ENVIRONMENT AGENCY

Permit with introductory note

Pollution Prevention and Control (England & Wales) Regulations 2000

Rhymney Organic Regeneration Facility

Hudol Thermal Treatment
Unit 15
Capital Valley Industrial Estate
Rhymney
Caerphilly
NP22 5PT

Permit number

ZP3535MW

Rhymney Organic Regeneration Facility
Permit Number ZP3535MW

Introductory note

This introductory note does not form a part of the permit

The main features of the installation are as follows. The installation is located on the Capital Valley industrial estate in Rhymney in the County of Caerphilly. It will gasify a range of biomass and oily sludge wastes. Liquid petroleum gas (LPG) will be combusted in low Nox burners to heat the gasifier. The gasification process will produce syn gas. The syn gas will be cycled back to the burners to be combusted. The LPG will be phased off until the system is running on just syn gas. During the first 8 months of operation a range of wastes will be tested in the system which will be run at a throughput of ~200kg/hour. At this throughput the system will be self sufficient will all the syn gas being used in the burners to heat the gasifier. Emissions of particulates and acid gases will be controlled by filtering the syn gas and passing it through a water scrubber. Emissions of oxides of nitrogen will be controlled by the use of low NOx burners. After the first 8 months gas engines will be installed and a higher throughput of waste will be used, up to 3 tonnes per hour when 3 gas engines are installed. 3MW of electricity will be generated for export to the national grid. In addition to the above abatement measures, selective catalytic reduction will be used to reduce emissions of oxides of nitrogen.

There are no process emissions to controlled water. There are no Sites of Special Scientific Interest within 2km of the installation. There are two Special Protection Areas within 10km of the installation. The installation will not have an adverse affect on these sites.

The Operator will have an environmental management system.

The Waste Incineration) (England and Wales) Regulations 2002 (SI 2002 No. 2980) (The WI Regulations) and the Pollution Prevention and Control (Waste Incineration Directive) (England and Wales) Direction 2002 together implement the requirements of the Waste Incineration Directive (Directive (EC 2000/76/EC) on the Incineration of Waste. The installation regulated under this Permit contains a new Waste Incineration Installation (as defined in the WI Regulations) in which the incineration of waste in an incineration plant is carried out. Conditions delivering the corresponding requirements of the relevant articles of the Waste Incineration Directive have been incorporated into this Permit.

The plant is a co-incinerator because it's primary purpose is generation of energy.

Status Log of the permit		
Detail	**Date**	**Response Date**
Application ZP3535MW	Duly made 16/05/07	
Schedule 4 notice	06/11/07	06/02/08
Schedule 4 notice	13/03/08	15/04/08
Further information on phased approach	Received 12/05/08	
Further information on phased approach and waste codes	Request dated 19/06/08	Received 05/06/08
Further information on phased approach and operating techniques	Request dated 14/07/08	Received 25/07/08
Further information on operating techniques		01/0/08
Permit determined	23/10/08	

End of Introductory Note

Permit

Permit number
ZP3535MW

The Environment Agency (the Agency) in exercise of its powers under Regulation 10 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (SI 2000 No 1973) hereby authorises
Hudol Thermal Ltd ("the operator"),

whose registered office is

1 St Mary's Street
Carmarthen
Carmarthenshire
SA31 1TN

company registration number 4697969

to operate an installation at
Unit 15
Capital Valley Industrial Estate
Rhymney
Caerphilly
NP22 5PT

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

Signed	Date
Mat Jenkins	23/10/08

M Jenkins

Authorised to sign on behalf of the Agency

Conditions

1 Management

1.1 General management

1.1.1 The activities shall be managed and operated:

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

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

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

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

1.2 Accidents that may cause pollution

1.2.1 The operator shall:

(a) maintain and implement an accident management plan;

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

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

1.3 Energy efficiency

1.3.1 The operator shall:

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

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

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

1.4 Efficient use of raw materials

1.4.1 The operator shall:

(a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;

(b) maintain records of raw materials and water used in the activities;

(c) review and record at least every 4 years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and

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

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

1.5.1. The operator shall:

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

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

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

1.6 Site security

1.6.1. Site security measures shall prevent unauthorised access to the site, as far as practicable.

2. Operations

2.1 Permitted activities

2.1.1 The operator is authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 2 to this permit.

2.3 Operating techniques

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1 table S1.2, unless otherwise agreed in writing by the Agency.

2.3.2 No raw materials or fuels listed in schedule 3 table S3.1 shall be used unless they comply with the specifications set out in that table.

2.3.3 Waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 3 table(s) S3.2 ; and

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

2.3.4 Records shall be kept of all waste accepted onto the site.

2.3.5 The operator shall incinerate only those hazardous wastes where the throughputs, calorific values and pollutant composition are within the ranges specified in the application.

2.3.6 The operator shall ensure that prior to accepting waste subject to condition 2.3.5 at the site, it has obtained sufficient information about the hazardous wastes to be burned to demonstrate compliance with the characteristics described in condition 2.3.5.

2.3.7 The operator shall take representative samples of all hazardous waste deliveries to the site unless otherwise agreed in writing with Agency and test a representative selection of these samples to verify conformity with the information obtained as required by condition 2.3.6. These samples shall be retained for inspection by the Agency for a period of [at least one month after the material is incinerated and results of any analysis made of such samples will be retained for at least two years after the material is incinerated.

