Annual performance report for:

Ashford Waste to Energy Facility

Permit Number: EPR/HP3230XA

Year: 2022

This report is required under the Industrial Emissions Directive's Article 55(2) requirements on reporting and public information on waste incineration plants and co-incineration plants, which require the operator to produce an annual report on the functioning and monitoring of the plant and make it available to the public.

1. Introduction

Name and address of plant	Ashford Waste to Energy Facility The Incinerator Building The William Harvey Hospital
Description of waste input	The Ashford plant incinerates clinical waste, including clinical wastes classed as hazardous under the Hazardous Waste Regulations 2005. The bulk of the waste is produced at hospitals, but also includes smaller quantities from doctors' surgeries, dentists, health clinics, residential and nursing homes, and from medical research facilities. The hazardous wastes incinerated include infectious waste and waste containing cytotoxic or cytostatic medicines. The plant also incinerates small amounts of specialised wastes where it is recognised that high temperature incineration represents the best disposal option.
Operator contact details if members of the public have any questions	supportuk@stericycle.com

2. Plant description

The Incinerator is designed to process 1000 kilograms per hour. The incinerator is of stepped hearth design, with three main combustion hearths and an ash box. Healthcare wastes are loaded mechanically direct from the wheeled bins used to deliver the waste.

The waste is charged onto the first hearth where the combustion process commences. Hydraulic rams operate at intervals to push the waste along the first hearth, until it falls off the end onto the second hearth where it burns vigorously at a temperature of between 850°C and 1000 °C, where it burns out to produce an ash. This bottom ash and any remaining part-combusted waste is then pushed along the hearths, where the fixed carbon in the ash is further burned out. The residues are then dropped into an ash pit the end of the process.

The flue gases from the incineration process are passed through a secondary chamber, or afterburner, where any gaseous products of combustion are burned out under oxygen rich conditions This stage is designed to destroy any carbon monoxide, volatile organic compounds, and dioxins and furans produced by the combustion process.

The flue gases are then cooled by directing them through a waste-heat boiler before they pass into the abatement section of the process. Powdered lime and powdered activated carbon are added to the flue gases entering the abatement process to remove acid gases, heavy metals and residual dioxins and furans before discharge to atmosphere from the stack. The flue gases being discharged from the stack are continuously monitored.

The incineration process produces two residues; bottom ash and spent lime

3. Summary of Plant Operation

3.1 Annual Production Data

Hazardous waste received	5817.45	tonnes
Non-hazardous waste received	1778.45	tonnes
Cytotoxic & cytostatic wastes incinerated	260.29	tonnes
Total Waste Incinerated	7856.19	tonnes
Total plant operational hours	7149.516	hours
Total hours of "abnormal operation" (see permit for definition)	See Section 5.2	
Total quantity of incinerator bottom ash (IBA) produced	828.96	tonnes
Disposal or recovery route for IBA	D1 - Landfill	
Did any batches of IBA test as hazardous? If yes, state quantity	None	
Total quantity of air pollution control (APC) residues produced	576.6	tonnes
Disposal or recovery route for APC residues	D13 - Blending or mixing prior to submission to any of the operations numbered D1 to D12	
Total heat produced for export (tonnes)	31802	

3.2 Annual performance parameters

Waste Disposal and Recovery

Waste	Disposal Route	Tonnes	Recovery Tonnes
1) Hazardous Wastes	APC	576.6	0
2) Non-Hazardous Wastes	Ash	828.96	0

Trends in Waste Disposal and Recovery			
Year	Parameter Named Waste	Total Waste	Waste per unit output
2021	Total waste	1429	0.17
2022	Total waste	1406	0.18

Water usage

	Usage (m^3)	Specific Usage (m^3/t)
Mains water	7344	0.9

Trends in Water Usage			
Year	Parameter Named Water source	Total Water usage	
2021	Water	7592	0.9

Water usage decreased on previous years, as some water leaks were identified and repaired.

