Annual performance report for: Enviropower Ltd

Permit Number: EPR/XP3030XX

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	Enviropower Ltd Units 1-2, 37 Chartwell Road Lancing Business Park BN15 8TU
Description of waste input	Non-recyclable industrial, commercial, construction & demolition waste, RDF and waste wood
Operator contact details if members of the public have any questions	01903 768239

2. Plant description

The main purpose of the activity at this facility is to recover energy in the form of electricity from the non-recyclable fraction of industrial, commercial, construction & demolition waste. The facility can generate circa 5MW of electrical power, exporting enough to the National Grid to supply approximately 8,000 local homes. The permit covers the site and process including waste reception, storage and off site transfer of residues, emissions to water, air and land, recording and monitoring conditions.

The facility consists of two lines of combustion equipment capable of processing a combined total of approximately 8 tonnes of waste per hour, allowing for a permitted throughput of 75,000 tonnes per year. Throughput is dependent on two main factors - the actual operating hours per annum and the calorific value of the fuel, the average being in the order of 15MJ/Kg. A Heat Recovery Steam Generator captures the heat from the combustion to produce steam which drives two steam turbines and a generator. The waste gases are cleaned before being released via the stack.

Fine particulate matter and air pollution control (APC) residues are removed from the flue gas stream by fabric filter and consigned to specialist treatment works.

3. Summary of Plant Operation

Refuse-derived fuel received	52,905 tonnes
Other waste received (trommel fines / sawdust)	0 tonnes
Total waste received	52,905 tonnes
Total plant operational hours	7109
Total hours of “abnormal operation” (see permit for definition)	1 hour
Total quantity of incinerator bottom ash (IBA) produced	4,531 tonnes
Disposal or recovery route for IBA	Recycled – aggregate substitute
Did any batches of IBA test as hazardous? If yes, state quantity	None
Total quantity of air pollution control (APC) residues produced	1,823 tonnes
Disposal or recovery route for APC residues	Hazardous landfill
Total electricity generated for export to the National Grid	21,977 MWh

4. Summary of Plant Emissions

4.1 Summary of continuous emissions monitoring results for emissions to air

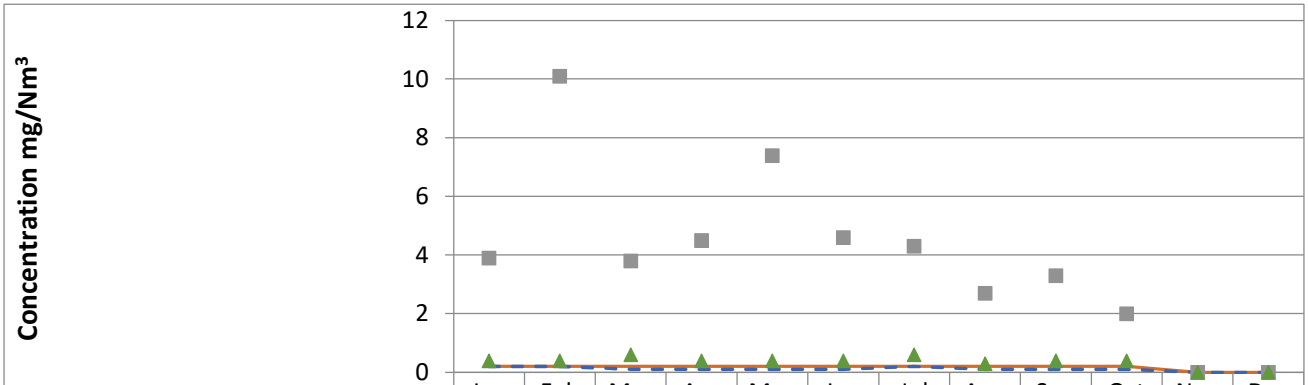
The following charts show the performance of the plant against its emission limit values (ELVs) for substances that are continuously monitored.

Monthly Emissions Summary Inc Half-Hou

Monthly Emissions Summary Inc Half-Hou

Line A – Ammonia

(Please note there is no ELV for ammonia)