2.3.8 Waste shall not be charged, or shall cease to be charged, into the co-incinerator if:

(a) the combustion unit temperature is below, or falls below, 1100°C; or

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

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

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

2.3.9 No condition applies.

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

2.3.11 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.

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

(a) continuous measurement shows that an emission exceeds any emission limit value in Table Schedule 4 S 4.1, or continuous emission monitor(s) are out of service, as the case may be, for a total of four hours uninterrupted duration;

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

(c) continuous measurement shows that an emission exceeds any emission limit value in Table Schedule 4 S 4.1 (a);

(d) no condition applies.

2.3.13 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;

(c) when a period of 4 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 for a given incineration line.

2.3.14 No condition applies

2.3.15 Gasification residues and residues from syn gas filtration shall not be mixed.

2.3.16 During the first development phase, the throughput of waste shall not exceed 200kg per hour.

2.3.17 During the first development phase, operating hours shall not exceed 8 hours in any 24 hour period.

2.3.18 The first development phase shall not exceed 8 months from the date of issue of this permit.

2.4 Off-site conditions

There are no off-site conditions under this section.

2.5 Improvement programme

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

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

2.6 Pre-operational conditions

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

2.6.2 The operations specified in schedule 1 table S1.4B shall not commence until the measures specified in that table have been completed.

2.7 Closure and decommissioning

2.7.1 The operator shall maintain and operate the activities so as to prevent or where that is not practicable, to minimise, any pollution risk on closure and decommissioning.

2.7.2 The operator shall maintain a site closure plan which demonstrates how the activities can be decommissioned to avoid any pollution risk and return the site to a satisfactory state.

2.7.3 The operator shall carry out and record a review of the site closure plan at least every 4 years.

2.7.4 The site closure plan (or relevant part thereof) shall be implemented on final cessation or decommissioning of the activities or part thereof.

2.8 Site protection and monitoring programme

2.8.1 The operator shall, within 2 months of the issue of this permit, submit a site protection and monitoring programme.

2.8.2 The operator shall implement and maintain the site protection and monitoring programme and shall carry out and record a review of it at least every 4 years.

3. Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 4 tables S4.1, S4.2 and S4.3 except in abnormal operation, when there shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 4 tables S4.1(a), S4.2 and S4.3.

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

3.1.3 No condition applies.

3.1.4 No condition applies.

3.1.5 Wastes produced at the site shall, as a minimum, be sampled and analysed in accordance with table S4.5 in schedule 4. Additional samples shall be taken and tested and appropriate action taken, whenever:

- disposal or recovery routes change; or
- 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 Transfers off-site

3.2.1 Records of all the wastes sent off site from the activities, for either disposal or recovery, shall be maintained.

3.3 Fugitive emissions of substances

3.3.1 Fugitive emissions of substances (excluding odour, noise and vibration) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including those specified in schedule 1 table S1.5, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.3.2 No condition applies.

3.3.3 No condition applies.

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

3.4 Odour

3.4.1 Emissions from the activities shall be free from odour at levels likely to cause annoyance outside the site, as perceived by an authorised officer of the Agency, unless the operator has used appropriate measures to prevent or where that is not practicable to minimise the odour.

3.5 Noise and vibration

3.5.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause annoyance outside the site, as perceived by an authorised officer of the Agency, unless the operator has used appropriate measures to prevent or where that is not practicable to minimise the noise and vibration.

3.6 Monitoring

3.6.1 The operator shall, unless otherwise agreed in writing by the Agency, undertake monitoring for the parameters, at the locations and at not less than the frequencies specified in the following tables in schedule 4 to this permit:

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

(b) process monitoring specified in table S4.4.

(c) Bottom ash quality in table S4.5.

3.6.2 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.

3.6.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme specified in condition 3.6.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing by the Agency. Newly installed CEMs, or CEMs replacing existing CEMs, shall have MCERTS certification and have an MCERTS certified range which is not greater than 1.5 times the daily emission limit value (ELV) specified in Table 2.2.2. 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.

3.6.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 4 tables S4.1, S4.2 and S4.3 unless otherwise specified in that schedule.

4. Information

4.1 Records

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

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) the site protection and monitoring programme.

4.1.2 Any records required to be made by this permit shall be supplied to the Agency within 14 days where the records have been requested in writing by the Agency.

4.1.3 All records required to be held by this permit shall be held on the site and shall be available for inspection by the Agency at any reasonable time.

4.2 Reporting

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

(a) a review of the results of the monitoring and assessment carried out in accordance with this permit against the relevant assumptions, parameters and results in the assessment of the impact of the emissions submitted with the application;

(b) where the operator's management system encompasses annual improvement targets, a summary report of the previous year's progress against such targets;

(c) the annual production /treatment data set out in schedule 5 table S5.2;

(d) the performance parameters set out in schedule 5 table S5.3 using the forms specified in table S5.4 of that schedule;

(e) details of any contamination or decontamination of the site which has occurred; and

(f) the functioning and monitoring of the incineration plant in a format agreed with the Environment Agency. The report shall, as a minimum requirement (as required by Article 12(2) of the Waste Incineration Directive) give an account of the running of the process and the emissions into air and water compared with the emission standards in the WID.

