

Permit with introductory note

Pollution Prevention and Control Regulations 2000

Kent Enviropower Limited
Allington Quarry
Laverstoke Road
Maidstone
Kent ME16 0LY

Permit number

BR4551

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Introductory note

This introductory note does not form a part of the Permit

The following Permit is issued under Regulation 10 of the Pollution Prevention and Control Regulations 2000 (SI 2000 No.1973) (“the PPC Regulations”) to operate an Installation carrying out one or more of the activities listed in Part 1 to Schedule 1 of those Regulations, to the extent authorised by the Permit.

The Permit includes conditions that have to be complied with. It should be noted that aspects of the operation of the Installation which are not regulated by those conditions are subject to the condition implied by Regulation 12(10) of the PPC Regulations, that the Operator shall use the best available techniques for preventing or, where that is not practicable, reducing emissions from the Installation.

Techniques include both the technology used and the way in which the Installation is designed, built, maintained, operated and decommissioned.

Brief description of the Installation regulated by this permit

Summary

The purpose of the Installation is to receive municipal and industrial waste, to recover recyclable elements for reuse and to destroy the combustible element of the residue by incineration in a fluidised bed furnace. Energy is recovered from the incineration process and converted to electricity for export to the National Grid. The combustion gases are cleaned to meet the standards required by the EU Waste Incineration Directive before discharge from a tall chimney. Ashes and other solid residues are removed from the installation.

The Installation covers the site and the entire incineration plant including all incineration lines, waste reception, storage, on-site pre-treatment facilities, water, 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 conditions.

The plant has a design throughput of around 580,000 tonnes per annum with and incineration capacity around 500,000 tonnes per annum. There is a single waste reception, materials recycling and preparation section followed by three independent incinerator lines each complete with a heat recovery boiler, acid gas abatement, bag filter and a separate flue in the chimney. The heat produced from the incineration of the waste is used to generate steam in the boilers and the steam is then combined and passed to a steam turbine which generates some 34.5 MW of electrical energy for export to the National Grid.

Raw Materials

Waste is delivered to the plant in road vehicles which are weighed before proceeding to the tipping hall. This is a fully enclosed building, maintained

under slight negative pressure to ensure that no odours, dust or litter can escape the building. The vehicles carry either unsorted mixed municipal waste, sorted waste for recycling or mixed recyclable waste and non recyclable waste and each tip into the appropriate section of the tipping hall.

The unsorted mixed waste (black bag) is transferred by crane grab to a waste shredding line, it then moves forward through a metals extraction section where ferrous and non ferrous metals are removed for recycling before moving to the prepared fuel bunker.

The mixed waste (blue and black bag) is separated into the two components, the black bag waste is added to the main black bag reception section. The blue bag waste is sent to the materials recycling facility (MRF) where it is separated into individual streams that are sent for recycling. Any unsuitable material in the blue bag line will be diverted to the raw waste bunker.

Waste that has already been separated before collection is sent straight to the MRF.

A crane grab in the prepared fuel bunker both mixes the waste and feed the hoppers of the three incineration lines.

Hydrated lime for the flue gas cleaning process is delivered by bulk tanker and offloaded pneumatically into three 125m³ silos vented through a reverse pulse jet filter.

Activated carbon for the flue gas cleaning process is stored in dedicated silos that are pneumatically filled from delivery trucks. There are three silos, one for each line, each equipped with filters to prevent dust emissions during filling.

Urea, dissolved in water is stored in a fully bunded tank and is injected into the furnaces as necessary to control Nox emissions.

Caustic soda for water treatment resin regeneration is delivered by bulk tanker and offloaded into a 5.5 m³ tank with scrubber, inside the demineralisation area.

Hydrochloric acid for water treatment resin regeneration is delivered by bulk tanker and offloaded into a 5.5 m³ tank vented through caustic soda scrubber in a bund outside the demineralisation area.

Various other water treatment chemicals are delivered in appropriate containers and stored in bunded areas.

Gas oil for the combustion chamber burners and on-site vehicles is stored in a fully bunded 150 m³ tank.

Sand for the fluidised bed furnaces is stored in 3 silos each of 55cubic meters capacity.

Various maintenance materials (oils, greases, insulants, antifreezes, welding and fire fighting gases etc.) are stored in the appropriate manner.

Combustion Process

The technology employed for incineration is the ROWITEC unit which uses a twin interchanging fluidised bed process. The design has an inclined air distributor plate with a number of separate air supply chambers providing differential air flows across the bed, causing a revolving action. This technique promotes rapid and uniform mixing of the waste and ensures that heavy inert and non-combustible material migrates to the sides of the bed where they can easily be removed.

An angled furnace wall above the fluidised bed zone restrains bed expansion under high fluidising air flows and so minimises particulate carry over. The elliptical patterns of air flow converge in the centre of the combustion area ensuring effective vertical and lateral turbulent mixing and high combustion efficiency and uniformity.

The waste is burned on a bed consisting of sand, fuel and ash that is held in suspension by an upward flow of combustion air that circulates the combustion mixture up to the throat of the furnace.

The furnace operating design is based on a thermal capacity of 53.8MW at full load and this can be achieved over a the typical range of waste calorific values expected with municipal waste.

The combustion air system provides the furnace with the total air requirements for fluidisation and combustion. Primary air is supplied to the bottom of the combustion chamber and fluidises the bottom bed. This air is extracted from the waste reception and storage buildings and destroys all odours in the combustion chamber.

Each furnace is equipped with two lance burners for use at start-up to heat the furnace and also during extreme reductions in waste fuel calorific value when the temperature of the furnace would otherwise fall below 850 degrees Centigrade.

Combustion control of the furnace will be achieved through a combination of furnace bed and freeboard temperature control, primary air flow control, oxygen control within the flue gas and furnace load.

Recirculated flue gas is fed to the furnace bed as a cooling medium to control the furnace bed temperature and also to assist the control of Nox by influencing the combustion temperature conditions within the furnace.

The furnace bed is managed to remove non-combustible material (bottom ash) from the bed and maintain the sand level within the optimum operating range. Bottom ashes produced in the furnace together with sand migrate down the slope of the furnace to the discharge section located at each side of the bed. The bottom ash and sand are both withdrawn from the discharge sections of the bed by two water-cooled discharge screw conveyors, operation on an alternating basis. Material passing out of the screw conveyors is discharged to a vibrating screen. Undersize material is returned to the sand hopper for re-use within the furnace while the oversized material is sent off site for recovery or re-use or landfill.

Energy Recovery

Hot gases from the furnace pass through to a boiler designed to generate steam. The boiler comprises two fully water cooled radiation chambers, a single pass horizontal plain tube convective heating surface, incorporating a three stage convective superheater unit and a plain tube economiser section.

The economiser is designed for high velocity gas flow to minimise the reformation of dioxins in the critical de Novo synthesis range.

Steam is generated at 65 bar and a final temperature of 420 degrees Centigrade.

The high pressure steam from all three boilers feeds into a common header which in turn will feed a condensing steam turbine that will generate electricity. Steam exiting the turbine will be condensed in an air cooled condenser and the condensate returned to the boilers.

Gas Cleaning

The plant is designed to meet the requirements of the EU Waste Incineration Directive as a minimum for releases to air by a combination of main process design and operation and abatement equipment.

Flue gases pass from the boiler to the gas cleaning equipment. The gas passes to an electrostatic precipitator (ESP) for the separation of ash carried over from the furnace with the flue gas. Material collected in the ESP will be discharged by means of rotary valves and chain conveyors and then pneumatically fed to the ash silos.

Gases leaving the ESP enter the gas cleaning system. This comprises a Circulating Fluidised Bed (CFB) reactor and bag filter system. Gases entering the CFB will be at a temperature of 190 to 230 degrees C and will come into contact with a mixture of water, hydrated lime and activated carbon that have been injected into the reactor. The reactor is designed to reduce or remove acidic pollutants such as HCl, SO₂ and HF by the use of the hydrated lime and dioxins and furans, PCBs, PAHs, mercury vapour and heavy metal salts such as mercury chloride by the use of the activated carbon. The injected water enhances the reactions and cools the gas. The control system of the CFB optimises the use of reactants by balancing the feed rate with the concentration of the pollutants entering the CFB.

The final stage of the gas cleaning system is the bag filter unit which separates the particulate material from the flue gas. The baghouse filter consists of compartments each of which contains a number of tubular filter bags. A thick porous layer of particulate builds on the bag surfaces to form a filter cake which efficiently removes ultra fine particles from the gas stream and the excess lime continues to react with the acid gases.

