

Mr Mukhtar Shaikh  
Environment Agency  
Sentinel House  
Wellington Crescent  
Fradley Park  
Lichfield  
Staffs WS13 8RR

25<sup>th</sup> January 2017

Dear Mr Shaikh


**Tyseley Energy Recovery Facility  
Environmental Permit WP3239SJ**

In accordance with the Environmental Permit WP3239SJ, Veolia ES Birmingham Ltd. encloses the following reports:

- Report on the annual performance of the permitted installation to comply with condition 4.1.4
- Review of fugitive emissions to comply with condition 4.1.5
- Summary report of the progress towards improvement targets from the management system to comply with condition 4.1.6

I hope you find this in order. Please can you confirm receipt of these documents.

Yours sincerely,



**Mr. Mark Gilsenan**  
**Facility Manager**  
**For and on behalf of Veolia ES Birmingham Ltd**

**Annual performance report for VESB Tyseley ERF**  
**Permit No. WP3239SJ Year 2016**

This report is required under the Industrial Emissions Directive's Article 55(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	Veolia Environmental Services Birmingham Ltd
Name of Plant	Tyseley ERF
Permit Number	WP3239SJ
Address	James Road Tyseley Birmingham B11 2BA
Phone number	0203 567 3740
Further information	All municipal waste arising in Birmingham that is not recycled is incinerated at this ERF, providing a long term, sustainable solution for waste disposal in the area as part of the integrated approach to waste management within Birmingham, which achieves minimal disposal of waste to landfill.

Further copies of this report are available through:

<https://www.gov.uk/government/organisations/environment-agency>

2. Plant description.

The main purpose of the activity carried out at this facility is to incinerate, primarily, Municipal Solid Waste (MSW) as defined by EWC 20 03 01, recovering energy in the form of steam and electricity generating 27 MW for export to the National Grid. The permit covers the site and the entire incineration process which includes 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.

3. Summary of plant operation.

This facility consists of two incineration lines, each capable of processing approximately 23.5 tonnes per hour, which takes approximately 350,000 tonnes of Birmingham's waste each year but this, is dependent on two factors: actual operating hours and calorific value of the waste being burnt.



The third incineration line processes clinical waste and other designated hazardous wastes (CWI) at a nominal rate of 600kg/hour.

<b>Waste Type</b>	<b>EWC</b>			
Mixed municipal Waste	20 03 01			
Separately collected fractions including packaging, food wastes, market wastes, street cleaning residues and bulky wastes.	02 01 03;	02 01 07;	02 02 03;	02 03 04;
	02 05 01;	02 06 01;	02 07 04;	03 01 01;
	03 01 05;	04 02 09;	04 02 15;	04 02 21;
	04 02 22;	15 01 01;	15 01 02;	15 01 03;
	15 01 04;	15 01 05;	15 01 06;	15 01 09;
	15 02 03;	16 02 14;	16 03 04;	16 03 06;
	16 05 05;	18 01 09;	18 02 03;	18 02 06;
	18 02 08;	20 01 01;	20 01 02;	20 01 08;
	20 01 10;	20 01 11;	20 01 28;	20 01 30;
	20 01 32;	20 01 38;	20 01 39;	20 02 01;
	20 03 01;	20 03 02;	20 03 04;	20 03 07
Low grade clinical wastes categories	18 01 04			
Separately collected fractions including veterinary wastes, special packaging, absorbents, organic and inorganic wastes, cytotoxic and cytostatic medicines, wood wastes and special municipal wastes.	02 01 02;	02 01 06;	02 02 02;	03 01 04;
	04 02 14;	04 02 16;	15 01 10;	15 02 02;
	16 03 03;	16 03 05;	18 01 06;	18 01 08;
	18 02 01;	18 02 02;	18 02 05;	18 02 07;
	20 01 26;	20 01 27;	20 01 29;	20 01 31;
	20 01 37;	20 01 99 (drug abuse litter only)		
All categories of healthcare and clinical wastes	18 01 01;	18 01 02;	18 01 03;	
Wastes from organic chemical processes	07 01 03;	07 01 04;	07 01 09;	07 01 10;
	07 02 03;	07 02 04;	07 02 09;	07 02 10;
	07 02 13;	07 03 03;	07 03 04;	07 03 09;
	07 03 10;	07 04 03;	07 04 04;	07 04 09;
	07 04 10;	07 04 13;	07 05 03;	07 05 04;
	07 05 09;	07 05 10;	07 05 13;	07 05 14;
	07 06 03;	07 06 04;	07 06 09;	07 06 10;
	07 07 03;	07 07 04;	07 07 09;	07 07 10;
	09 01 10;	09 01 11;	09 01 12;	16 05 04;
	20 01 35;			

The average calorific value of general municipal waste is 9200 kJ/kg.