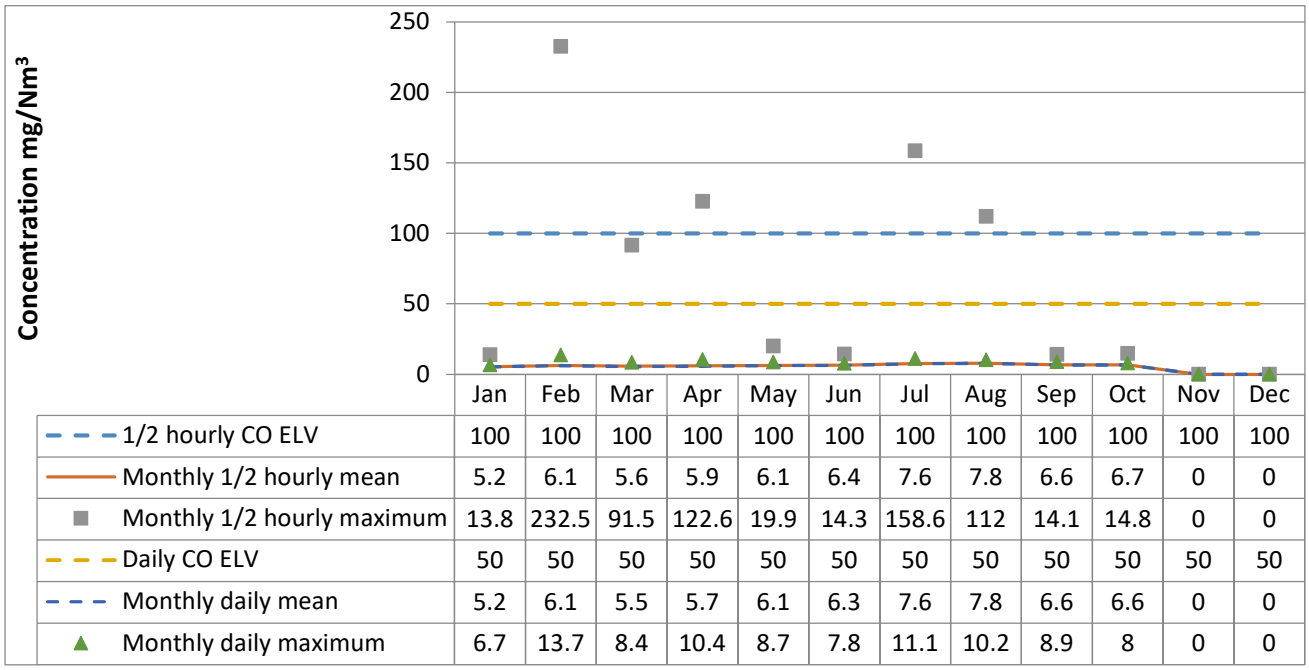


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly NH3 ELV												
Monthly 1/2 hourly mean	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0	0
Monthly 1/2 hourly maximum	3.9	10.1	3.8	4.5	7.4	4.6	4.3	2.7	3.3	2	0	0
Daily NH3 ELV												
Monthly daily mean	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0	0
Monthly daily maximum	0.4	0.4	0.6	0.4	0.4	0.4	0.6	0.3	0.4	0.4	0	0

Line A – Oxides of Nitrogen

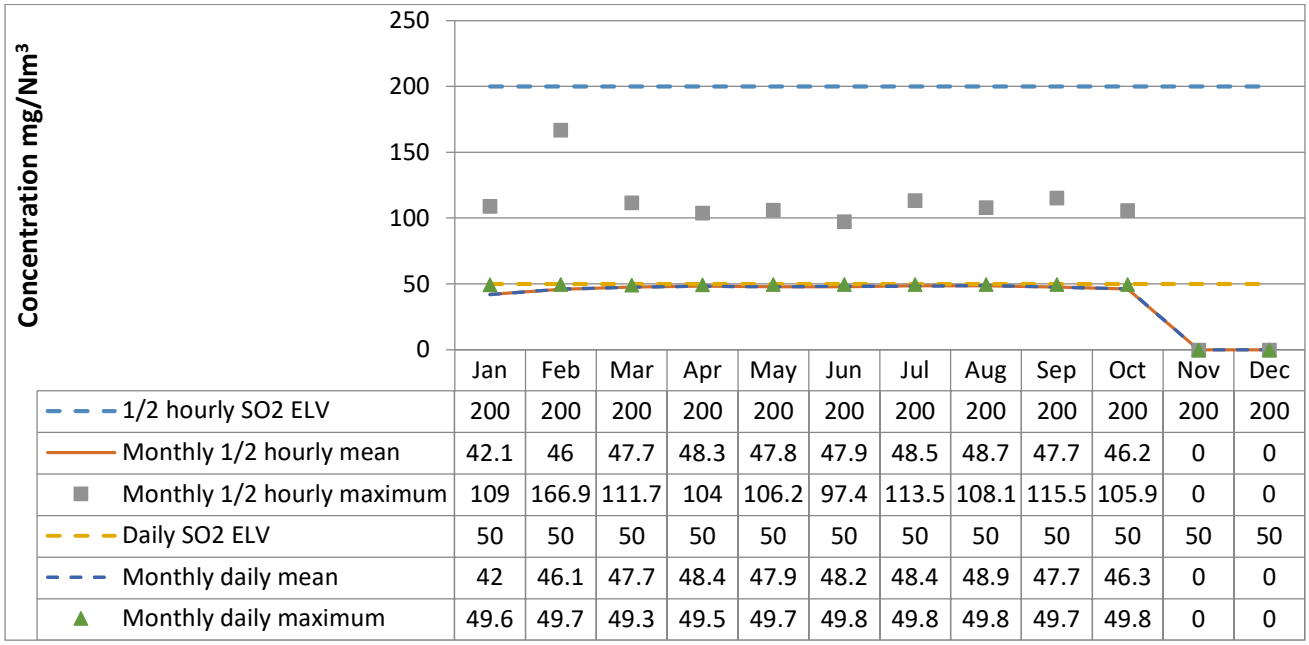
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly NOx ELV	300	300	300	300	300	300	300	300	300	300	300	300
Monthly 1/2 hourly mean	147.3	146.3	146.3	147.7	145.5	144	146.7	146.5	146.6	148.9	0	0
Monthly 1/2 hourly maximum	290.1	213.7	213	216.1	209.6	208.3	215.4	212.9	207.5	206	0	0
Daily NOx ELV	150	150	150	150	150	150	150	150	150	150	150	150
Monthly daily mean	147.7	146.3	146.3	147.8	145.6	144.3	146.6	146.7	146.6	149	0	0
Monthly daily maximum	149.6	149.3	149.3	149.3	149.1	149.3	149.2	149.2	149.4	149.8	0	0

