated within the application.</p> <p>A report shall be provided to the Agency detailing the findings of the assessment.</p>	6 months from the commissioning of incineration line A3
IC6	<p>The Operator shall submit a proposal to the Agency to carry out tests to determine the size distribution of the particulate matter in the exhaust gas emissions to air from emission points A3, identifying the fractions within the PM<sub>10</sub>, PM<sub>2.5</sub> and PM<sub>1.0</sub> ranges.</p> <p>The proposal shall include a timetable to carry out such tests and produce a report on the results. On receipt of written agreement by the Agency to the proposal and the timetable, the Operator shall carry out the tests and submit to the Agency a report on the results. Report on size distribution tests to be submitted to the Agency within 2 months of the end of the agreed timetable.</p>	9 months from date of permit issue.

IC7	The Operator shall assess current monitoring frequencies for monitoring Ammonia (NH <sub>3</sub> ) and Nitrous Oxide (N <sub>2</sub> O) emissions from emission points A1, A2 and A3, and shall consider options available for the implementation of a continuous monitoring system.  A written summary shall be provided to Agency documenting the findings, together with a timetable for the implementation of any improvements identified.	12 months from date of permit issue.
IC8	The Operator shall update the Site Protection and Monitoring Plan in accordance with Permit condition 4.1.8 (VP3034SG), taking into account all relevant Agency Technical Guidance, including horizontal guidance note H7.  The updated plan shall be submitted to the Agency in writing.	12 months from date of permit issue.

## 1.6 Pre-Operational Conditions

- 1.6.1 The activities shall not be brought into operation until the measures specified in Table 1.6.1 have been completed.

**Table 1.6.1: Pre-Operational Conditions**

Reference	Pre-operational measures
1	The Operator shall conduct to the satisfaction of the Agency a risk assessment of dioxin releases from the Installation considering direct and indirect exposure, and dermal contact. The risk assessment may utilise HMIP (Her Majesty's Inspectorate of Pollution) assumptions and methodologies titled "Risk Assessment of Dioxin Releases from Municipal Waste Incineration Processes" or any other suitable model. Predicted daily intake rates shall be compared to tolerable daily intake (TDI) rates from both the UK Committee on Toxicity of Chemicals and the World Health Organisation standards.  On completion of the assessment, a report shall be submitted to the Agency for approval in writing.
2	At least 2 weeks before the operation of line 3, the operator shall submit a report demonstrating that all procedures and operating instructions are in place and required operator training has taken place prior to the handover from commissioning to normal operations.
3	The Operator shall undertake a review of fuel oil storage facilities (to include testing of tanks) following installation of the additional storage tank and relocation of existing tanks.  A summary report shall be submitted to the Agency detailing the findings of the review together with details of implemented measures in order to comply with the requirements of Statutory Instrument 2001 No. 2954 "The Control of Pollution (Oil Storage) (England) Regulations 2001".
4	The Operator shall update the Site Closure Plan in accordance with section 2.11 of SGN IPPC S5.01 'Guidance for the Incineration of Waste and Fuel Manufactured from or Including Waste'.  The updated plan shall be submitted to the Agency in writing.
5	The Operator shall submit an updated Accident Management Plan to the Agency, detailing measures required in order to comply with the requirements of section 2.8 of SGN IPPC S5.01 'Guidance for the Incineration of Waste and Fuel Manufactured from or Including Waste'.  The plan shall include, but not be limited to, identification of the techniques necessary to reduce the risks, namely for that of firewater containment, and shall identify any required improvements, together with a timetable for their implementation.

## 2 Operating conditions

### 2.1 In-Process Controls

2.1.1 The Permitted Installation shall, subject to the conditions of this Permit, be operated using the techniques and in the manner described in the documentation specified in Table 2.1.1, or as otherwise agreed in writing by the Agency in accordance with conditions 1.5.1 and 1.5.2 of this Permit.

