

**Integra South East Energy Recovery Facility
 EPR BJ7107IJ
 Annual Performance Report 2011**

1.0 INTRODUCTION

This document represents the Annual Performance Report for Integra South East Energy Recovery Facility (Portsmouth ERF) and has been written to conform with Article 12 (2) of the Waste Incineration Directive (WID):

'For incineration or co-incineration plants with a nominal capacity of two tonnes or more per hour and notwithstanding Article 15(2) of Directive 96/61/EC, an annual report to be provided by the operator to the competent authority on the functioning and monitoring of the plant shall be made available to the public. This report shall, as a minimum requirement, give an account of the running of the process and the emissions into air and water compared with the emission standards in this Directive.'

2.0 FACILITY INFORMATION

Plant Operator	Veolia Environmental Services Hampshire Limited
Name of Facility	Integra South East Energy Recovery Facility
EPR Permit Number	BJ7107IJ
Facility Address	Quartermaine Road Portsmouth Hampshire PO3 5QH
Telephone Number	023 92 657700
Fax Number	023 92 657701

Portsmouth ERF is the third of its kind to be built in Hampshire and is leading example of best environmental practise for waste treatment. The waste produced by Portsmouth City and South East Hampshire Districts is dealt with at this ERF, providing a long term, sustainable solution for waste disposal. It recovers heat energy from the waste to produce steam, which is used to generate electricity supplied to the National Grid. Strict environmental controls and proven operating experience ensure the Portsmouth ERF is a centre of excellence and a benchmark for the industry.

2.1 Technical details of the plant:

- Maximum Permitted Refuse throughput – 210,000 tonnes per annum, with approximately 12 tonnes per hour burning capacity per stream
- Storage capacity – four days full plant capacity

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- Number of tipping bays – 8
- Steam output – 76 tonnes of steam per hour at 400°C and 45 BAR
- Flue gas treatment – CNIM semi-dry lime scrubber followed by high performance bag filters, discharging into a 65 metre high chimney
- Energy produced – maximum generating capacity 14MW

The Portsmouth ERF forms part of Veolia's Integrated Contracts, the most progressive integrated waste management system in Britain which provides sustainable waste management for all the domestic waste in the county.

The ERF is regulated by the Environment Agency and is certified in compliance with:

- ISO 9001 : 2008
- ISO 14001 : 2004, and
- OHAS 18001 : 2007

Table 2.1: Permitted Waste Types

European Waste Catalogue Number	Description	Maximum Throughput
19	Wastes from Waste Management Facilities, Off-site Waste Water Treatment Plants and Preparation of Water Intended for Human Consumption and Water for Industrial Use.	Note 1
19 02	wastes from physico/chemical treatments of waste (including dechromataion, decyanidation,neutralisation)	Note 1
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09	Note 1
19 12	Wastes from mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified.	
19 12 01	paper and cardboard	Note 1
19 12 08	textiles	Note 1
19 12 10	combustible waste (refuse derived fuel)	Note 1
19 12 12	other wastes from the mechanical treatment of wastes	Note 1
20	Municipal Waste (Household	

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	waste and similar commercial, industrial and institutional wastes) Including separately collected fractions.	
20 01	separately collected fractions (except 15 01)	Note 1
20 01 01	paper and cardboard	Note 1
20 01 08	biodegradable kitchen and canteen waste	Note 1
20 01 10	clothes	Note 1
20 01 11	textiles	Note 1
20 01 39	plastics	Note 1
20 01 99	Other fractions not otherwise specified (Hygiene waste collected from domestic facilities that is not classified as clinical waste)	Note 1
20 02	Garden and Park Wastes (Including Cemetery Waste).	
20 02 01	biodegradable waste	Note 1
20 03	Other Municipal Wastes.	
20 03 01	mixed municipal waste	Note 1
20 03 02	market waste	Note 1
20 03 03	street cleaning residues	Note 1
20 03 07	bulky waste	Note 1

Note 1: The total annual throughput of all waste types shall not exceed 210,000te and the maximum hourly throughput (at average calorific value 9200j/kg) shall not exceed 24 te/hr.

3.0 OPERATIONAL INFORMATION

Table 2.2 : Operational Details

Operational hours combined	16,738	Hours
Total Waste Incinerated	201,578	Tonnes
Electricity Exports to National Grid	106,446	MWHrs
Metals Recovered	4932	Tonnes
Incinerator Bottom Ash Produced	41,060	Tonnes
APC Residues	5442	Tonnes

3.1 Solid Residue Outputs

The Incinerator Bottom Ash (IBA) is transported by Veolia Haulage to Raymond Brown Minerals and Recycling Ltd Aggregate Processing Facility situated in Verwood, Hampshire. The IBA is reprocessed into a number of different graded aggregates, ferrous and non ferrous metal products, which are then

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utilised in the construction and metal industry.

