

Annual Performance Report for Waste Gas Technology Ltd

Permit No. JP3132LH

This report is required under the Waste Incineration Directive Article 12(2):- 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.

1. Introduction

Name of Company	Waste Gas Technology Limited
Permit Number	JP3132LH
Name of Plant	Waste Gas Technology Limited
Address of Plant	Forest Road, Newport, Isle Of Wight PO30 5YS
Phone number	01983-825669
Further information	All municipal waste that is not recycled from the Isle Of Wight area, is co-incinerated at this Gasification Plant, providing a long term, sustainable solution for waste disposal in the area as part of the integrated approach to waste management on the Island, which achieves high levels of recycling and minimal disposal of waste to landfill.

2. Plant description

The main purpose of the activity carried out at this facility, is to co-incinerate Municipal Solid Waste (MSW) as defined by EWC 20 03 01, removing energy in the form of steam and generating electricity of 1.7 MW for the National Grid. The permit covers the site and the co-incineration process, which also includes reception of waste, storage and off site transfer of residues, emissions to water, air and land, recording and monitoring conditions.

3. Summary of plant operation

The facility consists of a single co-incineration line, capable of processing approximately 4 tonnes of waste per hour, allowing for an average throughput of 30,000 tonnes per year, this being dependent on two main factors: actual operating hours (plant operations based on 7,500 hours per annum) and the calorific value of the waste being co-incinerated, the average Net Value being in the order of 13 MJ/Kg. The shredded waste from the non recyclable fraction is gasified in starved air conditions and the resultant syngas fully burnt in a combustor. A Heat Recovery Steam Generator captures the heat from the combustion to produce steam which drives a steam turbine and generator, the waste gases being cleaned before being released via a 27 metre chimney.

Plant operational details can be found in the table below:

Operating Hours	3,255	Hours
Total Waste Co-incinerated	9,540	Tonnes
Electricity Exported	2,406,330	KW/h
Grate Ash Produced	1,218.54	Tonnes
APC Residue produced	513.9	Tonnes

Ash residues (Grate Ash/Bottom Ash) are currently sent to landfill.

Fine particle matter, Air Pollution Control (APC) residues, are removed from the flue gas stream by fabric filter and sent to specialised treatment works.

4. Summary of plant emissions

All emissions from the 27 metre high chimney are controlled to meet the emission limits included within the PPC Permit. The flue gases released into the atmosphere are continuously monitored for Particulate Matter, Total Organic Carbon (TOC), Hydrogen Chloride (HCL), Carbon Monoxide (CO), Sulphur Dioxide (SO₂) and Oxides of Nitrogen.

During the second year of operation, the Plant will undertake quarterly emission monitoring, which iaw the Pollution Prevention Control (PPC) Permit, should have been undertaken during the first year of operation, but due to operational constraints, was not possible. The quarterly check monitoring of the emissions will be carried out by approved Monitoring Certification Scheme (MCERTS) contractor, using independent extractive sampling methods, at which time the emissions of metals, dioxins and other substances as listed in the PPC will also be monitored. Following completion of the second year of operations, the check monitoring will revert to bi-annual.

The Continuous Emission Monitoring (CEM) equipments were in service during 2010 for 100% of the plant operational time. This equipment is MCERTS approved and is stringently monitored with quarterly and bi-annual calibration checks being undertaken again by MCERTS approved contractor/manufacturer.

Half hourly, hourly and daily average emission data for continuously monitored emissions are supplied to the Environment Agency on a monthly basis. This information is available to the public via Public Register.

5. Summary of plant compliance

Strict environmental controls and proven operating experience ensures that the facility is compliant with all conditions of its PPC Permit, as monitored by site Continuous Emission Monitors (CEM's). This is achieved through a fully automated process control system which constantly monitors all aspects of the co-incineration process. This, coupled with detailed operating procedures and fully trained staff, ensures that the plant is compliant against its environmental permit.

During 2010, Waste Gas Technology Ltd operated within the CEM permitted Emission Limit Values (ELVs), but suffered periodic sampling breaches of Dioxin. However, Waste Gas Technology instructed an independent authority to undertake a 'worst case' scenario 'Health Risk Assessment' (HRA), which was subsequently verified by the Environment Agency 'Air Quality Modelling and Assessment Unit' and the 'Health Protection Agency' (HPA). The result of the Risk Assessment was found to provide assurance that the elevated Dioxin levels from the process did not expose people to levels of chemicals above health criteria values.

At the time of submission of this report, process alterations have been made and reagent mixes adopted, which have proved successful in the reduction of Dioxins, with six additional Dioxin analysis results proving the process to now be within the ELV of the PPC.

All Plant non-compliances have been listed on the Public Register

Table of plant compliances.

Breach of Permit Conditions	30.03.10/13.05.10/11.06.10/28.06.10/22.10.10
Abnormal Operations	04.12.10
Enforcement Actions	21.05.10
General Complaints	None

No contamination and hence de-contamination has taken place within the site over the reporting period.

6. Summary of plant improvements

As the facility was introduced as a Technology Demonstrator, continuing improvements to the process is continually on-going. During the year of 2010, improvements have been made to the following.

- Infracone sonic cleaning system fitted, to increase the periodicity between Pressure Vessel cleaning requirements.
- Upgrade of APC Residue transportation hoses, from Filter Bags to associated silo.
- Plating fitted within Superheater, to remove void area, thus removing an ash collection area, in-turn reducing the possibility of Dioxin reformation.
- Filter Bag pulse system control, removed from local control panel to remote Operator Stations, improving pulsing flexibility.
- Installation of further Flue Gas sampling points to pre and post-filter locations, to provide a clearer overall picture of Filter Bags performance.
- Desiccant and refrigerant driers added to control air systems, to improve reliability and reduce corrosion

7. Summary of information made available

As part of their regulatory responsibility, the Environment Agency inspector visits the facility on a regular basis, and issues the subsequent Compliance Assessment Report (CAR) Form on completion.

Waste Gas Technology also holds regular meetings both with the MSW provider and the local Isle Of Wight Council.

Name: T E Spokes

Position: Plant Manager

Date: 10.01.11

Signed on behalf of the Company: *T E Spokes*