Plant Operational details are included in the table below.

Operating Hours	8760	Hours
Total Waste Incinerated	351208	Tonnes
Electricity Produced	69614	MWh
Metals Recovered	3925	Tonnes
Incinerator Bottom Ash	73293	Tonnes
APC residues	8231	Tonnes

Ash residues (known as Incinerator Bottom Ash or IBA) are currently sent to Castle Bromwich for reprocessing. This material is reprocessed by extracting further ferrous and non-ferrous metals and by crushing, trommelling and screening to produce a graded, quality material that is useable as substitute aggregate in such applications as road building.

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

Fine particulate matter, known as Air Pollution Control (APC) residues, removed from the flue gases by the fabric filter is collected and sent to the Minosus Hazardous Waste underground storage facility in Cheshire.

#### 4. Summary of plant emissions.

All emissions to air from the two 80m high chimneys are controlled to meet the emission limits included in the Environmental Permit. The flue gases released into the atmosphere are continuously monitored for Particulate Matter, TOC, Hydrogen Chloride, Oxides of Nitrogen, Carbon Monoxide, Ammonia and Sulphur Dioxide.

Bi-annual and quarterly check monitoring of this equipment is carried out by approved contractors using independent extractive sampling methods, at which time emissions of Metals, Dioxins and other substances as listed below are also monitored.

<b><i>Emission</i></b>	<b><i>Monitored</i></b>
Particulate Matter	Continuously
TOC	Continuously
Hydrogen Chloride	Continuously
Oxides of Nitrogen	Continuously
Carbon Monoxide	Continuously
Sulphur Dioxide	Continuously
Ammonia	Continuously
Hydrogen Fluoride	Bi-annual
Mercury	Quarterly
Arsenic	Quarterly
Cadmium	Quarterly
Chromium	Quarterly
Copper	Quarterly
Nickel	Quarterly
Manganese	Quarterly
Antimony	Quarterly
Lead	Quarterly
Thallium	Quarterly
Dioxins and Furans	Bi-annually
PAH's	Bi-annually
PCB's	Bi-annually

The Continuous Emissions Monitoring equipment (CEMs) was in service during 2016 for 100% of the plant operating time. This equipment is stringently monitored with routine calibration checks and is standardised to BS EN14181:2004.

Half hourly and daily average emission data for continuously monitored emissions is supplied to the Environment Agency on a monthly basis. This information is available to the public. This information can be found at:

<http://www.veolia.co.uk/birmingham/facilities/our-sites/energy-recovery/emissions-air-data-0>



Table showing the Annual total for emissions of periodically monitored pollutants

<b><i>Pollutant</i></b>	<b><i>Unit</i></b>	<b><i>Annual Total</i></b>
Hydrogen Fluoride	Kg	202
Mercury	Kg	4,3
Arsenic	Kg	1,6
Cadmium	Kg	2,8
Chromium	Kg	12,6
Copper	Kg	10,2
Nickel	Kg	16,8
Manganese	Kg	28,8
Antimony	Kg	5,9
Lead	Kg	32,7
Thallium	Kg	1,6
Dioxins and Furans	Kg	0,00006
PAH's	Kg	0,99
PCB's	Kg	0,0007

#### 5. Summary of plant compliance.

Strict environmental controls and proven operating experience ensures that the facility is compliant with all conditions of its Environmental 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.

During 2016 VESB Tyseley ERF operated within the Permitted Emission Limit Values (ELV) for 100% of operational time, thus no enforcement actions were required by the Environment Agency.

Table of plant compliances.

Breach of Permit Conditions	2
Abnormal Operations	0
Enforcement Actions	0
General Complaints	0

Any complaints received at the facility are thoroughly investigated with a full report being kept as to the outcome of the investigation.

6. Summary of plant improvements.

During the 2016 outage grate bars have been replaced on Boiler 2. All other grate bars have been removed, cleaned & put back in the Boilers.

Refractory repairs were carried out in the furnace.

Inconel membrane has been replaced as required and Inconel repairs were carried out.

The penthouse swirl plates, lime and carbon nozzles have been inspected.

Refuse crane and ash crane overhaul.

Dust suppression system in the refuse bunker has been installed to minimise primary air heater cleaning.

New controlling process of the ash pit level introduced.

Ongoing improvements on the clinical tracking system.

Improved incident/accident/near miss reporting.

7. Summary of information made available:

Average daily emissions for each month are available to the public at the following website:

<http://www.veolia.co.uk/birmingham/facilities/our-sites/energy-recovery/emissions-air-data-0>

As part of their regulatory responsibility the Environment Agency inspector visits the facility on a regular basis. There are further copies of this report available from the Environment Agency.

