

Annual Performance Report 2007

SELCHP Energy Recovery Facility PPC Permit: NP3738SY

1. Introduction.

This report fulfils the requirements of Article 12(2) of the Waste Incineration Directive regarding the requirements on access to information and public participation. This requires the operator of an incineration or co-incineration plant to produce an annual report to the regulator on the functioning and monitoring of the plant and to make this available to the public. To satisfy the requirements of the directive, the following information is provided in this report:

Name of Company	Veolia ES Selchp Ltd
Name of Plant	SELCHP Energy Recovery Facility
Permit Number	NP3738SY
Address	Landmann Way, London SE14 5RS
Phone number	020 7394 4770
Further information	SELCHP is South East London Combined Heat and Power Ltd. Selchp provides a long term, sustainable solution for waste disposal in the area as part of an integrated approach to waste management. Municipal waste that is not recycled and arising principally in Lewisham, Greenwich, and Westminster, but also other London Boroughs, is incinerated at this ERF minimising disposal of waste to land fill.

Further copies of this report are available at www.selchp.com or from enquiries@selchp.com or the address above or on the web at: www.environment-agency.gov.uk

This Facility is the first of its kind to be built in the UK and is a leading example of best environmental practice for treatment of municipal household waste. It recovers heat from the incineration of the waste, producing steam which is used to generate 35MW of electricity to the National Grid. This is enough to power 35,000 local homes and displaces up to 125000 tonnes of coal a year that would have been needed to produce an equivalent amount of electricity in a conventional power station.

2. Plant Description.

The main purpose of the Facility is to incinerate Municipal Solid Waste (MSW) as defined by European Waste Catalogue (EWC) Code 20 03 01, but up to 5% of the total throughput could be from a range of non-hazardous trade waste of a similar nature. Current energy recovery is wholly in the form of steam and electricity for export to the National Grid, but potential exists for the provision of community district heating reducing local emissions. The permitted Facility covers the site and the entire incineration plant including all incineration lines, waste reception and storage, waste-fuel and air supply systems, boilers, facilities for the treatment of exhaust gases, on-site facilities for handling and storage of residues and operations, recording and monitoring conditions.

Waste Reception & Storage:

Waste is delivered into the tipping hall in covered vehicles, typically those which collect from the households. The tipping hall is maintained under negative pressure to minimise the escape of odours, dust or litter. The vehicles tip into a waste storage bunker from where the grab cranes transfers waste as required to the feed hopper of the combustion plant.

Combustion Process:

Waste is gravity fed onto the incinerator grate. The grate is continually moving thus promoting continuous mixing of the waste with the combustion air, extracted from the tipping hall and introduced from beneath the grate into the heart of the fire eliminating any odours. Further air is injected just above the fire to promote mixing and complete combustion of the gases.

Fuel Oil burners are installed for start-up and to maintain the furnace temperature, if required. However, during normal operation no support fuel is required to maintain the minimum 850°C.

Ash from the grate is discharged into a water filled quench pit from where it is moved by conveyor to the enclosed ash storage bunkers prior to being transported off site for processing.

Ferrous metals are removed from the ash by a magnet and stored separately prior to transport off site for recycling.

Energy Recovery:

Hot gases from the combustion of the waste pass through a heat recovery boiler. The temperature of the gases is reduced from over 850°C to around 140°C. The energy from the hot gases is transferred to the boiler to produce high pressure steam. This steam is fed to the steam turbine driven generator capable of generating 35Mw, which, after supplying the site electrical load is exported to the National Grid.

Gas Cleaning:

A metered amount of ammonia solution is injected into the combustion gases to reduce the formation of oxides of nitrogen and downstream of the boiler lime is injected into the gas stream to neutralise acid gases produced in the process. A small quantity of activated carbon is injected to adsorb any residual organic material and heavy metals from the gases.

Prior to release into the air the gases pass through a fabric filter which removes the particulate matter, spent lime and carbon from the gas stream. Once the gases have been cleaned they are discharged into the atmosphere via two flues in the 100 metre high stack.

Water Usage:

The plant uses mains water for steam generation and to mobilise flue gas treatment chemicals. After electricity generation in the turbine the steam is cooled and condensed back to water for reuse in the boiler. The water from the flue gas treatment is discharged from the stack as pure water vapour. The facility also uses mains water in various ways for internal wash downs, tipping bay floor cleaning, but mostly for human domestic use, cooking, showering and sanitation. Any water that is used within the Facility for washing and cleaning is captured in dedicated drains and directed into an interceptor pit where heavy sediments are removed from the water. The cleaned water is then re-used within the Facility principally for ash quenching, thus limiting the amount of fresh water used and minimising water discharge from the site.