Line A – Carbon Monoxide



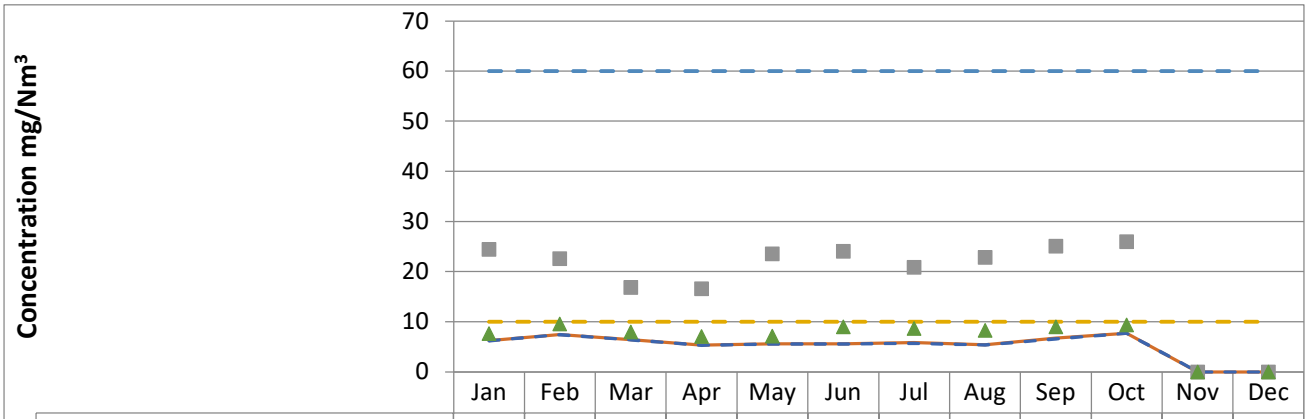
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly CO ELV	100	100	100	100	100	100	100	100	100	100	100	100
Monthly 1/2 hourly mean	5.2	6.1	5.6	5.9	6.1	6.4	7.6	7.8	6.6	6.7	0	0
Monthly 1/2 hourly maximum	13.8	232.5	91.5	122.6	19.9	14.3	158.6	112	14.1	14.8	0	0
Daily CO ELV	50	50	50	50	50	50	50	50	50	50	50	50
Monthly daily mean	5.2	6.1	5.5	5.7	6.1	6.3	7.6	7.8	6.6	6.6	0	0
Monthly daily maximum	6.7	13.7	8.4	10.4	8.7	7.8	11.1	10.2	8.9	8	0	0

Line A – Sulphur Dioxide



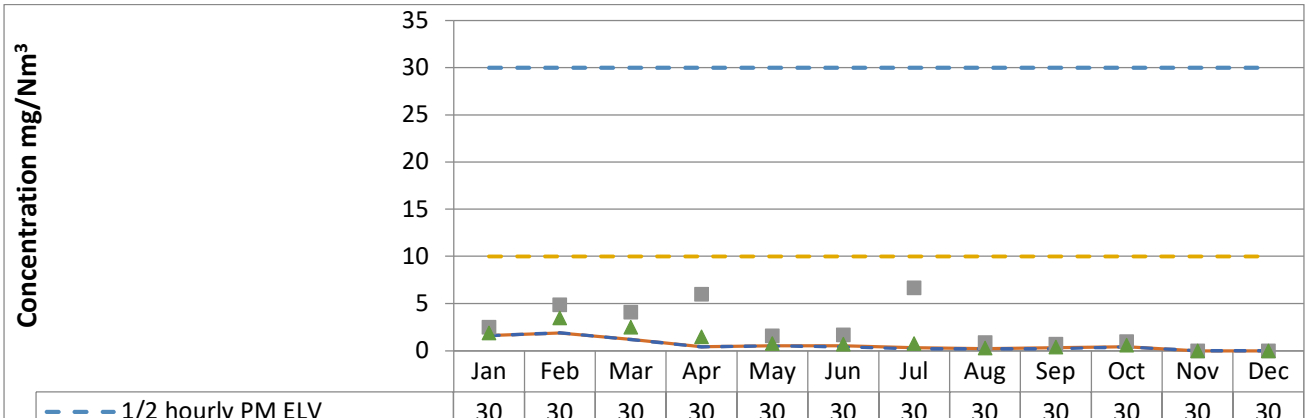
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly SO2 ELV	200	200	200	200	200	200	200	200	200	200	200	200
Monthly 1/2 hourly mean	42.1	46	47.7	48.3	47.8	47.9	48.5	48.7	47.7	46.2	0	0
Monthly 1/2 hourly maximum	109	166.9	111.7	104	106.2	97.4	113.5	108.1	115.5	105.9	0	0
Daily SO2 ELV	50	50	50	50	50	50	50	50	50	50	50	50
Monthly daily mean	42	46.1	47.7	48.4	47.9	48.2	48.4	48.9	47.7	46.3	0	0
Monthly daily maximum	49.6	49.7	49.3	49.5	49.7	49.8	49.8	49.8	49.7	49.8	0	0