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

(a) in respect of the parameters and emission points specified in schedule 5 table S5.1;

(b) for the reporting periods specified in schedule 5 table S5.1 and using the forms specified in schedule 5 table S5.4 ; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.3 A summary report of the waste types and quantities accepted and removed from the site shall be made for each quarter. It shall be submitted to the Agency within one month of the end of the quarter and shall be in the format required by the Agency.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding 4 years, submit to the Agency, within 6 months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

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

4.2.6 The results of reviews and any changes made to the site protection and monitoring programme shall be reported to the Agency, within 1 month of the review or change.

4.3 Notifications

4.3.1 The Agency shall be notified without delay following the detection of:

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

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

any significant adverse environmental effects; and

(c) any incident which has led to a period of abnormal operation of incineration plant, as defined in schedule 7.

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

4.3.3 Prior written notification shall be given to the Agency of the following events and in the specified timescales:

(a) as soon as practicable prior to the permanent cessation of any of the activities;

(b) cessation of operation of part or all of the activities for a period likely to exceed 1 year; and

(c) resumption of the operation of part or all of the activities after a cessation notified under (b) above.

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

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

4.3.6 No condition applies.

4.3.7 No condition applies.

4.3.8 No condition applies.

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

(a) any change in the operator's trading name, registered name or registered office address;

(b) any change to particulars of the operator's ultimate holding company (including details of an ultimate holding company where an operator has become a subsidiary); and

(c) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

4.4.1 In this permit the expressions listed in schedule 7 shall have the meaning given in that schedule.

Schedule 1 - Operations

Table S1.1 activities		
Activity listed in Schedule 1 of the PPC Regulations	**Description of specified activity**	**Limits of specified activity**
S1.1 A1 (b)(iii)	Gasification of oil contaminated soils, oily sludges and biomass	Receipt of waste, thermal pre-treatment, gasification and combustion of syn gas in burners and up to three gas engines. Cleaning of syn gas by filtration and use of a water trap and a water scrubber. Waste throughput as specified in conditions 2.3.16 and table S3.2. Storage of received waste in the areas labelled as waste reception area, quarantine area and storage area on site plan HUPPC.D.03
Directly Associated Activity		
Waste handling	Storage and handling of wastes generated by the process	From generation of waste to despatch of waste from the installation. Storage of wastes in the area labelled as storage area on site plan HUPPC.D.03

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application	Sections B2.1, B2.2 and B2.10.15 of the application form excluding sections B2.1.22, B2.1.23, B2.1.27.	16/05/07
Response to schedule 4 notice	Process description REF HUPPC.04 (Rev 1 January 2008), excluding mention of exporting gas. Waste control procedure REF HU PPC.03 (Rev 1 January 2008) (excluding references to bulk storage) Sections 2.3.5 and 2.9 of Non technical summary REF HU PPC.01 (Rev 1 January 2008). The response to questions 7, 8, and 11.	06/02/08
Response to schedule 4 notice	Response to items 3 and 4	15/04/08
Further information	Information on phased development of the installation , excluding the use of the thermal oxidiser and the run time period during period 1	12/05/08
Further information	Section 2.2	05/06/08
Further information	Sections 8, 9, 10, 12, 13, and 14 (ii)	25/07/08
Further information	Section headed question 5	01/08/08
Further information	Information about reviewing the use of combined heat and power	14/08/08