External uncontaminated rainwater runoff is allowed to enter the sewer network unchecked along with normal domestic waste water. Where practical some is collected for re-use on the site.

3. Summary of plant operations.

This facility consists of two incineration lines, each capable of processing approximately 29 tonnes per hour, allowing for a nominal refuse throughput of 420,000 tonnes per year, but this is dependent on two factors: actual operating hours and calorific value of the waste being burnt.

The average calorific value of general municipal waste is 9200Kj/Kg.

Plant Operational details for 2007 are included in the table below.

Operating Hours (2 lines)	7580	Hours
Waste Incinerated	426872	Tonnes
Electricity Produced	223525	MWh
Metals Recovered	7281	Tonnes
Incinerator Bottom Ash	98005	Tonnes
APC residues	12,896	Tonnes

Ash residues (known as Incinerator Bottom Ash or IBA) are currently transported to a processing plant where further ferrous and non-ferrous metal is recovered and the screened IBA prepared as a substitute aggregate for building roads and car parks. Only a small percentage is unusable and requires landfilling.

Ferrous metal removed from the IBA is sent to a steel manufacturer for recycling.

Every tonne of steel packaging recycled makes the following environmental savings:

1.5 tonnes of iron ore.

0.5 tonnes of coal.

40% of the water required in production.

The volume of recycled steel is enough to make 23 buses a week.

The recovered non-ferrous is also recycled.

Fine particulate matter, known as Air Pollution Control (APC) residue, removed from the flue gases by the fabric filter is collected and sent to specialised treatment works where it is used to treat spent acid wastes prior to disposal at a licensed land fill site.

4. Summary of plant emissions.

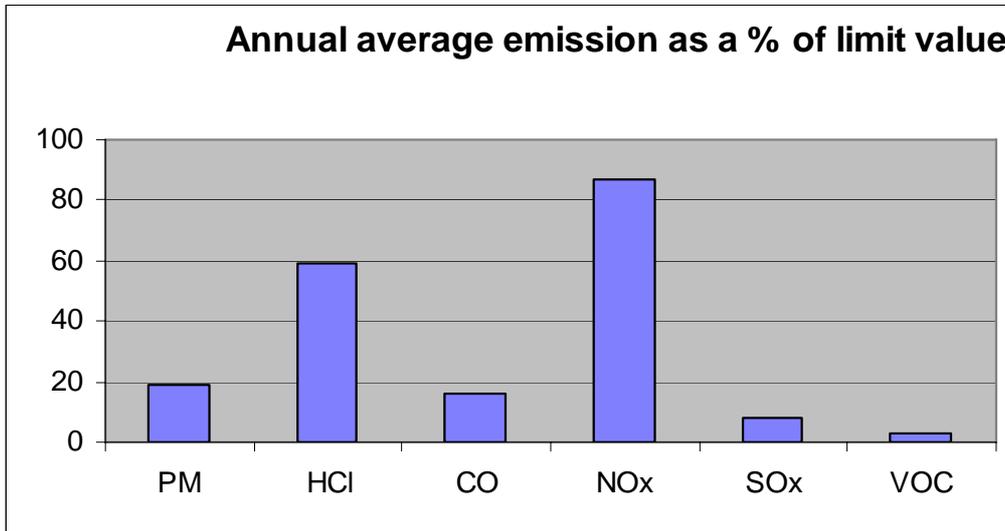
All emissions to air from the 100m high chimney are controlled to meet the emission limits included in the PPC Permit. The flue gases released into the atmosphere are continuously monitored for particulate matter, hydrogen chloride, oxides of nitrogen, carbon monoxide, sulphur dioxide, total volatile organic compounds and ammonia. The monitoring equipment was in service during 2007 for 99.96% of the plant operating time. This equipment is stringently monitored with routine calibration checks and is standardised to BS EN14181 with a full range of standby equipment available should an unexpected failure occur. The original equipment is being replaced early in 2008 with more advanced technology.

Bi-annual check monitoring of these emissions is carried out by approved contractors using independent extractive reference methods. Emissions of metals, dioxins and other substances are also monitored as listed below.