Bag house residue is discharged from the compartments via the integrated buffer storage by a closed pneumatic conveying system into the reaction product silos. Silos are equipped with a filter, hopper heating and fluidisation system to assist discharge. The residue is then discharged directly into road vehicles under dust free conditions for transport off site to a licensed landfill.

Nitrogen oxides (NO_x) abatement is achieved by the use of both flue gas recirculation (FGR) and selective non-catalytic reduction (SNCR). The SNCR is based on the injection of urea into the furnace chambers before the boilers and before the lime and carbon injection and before the gas passes to bag filters.

The cleaned gas then discharges to atmosphere via three 80-metre flues in a common stack both at an efflux velocity in excess of 15 ms⁻¹ at maximum throughput.

Ancillary Operations

Demineralised water is required to compensate for boiler blowdown losses. A package demineralisation plant provides this water. The ion exchange resins are regenerated using sodium hydroxide and hydrochloric acid and the regeneration effluent is routed through a neutralisation tank to the collection pit for reuse where possible.

Ash Handling

Bottom ash, the combined boiler and ESP ash and the flue gas treatment residue (FGTR) from the bag filter system, are each sent for separate disposal off site by licensed contractors subject to waste licensing legislation. FGTR is not mixed with any other ash at any time. The bottom ash is likely to be subject to ferrous and non ferrous metals extraction by the contractors before disposal or reuse. All operations will be subject to waste licensing legislation and be tracked by the Environment Agency. At least quarterly sampling of the bottom ash will be carried out to ensure effective burn out is being achieved by testing for the “loss on ignition” of the residual ash. All other solid waste residues arising from the operation of the process will be removed from site, in enclosed containers, for disposal by suitable contractors.

Liquid Effluent and Site Drainage

Uncontaminated surface water from roads and parking area that is not reused within the process will be discharged to sewer.

Emissions Monitoring

Emissions from the stack are continuously monitored for: particulate, carbon monoxide (CO), ammonia (NH₃), sulphur dioxide (SO₂), hydrogen chloride (HCl), oxygen (O₂), nitrogen oxides (NO_x) and volatile organic compounds (VOC). In addition periodic sampling and measurement will be carried out for metals [cadmium (Cd), thallium (Tl), mercury (Hg), antimony (Sb), arsenic (As), lead (Pb), chromium (Cr), cobalt (Co), copper (Cu), manganese (Mn), nickel (Ni), vanadium (V)], dioxins and furans, dioxin like PCBs, hydrogen fluoride (HF) and nitrous oxide (N₂O). Periodic measurements will be carried out four times in the first year and thereafter either at the same frequency or twice per year dependant on the substances.

Public Liaison

The Operator has proposed to facilitate and maintain a forum for interested local groups to provide for an informative, responsive dialogue process between the Operator and the local community.

Other PPC Permits relating to this Installation		
Permit holder	Permit Number	Date of Issue
None	-	-

Superseded Licences/Consents/Authorisations relating to this Installation		
Holder	Reference Number	Date of Issue
None	-	-

Talking to us

If you contact the Agency about this Permit please quote the Permit Number.

The Operator should use the Emergency Hotline telephone number (0800 80 70 60) or any other number notified to it to give a notification under condition 5.1.1.

Confidentiality

The Permit requires the Operator to provide information to the Agency. The Agency will place the information onto the public registers in accordance with the requirements of the PPC Regulations. If the Operator considers that any information provided is commercially confidential, it may apply to the Agency to have such information withheld from the register as provided in the PPC Regulations. To enable the Agency to determine whether the information is commercially confidential, the Operator should clearly identify the information in question and should specify clear and precise reasons.

Variations to the permit

This Permit may be varied in the future. The Status Log within the Introductory Note to any such variation will include summary details of this Permit, variations issued up to that point in time and state whether a consolidated version of the Permit has been issued.

Surrender of the permit

Before this Permit can be wholly or partially surrendered, an application to surrender the Permit has to be made. For the applicant to be successful, they would have to be able to demonstrate to the Agency, in accordance with Regulation 19 of the PPC Regulations, that there is no pollution risk and that no further steps are required to return the site to a satisfactory state.

Transfer of the permit or part of the permit

Before the Permit can be wholly or partially transferred to another person, a joint application to transfer the Permit has to be made by both the existing and proposed holders, in accordance with Regulation 18 of the PPC Regulations. A transfer will be allowed unless the Agency considers that the proposed holder will not be the person who will have control over the operation of the Installation or will not ensure compliance with the conditions of the transferred Permit. If the Permit authorises the carrying out of a specified waste management activity, then there is a further requirement that the transferee is considered to be a “fit and proper person” to carry out that activity.

Status Log

Detail	Date	Comment
Application BR4551	Received 31.01.02	
Application BR4551	Duly made 04.02.02	
Response to request for information (Sch 4)	Request dated 18.04.02	Response dated --.05.02
Response to request for information(Sch 4)	Request dated 30.04.02	Response dated 13.06.02
Supplementary information 1 Groundwater & construction issues Incoming waste handling and treatment Boiler & Furnace issues Clarification of relationship between KEL and WRG Noise Environmental Monitoring Programme Revised General Layout Diagram	Received 20.08.02	Issued to consultees
Supplementary information 2 Revised details of incoming waste handling and preparation.	Received 27.08.02	Issued to consultees.
Request to extend determination	Request dated 15.07.02	Request accepted 16.07.02
Supplementary information package 3 Revised BAT Assessment Response to Comments Phase 2 Site Report Management Structure of KEL . Off-site monitoring programme	Received 22.11.02	Sent to consultees and public registers 26.11.02
Verbal request to extend determination to end of March 2003	Request made on 18 th Feb 2003	Letter of acceptance received 20 th Feb 2003
Copies of approvals from landowners for conducting off site monitoring programme	11 th March 2003	Off site monitoring now in compliance with Regulations.
Supplementary information 4 BAT Assessment for the Contribution from the Waste Management Facility to Acid Deposition at Wouldham to Detling Escarpment	23 rd April 2003	Report was at the request of English Nature.
Permit BR4551	Determined	August 27 th 2003

End of introductory Note.

Permit

Pollution Prevention and Control
Regulations 2000



**ENVIRONMENT
AGENCY**

Permit

Permit number

BR4551

The Environment Agency (the Agency) in exercise of its powers under Regulation 10 of the Pollution Prevention and Control Regulations 2000 (S.I. 2000 No. 1973), hereby authorises

