

Annual performance report for: Enviropower Ltd

Permit Number: EPR/XP3030XX

Year: 2021

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	64,666 tonnes
Other waste received (trommel fines / sawdust)	2,214 tonnes
Total waste received	66,880 tonnes
Total plant operational hours	8,500
Total hours of “abnormal operation” (see permit for definition)	1 hour
Total quantity of incinerator bottom ash (IBA) produced	12,262 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	3,952 tonnes
Disposal or recovery route for APC residues	Hazardous landfill
Total electricity generated for export to the National Grid	25,210 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.



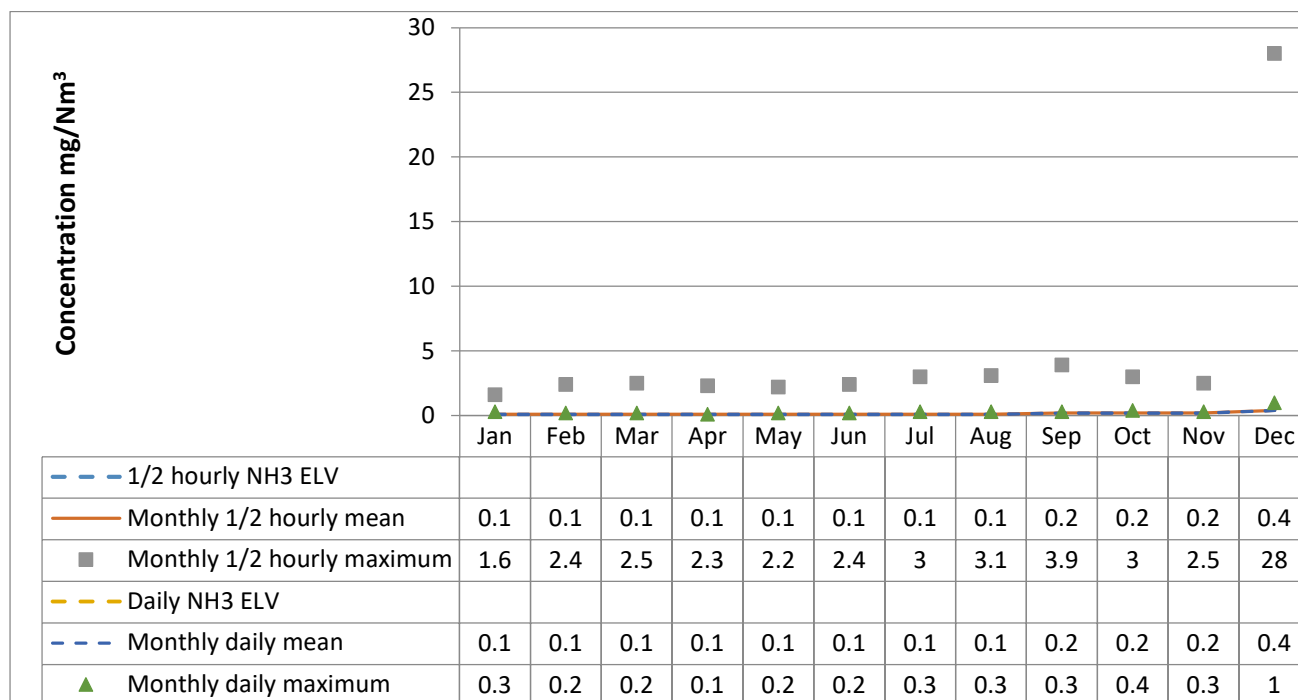
Monthly Emissions
Summary Inc Half-Hr



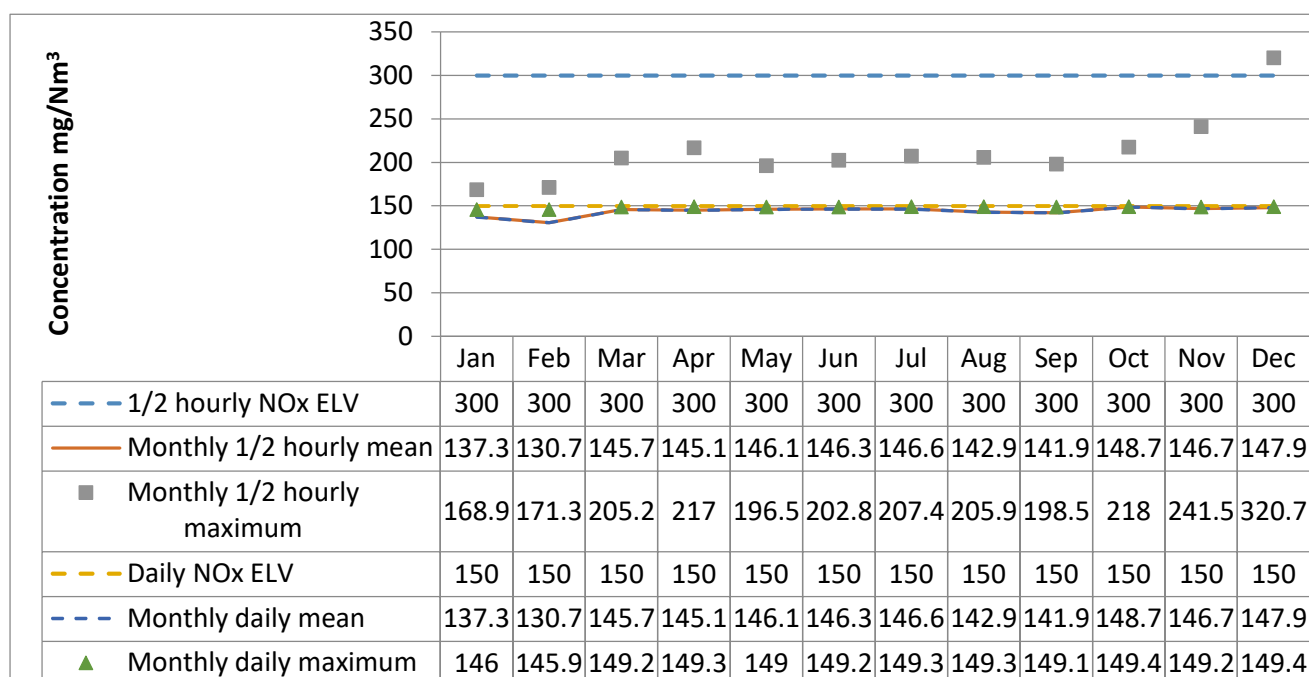
Monthly Emissions
Summary Inc Half-Hr

Line A – Ammonia

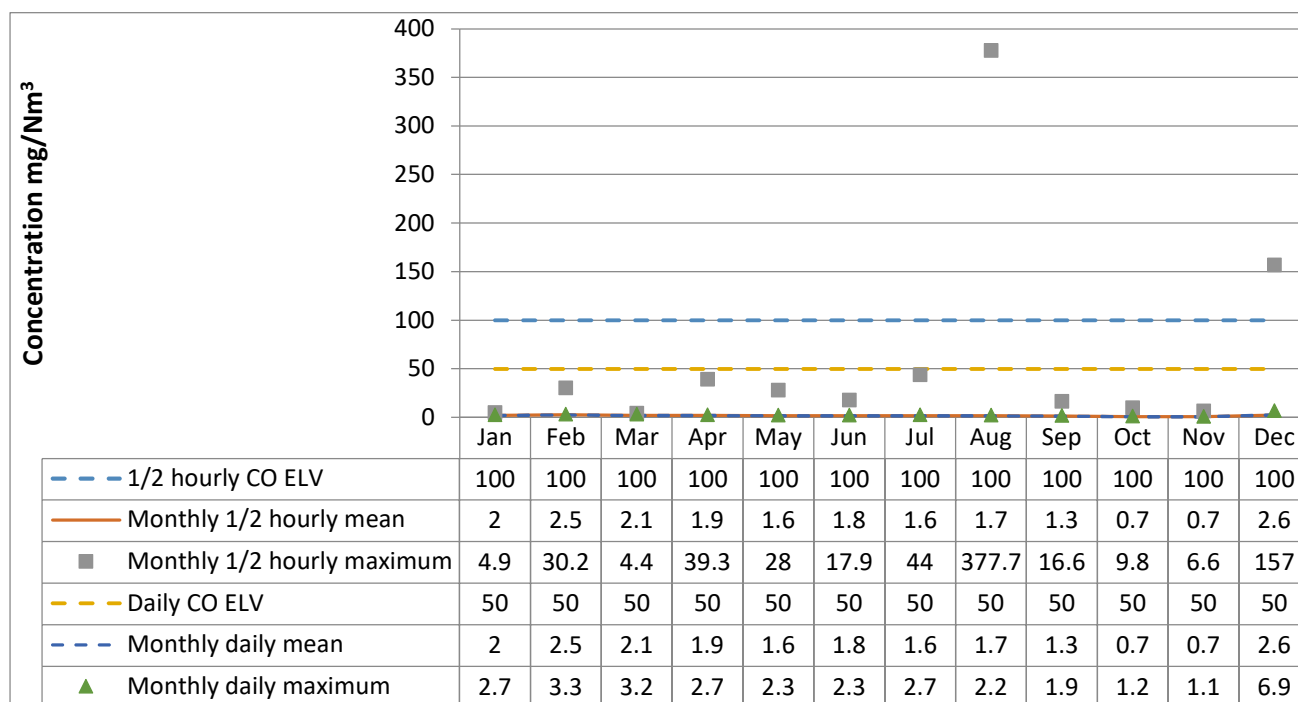
(Please note there is no ELV for ammonia)