Line A – Hydrogen Chloride



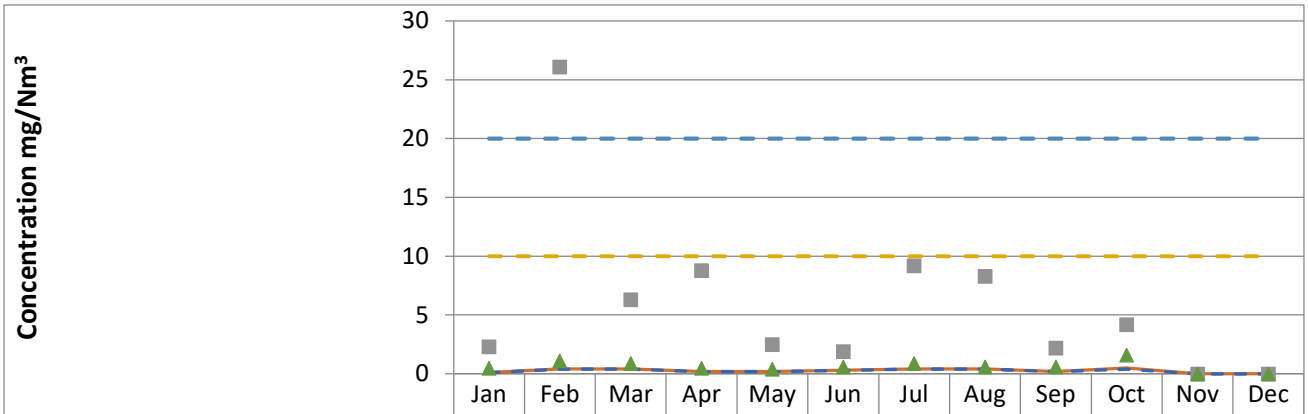
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly HCl ELV	60	60	60	60	60	60	60	60	60	60	60	60
Monthly 1/2 hourly mean	6.2	7.4	6.4	5.3	5.6	5.6	5.8	5.4	6.7	7.7	0	0
Monthly 1/2 hourly maximum	24.5	22.6	16.9	16.6	23.6	24.1	20.9	22.9	25.1	26	0	0
Daily HCl ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	6.2	7.4	6.4	5.3	5.6	5.6	5.7	5.4	6.6	7.7	0	0
Monthly daily maximum	7.7	9.6	8	7.1	7.2	9	8.7	8.3	9	9.4	0	0

Line A – 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	1.6	1.9	1.2	0.4	0.5	0.5	0.3	0.2	0.3	0.4	0	0
Monthly 1/2 hourly maximum	2.5	4.9	4.1	6	1.6	1.7	6.7	0.9	0.7	1	0	0
Daily PM ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	1.6	1.9	1.2	0.4	0.5	0.4	0.2	0.2	0.2	0.4	0	0
Monthly daily maximum	1.9	3.5	2.5	1.5	0.8	0.7	0.8	0.3	0.4	0.6	0	0

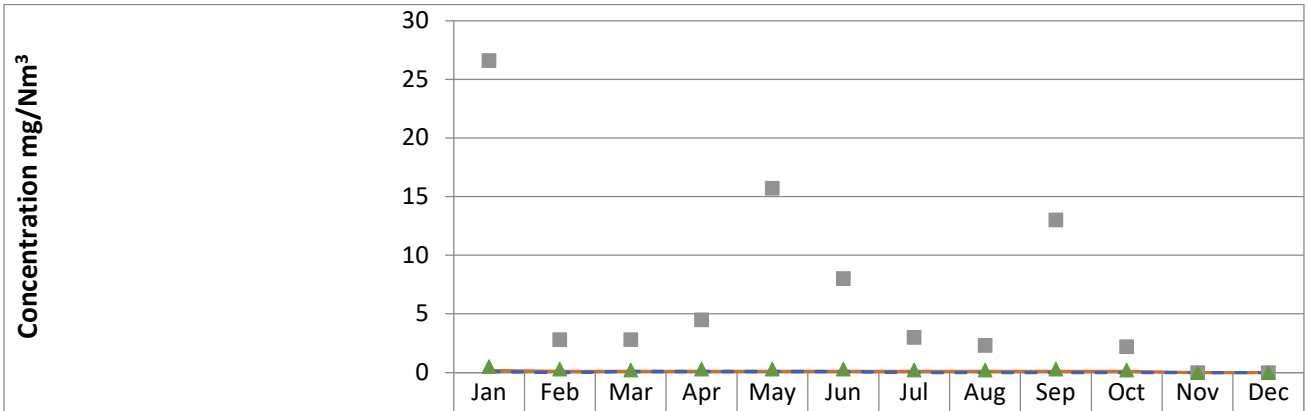
Line A – Total Organic Carbon



	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	0.1	0.4	0.4	0.2	0.2	0.3	0.4	0.4	0.2	0.5	0	0
Monthly 1/2 hourly maximum	2.3	26.1	6.3	8.8	2.5	1.9	9.2	8.3	2.2	4.2	0	0
Daily TOC ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	0.1	0.4	0.4	0.2	0.2	0.3	0.4	0.4	0.2	0.4	0	0
Monthly daily maximum	0.5	1.1	0.9	0.5	0.4	0.6	0.9	0.6	0.6	1.6	0	0