Kent Enviropower Ltd ("the Operator"),

whose Registered Office is

**3 Sidings Court
White Rose Way
Doncaster
South Yorkshire DN4 5NU**

Company registration number **2894377**

to operate an Installation at

**Allington Quarry
Laverstoke Road
Allington
Maidstone
Kent ME16 0LY**

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

Signed



R N Mead

Authorised to sign on behalf of the Environment Agency

Date

27th August 2003

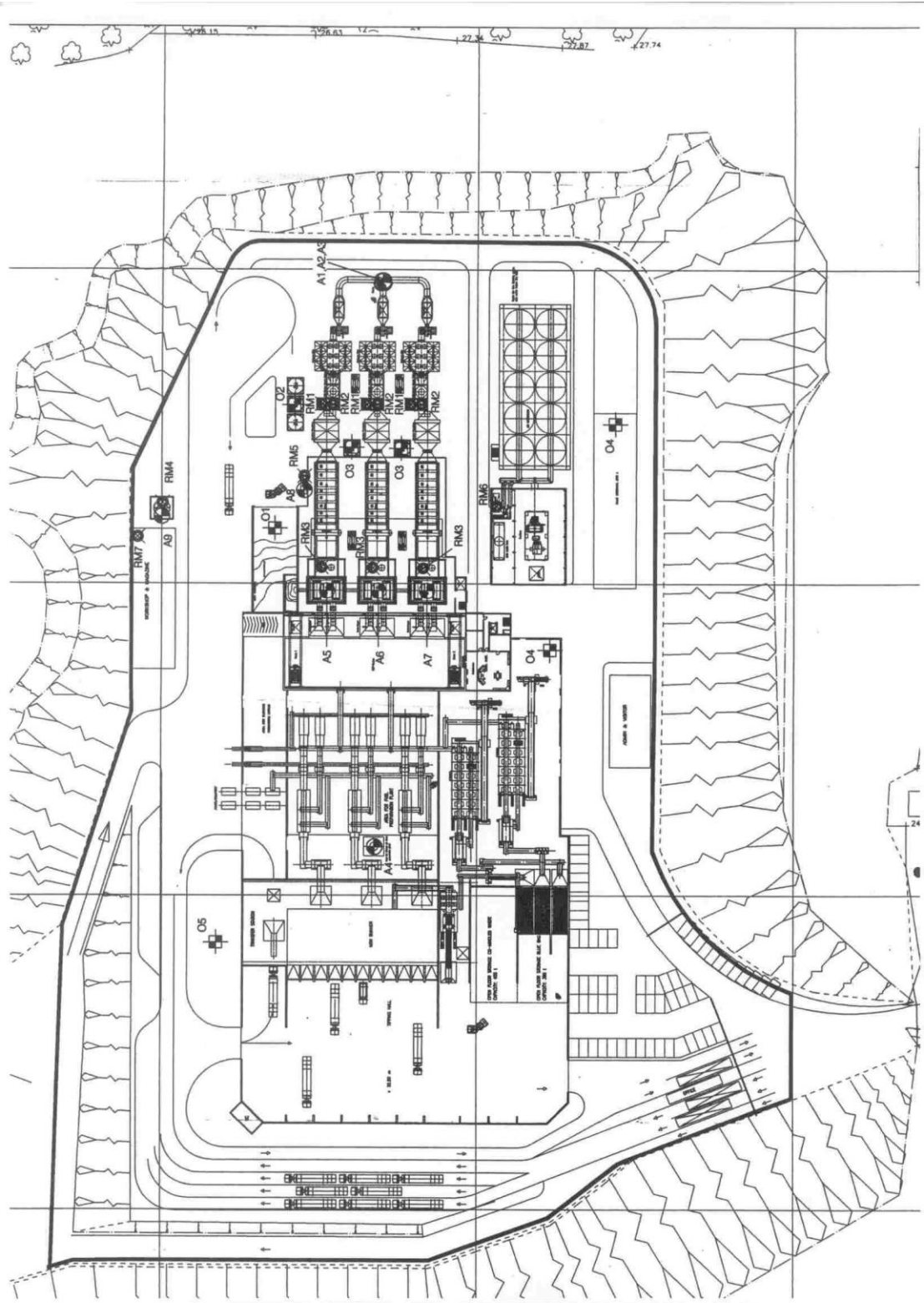
Conditions

1 The permitted Installation

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

Table 1.1.1			
Activity under Schedule 1 of the Regulations/ Associated Activity	Description of specified activity	Schedule 1 Activity Reference (if applicable)	Limits of specified activity
<i>Receipt and storage of municipal waste</i>	<i>Receive waste from external contractors and storage prior to incineration</i>	<i>Directly associated activity</i>	<i>Receipt of waste and storage for incineration</i>
<i>Incineration of municipal waste</i>	<i>Feedstock management, combustion operations, gas cleaning and discharge</i>	<i>5.1 A (1)(d)</i>	<i>From feedstock management and selection to point of discharge to the environment</i>
<i>Production of steam for generation of electricity and off site use</i>	<i>Steam generation, turbine generator operation</i>	<i>Directly associated activity</i>	<i>To output to grid of electricity To discharge of steam off site</i>
<i>Abatement of flue gas</i>	<i>Lime and activated carbon injection. Flue gas recirculation. Urea injection. Bag filter abatement</i>	<i>Directly associated activity</i>	<i>Compliance with emission limits at release points specified</i>
<i>Management of bottom ash and APC residues.</i>	<i>Residues handling and storage</i>	<i>Directly associated activity</i>	<i>Including loading and storage on off-site transfer vehicles as far as site boundary</i>

- 1.1.2 The activities authorised under condition 1.1.1 shall not extend beyond the Site, being the area shown edged in **bold** on the plan below.



- 1.1.3 The Permitted Installation shall not be brought into operation until the following measures have been completed and the Agency has been notified in writing of this.
- a On the completion of the final design of the waste reception, materials recycling facility and refuse derived fuel store, the Operator shall confirm by means of written report to the Agency that the design has adequate means to prevent odours reaching the installation boundary at all times that waste is present in the plant.
 - b At least 3 months prior to the start of the commissioning of the plant the Operator shall repeat the full noise survey as carried out for the Application both for daytime and night-time. The Operator shall provide the results to the Environment Agency before commencing formal commissioning.
 - c At least 3 months prior to the start of any plant construction activities the Operator shall provide a report of the details of the dioxin/furan, dioxin like PCBs, metals and fluoride levels in the soil and ground water of the Installation site.
 - d Following the finalising of the design of the fluid bed incinerators and at least 6 months before commissioning, the Operator shall provide a report of the details of the computational fluid dynamic modelling of the combustion chambers. The details shall be sufficient to demonstrate that the incinerators are designed, equipped and be capable of being operated in such a way that the gases resulting from the process is raised, after the last injection of combustion air, in a controlled and homogeneous fashion and even under the most unfavourable conditions, to a temperature of 850°C, as measured near the inner wall or at another representative location as authorised by the Environment Agency, for two seconds.
 - e At least 3 months prior to the start of significant erection activities in relevant areas, the Operator shall provide the plant design details of the sampling and monitoring positions for both continuous and spot monitoring. The details shall be sufficient for the Agency to determine the suitability of the position(s).
 - f At least 3 months prior to the start of commissioning the Operator shall provide a report of the results of the background air quality monitored for the parameters, at the locations and over the time period specified in the Application.
 - g At least 3 months prior to the start of commissioning the Operator shall provide a report of the results of the background soil quality monitored for the parameters, at the locations and over the time period specified in the Application.
 - h At least 3 months prior to the start of commissioning the Operator shall provide a commissioning plan for approval by the Agency. The plan shall be designed to establish that permit conditions can be met under all anticipated operating conditions and shall confirm commissioning start date, plant monitoring protocols and a proposed full operation start date. The plan shall also include proposals for the monitoring of groundwaters for potential contamination by the operation of the process.

- i At least 1 month prior to the start of commissioning the Operator shall submit to the Agency piping and instrumentation diagrams for relevant sections of the actual Installation.
- j At least 6 months prior to commissioning the Operator shall have obtain a discharge consent from Southern Water for releases to sewer.
- k At least 3 months prior to the start of commissioning the Operator shall demonstrate to the satisfaction of the Agency, compliance with Regulation 10 (4)(a), the fit an proper person (FAPP) test and shall provide Financial Provision as agreed with the Environment Agency. Commissioning can not be started until the Agency has given written acceptance of compliance with this condition.
- l At least 3 months prior to the start of commissioning the Operator shall agree with the Environment Agency a suitable format using the latest information technology systems for reporting of the information and emission monitoring data required in this permit.
- m Prior to the reception of any waste on site the operator shall have in place an internet web site approved by the Environment Agency, for the public demonstration of compliance with the emission limits to air set in this permit using real time emission monitoring information from the continuous monitors.
- n At least 3 months prior to the start of commissioning the Operator shall provide to the Agency for approval, the following documents demonstrating that BAT is used:-
 - i. An accident prevention plan
 - ii. An emergency plan
 - iii. A site closure plan
 - iv. Drawings and plans for waste and raw material storage including a full inventory of chemicals, holding vessel sizes, bunding arrangements, and position on plant layout.
 - v. A groundwater monitoring plan to prove the integrity of the installation in preventing emissions to groundwater.
- o At least 3 months prior to the start of any plant construction activities the Operator shall provide in writing to the Agency full details of all continuous and periodic monitoring arrangements and facilities that comply with CEN standards, unless otherwise agreed in writing with the Agency. The submission must include plant and equipment details, methods and standards for sampling and analysis together with full details of monitoring locations, access and working platforms. The details shall be sufficient for the Agency to determine the suitability of the position(s).

The Operator shall operate the Installation in accordance with these documents unless otherwise agreed in writing by the Agency.

2 Operational Matters

2.1 Management techniques and control

- 2.1.1 The Permitted Installation shall, subject to the conditions of this Permit, be managed and controlled as described in the documentation specified in Table 2.1.1, or as otherwise agreed in writing by the Agency.