**Table 2.1.1: Operating techniques**

Description	Parts	Date Received
Application for the incineration of municipal waste	Section 2.1 and 2.2, on pages 9 – 89 of the Application.	24/03/05
Operator response to the Schedule 4 Notice issued on 08/06/05	Answers to questions 1 to 11	Schedule 4 responses received on 22/06/05
Permit Variation Application	Section c2.1, c2.2 and Section 4 "Statement of compliance with BAT" including Appendices 1 - 3	08/06/07
Schedule 4 Notice Requiring Further Information issued on 18/12/07	Response detailing:- <ul style="list-style-type: none"> <li>• Additional air emission release points</li> <li>• Oil storage</li> <li>• Abatement systems</li> </ul>	24/12/07
Schedule 4 Notice Requiring Further Information issued on 05/03/08	Response detailing – <ul style="list-style-type: none"> <li>• Details relating to incineration techniques and Global Warming Potential.</li> <li>• Details relating to selection of NOx abatement technology.</li> <li>• Assessment of energy efficiency and direct and indirect impacts on climate change.</li> </ul>	08/04/08

2.1.3 Only the wastes specified in Schedule 6 shall be incinerated in the Permitted Installation in quantities not exceeding those specified for the waste types specified in Table 2.1.2.

**Table 2.1.2: Permitted Waste Types**

Waste type	Limitations	Maximum throughput
Mixed Municipal Waste	Excluding separately collected fractions unless recycling / recovery options cannot be exploited	456,000 tonnes per year



## 2.2 Emissions

### 2.2.1 Emissions to Air, (including heat, but excluding Odour, Noise or Vibration) from Specified Points.

2.2.1.2 Emissions to air from the emission points in Table 2.2.1 shall only arise from the sources specified in that Table.

**Table 2.2.1 : Emission points to air**

Emission point	Source	Location of emission point
A1	Main stack Incinerator line 1	Point A1 on plan A in the Application
A2	Main stack Incinerator line 2	Point A2 on plan A in the Application
A3	Main stack Incinerator line 3	Point A20 on drawing 10141817
A4	Super heated steam system emergency release	Point A3 on plan A in the Application
A5	Super heated steam system emergency release	Point A4 on plan A in the Application
A6	Super heated steam system emergency release	Point A21 on drawing 10141817
A7	Propane storage venting	Point A5 on plan A in the Application
A8	Lime storage silo vent	Point A6 on plan A in the Application
A9	Lime silo (exhaust filter for hydrated lime storage line 3)	Point A25 on drawing 10141817
A10	Boiler blowdown vessel vent 1	Point A7 on plan A in the Application
A11	Boiler blowdown vessel vent 2	Point A8 on plan A in the Application
A12	Boiler blowdown vessel vent 3	Point A22 on drawing 10141817
A13	APC residues silo vent 1	Point A9 on plan A in the Application
A14	APC residues silo vent 2	Point A10 on plan A in the Application
A15	APC residues silo vent 3	Point A23 on drawing 10141817
A16	Diesel oil storage vent 1	Point A11 on plan A in the Application
A17	Diesel oil storage vent 2	Point A12 on plan A in the Application
A18	Fuel oil storage (line 3)	Point A24 on drawing 10141816
A19	Emergency generator for RWC	Point A13 on plan A in the Application
A20	Emergency generator diesel tank (line 3)	Point A35 on drawing 10141816
A21	Emergency generator for essential services	Point A14 on plan A in the Application
A22	Carbon silo vent	Point A15 on plan A in the Application
A23	Activated carbon silo	Point A30 on drawing 10141817
A24	Lime mixing tank emergency release vent 1	Point A16 on plan A in the Application
A25	Lime mixing tank emergency release vent 2	Point A17 on plan A in the Application
A26	Start up vent 1	Point A18 on plan A in the Application
A27	Start up vent 2	Point A19 on plan A in the Application
A28	Start up and shutdown vent (line 3)	Point A26 on drawing 10141817

2.2.1.3 The limits for emissions to air for the parameters and emission points set out in Table 2.2.2 shall not be exceeded except during a period of abnormal operation. During a period of abnormal operation, the limits for emissions to air for the parameters and emission points set out in Table 2.2.2 (a) shall not be exceeded.