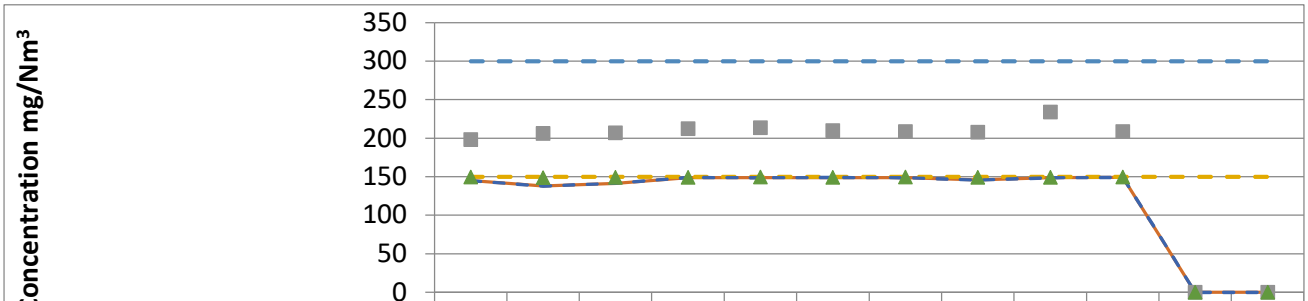
Line B – Ammonia

(Please note there is no ELV for ammonia)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly NH3 ELV												
Monthly 1/2 hourly mean	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0
Monthly 1/2 hourly maximum	26.6	2.8	2.8	4.5	15.7	8	3	2.3	13	2.2	0	0
Daily NH3 ELV												
Monthly daily mean	0.1	0	0.1	0.1	0.1	0.1	0	0	0	0	0	0
Monthly daily maximum	0.5	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0	0

Line B – Oxides of Nitrogen

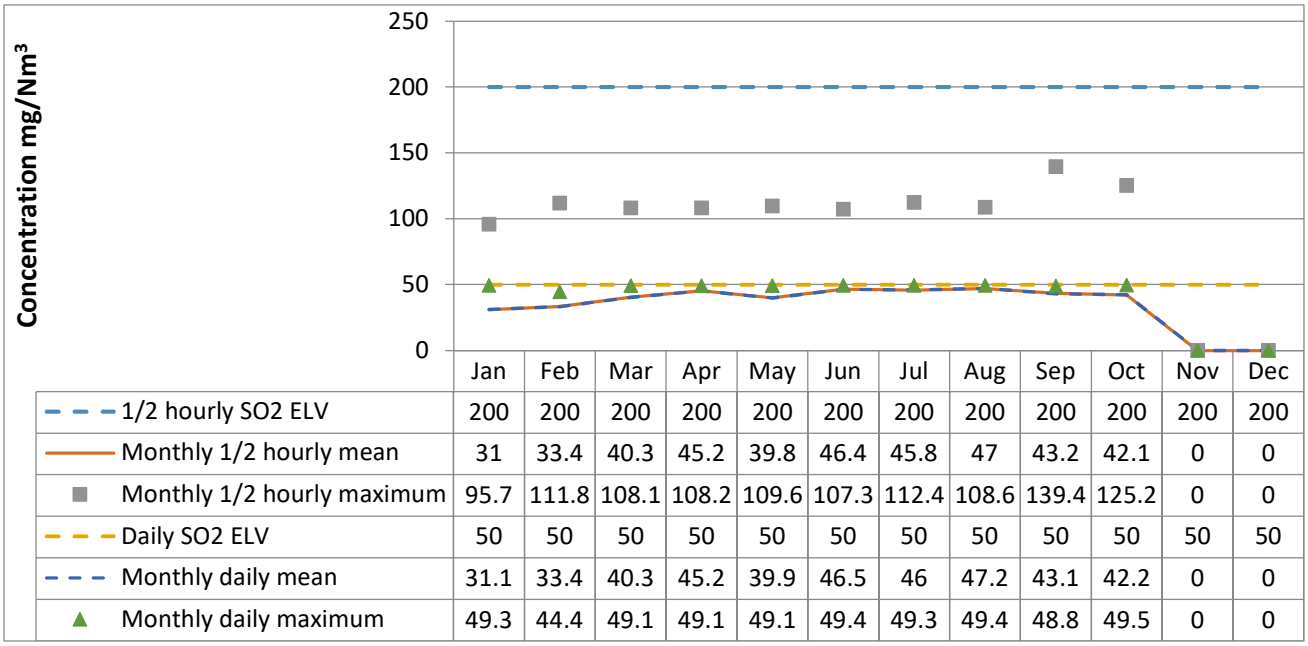


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly NOx ELV	300	300	300	300	300	300	300	300	300	300	300	300
Monthly 1/2 hourly mean	144.8	138.1	141.4	148.7	148.6	148.9	148.6	145.9	148.7	149.2	0	0
Monthly 1/2 hourly maximum	198.4	206.3	207.1	212.4	213.5	209.7	208.4	207.7	234.1	208.7	0	0
Daily NOx ELV	150	150	150	150	150	150	150	150	150	150	150	150
Monthly daily mean	145.1	138.1	141.5	149.1	148.8	149	148.7	146	148.9	149.2	0	0
Monthly daily maximum	149.4	148.9	149.1	149.3	149.4	149.3	149.4	149.1	149.3	149.7	0	0