Ferrous metals removed during on site processing of IBA are forwarded to M.J.D Light Brothers Waste and Metal Recycling Facility situated in Lewes, East Sussex. The metals are separated into individual fractions, and are sent on for utilisation in the metal industry.

The fine particulate matter, known as Air Pollution Control Residue (APCr), is removed from the process by a fabric filter. The APCr is sent to Empire, another Veolia site located in Aldridge, West Midlands where it is used to neutralise spent acid wastes before final disposal.

In line with Veolia's corporate responsibility, and as a Permit requirement, a Duty of Care Audit is conducted at least annually at the above mentioned locations.

3.2 Water Discharges from Site

The water required for plant operations is reused extensively within the process and therefore few, or no water discharges are released from the facility. When required, water discharges are released in batches from the plant in accordance with the permit. Samples are taken and analysed for the parameters listed in the Trade Effluent Discharge Consent issued and regulated by Southern Water, and cross referenced against the Permit requirements and limits.

For the duration of 2011; 100% of water used for the running of the plant was recycled within the process, no discharges were made to sewer.

3.3 Flue Gasses

All gaseous emissions generated during the combustion process pass through an extensive flue gas cleaning process which starts with a gas scrubber where hydrated lime is injected to neutralise acid gasses. Activated carbon is added to remove dioxins, urea is added to treat oxides of nitrogen and finally the bag filter takes away remaining particulates. The cleaned gasses are finally released into the atmosphere through the chimney.

In compliance with the WID and EPR Permit, the flue gasses are continuously monitored using MCERTS accredited equipment. In addition to the continuous monitoring, an extractive sampling campaign is undertaken on a quarterly basis by an approved service supplier. The organisation used for analysis and monitoring are accredited by the United Kingdom Accreditation Service (UKAS) and the Environment

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Agency's Monitoring Certification Scheme (Mcerts).

3.3.1 Extractive Monitoring

The parameters measured and their frequency of monitoring are summarised in Table 3.3.1

Table 3.3.1 : Measured Emissions					
Parameter	Frequency				
	Continuous	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Particulate Matter	✓	✓		✓	
TOC	✓	✓		✓	
Hydrogen Chloride	✓	✓		✓	
Oxides of Nitrogen	✓	✓		✓	
Carbon Monoxide	✓	✓		✓	
Sulphur Dioxides	✓	✓		✓	
Ammonia	✓	✓		✓	
Nitrous Oxide		✓		✓	
Hydrogen Fluoride		✓	✓	✓	✓
Mercury		✓	✓	✓	✓
Arsenic		✓	✓	✓	✓
Cadmium		✓	✓	✓	✓
Chromium		✓	✓	✓	✓
Copper		✓	✓	✓	✓
Cobalt		✓	✓	✓	✓
Nickel		✓	✓	✓	✓
Manganese		✓	✓	✓	✓
Antimony		✓	✓	✓	✓
Lead		✓	✓	✓	✓
Thallium		✓	✓	✓	✓
Vanadium		✓	✓	✓	✓
Dioxins and Furans		✓		✓	
Dioxin-like PCBs		✓		✓	
PAHs		✓		✓	

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The results of the quarterly extractive campaign in comparison to WID and Permitted limits are summarised in Tables 3.3.2 through to and including Table 3.3.5

Table 3.3.2 : Quarter 1 Extractive Results			
Parameter	Result mg/m³		Emission Limit mg/m³
	Stream 1	Stream 2	
Particulate Matter	1.35	0.72	20
TOC	3.45	0.81	20
Hydrogen Chloride	15.7	9.19	30
Oxides of Nitrogen	218	201	400
Carbon Monoxide	7.6	18.5	100
Sulphur Dioxide	27.5	23.9	200
Ammonia	3.36	4.53	No Limit Applies
Nitrous Oxide	11.5	16.9	No Limit Applies
Hydrogen Fluoride	0.11	0.09	2
Mercury and its compounds	0.001	0.002	0.05
As, Sb, Pb, Cr, Cu, Mn, Ni, V and their compounds	0.014	0.035	0.5
Cadmium, Thallium and their compounds	Non Detectable	0.0002	0.05
Dioxins and Furans (I -TEQ)	0.006	0.007	0.1
Dioxins and Furans (WHO – TEQ Humans and Mammals)	0.006	0.006	No Limit Applies
Dioxins and Furans (WHO – TEQ Fish)	0.006	0.007	No Limit Applies
Dioxins and Furans (WHO – TEQ Birds)	0.012	0.012	No Limit Applies
Dioxin-like PCBs (WHO – TEQ Humans and Mammals)	0.0003	0.0011	No Limit Applies
Dioxin-like PCBs (WHO – TEQ Fish)	0.00002	0.0001	No Limit Applies
Dioxin-like PCBs (WHO – TEQ Birds)	0.0020	0.0025	No Limit Applies
PAHs Total	0.1586	0.401	No Limit Applies