**Table 2.2.2 : Emission limits to air and monitoring during normal operation**

Emission point(s) reference	Parameter	Limit for each emission point (including Reference Period) Note 1 100% compliance	Monitoring frequency	Monitoring method
A1, A2, A3	Particulate matter	30 mg/m <sup>3</sup> ½-hr average	Continuous measurement	BS EN 13284-2 (or ISO 10155 if agreed in writing by the Agency). Note 6, 8.
A1, A2, A3	Particulate matter	10 mg/m <sup>3</sup> daily average	Continuous measurement	BS EN 13284-2 (or ISO 10155 if agreed in writing by the Agency). Note 6, 8.
A1, A2, A3	Particulate matter	20 mg/m <sup>3</sup> periodic over minimum 1-hour period	Bi-annual	BS EN 13284-2 (or ISO 10155 if agreed in writing by the Agency).
A1, A2, A3	Total Organic Carbon (TOC)	20 mg/m <sup>3</sup> ½-hr average	Continuous measurement	BS EN 12619 Note 6, 8.
A1, A2, A3	Total Organic Carbon (TOC)	10 mg/m <sup>3</sup> daily average	Continuous measurement	BS EN 12619 Note 6, 8.
A1, A2, A3	Total Organic Carbon (TOC)	20 mg/m <sup>3</sup> periodic over minimum 1-hour period	Bi-annual	BS EN 12619
A1, A2, A3	Hydrogen chloride	60 mg/m <sup>3</sup> ½-hr average	Continuous measurement	MCERTS certified instruments Note 7, 9.
A1, A2, A3	Hydrogen chloride	10 mg/m <sup>3</sup> daily average	Continuous measurement	MCERTS certified instruments Note 7, 9.
A1, A2, A3	Hydrogen chloride	30 mg/m <sup>3</sup> periodic over minimum 1-hour period	Bi-annual <sup>Note 10</sup>	BS EN 1911 (or alternative method agreed in writing by the Agency).
A1, A2, A3	Hydrogen fluoride	2 mg/m <sup>3</sup> periodic over minimum 1-hour period	Bi-annual <sup>Note 10</sup>	USEPA Method 26/26A
A1, A2, A3	Carbon monoxide	100 mg/m <sup>3</sup> ½-hr average	Continuous measurement	BS EN 15058 (or ISO 12039 if agreed in writing by the Agency). <sup>Note 4, 8.</sup>
A1, A2, A3	Carbon monoxide	50 mg/m <sup>3</sup> daily average	Continuous measurement	BS EN 15058 (or ISO 12039 if agreed in writing by the Agency). <sup>Note 4, 8.</sup>
A1, A2, A3	Carbon monoxide	100 mg/m <sup>3</sup> periodic over minimum 4 hour period, data to be reported as ½-hour averages	Bi-annual <sup>Note 10</sup>	BS EN 15058 (or ISO 12039 if agreed in writing by the Agency). <sup>Note 4, 8.</sup>

**Table 2.2.2 : Emission limits to air and monitoring during normal operation**

Emission point(s) reference	Parameter	Limit for each emission point (including Reference Period) Note 1 100% compliance	Monitoring frequency	Monitoring method
A1, A2, A3	Sulphur dioxide	200 mg/m <sup>3</sup> ½-hr average	Continuous measurement	BS 6069-4.4 Note 5, 8.
A1, A2, A3	Sulphur dioxide	50 mg/m <sup>3</sup> daily average	Continuous measurement	BS 6069-4.4 Note 5, 8.
A1, A2, A3	Sulphur dioxide	200 mg/m <sup>3</sup> periodic over minimum 4 hour period, data to be reported as ½ hour averages	Bi-annual	BS EN 14791 (or BS 6069-4.1 if agreed in writing by the Agency).
A1, A2, A3	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	400 mg/m <sup>3</sup> ½-hr average	Continuous measurement	ISO 10849 Note 5, 8.
A1, A2, A3	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	200 mg/m <sup>3</sup> daily average	Continuous measurement	ISO 10849 Note 5, 8.
A1, A2, A3	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	400 mg/m <sup>3</sup> periodic over minimum 4 hour period, data to be reported as ½- hour averages	Bi-annual	BS EN 14792 (or ISO 10849 if agreed in writing by the Agency).
A1, A2, A3	Cadmium & thallium and their compounds (total) Note 2	0.05 mg/m <sup>3</sup> periodic over minimum 30 minute, maximum 8 hour period	Quarterly <sup>Note 10</sup>	BS EN 14385
A1, A2, A3	Mercury and its compounds <sup>Note 2</sup>	0.05 mg/m <sup>3</sup> periodic over minimum 30 minute, maximum 8 hour period	Quarterly <sup>Note 10</sup>	BS EN 13211
A1, A2, A3	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total) <sup>Note 2</sup>	0.5 mg/m <sup>3</sup> periodic over minimum 30 minute, maximum 8 hour period	Quarterly <sup>Note 10</sup>	BS EN 14385
A1, A2, A3	Dioxins / furans (I-TEQ) Note 3	0.1 ng/m <sup>3</sup> periodic over minimum 6 hours, maximum 8 hour period	Bi-annual <sup>Note 10</sup>	BS EN 1948

Note 1 See Section 6 for reference conditions

Note 2 Metals include gaseous, vapour and solid phases as well as their compounds (expressed as the metal or the sum of the metals as specified). Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V mean antimony, arsenic, lead, chromium, cobalt, copper, manganese, nickel and vanadium respectively.