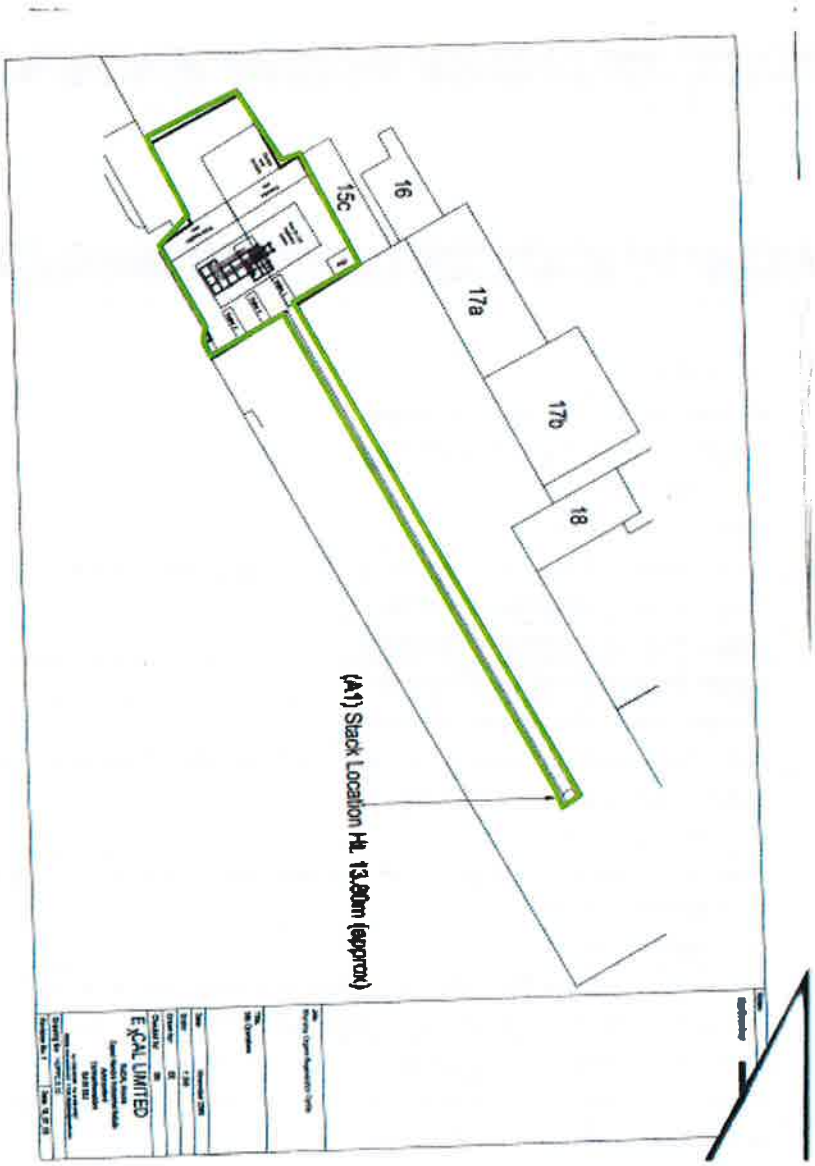
Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IP1	The operator shall submit a report on the operation during the first development phase. The report shall include: • a review of the results of the monitoring and assessment carried out in accordance with this permit against the relevant assumptions, parameters and results in the assessment of the impact of the emissions submitted with the application; • details of the amount of excess syn gas combusted • a review of how operations have complied with permit conditions 2.3.15 to 2.3.18.	Within 6 months from the start of operation
IP2	The operator shall submit a report on the operation of the plant during the second phase. • a review of the results of the monitoring and assessment carried out in accordance with this permit against the relevant assumptions, parameters and results in the assessment of the impact of the emissions submitted with the application.	Within 2 months from first operating the first gas engine
IP3	The operator shall submit a report on the operation during the third phase. The report shall include: • a review of the results of the monitoring and assessment carried out in accordance with this permit against the relevant assumptions, parameters and results in the assessment of the impact of the emissions submitted with the application.	Within 2 months from first operating the second gas engine
IP4	The operator shall submit a report on the operation during the fourth phase. The report shall include: • a review of the results of the monitoring and assessment carried out in accordance with this permit against the relevant assumptions, parameters and results in the assessment of the impact of the emissions submitted with the application; • A review of the energy efficiency and recovery information provided in the application.	Within 2 months from first operating the third gas engine
IP5	The Operator shall carry out monitoring of the aqueous residue from the syn gas scrubbing. The monitoring shall be for the	23/10/09

	substance listed in annex IV of the waste incineration directive and shall be carried out over a range of operating scenarios. The operator shall submit a report detailing the monitoring results to the Environment Agency.

Table S1.4A Pre-operational measures

Reference	Pre-operational measures
1	The Operator shall confirm in writing to the Environment Agency that a site closure plan is in place that meets the requirements set out in section 2.11 of Environment Agency Guidance Note S5.01.
2	The Operator shall confirm in writing to the Environment Agency that an assessment of the risk from firewater run-off has been carried out and that a procedure to store and test contaminated rainwater or firewater before discharge is in place.
3	The operator shall confirm in writing to the Environment Agency that a procedure is in place to cover recovery or disposal of gasification residues. The procedure shall include: • Methods to ensure that incompatible residues are not combined either in the gasifier or for storage; • Methods to ensure that each residue has an appropriate recovery or disposal route.

Schedule 2 - Site plan



Schedule 3 - Waste types, raw materials and fuels

Table S3.1 Raw materials and fuels	
Raw materials and fuel description	**Specification**
-	

Table S3.2 Permitted waste types and quantities for thermal treatment	
Maximum quantity	20000tonnes/year. 200kg/hr during the first development phase
Waste code	**Description**
01 05 05*	oil-containing drilling muds and wastes
02 01 01	sludges from washing and cleaning
02 01 03	plant-tissue waste
02 01 07	wastes from forestry
02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation
02 03 05	sludges from on-site effluent treatment
02 04 03	sludges from on-site effluent treatment
02 05 02	sludges from on-site effluent treatment
02 06 03	sludges from on-site effluent treatment
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials
02 07 05	sludges from on-site effluent treatment
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 01	waste bark and wood
03 03 11	sludges from on-site effluent treatment other than those mentioned in 03 03 10
04 02 09	wastes from composite materials (impregnated textile, elastomer, plastomer)
04 02 10	organic matter from natural products (for example grease, wax)
04 02 20	sludges from on-site effluent treatment other than those mentioned in 04 02 19
04 02 21	wastes from unprocessed textile fibres
04 02 22	wastes from processed textile fibres
05 01 02*	desalter sludges
05 01 03*	tank bottom sludges
05 01 04*	acid alkyl sludges
05 01 05*	oil spills
05 01 06*	oily sludges from maintenance operations of the plant or equipment
05 01 09*	sludges from on-site effluent treatment containing dangerous substances
05 01 10	sludges from on-site effluent treatment other than those mentioned in 05 01 09
05 01 11*	wastes from cleaning of fuels with bases
05 01 13	boiler feedwater sludges
05 01 14	wastes from cooling columns
05 01 15*	spent filter clays
07 01 11*	sludges from on-site effluent treatment containing dangerous substances