Table 2.1.1 : Management and control		
Description	Parts	Date Received
Application	The response to question B2.1 given in the Application. (Chapter 2 pages 14-16)	31.01.2002

- 2.1.2 All plant, equipment and technical means used in operating the Permitted Installation shall be maintained in good operating condition.
- 2.1.3 The Permitted Installation shall be supervised by staff who are suitably trained and are qualified as a fit and proper person (FAPP) under Regulation 10 (4) (a) and are fully conversant with the requirements of this Permit.
- 2.1.4 A copy of this Permit and those parts of the application referred to in this Permit shall be available, at all times, for reference by all staff carrying out work subject to the requirements of the Permit.
- 2.1.5 All staff shall be fully conversant with those aspects of the Permit conditions, which are relevant to their duties and shall be provided with appropriate training and written operating instructions to enable them to carry out their duties.

2.2 Raw materials (including water)

- 2.2.1 The Operator shall, subject to the conditions of this Permit, use raw materials (including water) as described in the documentation specified in Table 2.2.1, or as otherwise agreed in writing by the Agency.

Table 2.2.1 : Raw materials (including water)		
Description	Parts	Date Received
Application	The response to question B2.2 given in the Application. (Chapter 2 pages 16-23)	31.01.2002

- 2.2.2 Support fuel shall contain less than 0.1 % sulphur content by weight.
- 2.2.3 The materials detailed in Table 2.2.3 shall be stored in the location and manner specified in that table.

Table 2.2.3 : Raw materials (including water)			
Material	Location of Storage on site	Manner of Storage	Storage Conditions
Municipal waste and equivalent industrial waste	Main reception hall	Waste bunker	Dedicated contained concrete bunker
Lime	Outside building	Silos with self cleaning filter on vent	Delineated storage area with controlled drainage
Urea	Inside building	Fully banded tank	Delineated storage area with controlled drainage
Activated Carbon	Outside building	Silo	Delineated storage area.
Fuel Oil (start up and site vehicles)	As detailed in application	Bulk tank with level alarm	Banded area, including transfer connections
Lubricating oils and other maintenance fluids	As detailed in application	Sealed drums and other sealed containers	Within banded, covered storage areas
Boiler feed water	As detailed in application	Bulk tank	
Water treatment chemicals	As detailed in application	Sealed drums and other sealed containers	Within banded, covered storage areas

2.3 Operating Techniques

2.3.1 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 2.3.1, or as otherwise agreed in writing by the Agency.

Table 2.3.1: Operating techniques		
Description	Parts	Date Received
Application	The response to question B2.3 given in the Application. (Chapter 2 pages 24-50)	31.01.2002
Response to Schedule 4 Notice Dated 18.04.02	Response to questions 6, 7, 8, 9, 10, 11, 12, 13, and 16.	May.02

- 2.3.2 Only the waste types and quantities specified in Table 2.3.2 shall be incinerated in the Permitted Installation.

Table 2.3.2: Permitted Waste Types		
Description	European Waste Catalogue Number (where available) or other specification	Nominal design throughput
Mixed Municipal Waste and the equivalent categories of industrial and commercial waste.	200301, 200302, 200303 200101, 200102, 200108, 200110, 200111, 200138	500,000 tonnes per annum (1)

Note: (1). At design calorific value of the waste and assuming 7800 hrs operation.

- 2.3.3 The Operator shall adopt procedures and practices to, as far as practicable, identify and manage the wastes delivered to the process such that the conditions of this permit are not breached and waste feed failures are minimised.
- 2.3.4 The Operator shall adopt and carry out procedures and practices to monitor, record and control pests, odour and litter.
- 2.3.5 The incinerator bottom ash shall have a total organic carbon (TOC) content less than 2% **or** loss on ignition of less than 3% of the dry weight of the ash.
- 2.3.6 Waste shall be prevented, by means of an automatic system, from being charged into an incinerator unless the combustion chamber temperature is in excess of 850C after the last injection of combustion air.
- 2.3.7 Waste shall be prevented, by means of an automatic system, from being charged into an incinerator whenever the continuous measurements required in this Permit show that any emission limit value is exceeded due to disturbances or failures of any part of the waste combustion gas purification devices.

Abnormal Operating Conditions

- 2.3.8 In the case of breakdown, the Operator shall reduce or close down operations as soon as practicable until normal operations can be restored.
- 2.3.9 Without prejudice to Condition 2.3.7 the incineration plant shall under no circumstances continue to incinerate waste:
- for a period of more than four hours uninterrupted where emission limit values set in Table 6.1.3 (excluding abnormal operating conditions specified in condition 2.3.10) are exceeded; or
 - continuous emission monitor(s) is(are) out of service for four hours; or
 - where the cumulative duration of abnormal operation periods as specified in 2.3.9(a) above is or exceeds 60 hours and 2.3.9(b) above is or exceeds 60 hours, both to be calculated over one calendar year.

- 2.3.10 Under no circumstances shall releases from the permitted process exceed: a total particulate emission concentration of 150 mg/m^3 (1/2 hour average) with or without waste being burned (including operation of the bag filter bypass at start-up). Under no circumstances shall releases from the permitted process exceed the CO and TOC emission limits (excluding start-up and shutdown periods when there is no waste being incinerated).
- 2.3.11 The bag filter bypass use shall be minimised and only used when waste is not present in the furnace. Total loss of power should not cause the bypass to open.
Any operation of the furnace pressure release valve shall be reported to the Agency.

2.4 Groundwater protection

- 2.4.1 The Permitted Installation shall, subject to the conditions of this Permit, be controlled as described in the documentation specified in Table 2.4.1, or as otherwise agreed in writing by the Agency.

Table 2.4.1: Groundwater protection

Description	Parts	Date Received
Application	The response to question B2.4 given in the Application (Chapter 2 page 50)	30.01.02

2.5 Waste handling and storage

- 2.5.1 The Operator shall, subject to the conditions of this Permit, handle and store waste as described in the documentation specified in Table 2.5.1, or as otherwise agreed in writing by the Agency.

Table 2.5.1: Waste handling and storage

Description	Parts	Date Received
Application	The response to question B2.5 given in the Application. (Chapter 2 pages 50-51)	30.01.02

- 2.5.2 Waste materials specified in Table 2.5.2 shall only be stored on the site in the location and manner specified in that Table.

Table 2.5.2: Waste stored on site			
Description of Waste	Location of Storage on Site	Manner of Storage	Storage Conditions
Reject loads and oversize	L1	Segregated area. Loose and liquid loads in containers	Impermeable hard standing within tipping hall
Waste oil	L2	Drums	Drums to be clearly marked, held on concrete hard standing with controlled drainage within building.
Flue Gas treatment residue	L3	Silos vented through self cleaning filter	Outside building in dedicated area
Boiler Ash mixed with ESP ash.	L4	Silos vented through self cleaning filter	Outside building in dedicated area
Bed ash after segregation of reusable bed material	L5	Within building	Inside building in dedicated area
Metals for recycling	L6	Suitable receptacle	Outside building in dedicated area
Plastics for recycling	L7	Suitable receptacle	Outside building in bales in dedicated area
Paper and Cardboard for recycling	L8	Suitable receptacle	Inside building in bales in dedicated area
Other wastes	-	Drums or bins	Inside building in dedicated area

2.5.3 Dust control measures shall be installed and used for ash storage if necessary.

2.5.4 Flue gas treatment residues shall not be mixed with the bed ash. Mixing the Flue Gas Treatment Residues with any other ash residues from the boiler and/or the electrostatic precipitator is only permitted on site and provided that the total mixed residues are then treated as Flue Gas Treatment residues and disposed of as Flue Gas Treatment residues.

2.6 Waste recovery and disposal

2.6.1 The Operator shall, subject to the conditions of this Permit, recover and dispose of waste as described in the documentation specified in Table 2.6.1, or as otherwise agreed in writing by the Agency.

Table 2.6.1: Waste recovery and disposal

Description	Parts	Date Received
Application	The response to question B2.6 given in the Application. (Chapter 2 page 52)	30.01.02

2.6.2 Wastes produced at the Installation shall, as a minimum, be sampled and analysed in accordance with Table 2.6.2. Additional samples shall be taken and tested and appropriate action taken, whenever:

- a) disposal or recovery routes change; and
- b) it is suspected that the nature or composition of the waste has changed such that the route selected may no longer be appropriate.