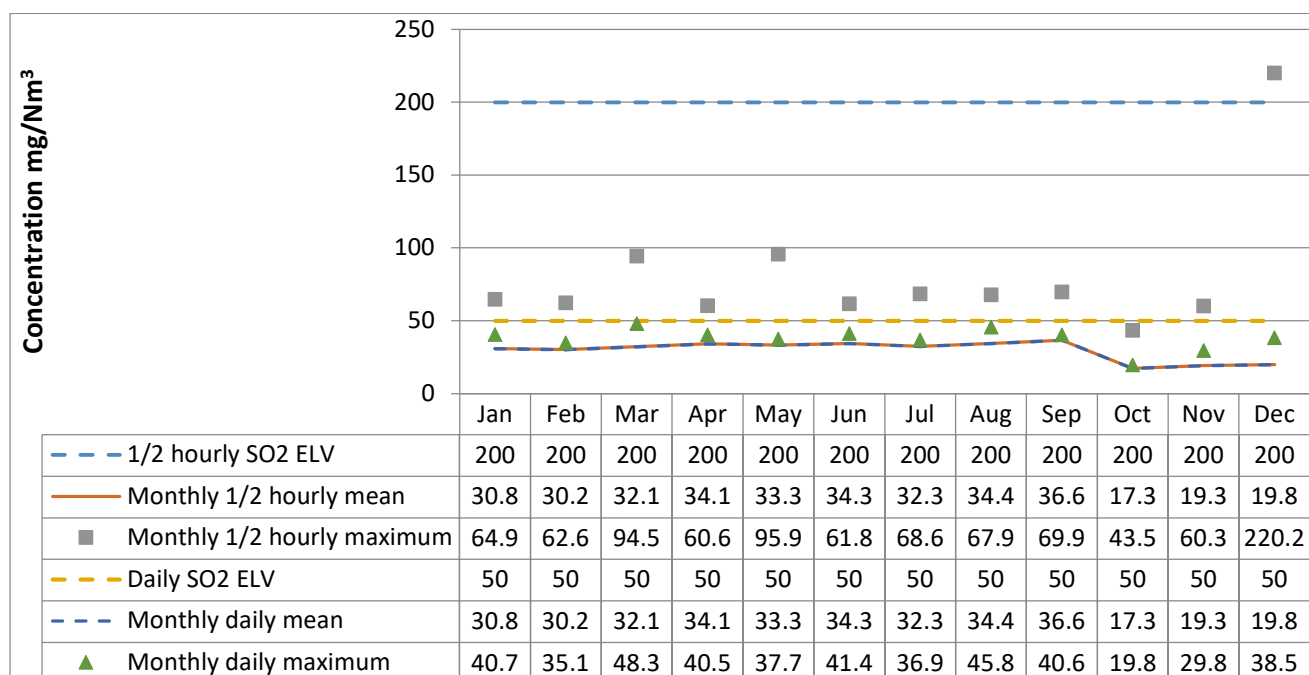
Line A – Oxides of Nitrogen



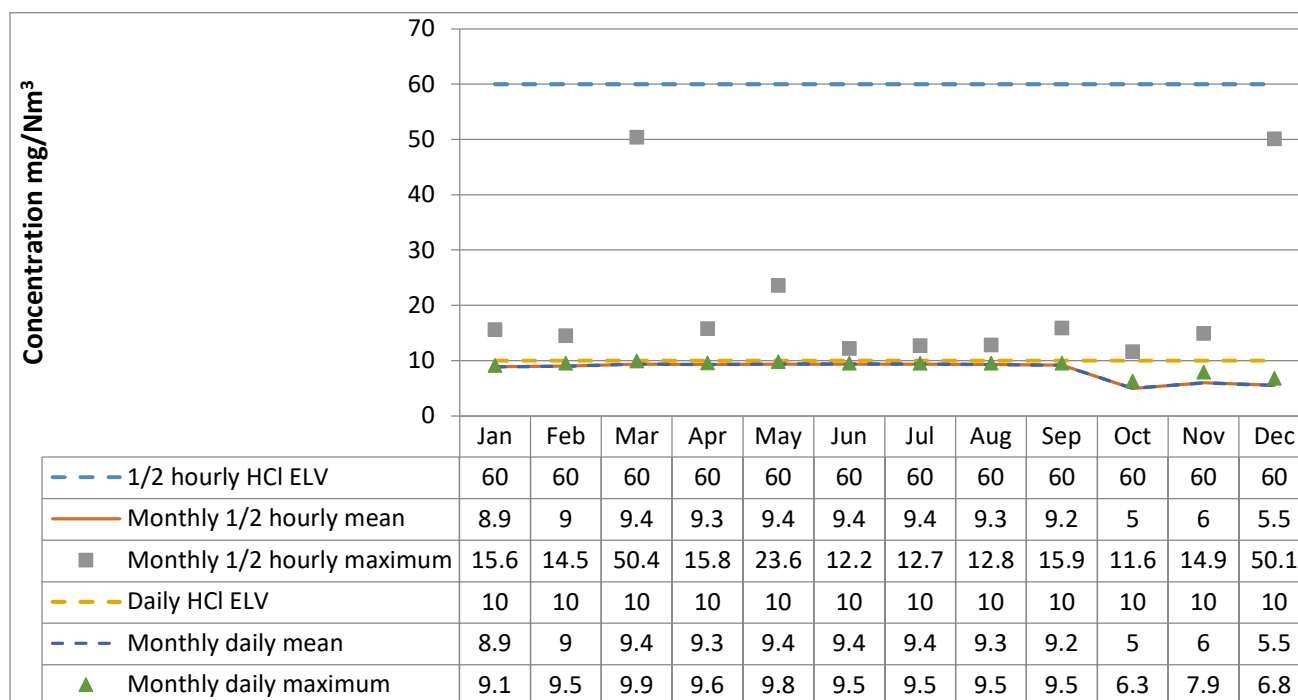
Line A – Carbon Monoxide



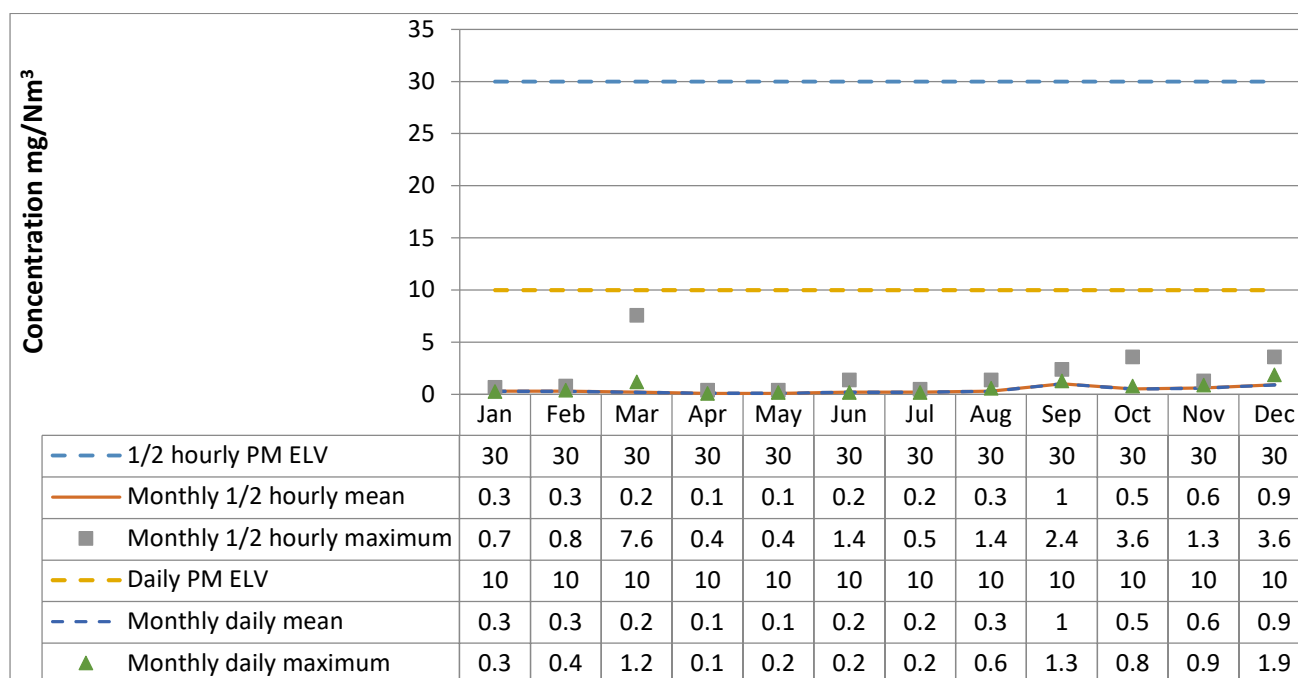