Energy usage

Energy Source	Energy Usage Quantity	Primary Energy (MWh)	CO_2 Produced (tonnes)
Electricity *	MWh	2920	485
Natural Gas	MWh	2260	429

Trends in Energy Usage Year	Parameter Primary Energy usage		
2021	total energy	5332	0.65
2022	total energy	5180	0.66

Total energy increase related to increased throughput

Performance Indicators

Parameter	Annual Average	Units
Gas Used	287.7	kwh/tonnes WI
Mass of bottom ash produced	105.5	kg \tonne WI
Mass of APC residues produced	73.4	kg \tonne WI
Mass of other solid residues	N/A	
Mass of carbon used	3.8	kg \tonne WI
Mass of lime used	57.4	kg \tonne WI
Potable Water Use	0.9	m3/tonne WI
Waste Hazard Score	26	
Waste Disposal Score	78	

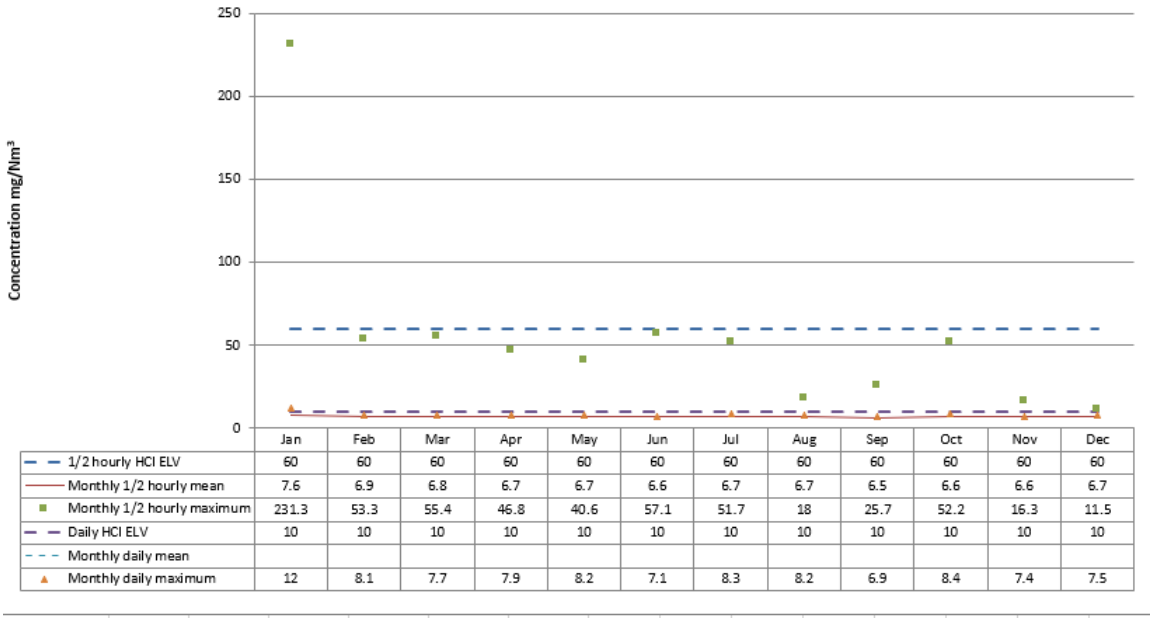
4. Summary of Plant Emissions

4.1 Summary of continuous emissions monitoring results for emissions to air

The following charts show the performance of the plant against its emission limit values (ELVs) for substances that are continuously monitored.