Table 2.6.2: Waste Sampling and Analysis

Waste Description	Parameters to be measured	Frequency
Bottom Ash	TOC or LOI, metals (Cd, Tl, Hg, Pb, Cr, Cu, Mn, Ni, As, Co, V, Sn) and their compounds, dioxins/furans and dioxin like PCBs. Sampling and analysis as per Agency ash sampling protocol.	Quarterly for first year then 6 monthly by agreement with the Agency
Boiler and ESP Ash combined	TOC or LOI, metals (Cd, Tl, Hg, Pb, Cr, Cu, Mn, Ni, As, Co, V, Sn) and their compounds, dioxins/furans and dioxin like PCBs. Sampling and analysis as per Agency ash sampling protocol.	Quarterly for first year then 6 monthly by agreement with the Agency
Flue gas treatment residues.	TOC or LOI, metals (Cd, Tl, Hg, Pb, Cr, Cu, Mn, Ni, As, Co, V, Sn) and their compounds, dioxins/furans and dioxin like PCBs and free lime. Sampling and analysis as per Agency ash sampling protocol.	Quarterly for first year then 6 monthly by agreement with the Agency

2.6.3 Copies of the analyses in condition 2.6.2 above shall be forwarded to the Agency in accordance with Table S2, Schedule 2.

2.7 Energy Efficiency

2.7.1 The Operator shall, subject to the conditions of this Permit, use energy as described in the documentation specified in Table 2.7.1, or as otherwise agreed in writing by the Agency.

Table 2.7 1: Energy efficiency		
Description	Parts	Date Received
Application	The response to question B2.7 given in the Application	30.01.02
Response to Schedule 4 Notice Dated 18.04.02	Response to question 8	05.2002

2.8 **Accident prevention and control**

2.8.1 The Operator shall, subject to the conditions of this Permit, prevent and limit the consequences of accidents as described in the documentation specified in Table 2.8.1, or as otherwise agreed in writing by the Agency.

Table 2.8.1 : Accident prevention and control		
Description	Parts	Date Received
Application	The response to question B2.8 given in the Application	30.01.02
Response to Schedule 4 Notice Dated 18.04.02	Response to question 9	05.2002

2.9 **Noise and vibration**

2.9.1 The Operator shall, subject to the conditions of this Permit, control noise and vibration as described in the documentation specified in Table 2.9.1, or as otherwise agreed in writing by the Agency.

Table 2.9.1 : Noise and vibration		
Description	Parts	Date Received
Application	The response to question B2.9 given in the Application	30.01.02

2.9.2 Waste shall only be received on site between 0700 and 1800 hours Monday to Friday and between 0700 and 1300 hours on Saturdays. No waste can be received outside these hours or on Saturday afternoons, Sundays or Bank Holidays without the prior agreement of the Planning Authority and notification to the Environment Agency that such approval has been given.

2.10 **Monitoring**

2.10.1 The Operator shall, subject to the conditions of this Permit, carry out, evaluate and assess monitoring as described in the documentation specified in Table 2.10.1, or as otherwise agreed in writing by the Agency.

Table 2.10.1 : Monitoring		
Description	Parts	Date Received
Application	The response to question B2.10 given in the Application	30.01.02

- 2.10.2 Where requested in writing by the Agency, the Operator shall provide at least 14 days advance notice of undertaking periodic measurements.
- 2.10.3 There shall be provided:
- safe and permanent means of access to enable sampling/monitoring to be carried out in relation to the emission points specified in Schedule 2, unless otherwise specified in that Schedule; and
 - safe means of access to other sampling/monitoring points when required by the Agency.
- 2.10.4 Measurements for the determination of concentrations of substances specified in this permit shall be carried out representatively.
- 2.10.5 Sampling ports shall comply with the requirements of BS EN 13284-1.
- 2.10.6 The Operator shall make available on the Internet continuous monitoring data on a 24 hour basis.
- 2.10.7 The following operating parameters shall be continuously monitored and recorded:
- the temperature near the inner wall of the combustion chamber (or other representative location agreed in writing with the Agency);
 - the exhaust gas oxygen concentration;
 - the exhaust gas temperature;
 - the exhaust gas pressure; and
 - if the gases are not dried prior to analysis, the exhaust gas water vapour content.
- 2.10.8 Methods to calibrate automated, continuous measurement systems shall be carried out as specified by the appropriate CEN standards. If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality, as agreed in writing with the Agency, shall apply. The reference measurements used shall be agreed in writing with the Agency. The results of the assessment shall be submitted, to the Agency in writing, within one month of the completion of the assessment.
- 2.10.9 Analysis of the samples for substances specified in this permit shall be carried at a UKAS certified laboratory, to limits of detection specified, or as otherwise agreed in writing, by the Agency.

2.11 Decommissioning

- 2.11.1 The Operator shall, subject to the conditions of this Permit, make provision for decommissioning the Installation as described in the documentation specified in Table 2.11.1, or as otherwise agreed in writing by the Agency.

Table 2.11.1 : Decommissioning		
Description	Parts	Date Received
Application	The response to question B2.11 given in the Application	30.01.02

- 2.11.2 The Operator shall provide, for approval by the Agency, details of any changes that may be made to the site closure plan over the lifetime of the installation to ensure that it still complies with BAT at the time of the closure.

2.12 Multi-Operator Installations

- 2.12.1 This is not a multi-Operator Installation.

3 Records

- 3.1.1 A record (a "Specified Record") shall be made of:
- a any malfunction, breakdown or failure of plant, equipment or techniques (including down time and any short term and long term remedial measures) that may have, has had or might have had an effect on the environmental performance of the Permitted Installation. These records shall be kept in a log maintained for that purpose;
 - b all monitoring and sampling taken or carried out and any assessment or evaluation made on the basis of such data;
 - c CEM data before and after subtraction of the uncertainty errors;
 - d raw data for all congeners of dioxins/furans and dioxin like PCBs; and
 - e any other Specified Records for the Installation as stipulated from time to time by the Agency.
- 3.1.2 There shall be made available for inspection by the Agency at any reasonable time:
- a Specified Records; and
 - b any other records made by the Operator in relation to the operation of the Permitted Installation ("Other Records").
- 3.1.3 A copy of any Specified or Other Records shall be supplied to the Agency on demand and without charge
- 3.1.4 Specified Records and Other Records shall:
- a be legible;
 - b be made as soon as reasonably practicable; and
 - c indicate any amendments which have been made and shall include the original record wherever possible.
- 3.1.5 Specified Records and Other Records shall be retained for a minimum period of 4 years from the date when the records were made at the location.
- 3.1.6 For all waste received at or produced from the Permitted Installation, the Operator shall record (and shall retain such records for a minimum of 4 years):
- a its composition, or as appropriate, description;
 - b the best estimate of the quantity produced;
 - c its disposal routes; and
 - d the best estimate of the quantity sent for recovery.
- 3.1.7 A record shall be made at the Permitted Installation of any complaints concerning the Installation's effect or alleged effect on the environment. The record shall give the date of complaint, time of complaint, a summary of any investigation and the results of such investigation. Such records shall be made in a log kept for this purpose. The Operator shall retain such records for a minimum of 4 years.

4 Reporting

- 4.1.1 All reports and notifications required by this Permit, or by Regulation 16 of the PPC Regulations, shall be sent to the Environment Agency at the address notified in writing to the Operator by the Agency.
- 4.1.2 The Operator shall report the parameters listed in Table S2 to Schedule 2 as follows:
- a in respects of the emission points specified;
 - b for the reporting periods specified in Table S2 to Schedule 2 and using the forms specified in Table S3 to Schedule 3;
 - c giving the information from such results and assessments as may be required by the forms specified in those tables; and
 - d sending the report to the Agency within 28 days of the end of the reporting period, with the exception of the monthly reports specified, which shall be submitted in hard copy within 10 working days of the end of the month in question.
- 4.1.3 Where the Operator has a formal environmental management system applying to the Permitted Installation which encompasses annual improvement targets the Operator shall, not later than 31 January in each year, provide a summary report of the previous year's progress against such targets.
- 4.1.4 The Operator shall, within 36 months of the issue of this Permit, submit a report on potential environmental improvements to the Permitted Installation. For each of the subject areas identified in Section 2 of the appropriate technical guidance, the report shall assess the costs and benefits of alternative techniques that may provide environmental improvement. This shall include, but not be limited to, those techniques listed in guidance. The methodologies used should be based on those given in Agency guidance note IPPC H1 (Environmental Assessment and Appraisal of BAT) and should justify, against the Best Available Techniques criteria, where potential improvements are not planned to be implemented. As part of their management system the Operator shall submit an updated report every 36 months.
- 4.1.5 Fugitive emissions shall be reviewed and quantified on an annual basis and, not later than 31st January in each year, a summary report on this review shall be sent to the Agency detailing such releases and the measures taken to prevent and reduce them.
- 4.1.6 By 31 January each year the Operator shall submit to the Agency an annual report on quantities of ash, their destinations and their components/compositions, which have been disposed of or recycled in the previous calendar year. The report shall review (with regard to BAT) opportunities for increasing waste recovery over the coming year, and report on progress with those identified in the previous years report.