Line B – Carbon Monoxide

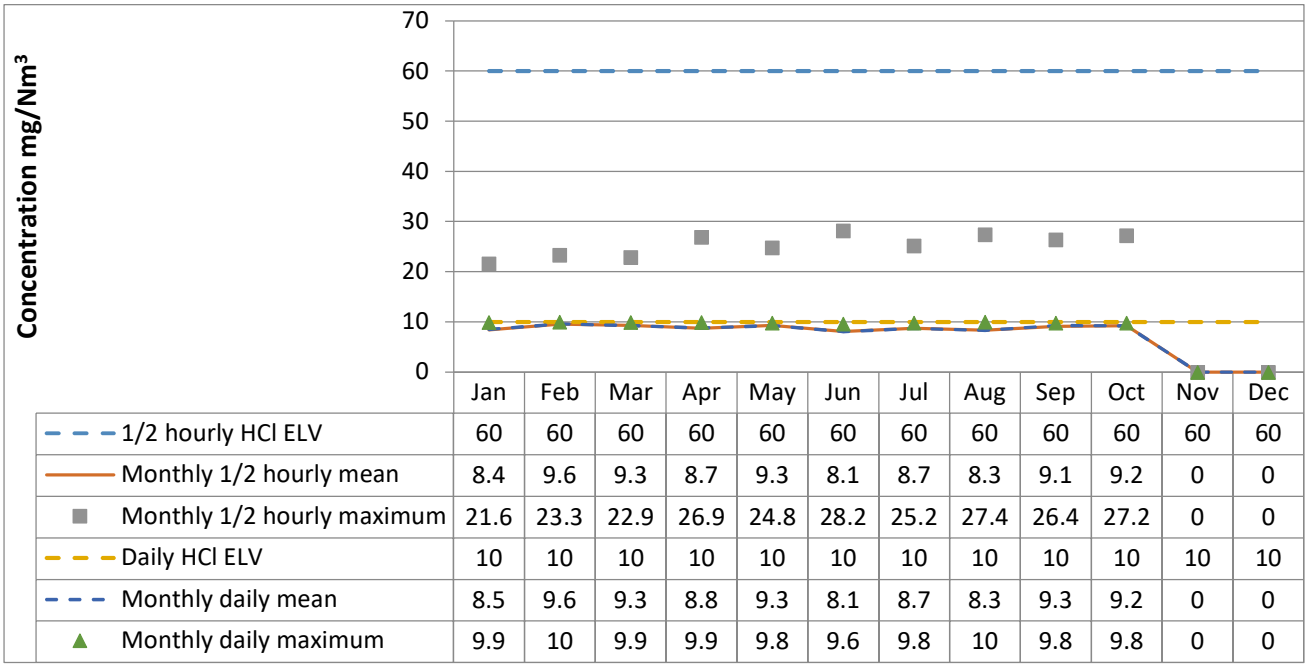
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly CO ELV	100	100	100	100	100	100	100	100	100	100	100	100
Monthly 1/2 hourly mean	9.5	10.9	14.7	12.2	8.7	8.1	9.7	11.9	12.5	12.7	0	0
Monthly 1/2 hourly maximum	46.7	58.3	29.8	25.4	20.4	12.7	24.2	24.5	105	22.3	0	0
Daily CO ELV	50	50	50	50	50	50	50	50	50	50	50	50
Monthly daily mean	9.5	10.9	14.7	12.2	8.7	8.1	9.7	11.9	12.6	12.7	0	0
Monthly daily maximum	14.6	15.8	17.3	15.4	11.5	9.7	13.9	16	15.2	15.9	0	0