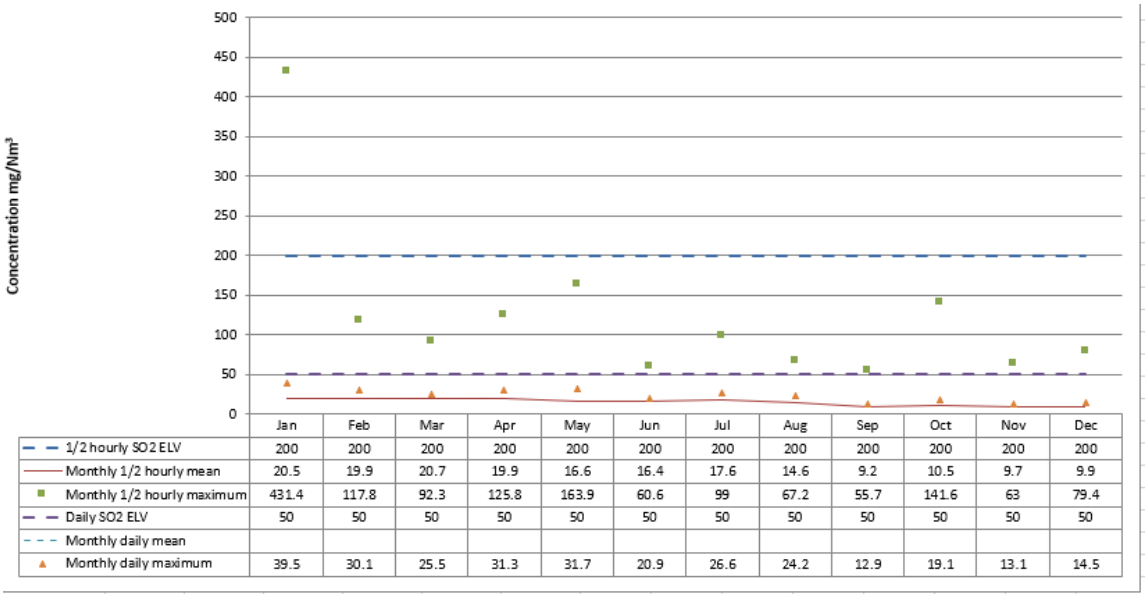
Monthly emissions summary incl half-hou

Line 1 - Hydrogen chloride



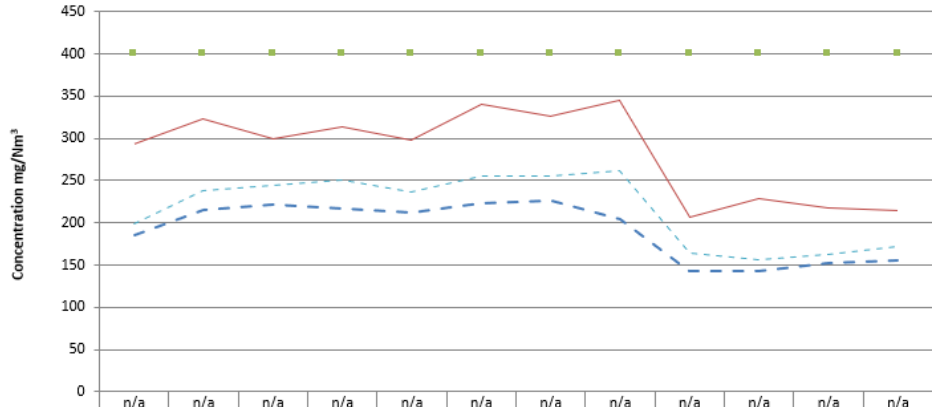
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly HCl ELV	60	60	60	60	60	60	60	60	60	60	60	60
Monthly 1/2 hourly mean	7.6	6.9	6.8	6.7	6.7	6.6	6.7	6.7	6.5	6.6	6.6	6.7
Monthly 1/2 hourly maximum	231.3	53.3	55.4	46.8	40.6	57.1	51.7	18	25.7	52.2	16.3	11.5
Daily HCl ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean												
Monthly daily maximum	12	8.1	7.7	7.9	8.2	7.1	8.3	8.2	6.9	8.4	7.4	7.5

Line 1 – Sulphur dioxide



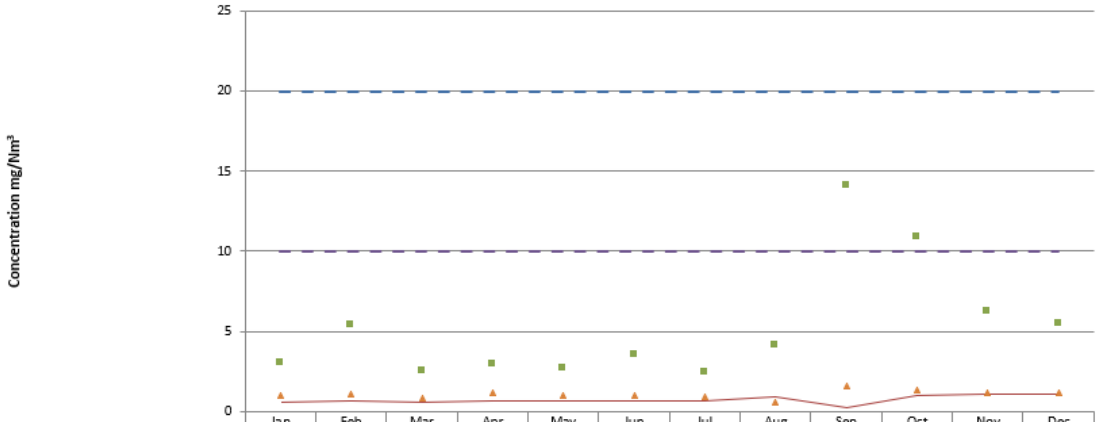
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly SO2 ELV	200	200	200	200	200	200	200	200	200	200	200	200
Monthly 1/2 hourly mean	20.5	19.9	20.7	19.9	16.6	16.4	17.6	14.6	9.2	10.5	9.7	9.9
Monthly 1/2 hourly maximum	431.4	117.8	92.3	125.8	163.9	60.6	99	67.2	55.7	141.6	63	79.4
Daily SO2 ELV	50	50	50	50	50	50	50	50	50	50	50	50
Monthly daily mean												
Monthly daily maximum	39.5	30.1	25.5	31.3	31.7	20.9	26.6	24.2	12.9	19.1	13.1	14.5