Note 3 The I-TEQ sum of the equivalence factors to be reported as a range based on: All congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit assumed to be at the detection limit as a maximum.

- Note 4 The Continuous Emission Monitors used shall be such that the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed 10%. Valid half-hourly average values shall be determined within the effective operating time (excluding the start-up and shut-down periods) from the measured values after having subtracted this value of the confidence interval (10%). Where it is necessary to calibrate or maintain the monitor and this means that data is not available for a complete half-hour period, the half-hourly average shall nonetheless be considered valid if measurements are available for a minimum of 20 minutes during the half-hour period. The number of half-hourly averages so validated shall not exceed 8 per day. Daily average values shall be determined as the average of all the valid half-hourly average values within a calendar day. The daily average value will be considered valid if no more than five half-hourly average values in any day have been determined not to be valid. No more than ten daily average values per year shall be determined not to be valid.
- Note 5 As <sup>Note 4</sup>, except that the value of the confidence interval is 20% in place of 10%.
- Note 6 As <sup>Note 4</sup>, except that the value of the confidence interval is 30% in place of 10%.
- Note 7 As <sup>Note 4</sup>, except that the value of the confidence interval is 40% in place of 10%.
- Note 8 MCERTS certification to the appropriate ranges and determinands is a demonstration of compliance to the applicable standards.
- Note 9 The certification range for MCERTS equipment should be 1.5 times the daily emission limit value. The CEM shall also be able to measure instantaneous values over the ranges that are to be expected during all operating conditions. If it is necessary to use more than one range setting of the CEM to achieve this requirement, the CEM shall be verified for monitoring supplementary, higher ranges.
- Note 10 Quarterly periodic measurement in first 12 months of operation for emission point A3.

**Table 2.2.2 (a) : Emission limits to air and monitoring during abnormal operating conditions**

Emission point reference	Parameter	Limit (including Reference Period) <sup>Note 1</sup>	Monitoring frequency	Monitoring method
A1, A2, A3	Particulate matter	150 mg/m <sup>3</sup> ½-hr average	Continuous measurement	BS EN 13824-2 <sup>Note 4, 2</sup> during abatement plant failure or standby CEMS analyser unit during failure of the main continuous emission monitor.
A1, A2, A3	Total Organic Carbon (TOC)	20 mg/m <sup>3</sup> ½-hr average	Continuous measurement	BS EN 12619 <sup>Note 4, 2</sup> during abatement plant failure or standby CEMS analyser unit during failure of the main continuous emission monitor.
A1, A2, A3	Carbon monoxide	100 mg/m <sup>3</sup> ½-hr average	Continuous measurement	ISO 12039 <sup>Note 4, 3</sup> during abatement plant failure or standby CEMS analyser unit during failure of the main continuous emission monitor.

Note 1 See Section 6 for reference conditions

- Note 2 The Continuous Emission Monitors used shall be such that the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed 30%. Valid half-hourly average values shall be determined within the effective operating time (excluding the start-up and shut-down periods if no waste is being incinerated) from the measured values after having subtracted this value of the confidence interval (30%). Where it is necessary to calibrate or maintain the monitor and this means that data is not available for a complete half-hour period, the half-hourly average shall nonetheless be considered valid if measurements are available for a minimum of 20 minutes during the half-hour period. (The number of half-hourly averages so validated shall not exceed 5 per day).
- Note 3 As <sup>Note 2</sup>, except that the value of the confidence interval is 10% in place of 30%.
- Note 4 MCERTS certification to the appropriate ranges and determinands is a demonstration of compliance to the applicable standards.

## 2.2.2 Emissions to Water (other than groundwater), including heat, from Specified Points.

### Emissions to sewer

- 2.2.2.7 Emissions to sewer from the specified emission points in Table 2.2.7 shall only arise from the sources specified in that Table.

