



Newhaven Energy Recovery Facility
EPR BV8067IL/ V005
Annual Performance Report 2018

This report is required under the Industrial Emissions Directive Article 55(2) requirements on reporting and public information on waste 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 of Company	Veolia ES South Downs Ltd
Name and address of plant	Newhaven Energy Recovery Facility North Quay Road Newhaven East Sussex BN9 0AB
Description of waste input	Mixed Municipal Solid Waste
Operator contact details if members of the public have any questions	01273511310

2. Plant Description

The main purpose of the facility is to incinerate Mixed Municipal Solid Waste (MMSW) as defined by European Waste Catalogue (EWC) code 20 03 01, however up to 30% of the total throughput can be composed of a range of non-hazardous trade waste of a similar nature. Current energy recovery is exclusively in the form of steam and electricity to export to the National Grid, although potential does exist for the provision of community district heating.



The permitted facility covers the site and the entire incineration plant including 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.

Waste Reception & Storage

Waste is delivered into the tipping hall within covered vehicles. The tipping hall is maintained under negative pressure in order to minimise the escape of odours, dust or litter.

The vehicles tip into a waste storage bunker from where the grab cranes transfer waste as required to the feed hopper of the combustion plant.

Combustion Process

Waste is gravity fed onto the incinerator grate which is continually moving thus promoting continuous mixing of the waste with the combustion air, extracted from the tipping hall and introduced from beneath the grate into the heart of the fire eliminating any odours. Further air is injected just above the fire to promote mixing and complete combustion of the gases.

Fuel oil burners are installed for start-up and to maintain the furnace temperature, if required. However, during normal operation no support fuel is required to maintain the minimum 850°C.

Ash from the grate is discharged into a water filled quench pit from where it is moved by conveyor to the enclosed ash storage bunkers prior to being transported off site. All incinerator bottom ash is sent to a local storage facility for onward transportation by rail to an aggregate production site.

Ferrous metals are removed from the ash by magnets and stored separately prior to being sent to a local recycling facility.

Energy Recovery

Hot gases from the combustion of the waste pass through a heat recovery boiler. The temperature of the gases is reduced from over 850°C to around 150°C. The energy from the hot gases is transferred to the boiler to produce high pressure steam at 49bar. This steam is fed to the steam turbine driven generator capable of generating around 19.0 MW of electrical power of which 16,5 MWh are exported to the National Grid.

Gas Cleaning

Whilst in the boiler combustion chamber a metered amount of ammonia solution is injected into the combustion gases to reduce the formation of oxides of nitrogen. Downstream of the boiler, lime is injected into the gas stream to neutralise acid gases produced in the process.

A small quantity of activated carbon is injected to adsorb any residual organic material and heavy metals from the gases.

Prior to release into the air the gases pass through a fabric filter which removes the particulate matter, spent lime and carbon from the gas stream.

Once the gases have been cleaned they are discharged into the atmosphere via two separate 65 metre high stacks.

Water Usage

The plant uses mains water for steam generation after passing through a water treatment plant. The steam is reused in the boiler after being cooled and condensed using air cooled condensers.

The facility also uses mains water in various ways for water injection into the abatement system reactor tower, internal wash downs, tipping hall floor cleaning, but mostly for human domestic use, cooking, showering and sanitation. Any water that is used within the facility other than for domestic washing and cleaning is captured in dedicated drains and directed into a wastewater tank where heavy sediments are removed from the water.

The cleaned water is then re-used within the facility principally for ash quenching, thus limiting the amount of freshwater used and minimising water discharge from the site. External uncontaminated rainwater runoff from the western side flows directly to a river outfall, whilst all other roof and external surface drains run into the full retention interceptor in accordance with BS EN858 and PPG3, then discharge into the river Ouse.

3. Summary of Plant Operation

Municipal waste received	188,954 tonnes
Commercial and industrial waste received	34,859 tonnes
Total waste received	223,813
Total Plant operating hours	Line 1 - 8299 hours Line 2 - 8149 hours
Total hours of "abnormal operation"	0 hours
Total quantity of incinerator bottom ash (IBA) produced	40,600 tonnes
Disposal or recovery route for IBA	R5: recycling of inorganic materials
Did any batches of IBA test as hazardous?	No

Total quantity of air pollution control (APC) residues produced.	6,701 tonnes
Disposal or recovery route for APC residues	D9: physico-chemical treatment resulting in final compounds which are then discarded
Total electricity generated for export to National Grid	126,085 MWh

The site generated 145,021 MWh of electricity during 2018. After subtracting on site power usage, 126,085 MWh of electricity was exported to the National Grid, providing enough electricity to power approximately 25,000 homes.

Incinerator Bottom Ash (IBA) is collected by an aggregate recycling company and placed into a storage facility, adjacent to the ERF, for onward transport via rail for further reprocessing.

Ferrous metal is removed from the IBA and collected by a local metal recycler for further processing.

Air Pollution Control residue (APCr), is removed from the flue gases by the fabric filter, collected in a storage silo and then sent in sealed tankers by road to a specialised Veolia treatment works (Empire). At this licensed site, the residue is used to treat spent acid wastes and then sent for safe disposal at a licensed landfill site.