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Table 3.3.3 : Quarter 2 Extractive Results

Parameter	Result mg/m ³		Emission Limit mg/m ³
	Stream 1	Stream 2	
Hydrogen Fluoride	0.34	0.14	2
Mercury and its compounds	Non Detectable	0.003	0.05
As, Sb, Pb, Cr, Cu, Mn, Ni, V and their compounds	0.015	0.008	0.5
Cadmium, Thallium and their compounds	Non Detectable	Non Detectable	0.05

Table 3.3.4 : Quarter 3 Extractive Results

Parameter	Result mg/m ³		Emission Limit mg/m ³
	Stream 1	Stream 2	
Particulate Matter	0.83	1.02	20
TOC	0.50	0.21	20
Hydrogen Chloride	13.3	6.47	30
Oxides of Nitrogen	261	211	400
Carbon Monoxide	8.92	10.1	100
Sulphur Dioxide	12.7	20.9	200
Ammonia	1.2	7.72	No Limit Applies
Nitrous Oxide	14.4	19.7	No Limit Applies
Hydrogen Fluoride	Non Detectable	Non Detectable	2
Mercury and its compounds	Non Detectable	0.001	0.05
As, Sb, Pb, Cr, Cu, Mn, Ni, V and their compounds	0.086	0.007	0.5
Cadmium, Thallium and their compounds	Non Detectable	Non Detectable	0.05
Dioxins and Furans (I -TEQ)	0.005	0.007	0.1
Dioxins and Furans (WHO – TEQ Humans and Mammals)	0.004	0.006	No Limit Applies
Dioxins and Furans (WHO – TEQ Fish)	0.004	0.006	No Limit Applies
Dioxins and Furans (WHO – TEQ Birds)	0.004	0.008	No Limit Applies
Dioxin-like PCBs (WHO – TEQ Humans and Mammals)	0.0009	0.0009	No Limit Applies
Dioxin-like PCBs (WHO – TEQ Fish)	0.0001	0.00004	No Limit Applies
Dioxin-like PCBs (WHO – TEQ Birds)	0.0033	0.0023	No Limit Applies
PAHs Total	0.313	0.276	No Limit Applies

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Table 3.3.5 : Quarter 4 Extractive Results

Parameter	Result mg/m ³		Emission Limit mg/m ³
	Stream 1	Stream 2	
Hydrogen Fluoride	0.20	0.10	2
Mercury and its compounds	0.0012	Non Detectable	0.05
As, Sb, Pb, Cr, Cu, Mn, Ni, V and their compounds	0.0159	0.0140	0.5
Cadmium, Thallium and their compounds	0.0005	0.0134	0.05

3.3.2 Continuous Monitoring

The Continuous Monitoring Equipment (CEMS) for the period of 1st January 2011 through to 31st December 2011 was in service for 100% of the WID operational hours. The equipment is meticulously serviced, maintained, and calibration checks are routinely conducted.

The maximum half hourly average, and daily averages are reported to the Environment Agency on a bi-annual basis. The data is also uploaded on to the companies' website on a monthly basis and can be viewed at: www.veoliaenvironmentalservices.co.uk

3.3.3 Annual Emissions

The annual mass emissions of the periodically monitored parameters are summarised in Table 3.3.6

Table 3.3.6 : Annual Mass Emissions

Parameter	Units	Annual Total
Hydrogen Fluoride	Kg	129.64
Mercury	Kg	0.98
Arsenic	Kg	0.52
Cadmium	Kg	0.18
Copper	Kg	2.90
Nickel	Kg	3.22
Manganese	Kg	11.69
Antimony	Kg	0.27
Lead	Kg	2.66
Thallium	Kg	0
Dioxins and Furans	Kg	0.000006614
PAHs	Kg	0.304
PCBs	Kg	0.000000793

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4.0 ENVIRONMENTAL CONTROLS

The management and staff of Integra South East ERF are among the most highly qualified and experienced in the sector. Reliable environmental controls and a robust management system ensure that compliance with the Waste Incineration Directive and EPR Permit is achieved.

VES Staff are aware of the environmental impacts of their work and exercise an appropriate standard of good house keeping, proportionate to the impacts of any potential emissions. Training and competency of staff is controlled by the VES Business Management System. The Management System covers training, awareness and competence. The company identifies training requirements of its employees and provides suitable resources to ensure they have the required knowledge, skills and expertise to carry out their duties.

Table 4.1 : Facility Compliance Summary

Exceedence of Permitted Limits	None
Abnormal Operations	None
Enforcement Notices	None
Complaints	One

An odour complaint was received 26th December 2011. A local resident complained of a bitumen odour in the Milton area, the Portsmouth ERF was assumed to be the cause. This type of odour is highly uncharacteristic for this type of facility, and the complaint was unjustified. The complaint was logged and investigated using the VES Management System Complaint Procedure, no further action has been taken by either party.