Line A – Sulphur Dioxide



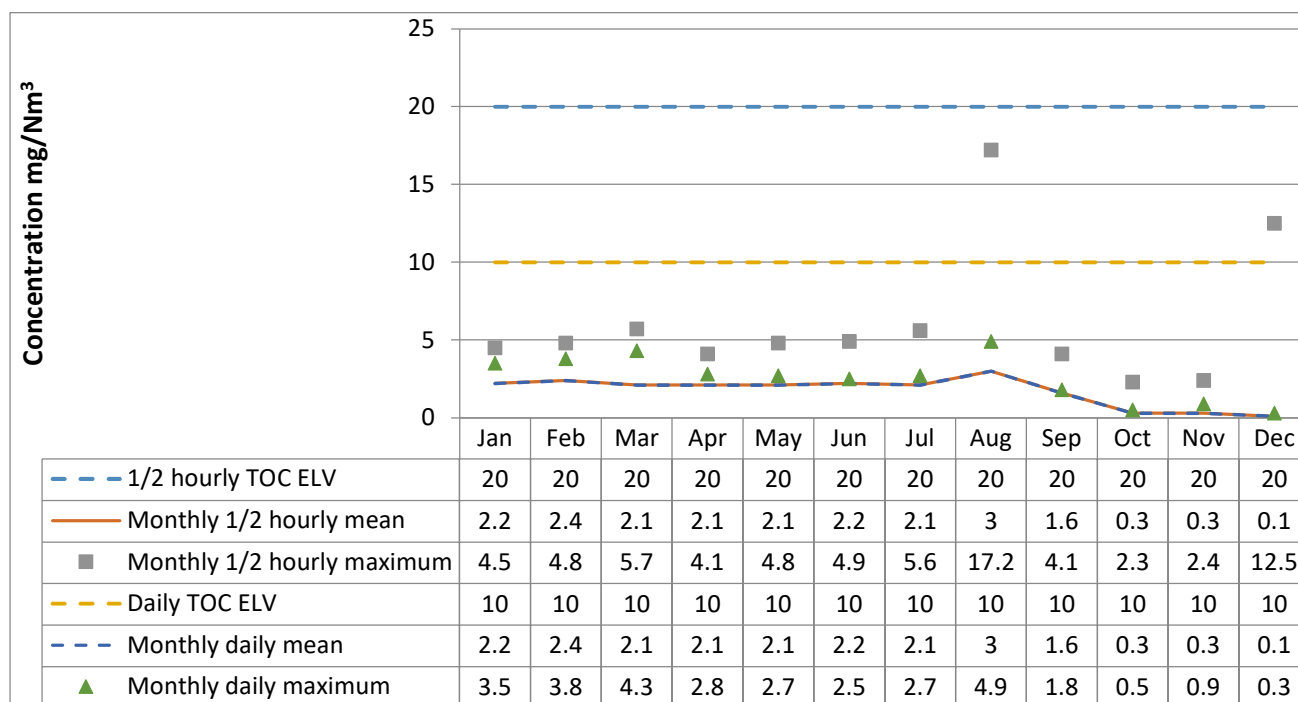
Line A – Hydrogen Chloride



Line A – Particulates

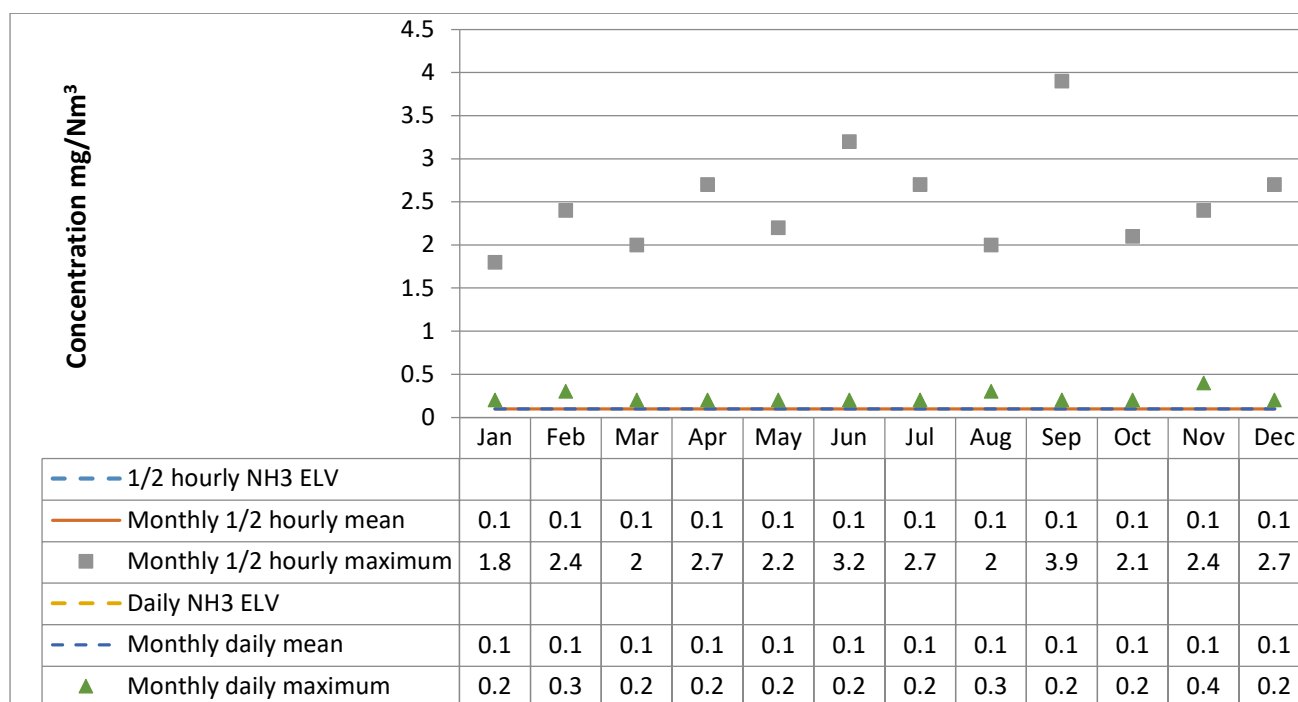