**Table 2.2.7 Emission points to sewer**

Emission point reference or description	Source	Sewer
S1 (SW4 on Figure 1.2 'Site Layout Diagram')	Periodic boiler blowdown if the incinerators are not operating (Lines 1, 2 and 3) and surface water run-off.	Haverton Hill Road

- 2.2.2.8 The limits for the emissions to sewer for the parameters and emission point set out in Table 2.2.8 shall not be exceeded.

**Table 2.2.8 : Emission limits and monitoring frequency to sewer**

Emission point reference	Substance <sup>Note 1</sup>	Limit (including Period) <sup>Note 1</sup>	Reference	Monitoring frequency <sup>Note 1</sup>	Monitoring method <sup>Note 1</sup>
S1	Visible oils and greases	None visible, spot sample		Daily	Visual

- Note 1 Additional parameters may be required following completion of Improvement Condition IC1.

- 2.2.2.9 No condition applies
- 2.2.2.10 No condition applies

## 2.10 On-site monitoring

- 2.10.4 The Operator shall carry out environmental or other specified substance monitoring to the frequencies and methods described in Table 2.10.1

**Table 2.10.1 : Other monitoring requirements**

Emission point(s) or reference or source or description of point of measurement	Substance or parameter	Monitoring frequency	Monitoring method	Other specifications
A1, A2, A3 (CEMs extraction point)	Temperature	Continuous	BS ISO 14164: 1999	
A1, A2, A3 (CEMs extraction point)	Oxygen content	Continuous	ISO 12039	
A1, A2, A3 (CEMs extraction point)	Pressure	Continuous	Improvement Condition 9 response	
A1, A2, A3 (CEMs extraction point)	Water vapour content	Continuous	As described in the Application	
A1, A2, A3 (CEMs extraction point)	Ammonia (NH <sub>3</sub> )	Continuous <sup>Note 3</sup> <sup>Note 4</sup> (Half hour average and daily average)	As described in the Application	
A1, A2, A3	Nitrous oxide (N <sub>2</sub> O)	Bi-annual <sup>Note 3</sup> <sup>Note 4</sup> (Periodic over minimum 1 hour period)	BS EN 14792 (or alternative method agreed in writing by the Agency).	
A1, A2, A3	Dioxin-like PCBs (WHO-TEQ <sup>Note 1</sup> Humans / Mammals)	Bi-annual periodic measurement <sup>Note 3</sup> Average value over sample period of between 6 and 8 hours.	To be determined utilising sampling and analytical techniques developed for dioxins/furans (BS EN 1948)	
A1, A2, A3	Dioxin-like PCBs (WHO-TEQ <sup>Note 1</sup> Fish)	Bi-annual periodic measurement <sup>Note 3</sup> Average value over sample period of between 6 and 8 hours.	To be determined utilising sampling and analytical techniques developed for dioxins/furans (BS EN 1948)	
A1, A2, A3	Dioxin-like PCBs (WHO-TEQ <sup>Note 1</sup> Birds)	Bi-annual periodic measurement <sup>Note 3</sup> Average value over sample period of between 6 and 8 hours.	To be determined utilising sampling and analytical techniques developed for dioxins/furans (BS EN 1948)	
A1, A2, A3	Specific individual poly-cyclic aromatic hydrocarbons (PAHs), as specified in condition 6.1.1	Bi-annual periodic measurement <sup>Note 3</sup> Average value over sample period of between 6 and 8 hours.	Procedure shall use BS ISO 11338-1 and BS-ISO 11338-2.	
A1, A2, A3	Dioxins / furans (WHO-TEQ Humans / Mammals) <sup>1</sup>	Bi-annual periodic measurement <sup>Note 3</sup> Average value over sample period of between 6 and 8 hours.	To be determined utilising sampling and analytical techniques developed for dioxins/furans (BS EN 1948)	