4. Summary of Plant Emissions

4.1 Summary of continuous emissions monitoring results for emissions to air

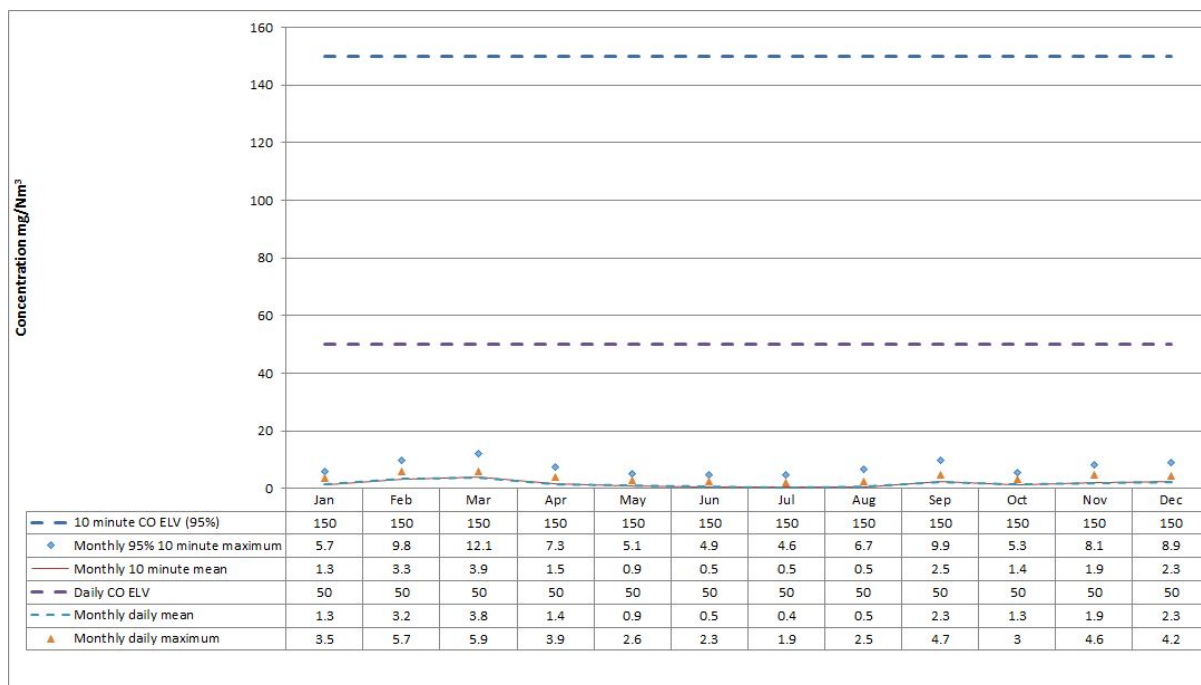
All emissions to air from the 65m high twin stacks are controlled to meet the emission limits included in the IED Permit. The flue gases released into the atmosphere are continuously monitored using Continuous Emissions Monitoring System (CEMS) for particulate matter, hydrogen chloride, oxides of nitrogen, carbon monoxide, sulphur dioxide, total organic carbon and ammonia. During 2018 the CEMS monitoring equipment was in service at all times and fully operational with the ERF remaining compliant within IED limits at all times.

The following charts show the performance of the plant against its Emission Limit Values (ELVs) for substances that are continuously monitored.