Line 1 – Oxides of nitrogen



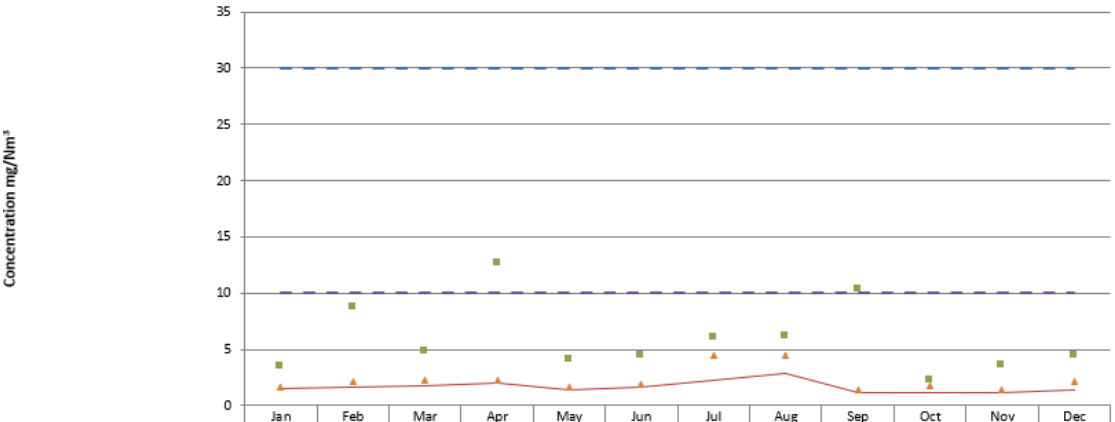
	n/a Jan	n/a Feb	n/a Mar	n/a Apr	n/a May	n/a Jun	n/a Jul	n/a Aug	n/a Sep	n/a Oct	n/a Nov	n/a Dec
Monthly 1/2 hourly mean	186	215.9	221.5	217.1	212	222.8	226.5	204	142.6	143.4	151.6	155.4
Monthly 1/2 hourly maximum	292.9	323.1	299.7	312.8	298.3	339.8	325.6	344.5	207.2	229.2	217.3	215
Daily NOx ELV	400	400	400	400	400	400	400	400	400	400	400	400
Monthly daily mean												
Monthly daily maximum	198.9	237.7	243.8	250.1	236.1	255.3	255.7	262.2	164.3	156.9	162.1	172.1

Line 1 – Total organic carbon



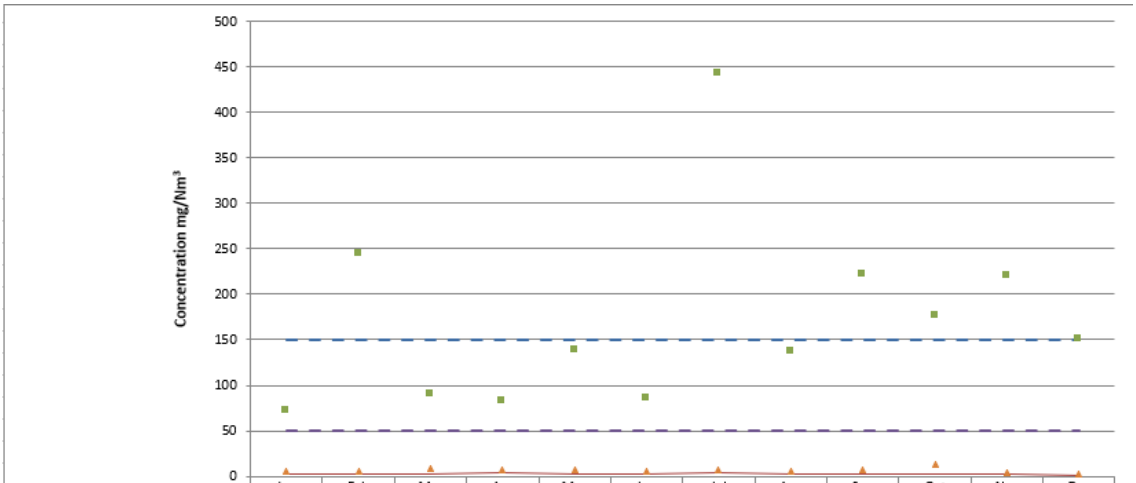
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly TOC ELV	20	20	20	20	20	20	20	20	20	20	20	20
Monthly 1/2 hourly mean	0.6	0.7	0.6	0.7	0.7	0.7	0.7	0.9	0.2	1	1.1	1.1
Monthly 1/2 hourly maximum	3	5.4	2.5	2.9	2.7	3.5	2.4	4.1	14.1	10.9	6.2	5.5
Daily TOC ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean												
Monthly daily maximum	1	1.1	0.8	1.2	1	1	0.9	0.6	1.6	1.3	1.2	1.2