- 4.1.7 By 31 January each year the Operator shall submit to the Agency an annual report on the energy consumption and energy production of the Installation.
- 4.1.8 The report required by Condition 3.1.7 shall include the following:
- a) A review (with regard to BAT) of opportunities for increasing the overall energy efficiency of the Installation over the coming year;
 - b) Identify progress with those opportunities identified in the previous annual report; and
 - c) Identify the net usable energy produced per tonne of waste processed (i.e. energy consumption of the Installation and unused energy discharged from cooling operations to be deducted).

5 Notifications

- 5.1.1 The Operator shall notify the Agency **without delay** of:
- 5.1.2 the detection of an emission of any substance which exceeds any limit or criteria in this Permit specified in relation to the substance;
- 5.1.3 the detection of any fugitive emission which has caused or may cause pollution unless the quantity emitted is so trivial that it would be incapable of causing pollution;
- 5.1.4 the detection of any malfunction, breakdown or failure of plant or techniques which has caused or may have the potential to cause pollution; and
- 5.1.5 any accident which has caused or may have the potential to cause pollution.

- 5.1.6 The Operator shall submit written confirmation to the Agency of any notification under condition 5.1.1 of this Permit by sending:
- 5.1.7 the information listed in Part A of Schedule 1 to this Permit within 24 hours of such notification; and
- 5.1.8 the more detailed information listed in Part B of that Schedule as soon as practicable thereafter and such information shall be in accordance with that Schedule.
- 5.1.9 The Operator shall give written notification as soon as practicable, of any of the following:
- 5.1.10 permanent cessation of the operation of any part of or all of the Permitted Installation;
- 5.1.11 cessation of the operation of any part of or all of the Permitted Installation for a period, likely to exceed 1 year; and
- 5.1.12 resumption of the operation of any part of or all of the Permitted Installation after a cessation notified under 5.1.3(b).
- 5.1.13 The Operator shall notify the following matters to the Agency, in writing, within 14 days of their occurrence:
- 5.1.14 any change in the Operator's trading name, registered name or registered office address;
- 5.1.15 a change to any particulars of the Operator's ultimate holding company (including details of an ultimate holding company where the Operator has become a subsidiary); and
- 5.1.16 any steps taken with a view to the Operator going into administration, entering into a company voluntary arrangement or being wound up.

6 Emissions

6.1 Emissions into air

6.1.1 Emissions to air from the emission point(s) specified in Table 6.1.1 shall only arise from the source(s) specified in that Table.

Table 6.1.1: Emission points into air		
Emission point reference	Source	Location of emission point
A1	Incinerator line 1 (80 m flue in common chimney)	Chimney as marked on Site Plan
A2	Incinerator line 2 (80 m flue in common chimney)	Chimney as marked on Site Plan
A3	Incinerator line 3 (80 m flue in common chimney)	Chimney as marked on Site Plan

6.1.2 The limits for emissions into air for the parameter(s) and emission point(s) set out in Table 6.1.3 shall not be exceeded except under abnormal operating conditions as specified in condition 1.3.8.

6.1.3 The Operator shall carry out monitoring of the parameters listed in Table 6.1.3, from the emission points and at least at the frequencies specified in that Table.

Table 6.1.3: Emission limits into air					
Emission Points A1, A2 and A3					
Parameters	Units	Half Hour Average	Daily Average	Periodic	Monitoring Requirements ^{Note 3}
Particulate matter	mgm ⁻³	30	10	-	½hr average and daily average; continuous measurement. Quarterly periodic measurement: average value over at least 1 hour sample period. ^{Note 1}
VOCs as Total Organic Carbon (TOC)	mgm ⁻³	20	10	-	½hr average and daily average; continuous measurement. Bi-annual periodic measurement, at least 4 hour sample period data to be reported as half-hourly averages. ^{Note 1}
Hydrogen chloride	mgm ⁻³	60	10	-	½hr average and daily average; continuous measurement. Bi-annual periodic measurement, average value over at least 1 hour sample period. ^{Note 1}
Carbon monoxide	mgm ⁻³	100	50	-	½hr average and daily average; continuous measurement.

Parameters		Units	Half Hour Average	Daily Average	Periodic	Monitoring Requirements ^{Note 3}
						Bi-annual periodic measurement, at least 4 hour sample period data to be reported as half-hourly averages. ^{Note 1}
Sulphur dioxide		mgm ⁻³	200	50	-	½hr average and daily average; continuous measurement. Bi-annual periodic measurement at least 4 hour sample period data to be reported as half-hourly averages. ^{Note 1}
Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)		mgm ⁻³	400	200	-	½hr average and daily average; continuous measurement. Bi-annual periodic measurement at least 4 hour sample period data to be reported as half-hourly averages. ^{Note 1}
Nitrous Oxide (N ₂ O)		mgm ⁻³	-	-	-	Daily average, continuous measurement.
Ammonia (NH ₃)		mgm ⁻³	20	10	-	½hr average and daily average; continuous measurement. Bi-annual periodic measurement, average value over at least 1 hour sample period. ^{Note 1}
Hydrogen fluoride		mgm ⁻³	None	None	2	Quarterly periodic measurement, average value over at least 1 hour sample period ^{Note 1}
Cadmium & thallium and their compounds (total)		mgm ⁻³	None	None	0.05	Quarterly periodic measurement, average value over sample period of between 30 minutes and 8 hours. ^{Note 2}
Mercury and its compounds		mgm ⁻³	None	None	0.05	Quarterly periodic measurement, average value over sample period of between 30 minutes and 8 hours. ^{Note 2}
Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)		mgm ⁻³	None	None	0.5	Quarterly periodic measurement, average value over sample period of between 30 minutes and 8 hours. ^{Note 2}
Dioxin like PCBs	UK COT-TEQ	ngm ⁻³	None	None	None	Bi-annual periodic measurement, average value over sample period of between 6 and 8 hours. To be determined utilising sampling and analytical techniques developed for dioxins/furans (BS EN1948) ^{Notes 4 and 6}
	WHO-TEQ Humans/Mammals	ngm ⁻³	None	None	None	
	WHO-TEQ Fish	ngm ⁻³	None	None	None	
	WHO-TEQ Birds	ngm ⁻³	None	None	None	
	I-TEQ	ngm ⁻³	None	None	0.1	Bi-annual periodic measurement, average value over sample period of
	UK COT-TEQ	ngm ⁻³	None	None	None	

Parameters		Units	Half Hour Average	Daily Average	Periodic	Monitoring Requirements ^{Note 3}
Dioxins/ furans	WHO-TEQ Humans/Mammals	ngm ⁻³	None	None	None	between 6 and 8 hours. Determination in accordance with BS EN 1948 ^{Note 4} and 6
	WHO-TEQ Fish	ngm ⁻³	None	None	None	
	WHO-TEQ Birds	ngm ⁻³	None	None	None	

Notes:

1. Periodic measurements to be used to check CEM calibration, data to be reported as half-hourly averages.
2. Metals include both gaseous, vapour and solid phases as well as their compounds (expressed as the metal or total as specified).
3. Reference measurement monitoring techniques shall be in accordance with the conditions and tables in section 2.10. of this permit.
4. Quarterly periodic measurement in first 12 months of operation.
5. Emission limit value to be specified after first 12 months of monitoring data.
6. The respective 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; and
 - All congeners less than the detection limit assumed to be at the detection limit

6.1.4 The 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 the value of the confidence interval specified at condition 6.1.6 below. The daily average values shall be determined from those validated average values.

6.1.5 With regard to the calibration of continuous emission monitors, at the daily emission limit value, the values of the 95% confidence intervals of a single measured result shall not exceed the following percentages of the emission limit values:

Carbon monoxide	10%
Sulphur dioxide	20%
Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	20%
Particulate matter	30%
Total organic carbon	30%
Hydrogen chloride	40% and
Ammonia	40%

6.1.6 To obtain a valid daily average value no more than five half-hourly average values in any day shall be discarded due to malfunction or maintenance of the continuous measurement system. No more than ten daily average values per year shall be discarded due to malfunction or maintenance of the continuous measurement system.