Line 1 - Nitrogen Oxides

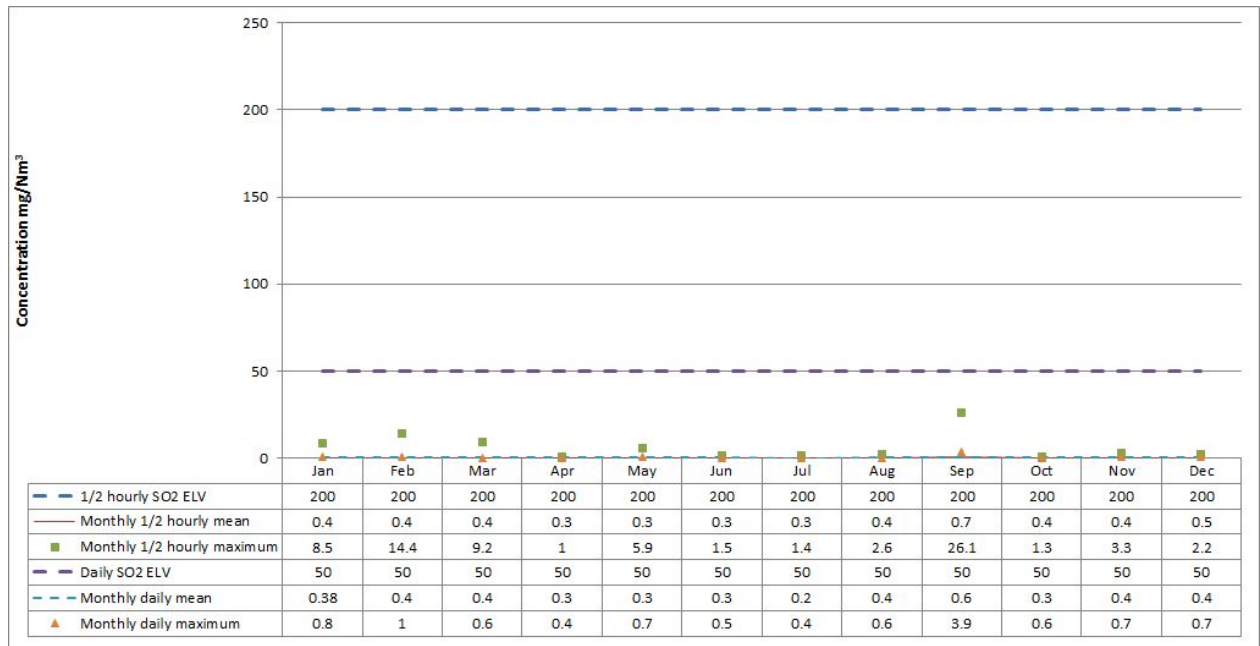


Line 1 - Carbon Monoxide

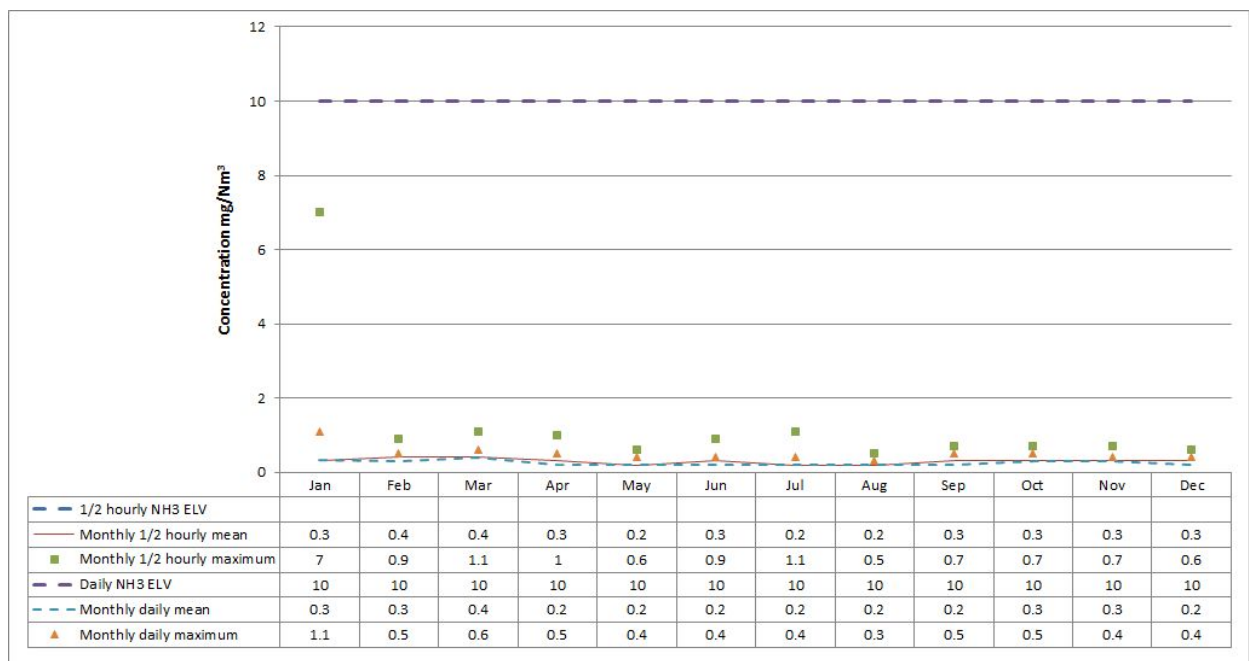


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Monthly 10 minute maximum (mg/Nm3)	91.7	49.6	68.4	73.5	192.8	144.7	292	90.6	40.8	278	75	72.8