Line B – Sulphur Dioxide



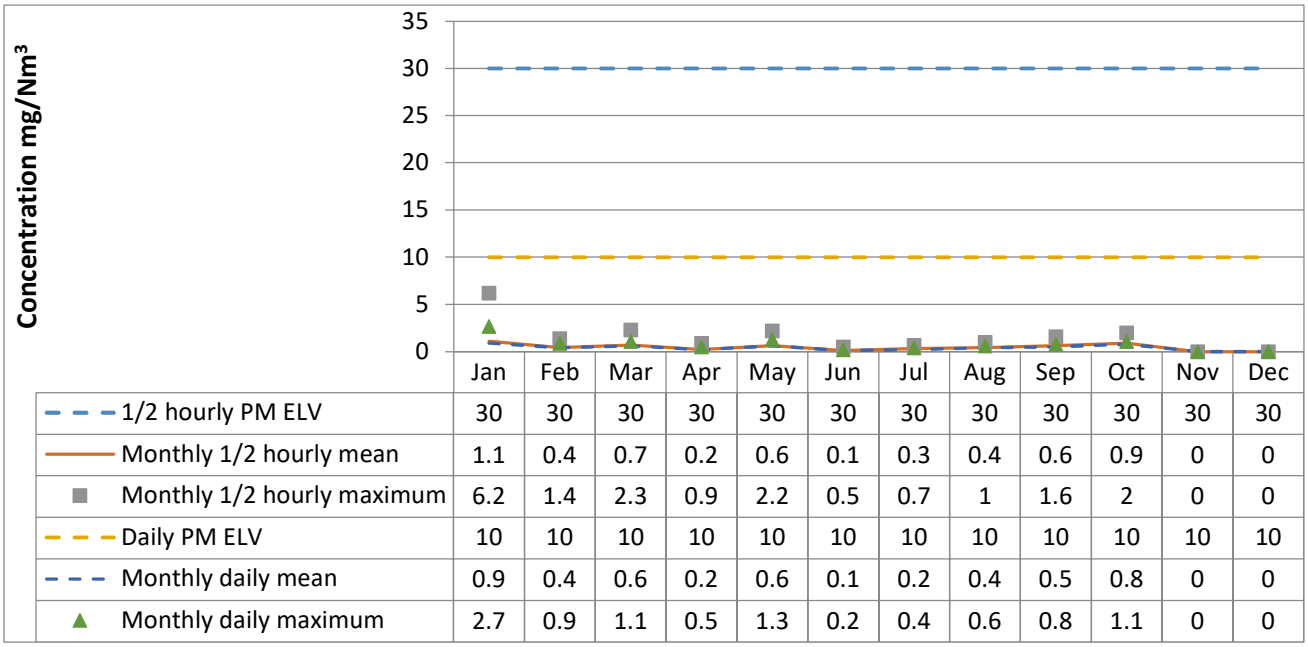
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly SO2 ELV	200	200	200	200	200	200	200	200	200	200	200	200
Monthly 1/2 hourly mean	31	33.4	40.3	45.2	39.8	46.4	45.8	47	43.2	42.1	0	0
Monthly 1/2 hourly maximum	95.7	111.8	108.1	108.2	109.6	107.3	112.4	108.6	139.4	125.2	0	0
Daily SO2 ELV	50	50	50	50	50	50	50	50	50	50	50	50
Monthly daily mean	31.1	33.4	40.3	45.2	39.9	46.5	46	47.2	43.1	42.2	0	0
Monthly daily maximum	49.3	44.4	49.1	49.1	49.1	49.4	49.3	49.4	48.8	49.5	0	0

Line B – Hydrogen Chloride



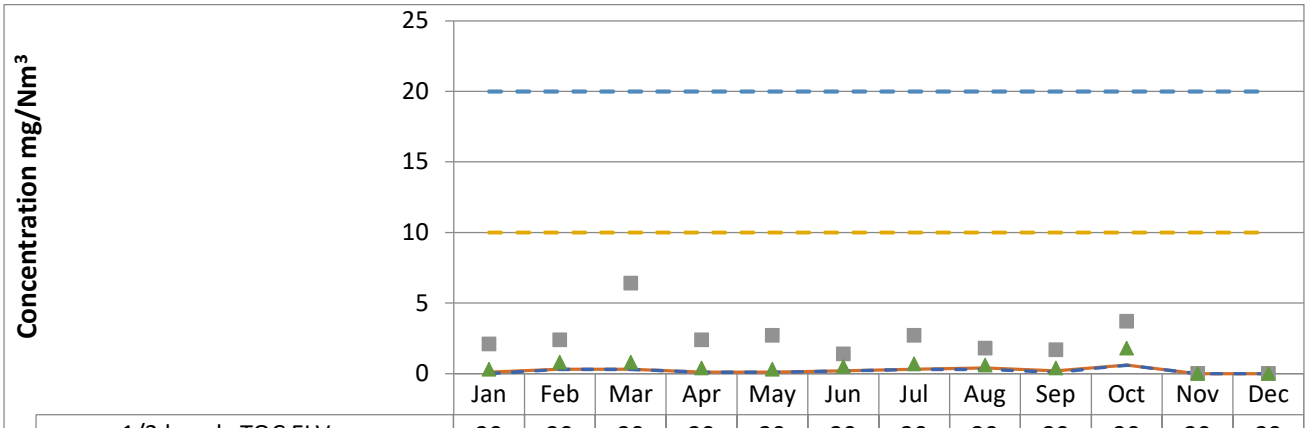
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly HCl ELV	60	60	60	60	60	60	60	60	60	60	60	60
Monthly 1/2 hourly mean	8.4	9.6	9.3	8.7	9.3	8.1	8.7	8.3	9.1	9.2	0	0
Monthly 1/2 hourly maximum	21.6	23.3	22.9	26.9	24.8	28.2	25.2	27.4	26.4	27.2	0	0
Daily HCl ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	8.5	9.6	9.3	8.8	9.3	8.1	8.7	8.3	9.3	9.2	0	0
Monthly daily maximum	9.9	10	9.9	9.9	9.8	9.6	9.8	10	9.8	9.8	0	0

Line B – 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	1.1	0.4	0.7	0.2	0.6	0.1	0.3	0.4	0.6	0.9	0	0
Monthly 1/2 hourly maximum	6.2	1.4	2.3	0.9	2.2	0.5	0.7	1	1.6	2	0	0
Daily PM ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	0.9	0.4	0.6	0.2	0.6	0.1	0.2	0.4	0.5	0.8	0	0
Monthly daily maximum	2.7	0.9	1.1	0.5	1.3	0.2	0.4	0.6	0.8	1.1	0	0