**Table 2.10.1 : Other monitoring requirements**

A1, A2, A3	Dioxins / furans (WHO-TEQ Fish) <sup>Note 1</sup>	Bi-annual periodic measurement <sup>Note 3</sup>  Average value over sample period of between 6 and 8 hours.	To be determined utilising sampling and analytical techniques developed for dioxins/furans (BS EN 1948)
A1, A2, A3	Dioxins / furans (WHO-TEQ Birds) <sup>Note 1</sup>	Bi-annual periodic measurement <sup>Note 3</sup>  Average value over sample period of between 6 and 8 hours.	To be determined utilising sampling and analytical techniques developed for dioxins/furans (BS EN 1948)
Bottom Ash for each incineration line separately.	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds.	Quarterly <sup>Note 2</sup>	Sampling and analysis as per Agency ash sampling protocol.
Bottom Ash for each incineration line separately.	Dioxins/furans and dioxin-like PCBs.	Quarterly	Sampling and analysis as per Agency ash sampling protocol.
Bottom Ash for each incineration line separately.	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	Before use of a new disposal or recycling route	Sampling and analysis as per Agency ash sampling protocol.
APC Residues for each incineration line separately.	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	Quarterly <sup>Note 2</sup>	Sampling and analysis as per Agency ash sampling protocol.
APC Residues for each incineration line separately.	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions.	Before use of a new disposal or recycling route	Sampling and analysis as per Agency ash sampling protocol.

**Table 2.10.1 : Other monitoring requirements**

Combustion Chamber (close to inner wall ) for each incineration line separately.	Temperature (° C)	Continuous	Traceable to National Standards
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Note 1 The TEQ sum of the equivalence factors to be reported as a range based on: All congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit assumed to be at the detection limit as a maximum

Note 2 Monthly monitoring in the first 12 months of operation for line 3.

Note 3 Quarterly monitoring in the first 12 months of operation for emission point A3.

Note 4 The stated monitoring frequency maybe subject to change following completion of improvement condition IC5, table S1.4.1.

## Schedule 2 – Reporting of monitoring data

Parameters for which reports shall be made, in accordance with conditions 4.1.2 and 4.1.3 of this Permit, are listed below.

**Table S2: Reporting of monitoring data**

Parameter	Emission point(s)	Reporting period	Period begins
Sulphur dioxide mg m <sup>-3</sup> (Bi-annually)	A1, A2, A3	Every 6 months	25/08/2008
Sulphur dioxide mg m <sup>-3</sup> (Continuously)	A1, A2, A3	Every 6 month	25/08/2008
Total Organic Carbon (TOC) mg m <sup>-3</sup> (Bi-annually)	A1, A2, A3	Every 6 months	25/08/2008
Total Organic Carbon (TOC) mg m <sup>-3</sup> (Continuously)	A1, A2, A3	Every 6 month	25/08/2008
Oxides of nitrogen mg m <sup>-3</sup> (Bi-annually)	A1, A2, A3	Every 6 months	25/08/2008
Oxides of nitrogen mg m <sup>-3</sup> (Continuously)	A1, A2, A3	Every 6 month	25/08/2008
Hydrogen chloride mg m <sup>-3</sup> (Bi-annually)	A1, A2, A3	Every 6 months	25/08/2008
Hydrogen chloride mg m <sup>-3</sup> (Continuously)	A1, A2, A3	Every 6 month	25/08/2008
Hydrogen fluoride mg m <sup>-3</sup> (Quarterly)	A1, A2, A3	Every 6 months	25/08/2008
Particulate Matter	A1, A2, A3	Every 6 months	25/08/2008