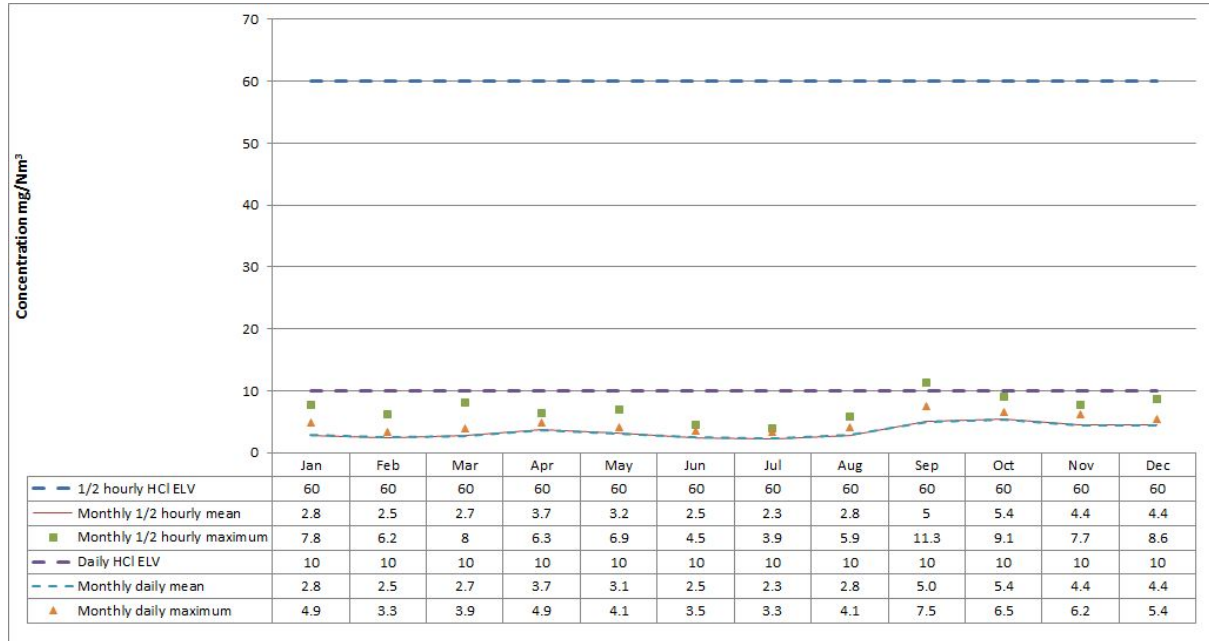
Line 1 - Sulphur Dioxide



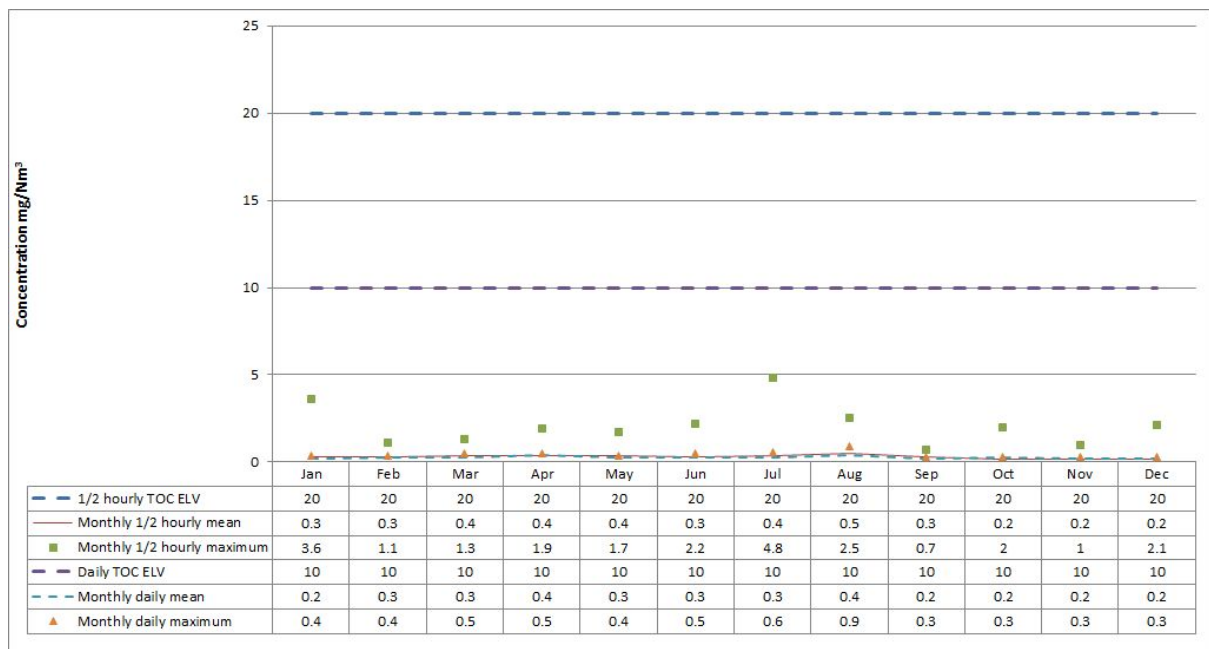
Line 1 - Ammonia



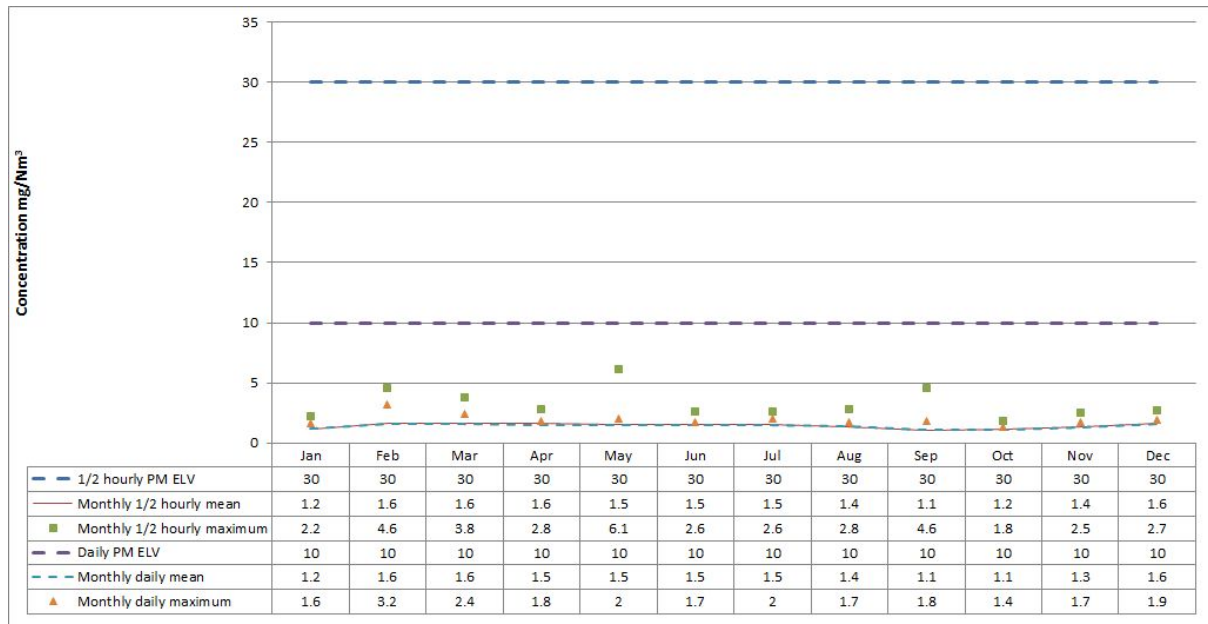
Line 1 - Hydrogen Chloride