6.1.7 For periodic measurements, compliance shall be determined from the measured value after having subtracted the uncertainty error for the selected method of sampling and analysis for each relevant pollutant.

6.2 Emissions to land

6.2.1 There shall be no emission to land from the Permitted Installation.

6.2.2 The Operator shall notify the Agency, as soon as practicable, of any information concerning the state of the Site which affects or updates that provided to the Agency as part of the Site Report submitted with the application for this Permit.

6.3 Emissions to water [other than emissions to sewer]

6.3.1 No emissions to water shall be made from any part of the installation.

6.4 Emissions to sewer

- 6.4.1 Emissions to sewer from the emission point specified in Table 6.4.1 shall only arise from the source(s) specified in that Table.

Table 6.4.1: Emission points into water		
Emission Point Reference.	Source	Receiving Sewer
S1	Uncontaminated surface rainwater from roadways and car parks	Southern Water (via interceptors and local surface water drainage system)

- 6.4.2 The Operator shall comply fully with the conditions of the Trade Effluent Consent to be issued by Southern Water for this installation and shall carry out monitoring of the parameters for the parameters listed in the Trade Effluent Consent and at least at the frequencies specified.

- 6.4.3 There shall be no emission into sewer from the Permitted Installation of any substance prescribed for water for which no limit is specified in the Trade Effluent Consent except in a concentration which is no greater than the background concentration

6.5 Emissions of heat

- 6.5.1 The Operator shall take every practical opportunity to use the heat rejected at the steam condensers for beneficial local use. A report shall be submitted to the Environment Agency bi-annually on the Anniversary of the issue of the Permit on the Operator's progress in investigating and developing opportunities for the use of the rejected heat.

6.6 Emissions of noise and vibration

- 6.6.1 No conditions are placed on noise and vibration from the installation.

7 Transfer to effluent treatment plant

- 7.1.1 No transfer from the Permitted Installation shall be made to any on site effluent treatment plant.

8 Off site conditions

- 8.1.1 The Operator shall, subject to the conditions of this permit, undertake an off site monitoring programme for ambient air quality, soil contamination and noise as specified in Table 8.1.1, or as otherwise agreed in writing by the Agency. A report shall be submitted in writing to the Agency to demonstrate that the results of the monitoring shows that the assessments and predictions made in the Application for these parameters remain valid.

Table 8.1.1 : Off-site Monitoring		
Description	Parts	Date Received
Addition information detailing the off site monitoring programme.	Entire programme	12.11.2002

- 8.1.2 The Operator shall undertake, and report annually to the Agency, annual audits of the intended waste disposal and treatment sites for the bottom ash, combined boiler and ESP ash, Flue Gas Treatment Residues and other wastes (solid and liquid). The audits are to ensure that the disposal and treatment sites are appropriately licensed to receive the type and quantity of waste generated by the permitted installation. The audit shall also ensure that the recovery sites for ferrous and non-ferrous metals are appropriately licensed to recover the type and quantity of waste generated.

9 Improvement programme

- 9.1.1 The Operator shall complete the requirements specified in Table 9.1.1 by the date specified in that Table, and shall send a report, including written notification of the date of completion of each requirement to the Agency, at the Reporting Address, within 14 days of the completion of each such requirement.

Table 9.1.1: Improvement programme requirements		
Reference	Requirement	Date
9.1	A written protocol for representative sampling and analysis for the determination of total organic carbon or loss-on-ignition, composition and leachability of the bed, boiler and flue gas treatment ash shall be submitted to the Agency for approval.	3 months prior to the start of commissioning
9.2	The Operator shall submit a post commissioning report. The report shall include comparison of process performance against all permit conditions.	Within 3 months of completion of commissioning
9.3	The Operator shall carry out checks to verify the residence time, minimum temperature and oxygen content of the exhaust gases whilst operating under the anticipated most unfavourable operating conditions. The results shall be submitted to the Agency.	Within 3 months of completion of commissioning
9.4	The Operator shall carry out tests to demonstrate that hydrogen chloride may be considered to be a surrogate of hydrogen fluoride for the purposes of condition 6.1.2 of this Permit. The results shall be submitted to the Agency.	Within 6 months of completion of commissioning
9.5	The Operator shall carry out tests to determine the size distribution of the particulate matter in the exhaust gas emissions. The results shall be submitted to the Agency.	Within 6 months of completion of commissioning
9.6	A report shall be sent to the Agency on establishing an Environmental Management System having regard to section 2.1 of the relevant IPPC Sectoral or other Technical Guidance. The report shall include proposals to implement such a programme	Within 12 months of completion of commissioning
9.7	The Operator shall commission and report an air quality assessment to confirm the results of the air dispersion modelling to a specification agreed in writing with the Agency	Within 12 months of completion of commissioning
9.8	The Operator shall review the techniques for continuous measurements for heavy metals, dioxins/furans and dioxin like PCBs, including cost, availability, accuracy, detection limits and submit a written report to the Agency	Within 12 months of completion of commissioning
9.9	The Operator shall carry out tests to determine the profile of polycyclic aromatic hydrocarbons ("PAHs") and their concentrations in the exhaust gas emissions. The results shall be submitted in writing to the Agency.	Within 12 months of completion of commissioning

Interpretation

10.1.1 In this Permit, the following expressions shall have the following meanings:

“Annual release”

means the total release during a calendar year commencing 1 January;

“Background concentration”

means the same as “background quantity” as defined in paragraph 11 to Part 2 to Schedule 1 of the PPC Regulations;

“Bi-annual”

means twice per year with at least five months between tests;

“Bottom ash”

ash which has been extracted from the fluidised bed and which has had reusable bed material removed.

“Boiler ash”

ash which has been extracted from the boiler

“CEM”

means continuous emission monitor;

“CEN”

means Comité Européen de Normalisation;

“Commissioning”

relates to the period after construction has been completed when the Permitted Installation process is being made ready to operate;

“Controlled waters”

shall have the same meaning as in Part II of the Water Resources Act 1991;

“COT”

means Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment.

“Dioxins and Furans”

means polychlorinated dibenzo-para-dioxins and polychlorinated dibenzofurans;

“ELV”

means emission limit value;

“ESP ash”

means ash that has been extracted from the electrostatic precipitator,

“FGTR”

means Flue Gas Treatment Residues extracted from the bag filter house

“Fugitive emission”

means an emission from any point other than those specified in the Tables in part 6 of this Permit;

“ISO”

means International Standards Organisation;

“I-TEF”

means international toxic equivalency factors;

“I-TEQ”

means international toxic equivalent concentration;

“ $L_{Aeq,T}$ ”

means the A-weighted equivalent continuous equal energy noise level (dB(A)) over the time period T;

“LOI”

means Loss on Ignition

“Monitoring”

includes the taking and analysis of samples, instrumental measurements (periodic and continual), calibrations, examinations, tests and surveys;

“ mgm^{-3} ”

means milligrammes per cubic metre;

“ ngm^{-3} ”

means nanogrammes per cubic metre;

“PCB”

means polychlorinated biphenyls;

“Permitted Installation”

means the activities and the limits to those activities described in Table 1.1.1 of this Permit;

“PPC Regulations”

means the Pollution Prevention and Control Regulations 2000 (S.I. 2000 No. 1973) and words and expressions defined in the PPC Regulations shall have the same meanings when used in this Permit;

“Quarterly”

means four times per year with at least two months and no more than four months between tests;

“Release point”

followed by the letter A, W, E or S means respectively a point shown on a map or plan forming part of the Application for the release from the Permitted Installation into the air, into controlled waters, into an on-site effluent treatment plant or into a sewer;

“Reporting Address”

means the address, from time to time notified to the Operator, for that purpose by the Environment Agency in writing;

“Staff”

includes employees, directors or other officers of the Operator, and any other person under the Operator’s direct or indirect control, including contractors;

“Substances prescribed for water”

means those substances mentioned in paragraph 13 of Part 2 of Schedule 1 to the PPC Regulations;

“TEF”

means toxic equivalency factors;

“TEQ”

means toxic equivalent concentration;

“TOC”

means total organic carbon;

“UK”

means United Kingdom.

“UKAS”

means United Kingdom Accreditation Service.

“VOC”

means any organic compound in the exhaust gas emissions;

“WHO”

means World Health Organisation; and

“Year”

means calendar year ending 31 December.