Line A – Total Organic Carbon

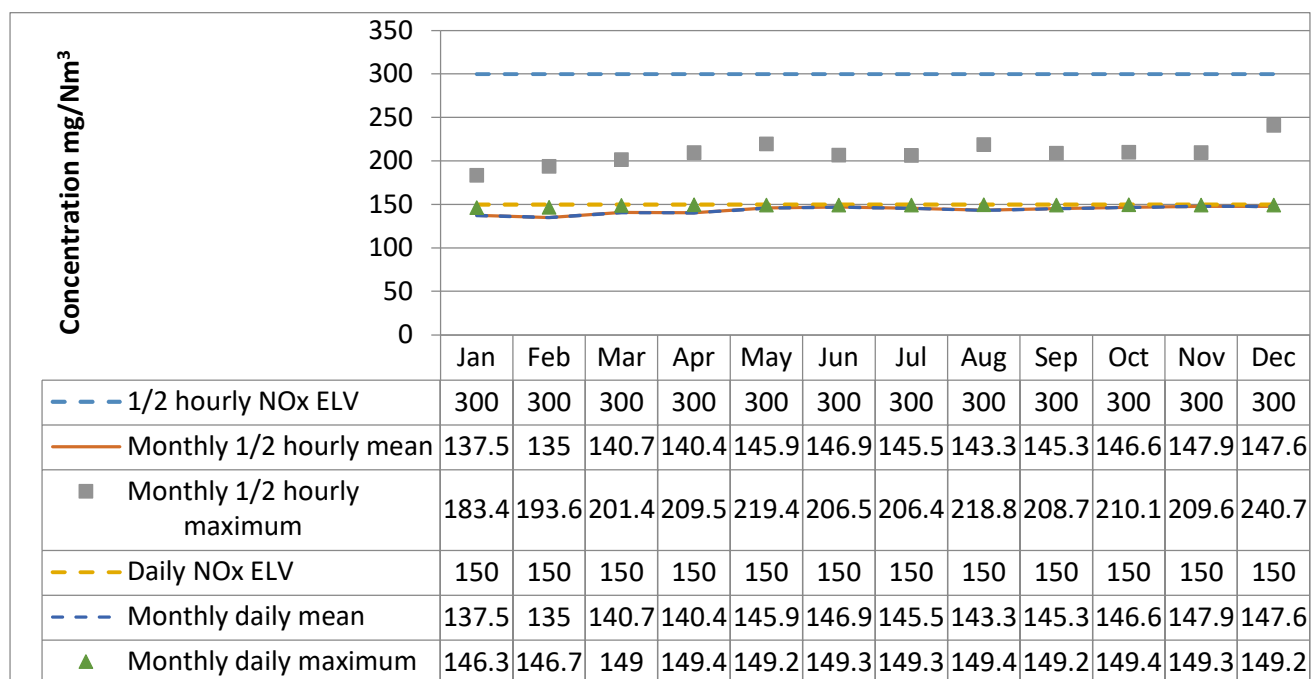


Line B – Ammonia

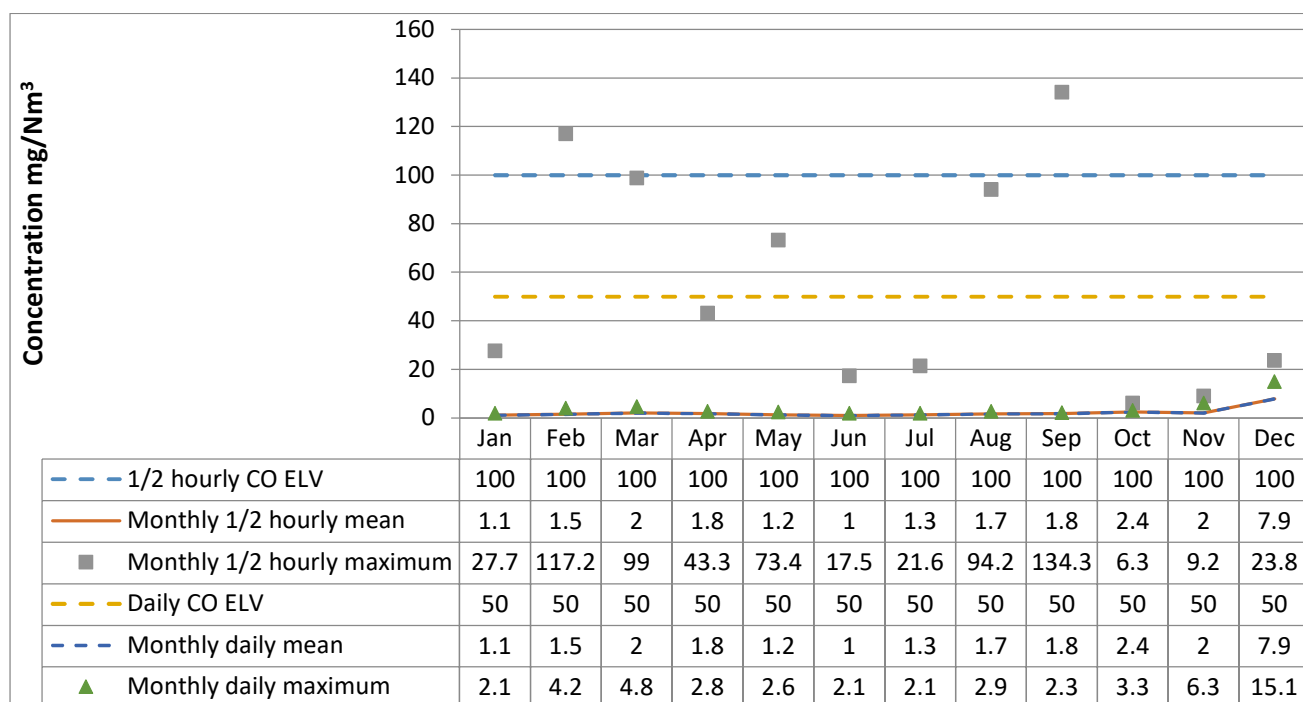
(Please note there is no ELV for ammonia)