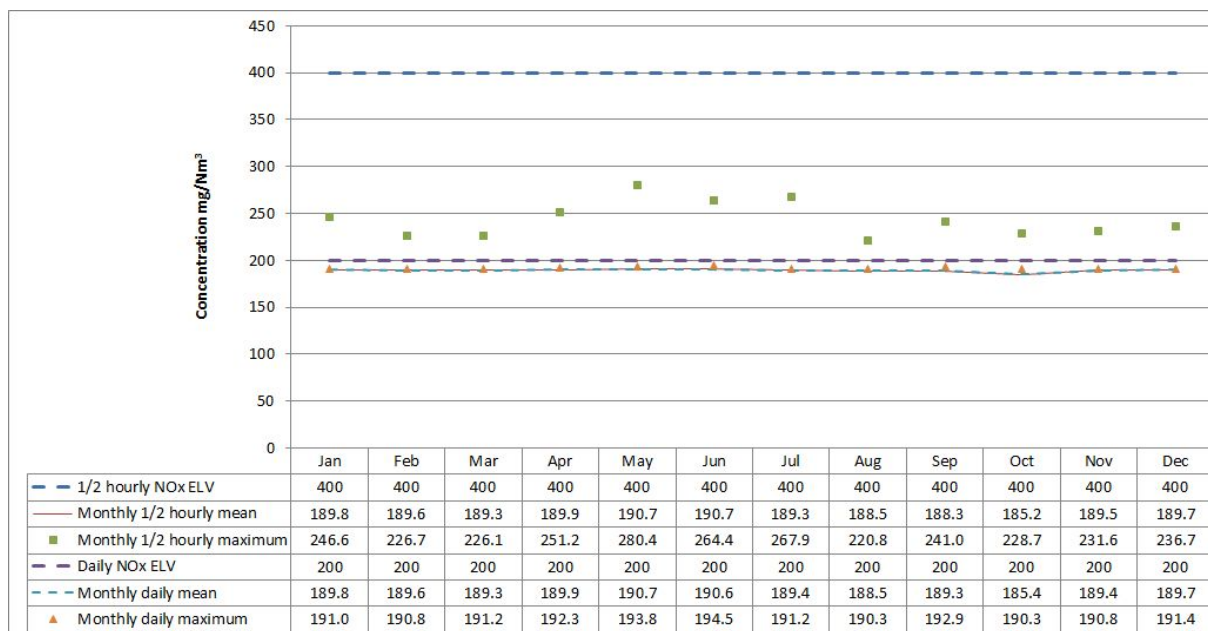
Line 1 - Total Organic Carbon



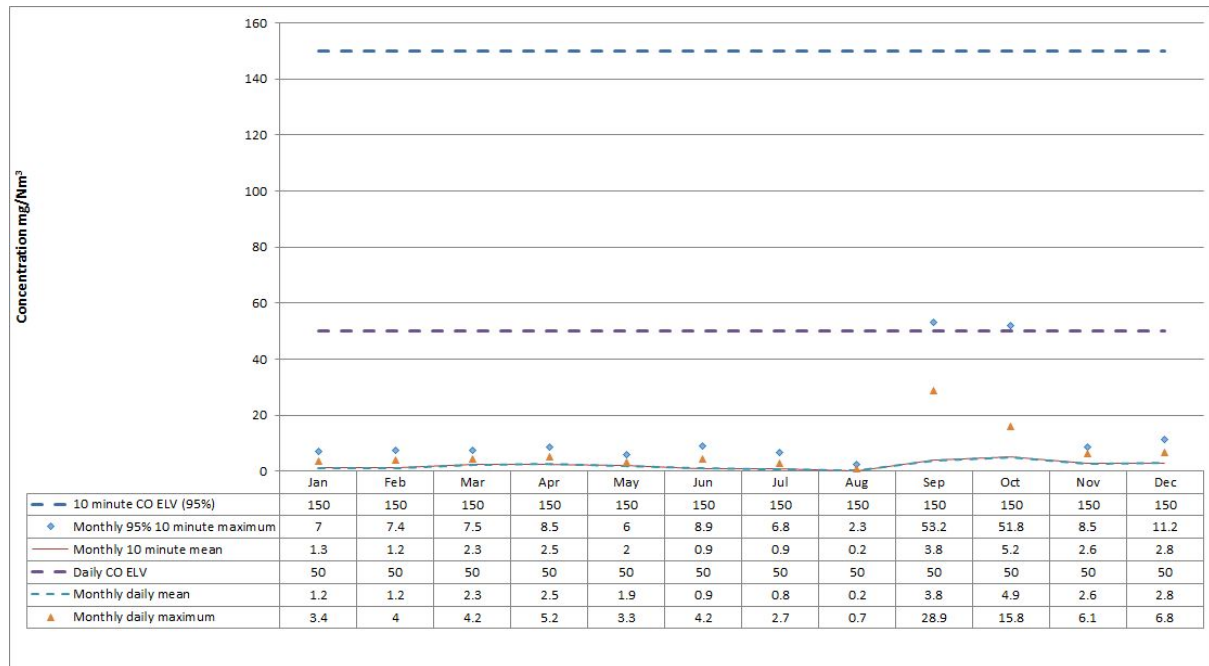
Line 1 - Particulates



Line 2 - Nitrogen Oxides

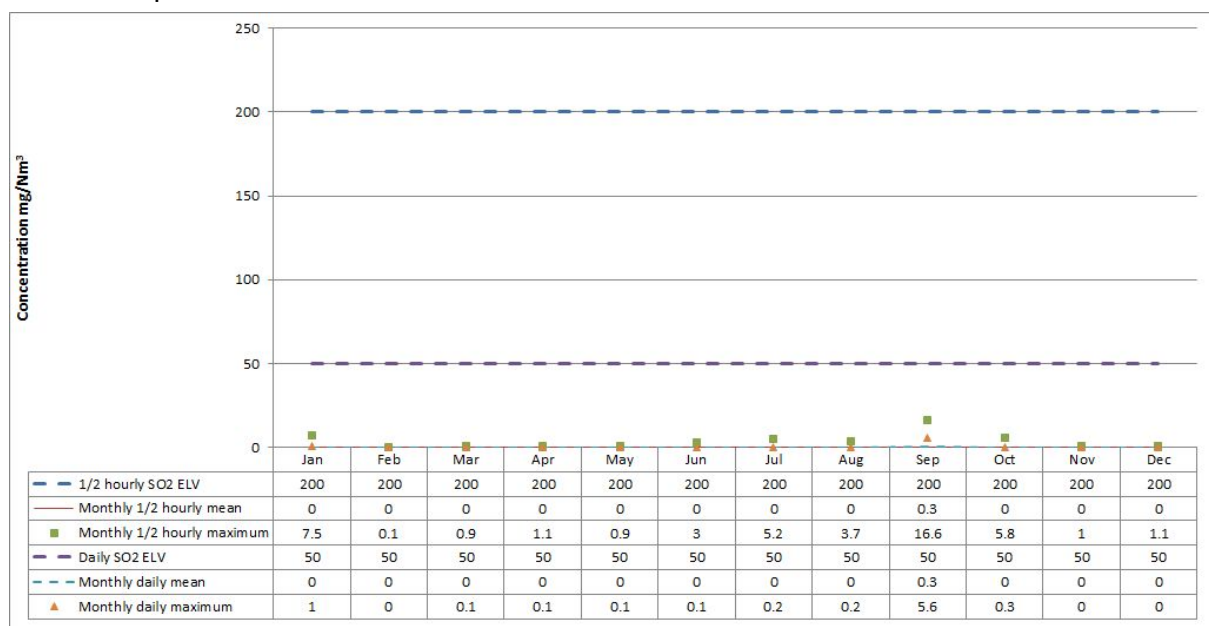