Table S3.2 Permitted waste types and quantities for thermal treatment	
Maximum quantity	20000tonnes/year. 200kg/hr during the first development phase
Waste code	**Description**
07 01 12	sludges from on-site effluent treatment other than those mentioned in 07 01 11
07 03 12	sludges from on-site effluent treatment other than those mentioned in 07 03 11
07 05 12	sludges from on-site effluent treatment other than those mentioned in 07 05 11
07 06 12	sludges from on-site effluent treatment other than those mentioned in 07 06 11
10 02 15	other sludges and filter cakes
12 01 12*	spent waxes and fats
12 01 15	machining sludges other than those mentioned in 12 01 14
12 01 18*	metal sludge (grinding, honing and lapping sludge) containing oil
12 01 19*	readily biodegradable machining oil
12 01 21	spent grinding bodies and grinding materials other than those mentioned in 12 01 20
13 01 05*	non-chlorinated emulsions
13 01 10*	mineral based non-chlorinated hydraulic oils
13 01 11*	synthetic hydraulic oils
13 01 12*	readily biodegradable hydraulic oils
13 01 13*	other hydraulic oils
13 02 04*	mineral-based chlorinated engine, gear and lubricating oils
13 02 05*	mineral-based non-chlorinated engine, gear and lubricating oils
13 02 06*	synthetic engine, gear and lubricating oils
13 02 07*	readily biodegradable engine, gear and lubricating oils
13 02 08*	other engine, gear and lubricating oils
13 03 06*	mineral-based chlorinated insulating and heat transmission oils other than those mentioned in 13 03 01
13 03 07*	mineral-based non-chlorinated insulating and heat transmission oils
13 03 08*	synthetic insulating and heat transmission oils
13 03 09*	readily biodegradable insulating and heat transmission oils
13 03 10*	other insulating and heat transmission oils
13 04 01*	bilge oils from inland navigation
13 04 02*	bilge oils from jetty sewers
13 04 03*	bilge oils from other navigation
13 05 01*	solids from grit chambers and oil/water separators
13 05 02*	sludges from oil/water separators
13 05 03*	interceptor sludges
13 05 06*	oil from oil/water separators
13 05 08*	mixtures of wastes from grit chambers and oil/water separators
13 07 01*	fuel oil and diesel
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 03	wooden packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 09	textile packaging
16 07 08*	wastes containing oil
17 02 01	wood
17 02 03	plastic
17 05 03*	soil and stones containing dangerous substances

Table S3.2 Permitted waste types and quantities for thermal treatment	
Maximum quantity	20000tonnes/year. 200kg/hr during the first development phase
Waste code	**Description**
17 05 05*	dredging spoil containing dangerous substances
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 07*	track ballast containing dangerous substances
17 05 08	track ballast other than those mentioned in 17 05 07
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 06	digestate from anaerobic treatment of animal and vegetable waste
19 08 01	screenings
19 08 02	waste from desanding
19 08 05	sludges from treatment of urban waste water
19 08 09	grease and oil mixture from oil/water separation containing only edible oil and fats
19 08 10*	grease and oil mixture from oil/water separation other than those mentioned in 19 08 09
19 08 11*	sludges containing dangerous substances from biological treatment of industrial waste water
19 08 12	sludges from biological treatment of industrial waste water other than those mentioned in 19 08 11
19 08 13*	sludges containing dangerous substances from other treatment of industrial waste water
19 08 14	sludges from other treatment of industrial waste water other than those mentioned in 19 08 13
19 09 02	sludges from water clarification
19 09 03	sludges from decarbonation
19 09 06	solutions and sludges from regeneration of ion exchangers
19 11 01*	spent filter clays
19 11 05*	sludges from on-site effluent treatment containing dangerous substances
19 11 06	sludges from on-site effluent treatment other than those mentioned in 19 11 05
19 12 01	paper and cardboard
19 12 06*	wood containing dangerous substances
19 12 07	wood other than that mentioned in 19 12 06
19 12 08	textiles
19 12 10	combustible waste (refuse derived fuel)
19 12 11*	other wastes (including mixtures of materials) from mechanical treatment of waste containing dangerous substances
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
19 13 01*	solid wastes from soil remediation containing dangerous substances
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 03*	sludges from soil remediation containing dangerous substances
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03
19 13 05*	sludges from groundwater remediation containing dangerous substances
19 13 06	sludges from groundwater remediation other than those mentioned in 19 13 05
20 01 01	paper and cardboard
20 01 25	edible oil and fat
20 01 26*	oil and fat other than those mentioned in 20 01 25
20 01 37*	wood containing dangerous substances

Table S3.2 Permitted waste types and quantities for thermal treatment	
Maximum quantity	20000tonnes/year. 200kg/hr during the first development phase
Waste code	**Description**
20 01 38	wood other than that mentioned in 20 01 37
20 01 39	plastics