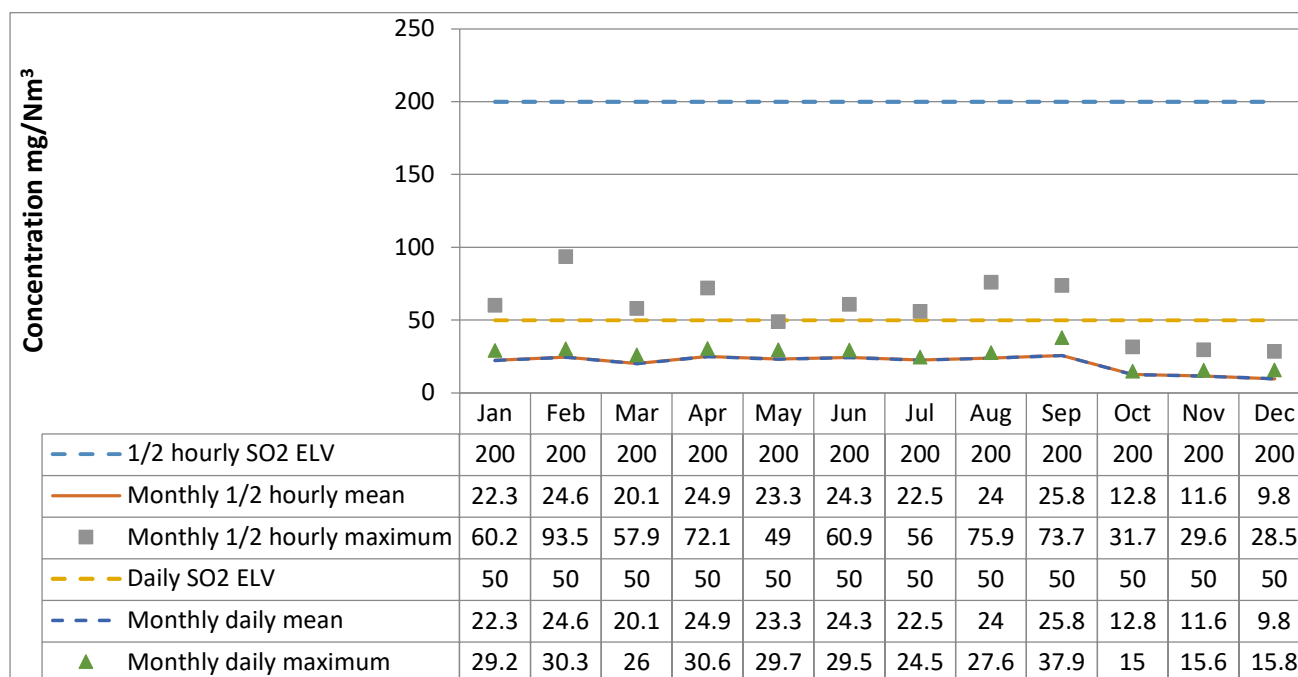
Line B – Oxides of Nitrogen



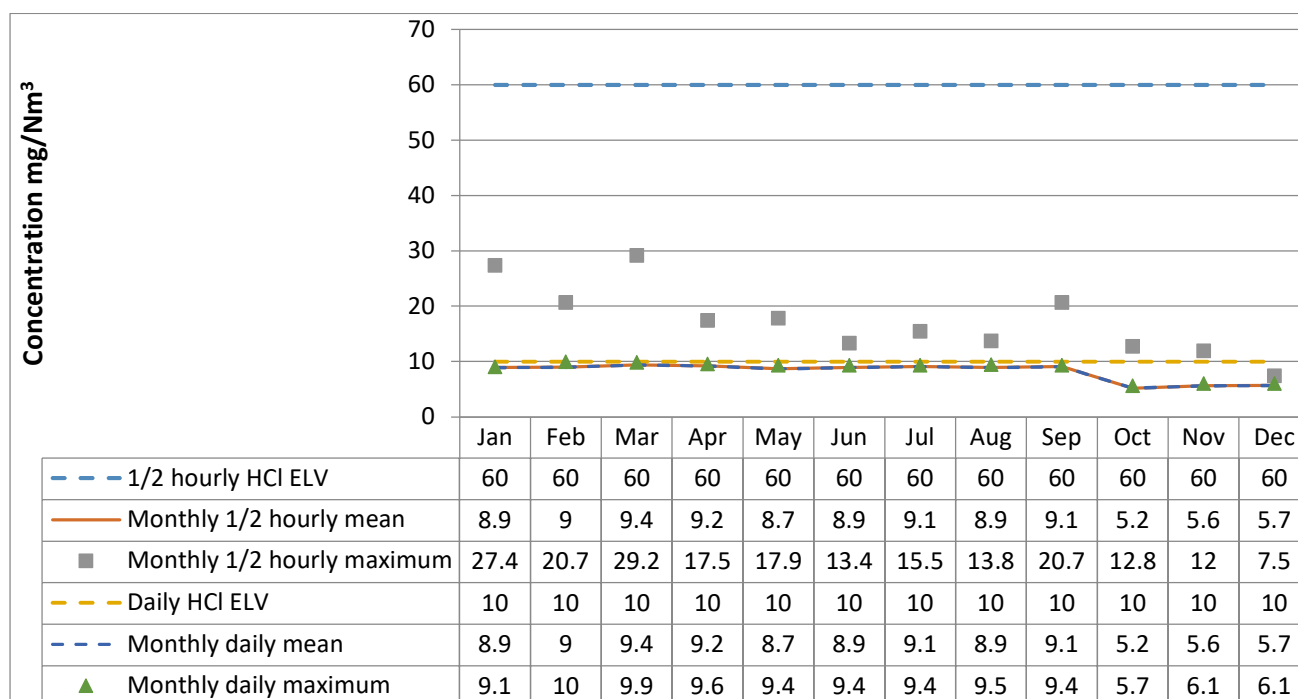
Line B – Carbon Monoxide



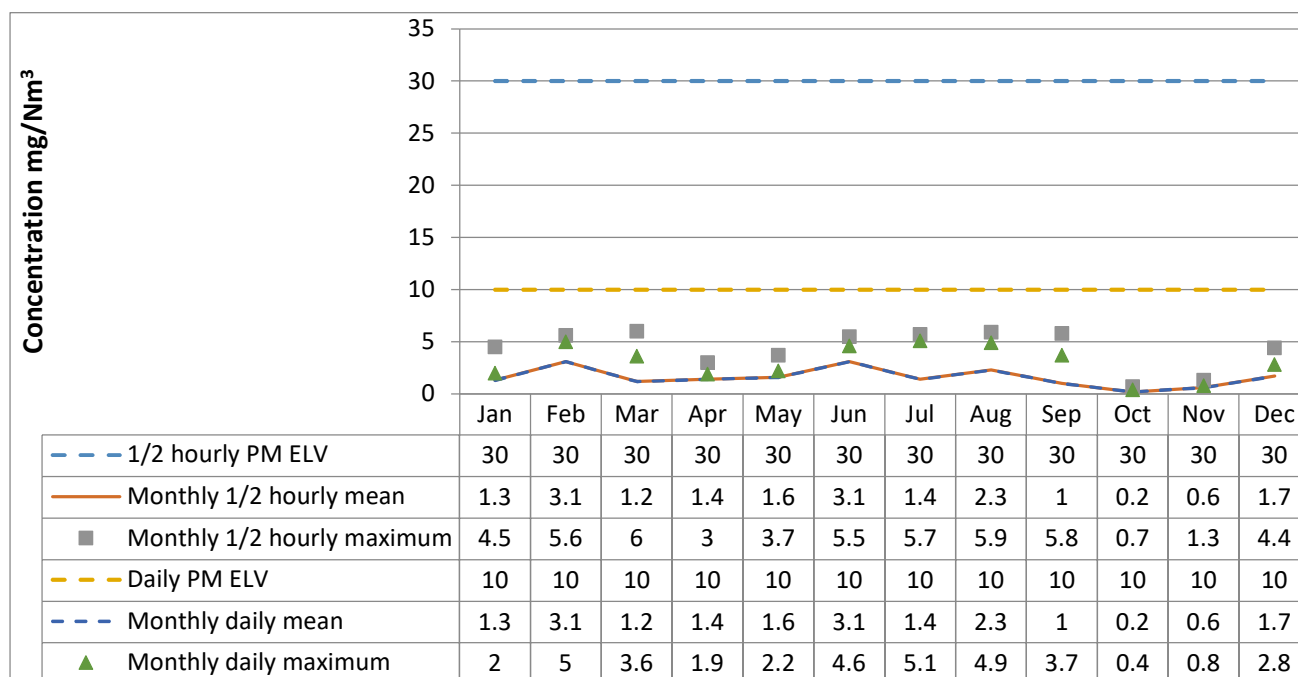
Line B – Sulphur Dioxide



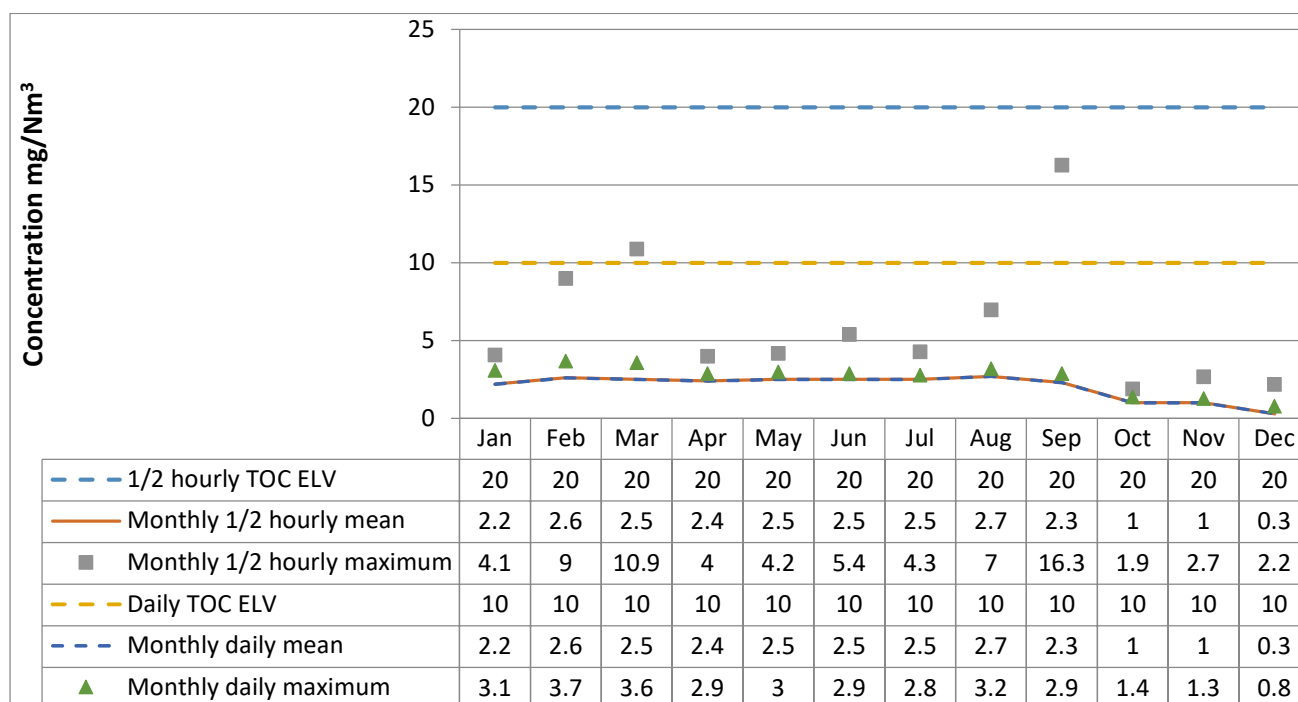
Line B – Hydrogen Chloride



Line B – Particulates



Line B – Total Organic Carbon



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 2021	Jan – Jun 2021	Jul – Dec 2021	Jul – Dec 2021
		Line A	Line B	Line A	Line B
Mercury and its compounds	0.05 mg/m ³	0.0097 mg/m ³	0.0088 mg/m ³	0.0103 mg/m ³	0.0019 mg/m ³
Cadmium & thallium and their compounds (total)	0.05 mg/m ³	0.0007 mg/m ³	0.0017 mg/m ³	0.0000 mg/m ³	0.0000 mg/m ³
Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5 mg/m ³	0.0490 mg/m ³	0.1714 mg/m ³	0.0487 mg/m ³	0.0776 mg/m ³
Dioxins and furans (I-TEQ)	0.1 ng/m ³	0.0196 ng/m ³	0.0085 ng/m ³	0.0190 ng/m ³	0.0610 ng/m ³
Hydrogen Fluoride	1 mg/m ³	0.00 mg/m ³	0.30 mg/m ³	0.00 mg/m ³	0.00 mg/m ³

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
08/02/21	Notification. 1 x CO half-hourly exceedance.	A high combustion temperature triggered an immediate shutdown of the system, stopping the combustion fans from operating, resulting in a CO spike for a short period.	Prior to conducting this online maintenance task in the future, the quantity of fuel on the grate will be reduced so that the combustion temperatures remain lower with the inclusion of the additional primary air.
06/07/21	Notification. Cyber attack.	A cyber attack took place at 00:45 on 6th July 2021 whereby someone was able to gain access to the CEMs pc, and proceeded to disable all anti-virus and firewall protection before successfully downloading and running a virus software application. This software encrypted all files on the CEMs pc and both DSU's with the MAKOP extension virus and as a result the CEMs pc became unusable. A message was left on the pc stating that the only way to recover the encrypted data would be by paying a ransom to receive the decryption software. All data since the last known backup on 23rd March 2021 had been lost due to the encryption, however the WID reports had recently been compiled up to and including June so evidence of	The network cables allowing any form of internet access were disconnected prior to installing the spare CEMs pc to ensure that no future cyber attacks could take place. Our I.T. support company attended site on 6th