Line 2 - Carbon Monoxide

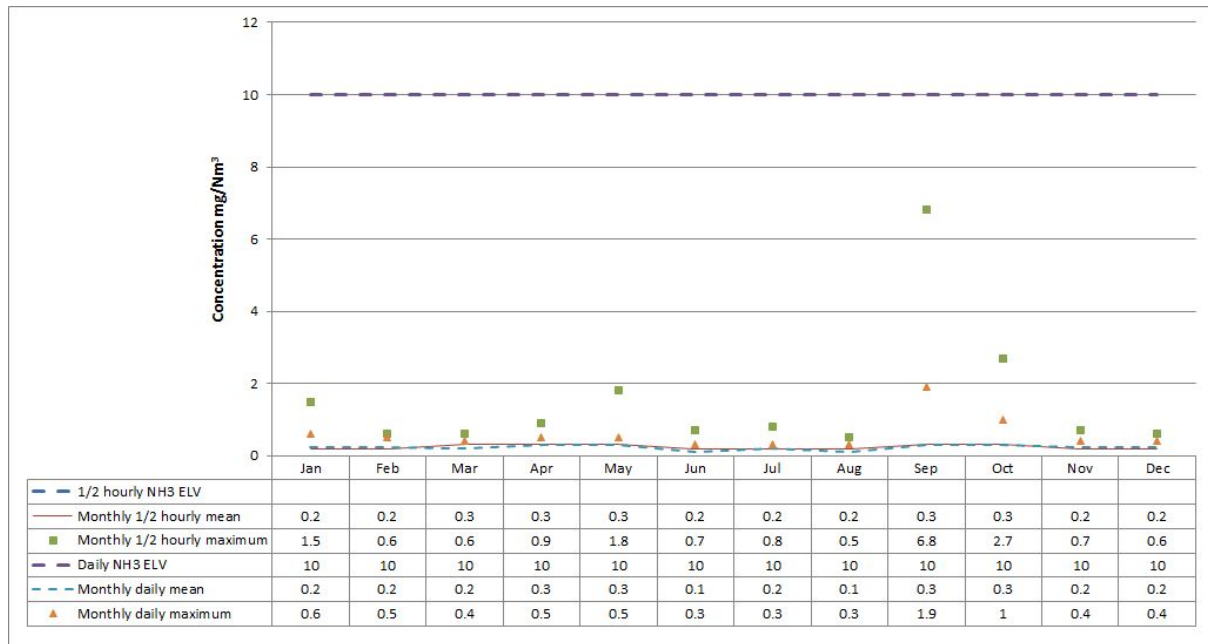


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Monthly 10 minute maximum (mg/Nm3)	17.7	30.3	50.4	128.6	24.4	106.3	42.2	35.8	386.6	245	34.1	34.5