- 10.1.2 Where a minimum limit is set for any emission/process parameter, references to exceeding the limit shall mean that the parameter shall not be less than that limit.
- 10.1.3 Unless otherwise stated, any references in this Permit to concentrations of substances in emissions into air means in relation to emission limits, the concentration in dry gas at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen concentration of 11%.
- 10.1.4 For dioxins/furans and dioxin like PCBs the determination of the toxic equivalence concentration (I-TEQ & WHO-TEQ for dioxin/furans, UK COT & 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)		
		Human/ 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 PCBs				
Congener	UK COT (1997)	WHO-TEF (1997/8)		
		Human/ mammals	Fish	Birds
<i>Non-ortho PCBs</i>				
3,4,4',5-TCB (81)	-	0.0001	0.0005	0.1
3,3',4,4'-TCB (77)	0.0005	0.0001	0.0001	0.05
3,3',4,4',5 - PeCB (126)	0.1	0.1	0.005	0.1
3,3',4,4',5,5'-HxCB(169)	0.01	0.01	0.00005	0.001
<i>Mono-ortho</i>				
2,3,3',4,4'-PeCB (105)	0.0001	0.0001	<0.00000 5	0.0001
2,3,4,4',5-PeCB (114)	0.0005	0.0005	<0.00000 5	0.0001
2,3',4,4',5-PeCB (118)	0.0001	0.0001	<0.00000 5	0.00001
2',3,4,4',5-PeCB (123)	0.0001	0.0001	<0.00000 5	0.00001
2,3,3',4,4',5-HxCB (156)	0.0005	0.0005	<0.00000 5	0.0001
2,3,3',4,4',5'-HxCB (157)	0.0005	0.0005	<0.00000 5	0.0001
2,3',4,4',5,5'-HxCB (167)	0.00001	0.00001	<0.00000 5	0.00001
2,3,3',4,4',5,5'-HpCB (189)	0.0001	0.0001	<0.00000 5	0.00001
<i>Di-ortho</i>				
2,2',3,3',4,4',5-HpCB (170)	0.0001			
2,2',3,4,4',5,5'-HpCB (180)	0.00001			

The respective 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; and
- all congeners less than the detection limit assumed to be at the detection limit.

11 Written agreement to changes

- 11.1.1 When the qualification “or as otherwise agreed in writing” is used in a condition of this Permit, the Operator shall seek such agreement in the following manner:
- 11.1.2 the Operator shall give the Agency written notice of the details of the proposed change, indicating the relevant part(s) of this Permit; and
- 11.1.3 such notice shall include an assessment of the possible effects of the proposed change (including waste production) on risks to the environment from the Permitted Installation.
- 11.1.4 Any change proposed according to condition 11.1.1 and agreed in writing by the Agency, shall not be implemented until the Operator has given the Agency prior written notice of the implementation date for the change. As from that date, the Operator shall operate the Permitted Installation in accordance with that change, and any relevant documentation referred to in this Permit shall be deemed to be amended.

Schedule 1 Confirmation of condition 5.1.1 notifications, in accordance with condition 5.1.2

This Schedule outlines the information that the Operator must provide to the Agency to satisfy condition 5.1.2 of this Permit.

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

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

Returns should contain:

Part A

- ☐ Name of Operator
- ☐ Permit Number
- ☐ Location of Installation
- ☐ Date information provided
- ☐ Time, date and location of the emission
- ☐ Identity and details of the substance[s] emitted to include:
 - ☐ Best estimate of the quantity or the rate of emission, and the time during which the emission took place;
 - ☐ Environmental medium into which the emission took place; and
 - ☐ Measures taken, or intended to be taken, to stop the emission

Part B

- ☐ Any more accurate information on the matters notified 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 or harm which has been or may be caused by the emission
- ☐ The dates of any Part A notifications within in the previous 24 months
- ☐ Name ☐ Post
- ☐ Signature ☐ Date
- ☐ Statement that signatory is authorised to sign on behalf of Kent Enviropower Limited.

Schedule 2 Reporting of monitoring data

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

Notes on Table S2:

1. Continuous monitoring, periodic sampling and annual release determination shall be carried out on release points to air: A1, A2 & A3.
2. Metals and their compounds (in total) are to be expressed as the metal.
3. One measurement every 6 months but one every 3 months in first 12 months of operation.
4. One measurement every 6 months but one every 3 months in first 12 months of operation. Average value over sample period of between 6 and 8 hours. Determination in accordance with BS EN 1948.

Table S2: Reporting of monitoring data

Parameter	Emission point(s)	Frequency	Reporting period	
Total particulate	A1, A2 & A3 Note 1	Continuous	Monthly	
		Quarterly periodic measurement	3 monthly	
		Annual release	Annual	
VOCs (as Total Organic Carbon)	A1, A2 & A3 Note 1	Continuous	Monthly	
		Bi-annual periodic measurement ^{Note 3}	6 monthly	
		Annual release	Annual	
Hydrogen chloride	A1, A2 & A3 Note 1	Continuous	Monthly	
		Bi-annual periodic measurement ^{Note 3}	6 monthly	
		Annual release	Annual	
Sulphur dioxide	A1, A2 & A3 Note 1	Continuous	Monthly	
		Bi-annual periodic measurement ^{Note 3}	6 monthly	
		Annual release	Annual	
Oxides of nitrogen (NO, NO ₂ and	A1, A2 & A3	Continuous	Monthly	
		Bi-annual periodic measurement ^{Note 3}	6 monthly	

Parameter	Emission point(s)	Frequency	Reporting period	
N ₂ O expressed as NO ₂)	Note 1	Annual release	Annual	
Carbon monoxide	A1, A2 & A3 Note 1	Continuous	Monthly	
		Bi-annual periodic measurement ^{Note 3}	6 monthly	
		Annual release	Annual	
Ammonia	A1, A2 & A3 Note 1	Continuous	Monthly	
		Bi-annual periodic measurement ^{Note 3}	6 monthly	
		Annual release	Annual	
Hydrogen fluoride	A1, A2 & A3 Note 1	Quarterly periodic measurement	3 Monthly	
		Annual release	Annual	
Cadmium + thallium and their compounds (in total) ^{Note 2}	A1, A2 & A3 Note 1	Quarterly periodic measurement	3 Monthly	
		Annual release	Annual	
Mercury and its compounds (in total) ^{Note 2}	A1, A2 & A3 Note 1	Quarterly periodic measurement	3 Monthly	
		Annual release	Annual	
Sb+As+Pb+Cr+Co+Cu+Mn+Ni +V and their compounds (in total) ^{Note 2}	A1, A2 & A3 Note 1	Quarterly periodic measurement	3 Monthly	
		Annual release	Annual	
Dioxins/furans (I-TEQ, WHO-TEQ)	A1, A2 & A3 Note 1	Bi-annual periodic measurement ^{Note 4}	6 Monthly	
		Annual release	Annual	
Dioxin like PCBs (UK COT-TEQ, WHO-TEQ)	A1, A2 & A3 Note 1	Bi-annual periodic measurement ^{Note 4}	6 Monthly	
		Annual release	Annual	

Parameter	Emission point(s)	Frequency	Reporting period	
TOC or LOI, metals (Cd, Tl, Hg, Pb, Cr, Cu, Mn, Ni, As, Co, V, Sn) and their compounds ^{Note 2} and dioxins/furans and dioxin like PCBs.	Bottom ash (three incinerators)	Quarterly for first year then bi-annually	3 Monthly then 6 Monthly	
TOC or LOI, metals (Cd, Tl, Hg, Pb, Cr, Cu, Mn, Ni, As, Co, V, Sn) and their compounds ^{Note 2} and dioxins/furans and dioxin like PCBs.	Combined boiler and ESP ash (three incinerators)	Quarterly for first year then bi-annually	3 Monthly then 6 Monthly	
TOC or LOI metals (Cd, Tl, Hg, Pb, Cr, Cu, Mn, Ni, As, Co, V, Sn) and their compounds ^{Note 2} , dioxins/furans and dioxin like PCBs and free lime.	FGTR (three incinerators)	Quarterly for first year then bi-annually	3 Monthly then 6 Monthly	
Waste throughput (tonnes)	Permitted Installation	Annually	Annually	
Bottom ash. (tonnes)	Permitted Installation	Annually	Annually	
Combined boiler and ESP ash	Permitted Installation	Annually	Annually	
Flue Gas Treatment Residues	Permitted Installation	Annually	Annually	
Periods of abnormal operation	Permitted Installation	Immediately following occurrence	Monthly	

END OF PERMIT