**Table S2: Reporting of monitoring data**

Parameter	Emission point(s)	Reporting period	Period begins
mg m <sup>-3</sup> (Bi-annually)			
Particulate Matter	A1, A2, A3	Every 6 month	25/08/2008
mg m <sup>-3</sup> (Continuously)			
Carbon Monoxide	A1, A2, A3	Every 6 months	25/08/2008
mg m <sup>-3</sup> (Bi-annually)			
Carbon Monoxide	A1, A2, A3	Every 6 month	25/08/2008
mg m <sup>-3</sup> (Continuously)			
Cadmium & Thallium and their compounds (total)	A1, A2, A3	Every 6 months	25/08/2008
Mercury and its compounds	A1, A2, A3	Every 6 months	25/08/2008
Antimony, Arsenic, Lead, Chromium, Cobalt, Copper, Manganese, Nickel and Vanadium and their compounds (total)	A1, A2, A3	Every 6 months	25/08/2008
Dioxins / furans (I-TEQ)	A1, A2, A3	Every 6 months.	25/08/2008
Dioxin-like PCBs (WHO-TEQ Humans / Mammals)	A1, A2, A3	Every 6 months.	25/08/2008
Dioxin-like PCBs (WHO-TEQ Fish)	A1, A2, A3	Every 6 months.	25/08/2008
Dioxin-like PCBs (WHO-TEQ Birds)	A1, A2, A3	Every 6 months.	25/08/2008
Dioxins / furans (WHO-TEQ Humans / Mammals)	A1, A2, A3	Every 6 months	25/08/2008
Dioxins / furans (WHO-TEQ Fish)	A1, A2, A3	Every 6 months	25/08/2008
Dioxins / furans (WHO-TEQ Birds)	A1, A2, A3	Every 6 months	25/08/2008
Poly-cyclic aromatic hydrocarbons (PAHs)	A1, A2, A3	Every 6 months.	25/08/2008
Temperature	A1, A2, A3 CEMs extraction point	As requested by Agency site inspector <sup>Note 1.</sup>	25/08/2008
Pressure	A1, A2, A3 CEMs extraction point	As requested by Agency site inspector <sup>Note 1.</sup>	25/08/2008
Oxygen content	A1, A2, A3 CEMs extraction point	As requested by Agency site inspector <sup>Note 1.</sup>	25/08/2008
Water vapour content (unless gas is dried before analysis of emissions)	A1, A2, A3 CEMs extraction point	As requested by Agency site inspector <sup>Note 1.</sup>	25/08/2008
Furnace Chamber Temperature Furnace temperature must be recorded for each incineration line separately	A1, A2, A3 CEMs extraction point	As requested by Agency site inspector <sup>Note 1.</sup>	25/08/2008
Ammonia (NH <sub>3</sub> )	A1, A2, A3 CEMs extraction point	Every 6 months.	25/08/2008
Nitrous Oxide (N <sub>2</sub> O)	A1, A2, A3 CEMs	Every 6 months.	25/08/2008

**Table S2: Reporting of monitoring data**

Parameter	Emission point(s)	Reporting period	Period begins
	extraction point		
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	Bottom Ash for each incineration line separately	Quarterly <sup>Note 2.</sup>	25/08/2008
Dioxins/furans and dioxin-like PCBs.	Bottom Ash for each incineration line separately	Quarterly	25/08/2008
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	Bottom Ash for each incineration line separately	Before use of a new disposal or recycling route	25/08/2008
TOC	Bottom Ash for each incineration line separately	Quarterly	25/08/2008
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	APC Residues for each incineration line separately	Every 6 months.	25/08/2008
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	APC Residues for each incineration line separately	Before use of a new disposal or recycling route	25/08/2008
Water usage	Installation	Every 12 months	25/08/2008
Energy usage	Installation	Every 12 months	25/08/2008
Performance Indicators	Installation	Every 12 months	25/08/2008
Waste disposal and/or recovery.	Installation	Every 12 months	25/08/2008