Emission	Monitored
Particulate matter	Continuously
Hydrogen chloride	Continuously
Oxides of nitrogen	Continuously
Carbon monoxide	Continuously
Sulphur dioxide	Continuously
Total VOCs	Continuously
Ammonia	Continuously
Arsenic	Quarterly
Cadmium	Quarterly
Chromium	Quarterly
Copper	Quarterly
Mercury	Quarterly
Nickel	Quarterly
Manganese	Quarterly
Antimony	Quarterly
Lead	Quarterly
Thallium	Quarterly
Hydrogen fluoride	Bi-annually

Nitrous oxide	Bi-annually
Dioxins and Furans	Bi-annually
Dioxin-like PCBs	Bi-annually
PAHs	Bi-annually

The following bar chart shows the average annual emissions from Selchp.



Selchp's emissions are also independently checked annually by a contractor who is appointed by and reports directly to the Environment Agency.

5. Summary of plant compliance

Strict environmental controls and proven operating experience ensures that the Facility is compliant with all conditions of its Pollution Prevention Control (PPC) Permit at all times. This is achieved through constant monitoring of the incineration process during all of the stages, with detailed procedures in place to enable trained staff to carry out their work in an environmentally compliant manner. The plant operates within an Environmental Management System compliant with both ISO 9001 and ISO 14001 and is independently and externally audited.

During 2007 Selchp operated within the Permitted Emission Limit Values (ELV) for virtually 100% of the operational time. There was only one reportable half hour in the whole year where one stream ran in exceedance of any emission limit value. This was an exceedance of the CO (carbon monoxide) half hour limit but resulted in no significant environmental impact with the daily average was still <26% of the daily limit. The high levels of CO were related to very wet refuse.

As the value recorded was minimal exceedance of 102 mg/Nm³ compared to a limit value of 100 mg/Mm³, this was recorded as approaching the limit by the Environment Agency.

There was a single period of abnormal operation in the year where there was a loss of some emission monitoring for about 3 hours. There was no environmental impact as the flue gas treatment was fully operational and no adverse conditions were experienced.

Table of plant compliances.

Breach of Permit Conditions	1
Abnormal Operations	1
Enforcement Actions	None
General Complaints/Enquiries	6

Any complaints received at the Facility are recorded and thoroughly investigated with a full report being kept as to the outcome of the investigation. During 2007 there were five complaints from observations outside the plant and one request received:

- a refuse collection vehicle was reported to be off the designated delivery route - information passed to relevant Borough;
- complaint of odour – investigation showed origin of complaint was upwind of the plant at time of incident and therefore not attributable to the plant;
- a resident complained of noise emanating from the plant - the source was identified and rectified;
- a request from the Environment Agency for a survey regarding flies on site, following a report from another local business – nothing found;
- complaint from neighbour of smoke at ground level – investigation revealed a fire incident in the vicinity of, and upwind of the plant;
- complaint of poor TV reception – investigated by specialist contractor, may be due to building work next to complainant. Awaiting completion of building work before decision on need for any remedial action.

All have been documented and all but the most recent closed out.

Summaries of half hourly and daily average emission data for continuously monitored emissions are supplied to the Environment Agency on a 6-monthly basis . Other reports as required by the PPC Permit are also forwarded 6-monthly. All are available from the public register.

The Environment Agency carry out a programme of site visits and audits, and their reports are available from the public register.

6. Summary of plant improvements.

During 2007 the final decision on replacing the original continuous emission monitoring equipment was made. The multi-gas analysers will be replaced with modern equipment using FTIR technology sourced from the existing, proven manufacturer and service agent. At the same time the particulate and TOC analysers will be upgraded.

Installation and commissioning work commenced during the third quarter of 2007 and will be complete early in 2008. There will be a period of parallel

operation of the old and new equipment until full verification has been carried out.

The new equipment is fully compliant with the Environment Agency MCERTs scheme and is designed to meet the EN14181 performance standard for fixed monitors.

The Environment Agency has been consulted regarding equipment choice and the change over program, and the existing equipment will remain in service until the Agency agree to its removal.

7. Summary of information made available.

The operators Veolia ES Selchp Ltd work closely with the Incinerator Monitoring Group, a local liaison group, which meets regularly at Selchp. The Chair of the Group is able to attend and meet representatives from Lewisham and Greenwich Boroughs at Board Meetings of Selchp.

Live emission monitoring data is relayed to Lewisham Environmental Health.

As part of their regulatory responsibility the Environment Agency inspector visits the Facility on a regular basis. The Operating Permit, reports made by the Operator and Environment Agency inspection and audit reports are available from the Public Register at the Environment Agency's office at:

The Environment Agency
Swift House
Frimley BusinessPark
Camberley
Surrey
GU16 7SQ

Useful web addresses:

www.veolia.co.uk

www.selchp.com

www.environmental-agency.gov.uk

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Compiled on behalf of the Operator by:

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24th January 2007.