Line B – 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	0.1	0.3	0.3	0.1	0.1	0.2	0.3	0.4	0.2	0.6	0	0
Monthly 1/2 hourly maximum	2.1	2.4	6.4	2.4	2.7	1.4	2.7	1.8	1.7	3.7	0	0
Daily TOC ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	0	0.3	0.3	0.1	0.1	0.2	0.3	0.3	0.1	0.6	0	0
Monthly daily maximum	0.3	0.8	0.8	0.4	0.3	0.5	0.7	0.6	0.4	1.8	0	0

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			
		Jan – Jun 2022 **Line A**	Jan – Jun 2022 **Line B**	Jul – Dec 2022 **Line A**	Jul – Dec 2022 **Line B**
Mercury and its compounds	0.05 mg/m^3	0.0137 mg/m^3	0.0053 mg/m^3	n/a	n/a
Cadmium & thallium and their compounds (total)	0.05 mg/m^3	0.0005 mg/m^3	0.0005 mg/m^3	n/a	n/a
Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5 mg/m^3	0.0496 mg/m^3	0.0201 mg/m^3	n/a	n/a
Dioxins and furans (I-TEQ)	0.1 ng/m^3	0.0145 ng/m^3	0.0079 ng/m^3	n/a	n/a
Hydrogen Fluoride	1 mg/m^3	0.10 mg/m^3	0.10 mg/m^3	n/a	n/a

4.3 Summary of monitoring results for emissions to water

There are no emissions to water included in the environmental permit.

5. Summary of Permit Compliance

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

Date	Summary of notification or non-compliance	Reason	Measures taken to prevent reoccurrence
10/02/22	Notification: 1 x CO half-hourly exceedance & 1 x TOC half-hourly exceedance on Line A.	Combustor grate hydraulic hose failed resulting in no grate movement. This affected the combustion as the fuel was not moving down the grate as expected. Once repaired and operational the heaped fuel was broken up and there was a surge in combustion temperature which in turn decreased the O2 levels, resulting in a short CO & TOC spike.	None, this was an isolated incident due to an unexpected failure of a hydraulic hose.
18/04/22	Notification: 1 x CO half-hourly exceedance Line A.	A sudden temperature rise in the combustion process decreased the O2 level and subsequently increased the CO level. Combustion temperatures reduced immediately through the automatic control and shutdown parameters, and the CO level quickly reduced to a normal level.	The combustor's step grate will be inspected to identify any possible issues with its operation that may be the source of recent infrequent temperature rises and necessary action will be taken to resolve any problems identified.
19/07/22	Notification: 1 x CO half-hourly OTNOC Line A.	Line A's ID fan inverter tripped due to excessive ambient temperatures in the control panel room, triggering an immediate shutdown and resulting in a decreased oxygen level and subsequently increased CO level.	ID Fan breaker reinstated and fan started back up again.
13/08/22	Notification: 1 x CO half-hourly exceedance Line A.	The depth of the fuel on the grate increased and was creating oxygen swings upon each movement of the grate.	The speed of the grate movement was increased, the fuel feed rate decreased and adjustments were made to the combustion fan settings.
13/09/22	Notification: 1 x NOx half-hourly OTNOC Line B.	A blockage in the urea pipework had led to a sharp rise in urea pump motor speed accompanied by an immediate increase in NOx levels.	Various system checks conducted, and standby pump / lances used, but lastly blockage cleared in pipework between the filters and the pump and pump returned to normal operation.

25/09/22	Notification: 1 x CO half-hourly exceedance Line B.	Line B was being restarted following a brief outage to conduct maintenance on a fan. Fuel began to be reintroduced 7 minutes into the half hourly period, at 15:07, and a CO spike occurred 5 minutes later as the fuel began to ignite, which lasted for approx. 3 minutes. After this brief spike the CO level dropped below limits, however, the half hourly period finished with levels slightly above the ELV, although this period was only made up of 23 minutes of valid data and had it been a full 30 minutes the ELV would not have been exceeded.	Consider introducing fuel either on the hour or at half past the hour on future start ups to allow for the 30-minute period to be made up of 30 minutes of valid data. Open discussions with the Environment Agency to discuss the possibility of a to move from the existing 30-minute average to the more commonly used 10-minute 95%ile method for CO.

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
22/06/22	Dust escaping building	Dust was escaping from site building via an open fire exit door and entering their yard	Investigated immediately and open fire exit door was closed
12/07/22	Noise	Unknown, no link to a known issue or a change in the sites operation	Part of an ongoing noise investigation
18/07/22	Dust escaping building	Dust presumed to be escaping from site building via an open fire exit door and entering their yard	Staff reminded to ensure fire exit doors remain closed when not required for an emergency
19/07/22	Noise	Unknown, no link to a known issue or a change in the sites operation	Part of an ongoing noise investigation
21/07/22	Noise	Unknown, no link to a known issue or a change in the sites operation	Part of an ongoing noise investigation
09/10/22	Noise	Unknown, no link to a known issue or a change in the sites operation	Part of an ongoing noise investigation

6. Summary of plant improvements

Summary of any permit improvement conditions that have been completed within the year and the resulting environmental benefits.

All Improvement Conditions have been completed and previously signed off by the Environment Agency
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