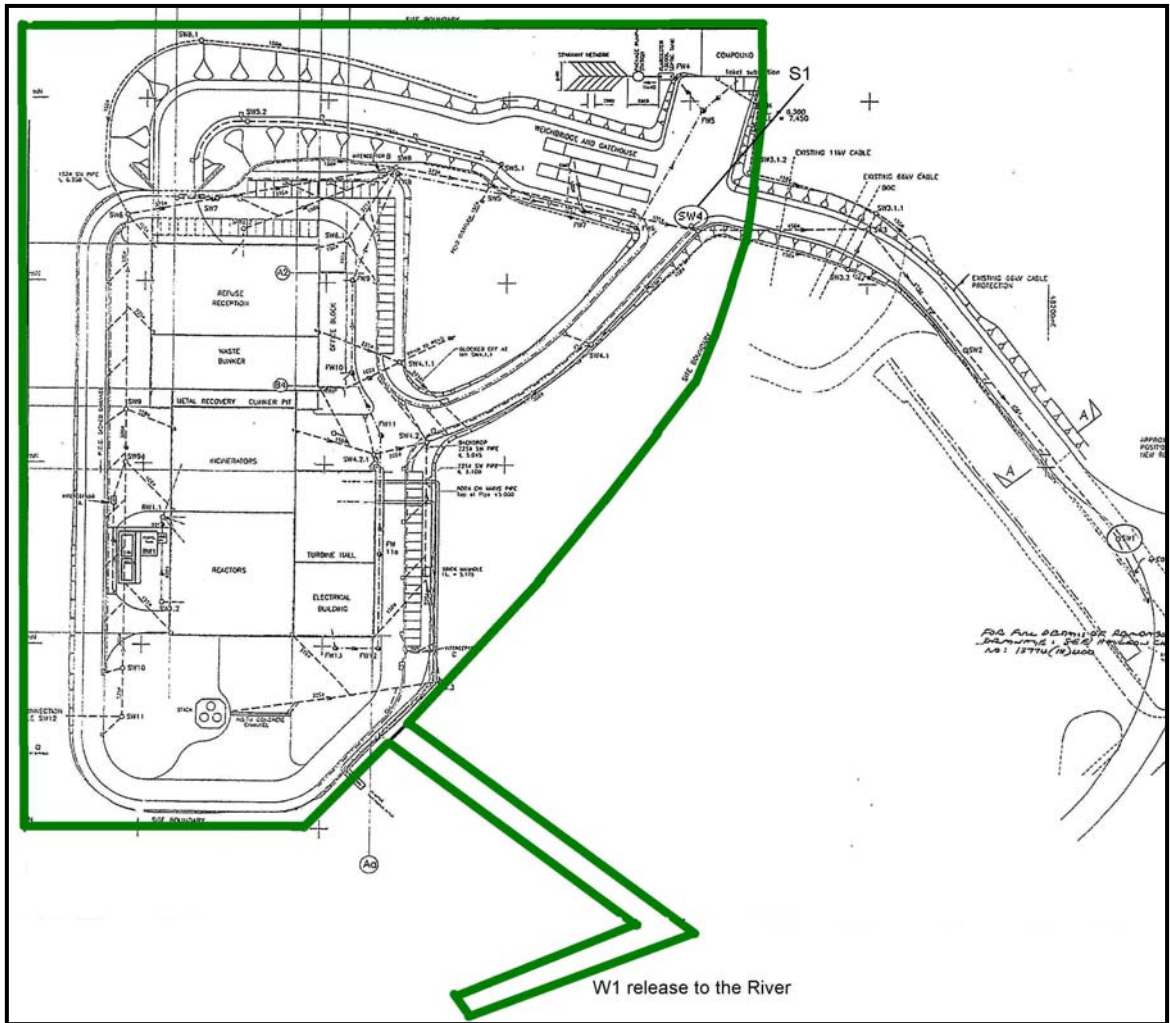
Note 1 These parameters would **not** normally require to be reported, but would be available for inspection at the site. Only where there is an operational need for a report to be made should one be required.

Note 2 Monthly monitoring in the first 12 months of operation for line 3.

### Schedule 3 - Forms to be used

Table S3: Reporting Forms		
Media or parameter	Form Number	Date of Form
Air: Periodic monitored emissions	Agency Form / FP3832UU / <u>A1</u> / Form	August 2008
Air: Continuously monitored emissions of particulates	Agency Form / FP3832UU / <u>A2</u> / Form	August 2008
Air: Continuously monitored emissions of TOC	Agency Form / FP3832UU / <u>A3</u> / Form	August 2008
Air: Continuously monitored emissions of Hydrogen chloride	Agency Form / FP3832UU / <u>A4</u> / Form	August 2008
Air: Continuously monitored emissions of Carbon monoxide	Agency Form / FP3832UU / <u>A5</u> / Form	August 2008
Air: Continuously monitored emissions of Sulphur dioxide	Agency Form / FP3832UU / <u>A6</u> / Form	August 2008
Air: Continuously monitored emissions of Oxides of nitrogen	Agency Form / FP3832UU / <u>A7</u> / Form	August 2008
Waste Return	Agency Form / FP3832UU / <u>R1</u> / Form	August 2008
Water usage	Agency Form / FP3832UU / <u>WU1</u> / Form	August 2008
Energy	Agency Form / FP3832UU / <u>E1</u> / Form	August 2008
Performance indicators	Agency Form / FP3832UU / <u>PI1</u> / Form	August 2008
Bottom Ash, APC Residues: Composition	Agency Form / FP3832UU / <u>Ash1</u> / Form	August 2008
Bottom Ash, APC Residues: Solubility	Agency Form / FP3832UU / <u>Ash2</u> / Form	August 2008

# Schedule 5 – Site Plan



## SCHEDULE 3 – CONDITIONS AND SCHEDULES TO BE ADDED

None