Line 1 – Particulates



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly PM ELV	30	30	30	30	30	30	30	30	30	30	30	30
Monthly 1/2 hourly mean	1.5	1.6	1.8	2	1.4	1.6	2.2	2.9	1.1	1.2	1.1	1.4
Monthly 1/2 hourly maximum	3.5	8.8	4.8	12.7	4.1	4.4	6.1	6.2	10.3	2.3	3.6	4.4
Daily PM ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean												
Monthly daily maximum	1.7	2.1	2.3	2.3	1.6	1.9	4.4	4.5	1.4	1.8	1.4	2.1

Line 1 – Carbon monoxide



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10 minute CO ELV (95%)	150	150	150	150	150	150	150	150	150	150	150	150
Monthly 95% 10 minute maximum												
Monthly 10 minute mean	2.9	2.6	2.1	3.3	3.2	2.4	4.3	2.5	3.2	2.9	1.9	1.4
Monthly 10 minute maximum	72.2	243.8	90.7	82.2	138.1	85.2	443.1	137.2	221.8	176.6	219.9	151.2
Daily CO ELV	50	50	50	50	50	50	50	50	50	50	50	50
Monthly daily mean												
Monthly daily maximum	5.8	4.8	7.9	6.6	7.5	5.3	7.6	5.6	7.4	12.5	4.2	2.8

4.2 Summary of periodic monitoring results for emissions to air

The table below shows the results of periodically monitored substances.

Substance	Emission limit value	Results	
		1st Half	2nd Half
Mercury and its compounds	0.05 mg/m^3	0.0016	0.0018
Cadmium & thallium and their compounds (total)	0.05 mg/m^3	0.0012	0.0016
Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds	0.5 mg/m^3	0.021	0.040
Dioxins and furans (I-TEQ)	0.1 ng/m^3	0.0019	0.0004
Hydrogen Fluoride	2 mg/m^3	0.073	0.88

4.3 Summary of monitoring results for emissions to water

There are no emissions to water from the process

5. Summary of Permit Compliance

5.1 Compliance with permit limits for continuously monitored pollutants

The plant met its emission limits as shown in the table below.

Substance	Percentage time compliant during operation	
	Half-hourly limit	**Daily limit**
Particulates	> 99.99%	> 99.99%
Oxides of nitrogen	> 99.99%	> 99.99%
Sulphur dioxide	> 99.99%	> 99.99%
Carbon monoxide	> 99.99% 10-min averages	> 99.99%
Total organic carbon	> 99.99%	> 99.99%
Hydrogen chloride	> 99%	> 99%

5.2 Summary of any notifications or non-compliances under the permit

Date	Summary of notification or non-compliance	Reason	Measures taken to prevent reoccurrence
15/01/22	Exceedance of half hourly SO2	Due to Scales malfunction	Replace weigh cells and display unit
21/01/22	ERV open 6 minutes	Boiler low low water	Combined system checked over system found no faults
06/05/22	ERV open 9 seconds	Power disruption to site	UPS in place but outage overtime
16/07/22	ERV open 2 minutes	Power disruption to site	UPS in place but outage overtime

5.3 Summary of any complaints received and actions to taken to resolve them.

Date of complaint	Summary of complaint	Reason for complaint including whether substantiated by the operator or the EA	If substantiated, measures to prevent reoccurrence
	None		

6. Summary of plant improvements

Summary of any permit improvement conditions that have been completed within the year and the resulting environmental benefits.
None
Summary of any changes to the plant or operating techniques which required a variation to the permit and a summary of the resulting environmental impact.
None
Summary of any other improvements made to the plant or planned to be made and a summary of the resulting environmental benefits.
None