Schedule 4 – Emissions and monitoring

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

Emission point [shown as A1 on site plan HUPPC.D07 in the application]	Parameter	Source	Limit (including unit) (5)	Reference period	Monitoring frequency	Monitoring standard or method
A1	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Emissions from burners and/or gas engines	90 mg/m^3	Daily mean	Continuous	ISO 10849
A1	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Emissions from burners and/or gas engines	100 mg/m^3	Half hourly mean	Continuous	ISO 10849
A1	Carbon monoxide	Emissions from burners and/or gas engines	10mg/m^3	Daily mean	Continuous (1)	ISO 12039
A1	Carbon monoxide	Emissions from burners and/or gas engines	15mg/m^3	Half hourly mean	Continuous (1)	ISO 12039
A1	Gaseous and vaporous organic substances, expressed as total organic carbon	Emissions from burners and/or gas engines	7mg/m^3	Daily mean	Continuous (3)	BS EN 12619
A1	Gaseous and vaporous organic substances, expressed as total organic carbon	Emissions from burners and/or gas engines	10mg/m^3	Half hourly mean	Continuous (3)	BS EN 12619
A1	Sulphur dioxide	Emissions from burners and/or gas engines	20mg/m^3	Daily mean	Continuous (2)	BS 6069-4.4
A1	Sulphur dioxide	Emissions from burners and/or gas engines	30mg/m^3	Half hourly mean	Continuous (2)	BS 6069-4.4
A1	Total dust	Emissions from burners and/or gas engines	7mg/m^3	Daily mean	Continuous (3)	BS ISO 10155
A1	Total dust	Emissions from burners and/or gas engines	10mg/m^3	Half hourly mean	Continuous (3)	BS ISO 10155

Table S4.1 Point source emissions to air except during abnormal operation– emission limits and monitoring requirements						
Emission point [shown as A1 on site plan HUPPC.D07 in the application]	**Parameter**	**Source**	**Limit (including unit) (5)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A1	Hydrogen chloride	Emissions from burners and/or gas engines	1mg/m^3	Daily mean	Continuous (4)	MCERTS Performance Standards for CEMs
A1	Hydrogen chloride	Emissions from burners and/or gas engines	16mg/m^3	Half hourly mean	Continuous (4)	MCERTS Performance Standards for CEMs
A1	Hydrogen fluoride	Emissions from burners and/or gas engines	1mg/m^3	Daily mean	Continuous (4)	MCERTS Performance Standards for CEMs
A1	Hydrogen fluoride	Emissions from burners and/or gas engines	4mg/m^3	Half hourly mean	Continuous (4)	MCERTS Performance Standards for CEMs
A1	Cadmium and thallium and their compounds expressed as the elements	Emissions from burners and/or gas engines	0.05mg/m^3	Average over a period of between 30 minutes and 8 hours	Quarterly first 12 months of operation and then bi-annually	BS EN 14385
A1	Mercury and its compounds expressed as the element	Emissions from burners and/or gas engines	0.05mg/m^3	Average over a period of between 30 minutes and 8 hours	Quarterly first 12 months of operation and then bi-annually	BS EN 13211

Table S4.1 Point source emissions to air except during abnormal operation– emission limits and monitoring requirements						
Emission point [shown as A1 on site plan HUPPC.D07 in the application]	**Parameter**	**Source**	**Limit (including unit) (5)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A1	Antimony, arsenic, lead, chromium, cobalt, copper, manganese, nickel and vanadium and their compounds expressed as their elements	Emissions from burners and/or gas engines	0.5mg/m^3	Average over a period of between 30 minutes and 8 hours	Quarterly first 12 months of operation and then bi-annually	BS EN 14385
A1	Dioxins and furans (I-TEQ)	Emissions from burners and/or gas engines	0.1ng/m^3	Average over a period of between 6 hours and 8 hours	Quarterly first 12 months of operation and then bi-annually	BS EN 1948
A1	Specific Polycyclic aromatic hydrocarbons	Emissions from burners and/or gas engines	No limit set	Average over a period of between 6 hours and 8 hours	Quarterly first 12 months of operation and then bi-annually	ISO 11338,
A1	Dioxins / furans (WHO-TEQ Humans / Mammals)	Emissions from burners and/or gas engines	No limit set	Average over a period of between 6 hours and 8 hours	Quarterly first 12 months of operation and then bi-annually	BS EN 1948
A1	Dioxins / furans (WHO-TEQ Fish)	Emissions from burners and/or gas engines	No limit set	Average over a period of between 6 hours and 8 hours	Quarterly first 12 months of operation and then bi-annually	BS EN 1948

Table S4.1 Point source emissions to air except during abnormal operation– emission limits and monitoring requirements						
Emission point [shown as A1 on site plan HUPPC.D07 in the application]	**Parameter**	**Source**	**Limit (including unit) (5)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A1	Dioxins / furans (WHO-TEQ Birds)	Emissions from burners and/or gas engines	No limit set	Average over a period of between 6 hours and 8 hours	Quarterly first 12 months of operation and then bi-annually	BS EN 1948
A1	Dioxins like PCBs (WHO-TEQ Humans / Mammals)	Emissions from burners and/or gas engines	No limit set	Average over a period of between 6 hours and 8 hours	Quarterly first 12 months of operation and then bi-annually	BS EN 1948
A1	Dioxins like PCBs (WHO-TEQ Fish)	Emissions from burners and/or gas engines	No limit set	Average over a period of between 6 hours and 8 hours	Quarterly first 12 months of operation and then bi-annually	BS EN 1948
A1	Dioxins like PCBs (WHO-TEQ Birds)	Emissions from burners and/or gas engines	No limit set	Average over a period of between 6 hours and 8 hours	Quarterly first 12 months of operation and then bi-annually	BS EN 1948

Note 1: 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 5 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 2: As Note 1, except that the value of the confidence interval is 20% in place of 10%.

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

Note 4 As Note 3, except that the value of the confidence interval is 40% in place of 10%.