July to check the network system for weaknesses, upgrading the router firmware and removing redundant or unexplained users from having access. An I.T. specialist is currently attempting to decrypt the encrypted files and data however the likelihood of this being successful is low. They will also be offering advice on how to ensure that our systems remain as safe as possible for the future to reduce the likelihood of a cyber attack reoccurring. Backups of the data will now be taken monthly at a minimum.

		the emissions levels until the end of June remains. Unfortunately all data providing proof of emissions levels from 1st July to 6th July inclusive has been lost.	
20/08/21	Notification. 1 x CO half-hourly exceedance.	During start-up of Line A, smouldering fuel suddenly ignited on the grate causing an unexpected increase in combustion temperature.	Update SOP for starting up a line to state the suggested initial fuel feed rate into the combustor. Additional training for Technicians in the starting up and shutting down of a line allowing them to confidently stand in for an STL when required.
18/09/21	Notification. 1 x CO half-hourly exceedance.	A large quantity of furnace slagging dislodged itself from the refractory walls of the first cyclone, falling onto the grate of the combustor. This resulted in a restriction of the air flow through the system, a decrease in O2 levels and a subsequent increase in CO. The line was immediately shutdown to remove the fallen slagging from the system.	We currently introduce an anti-slugging material into the system but this is downstream from the area that this slagging and fouling had built up, and it was already our intention to relocate the introduction point for this material during the annual outage to a location upstream of the slagging we have been observing, so we will proceed with doing as we had planned.
22/12/21	Notification. 1 x 30 minute abnormal operation.	The urea pump on Line A failed, this was swapped immediately with the spare pump	Failed pump replaced with spare pump.
25/12/21	Notification. 1 x CO half-hourly exceedance.	Furnace slagging dislodged itself from refractory walls from the first cyclone falling onto the furnace grate. This resulted in a restriction of airflow through the system, a decrease in O2 levels and a subsequent increase in CO. There was no need to	Possibility to relocate the entry point for the introduction of the anti-slugging material to a position downstream from the existing entry point, this will be looked at during the next suitable outage period.