Local Environment Agency Office:

Upper Trent Area Office  
Sentinel House  
Wellington Crescent  
Fradley Park  
WS13 8RR

Birmingham municipal waste contract has been recognised by Birmingham City Council and awarded their business charter for social responsibility since year 2015.

Compiled on behalf of the Operator by:



Mark Gilsenan  
Tyseley ERF Facility Manager.  
Veolia ES Birmingham Ltd.

**Fugitive Emissions report for VESB Tyseley ERF**  
**Permit No. WP3239SJ Year 2016**

For the purposes of this report, fugitive emission are taken as: "an emission to air or water from the Permitted Installation which is not controlled by an emission or background concentration limit under conditions 2.2.4 and 2.2.5 of this Permit."

The following possible fugitive emissions are considered as having potentially significant environmental impacts:

**1. Odour**

Incoming municipal waste is delivered in covered vehicles or containers. There is no large scale storage of fuels or stockpiles of raw materials, other than municipal waste. Odour may arise from waste tipped and stored but the roller shutter doors are closed outside delivery times and the tipping hall is under negative pressure where combustion air is drawn from above the waste storage bunker so that the odours and airborne dust from the area are drawn into the incinerator line. Odorous substances are thus destroyed by incineration and any dust retained in the bottom ash or in the APC residue.

**2. Dust**

**General**

All the site roads and surroundings are litter-picked as required and the roads swept weekly by a vacuum sweeper lorry. All work areas are hand-swept in proportion to the potential environmental impact of any emissions. As part of the management system, all staff will attempt to rectify any significant shortfall in housekeeping standards they may encounter within the site boundary.

**Dust - Calcium Hydroxide**

Lime is discharged from sealed bulk powder tankers into a sealed storage silo before use in the slaking process. Any small spillages during unloading are contained and cleaned up immediately.



### **Dust - APC Residues**

APC residue is collected from the process by sealed conveyors within the Flue Gas treatment building and taken to a storage silo that is fitted with a bag filter unit, with sequential cleaning. This unit is operated and maintained in accordance with the manufacturer's instructions. The APC residue is collected following the Method Statement from our contractor. The APC residue is discharged to sealed bulk powder tankers. Any small spillages during unloading are contained and cleaned up immediately.

### **Dust - Bottom Ash and Ferrous scrap**

These materials are handled in a wet condition to avoid dust after discharge from the boiler water-filled quench bath and stored within the Residue Hall. They are loaded by mechanical grab into sheeted tipper Lorries for transport and disposal. Any small spillages during unloading are swept up and residues washed into the plant drains.

### **Dust - Tipping Hall**

Dust may arise from incoming wastes being tipped or stored. The Tipping Hall is under negative pressure, since the combustion air for the incineration process is drawn from the headspace above the refuse bunker. Hence most fugitive dusts will be drawn into the bunker. The roller shutter doors are closed outside delivery times and during shut-down periods and the floor is washed down regularly.

## **3. Noise**

Fugitive noise emissions produced by deliveries of waste and normal plant operations are limited by the design of the buildings, doors are kept closed except when required for operational purposes.

### **General**

Staff are aware of the environmental impacts of their work and exercise an appropriate standard of house-keeping, proportionate to the impacts of any potential emissions. Staff check and report daily on fugitive noise, odour and dust emissions. They are instructed to be watchful for deficiencies in house-

keeping and to report any shortfall in skill or resources, which would hinder the prevention of pollution. Mitigation may typically include additional manual sweeping or cleaning, damping down of fugitive dusts or supply of additional de-odorising equipment.

# Objectives & Targets Programme

Site/Department: Veolia Birmingham Energy Recovery Facility



2016



Current Month:

Ref:	Objective	Target	Responsibility	YTD / Current Month	Comments	Numeric Target	Monthly Update											
							Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
09J01	Air Heater Cleaning (On Line)				To reduce the requirement to shut down boilers.		0%	0%	25%	30%	40%	50%	70%	80%	100%	COMPLETED		
09J02	Better Control of ash pit levels.				Avoid shut down due to ash congestion in the ash pit.		0%	0%	0%	0%	0%	0%	20%	60%	100%	Monitoring Results		
09J03	Tracking system for the clinical waste stream.				Better control of clinical waste on site.		0%	0%	0%	0%	0%	0%	0%	20%	30%	40%	100%	In Process
09J04	Improve Rivo incident reporting				Avoid incidents turning into accidents.		0.0%	0.0%	0.0%	20.0%	30.0%	40.00%	50.00%	75.00%	100.00%	Monitoring Results		
09J05																		
09J06																		
09J07																		
09J08																		

M. Bannister  
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