Note 5: The limits do not apply during start-up and shut-down

Table S4.1(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**
-						

Table S4.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
W1 (emission to River Rhymney)	No parameter set	Surface water run off from building roof	No limit set	-	-	-

Table S4.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (incl. Unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
-						

Table S4.4 Process monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
A1	Exhaust gas Oxygen concentration	Continuous	MCERTS performance standards for CEMS	
A1	Exhaust gas pressure	Continuous	MCERTS performance standards for CEMS	
A1	Exhaust gas temperature	Continuous	MCERTS performance standards for CEMS	
A1	Exhaust gas water vapour content	Continuous	MCERTS performance standards for CEMS	
Burner combustion chambers (close to inner wall)	Temperature	Continuous	MCERTS performance standards for CEMS	

Table S4.5 Residue quality					
Emission point reference or source or description of point of measurement	**Parameter**	**Limit**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Gasification residue	TOC	3%	Monthly	Agency ash sampling protocol	
Gasification residue	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	No limit set	Quarterly	Sampling and analysis as per Agency ash sampling protocol.	

Gasification residue	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	Sampling and analysis as per Agency ash sampling protocol.
Syn gas filtration residue	**Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.**	No limit set	Quarterly	Sampling and analysis as per Agency ash sampling protocol.
Syn gas filtration residue	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	Sampling and analysis as per Agency ash sampling protocol.
Aqueous residue from syn gas water scrubbing	Substances listed in annex IV of the Waste Incineration Directive	No limit set	Before use of a new disposal or recycling route	Methods from section 4.5.4 of Guidance on Directive 2000/76/EC on the incineration of waste edition 3

Schedule 5 – Reporting

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

Table S5.1 Reporting of monitoring data

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters, monitored continuously, as required by condition 3.6.1.	A1	Every 3 months	Permit issue
Emissions to air Parameters, monitored periodically, as required by condition 3.6.1.	A1	Every 6 months	Permit issue
Process monitoring requirements Parameters as required by condition 3.6.1.	A1 and burner combustion chambers	As requested by the site inspector	Permit issue
Bottom ash quality, as required by condition 3.1.5	Installation	As requested by the site inspector	Permit issue

Table S5.2: Annual production/treatment

Parameter	Units
Waste treated	tonnes

Table S5.3 Performance parameters

Parameter	Frequency of assessment	Units
Water usage	Annually	tonnes
Energy usage	Annually	MWh
Excess syn gas combusted	Quarterly	m^3

Table S5.4 Reporting forms		
Media/parameter	**Reporting format**	**Date of form**
Periodic monitoring of emissions to air	Form air 1 or other form as agreed in writing by the Agency	02/10/08
Continuous monitoring of total dust	Form air 2 or other form as agreed in writing by the Agency	02/10/08
Continuous monitoring of total organic carbon	Form air 3 or other form as agreed in writing by the Agency	02/10/08
Continuous monitoring of carbon monoxide	Form air 4 or other form as agreed in writing by the Agency	02/10/08
Continuous monitoring of oxides of nitrogen	Form air 5 or other form as agreed in writing by the Agency	02/10/08
Continuous monitoring of sulphur dioxide	Form air 6 or other form as agreed in writing by the Agency	02/10/08
Continuous monitoring of hydrogen fluoride	Form air 7 or other form as agreed in writing by the Agency	02/10/08
Continuous monitoring of hydrogen chloride	Form air 8 or other form as agreed in writing by the Agency	02/10/08
Energy usage	Form energy 1 or other form as agreed in writing by the Agency	02/10/08
Other performance indicators	Form performance 1 or other form as agreed in writing by the Agency	02/10/08

Schedule 6 - Notification

These pages outline the information that the operator must provide.

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

Where the notification is for a period of abnormal operation as required by condition 4.3.1(d), only the information in Part C is required.

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 PPC Regulations.

Part A

Permit Number	***ZP3535MW***
Name of operator	**Hudol thermal Ltd**
Location of installation	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

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

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

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

Part B - to be submitted as soon as practicable

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

Part C

Permit Number	
Name of operator	
Location of installation	

For multi-line plants, indicate which line(s) was (were) subject to abnormal operation.	
Time at which abnormal operation commenced	
Time at which abnormal operation ceased	
Duration of this incidence of abnormal operation	
Cumulative abnormal operation duration in current year (at end of present incidence)	
Reasons for abnormal operation	
How did the abnormal operation end? (e.g. plant repaired, reaching maximum permitted duration, initiation of shutdown, etc.)	
Where the abnormal operation was caused by the failure of the particulate, CO or TOC CEM, attach a copy of the alternate monitoring data which was	

used to demonstrate compliance with the abnormal operation emission limit values.	

Where abatement plant has failed, give the half-hourly average emissions for pollutants of relevance during the abnormal operation in the rows below

Pollutant	1st ½ hour	2nd ½ hour	3rd ½ hour	4th ½ hour	5th ½ hour	6th ½ hour	7th ½ hour	8th ½ hour

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of Hudol Thermal Ltd

Schedule 7 - Interpretation

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

"*abnormal operation*" means any technically unavoidable stoppages, disturbances, or failures of the abatement plant during which the concentrations in the discharges into air and the purified waste water of the regulated substances may exceed the normal emission limit values.

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

"*annually*" means once every year.

"*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 4 to the PPC Regulations.

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

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

"bottom ash" means the residue produced from the gasification of waste.

"*CEM*" Continuous emission monitor

"CEN" means Commité Européen de Normalisation

"first development phase" means the period when the gasification system is being run with a waste feed rate so that syn gas is burned in the burners and no excess syn gas is available for combustion in the three 1MW gas engines.