		shutdown as it broke up when it landed on the grate and was removed via the automated ash removal system.	
28/12/21	Notification. 1 x 30 minute abnormal operation.	Communications had failed between the PC running CEMForm and the PC running Scada. This went unnoticed and resulted in the introduction of Sodium Bicarbonate not increasing to abate an increase of SO2. No further occurrences after the PC running CEMForm was rebooted.	PC & software rebooted.

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
04/02/21	Particularly loud noise heard	Unknown, no link to a known issue or a change in the sites operation	Part of an ongoing noise investigation
22/02/21	Noise over the weekend	Unknown, no link to a known issue or a change in the sites operation	Part of an ongoing noise investigation
01/04/21	Noise over two consecutive evenings	Unknown, no link to a known issue or a change in the sites operation. The times and date tied in with major overnight roadworks being carried out nearby	Part of an ongoing noise investigation
28/09/21	Noise recorded for a short period on a single evening	The site was releasing steam for a short period on this evening and was the likely source of noise.	None, this is a safety feature protecting the equipment and occurs infrequently

Date of complaint	Summary of complaint	Reason for complaint including whether substantiated by the operator or the EA	If substantiated, measures to prevent reoccurrence
05/12/21	Noise recorded for a short period over a weekend	The site was releasing steam for a short period over this weekend and was the likely source of noise.	None, this is a safety feature protecting the equipment and occurs infrequently
22/12/21	Noise over a single night and the following morning	Some maintenance was being undertaken by a third party on site which included the use of a mobile compressor, so could have been the source of the noise in the evening but not overnight or the following morning.	None, unsure if the complaint was substantiated and directly linked to our site.

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.
- Installation of a new fuel feed system in Line A. The new system prevents the escape of dust into the plant and provides a more reliable and continuous fuel feed into the combustor.