"second phase" means the period when 1 gas engine is used to combust excess syn gas.

"third phase" means the period when 2 gas engines are used to combust excess syn gas.

"fourth phase" means the period when 3 gas engines are used to combust excess syn gas.

"daily average" for releases of substances to air means the average of half-hourly averages over a calendar day during normal operation. Where any of abnormal operation, start-up or shut-down occur during the day in such a way that there are less than 43 half-hourly averages recorded during normal operation, no daily average shall be recorded for that day.

"*dioxin and furans*" means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

"emissions to land", includes emissions to groundwater.

"fugitive emission" means an emission to air, water or land from the activities which is 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.

"*incineration line*" means all of the incineration equipment related to a common discharge to air location.

"ISO" means International Standards Organisation.

"*land protection guidance*", means Agency guidance "H7 - Guidance on the protection of land under the PPC Regime: application site report and site protection monitoring programme".

"MCERTS" means the Environment Agency's Monitoring Certification Scheme.

"notify without delay" and "notified without delay" means that a telephone call can be used, whereas all other reports and notifications must be supplied in writing, either electronically or on paper.

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

"PCB" means *Polychlorinated Biphenyl. Dioxin-like PCBs are the non-ortho and mono-ortho PCBs listed in condition schedule 7.*

"PPC Regulations" means the Pollution, Prevention and Control (England and Wales) Regulations SI 2000 No.1973 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

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

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

"*shutdown*" is any period where the plant is being returned to a non-operational state and there is no waste being burned

"*site protection and monitoring programme*" means a document which meets the requirements for site protection and monitoring programmes described in the Land Protection Guidance.

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

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

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

"year" means calendar year ending 31 December.

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

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

(a) in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or

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

(c) in relation to gases from incineration plants 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.

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

For dioxins/furans and dioxin-like PCBs the determination of the toxic equivalence concentration (I-TEQ, & WHO-TEQ for dioxins/furans, WHO-TEQ for dioxin-like PCBs) stated as a release limit and/ or reporting requirement, the mass concentrations of the following congeners have to be multiplied with their respective toxic equivalence factors before summing.

TEF schemes for dioxins and furans				
Congener	***I-TEF(1990)***	***WHO-TEF (1997/8)***		
		Humans / Mammals	***Fish***	***Birds***
Dioxins				
2,3,7,8-TCDD	*1*	*1*	*1*	*1*
1,2,3,7,8-PeCDD	*0.5*	*1*	*1*	*1*
1,2,3,4,7,8-HxCDD	*0.1*	*0.1*	*0.5*	*0.05*
1,2,3,6,7,8-HxCDD	*0.1*	*0.1*	*0.01*	*0.01*
1,2,3,7,8,9-HxCDD	*0.1*	*0.1*	*0.01*	*0.1*
1,2,3,4,6,7,8-HpCDD	*0.01*	*0.01*	*0.001*	*<0.001*
OCDD	*0.001*	*0.0001*	-	-
Furans				
2,3,7,8-TCDF	*0.1*	*0.1*	*0.05*	*1*
1,2,3,7,8-PeCDF	*0.05*	*0.05*	*0.05*	*0.1*
2,3,4,7,8-PeCDF	*0.5*	*0.5*	*0.5*	*1*
1,2,3,4,7,8-HxCDF	*0.1*	*0.1*	*0.1*	*0.1*
1,2,3,7,8,9-HxCDF	*0.1*	*0.1*	*0.1*	*0.1*
1,2,3,6,7,8-HxCDF	*0.1*	*0.1*	*0.1*	*0.1*
2,3,4,6,7,8-HxCDF	*0.1*	*0.1*	*0.1*	*0.1*
1,2,3,4,6,7,8_HpCDF	*0.01*	*0.01*	*0.01*	*0.01*
1,2,3,4,7,8,9-HpCDF	*0.01*	*0.01*	*0.01*	*0.01*
OCDF	*0.001*	*0.0001*	*0.0001*	*0.0001*

TEF schemes for dioxin-like PCBs			
Congener	***WHO-TEF (1997/8)***		
	Humans / mammals	***Fish***	***Birds***
Non-ortho PCBs			
3,4,4',5-TCB (81)	*0.0001*	*0.0005*	*0.1*
3,3',4,4'-TCB (77)	*0.0001*	*0.0001*	*0.05*
3,3',4,4',5 - PeCB (126)	*0.1*	*0.005*	*0.1*
3,3',4,4',5,5'-HxCB(169)	*0.01*	*0.00005*	*0.001*
Mono-ortho PCBs			
2,3,3',4,4'-PeCB (105)	*0.0001*	*<0.000005*	*0.0001*
2,3,4,4',5-PeCB (114)	*0.0005*	*<0.000005*	*0.0001*
2,3',4,4',5-PeCB (118)	*0.0001*	*<0.000005*	*0.00001*
2',3,4,4',5-PeCB (123)	*0.0001*	*<0.000005*	*0.00001*
2,3,3',4,4',5-HxCB (156)	*0.0005*	*<0.000005*	*0.0001*
2,3,3',4,4',5'-HxCB (157)	*0.0005*	*<0.000005*	*0.0001*
2,3',4,4',5,5'-HxCB (167)	*0.00001*	*<0.000005*	*0.00001*
2,3,3',4,4',5,5'-HpCB (189)	*0.0001*	*<0.000005*	*0.00001*

END OF PERMIT