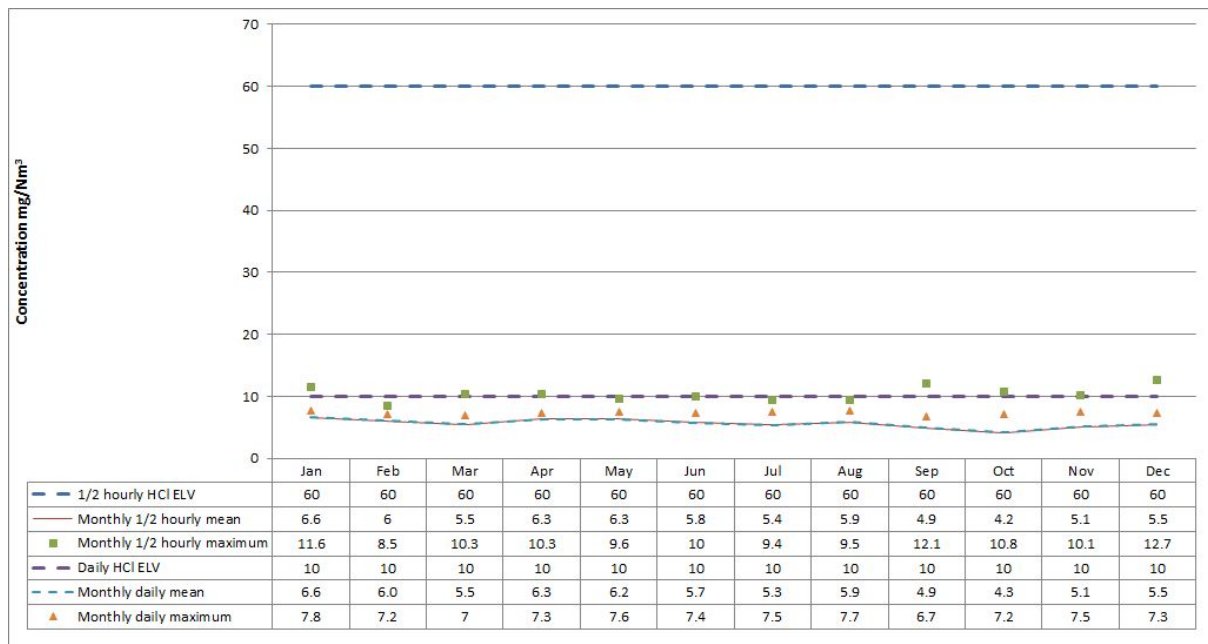
Line 2 - Sulphur Dioxide



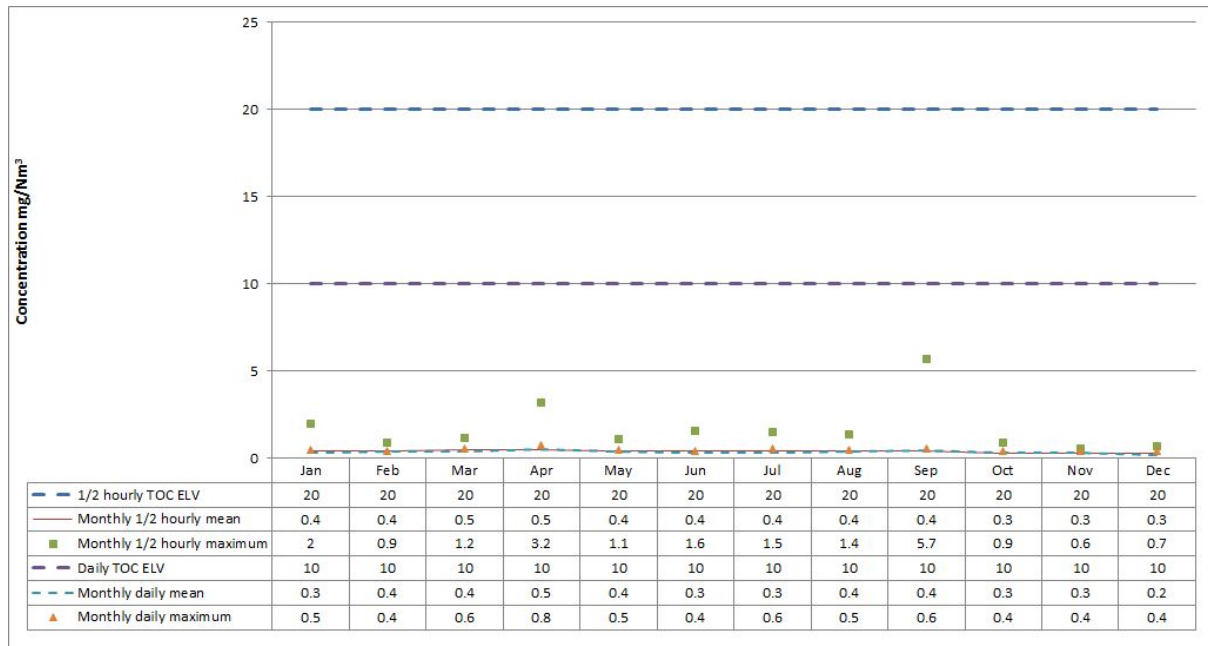
Line 2 - Ammonia



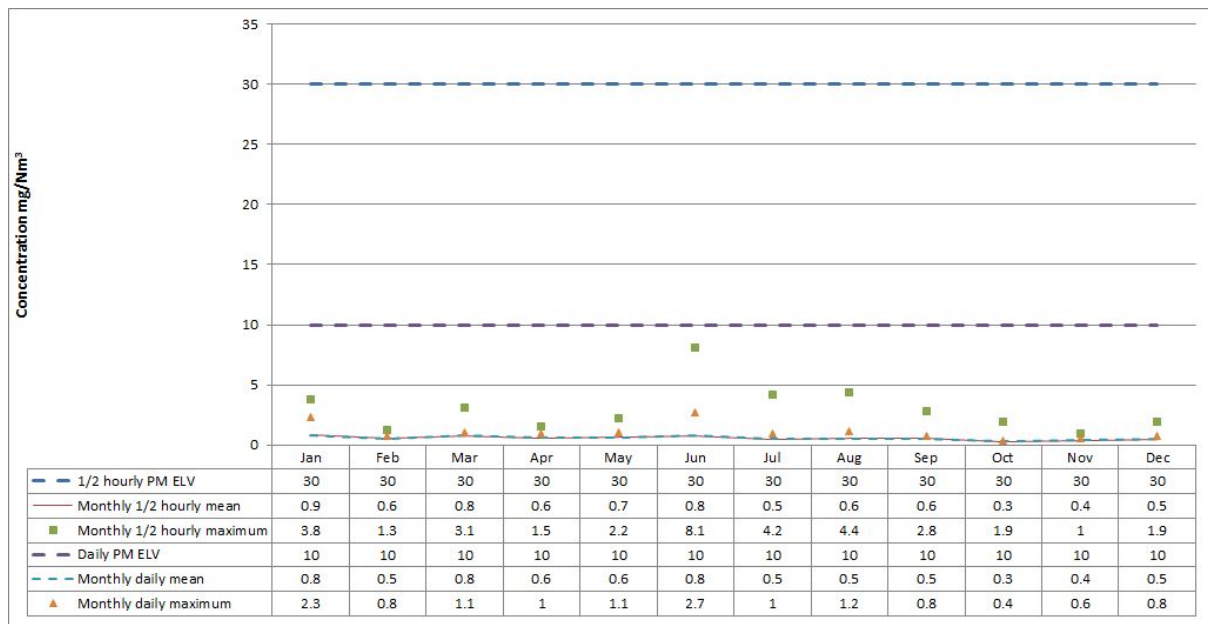
Line 2 - Hydrogen Chloride



Line 2 - Total Organic Carbon



Line 2 - Particulates



4.2 Summary of periodic monitoring results for emissions to air

The table below shows the results of periodically monitored substances.

Substance	ELV	Results - Period from 1st January to 30th June				
		Line 1	Date		Line 2	Date
Mercury and its compounds	0.05 mg/m ³	0.00042 mg/m ³	8/02/18		0.0010 mg/m ³	7/02/18
Cadmium & Thallium and their compounds (total)	0.05 mg/m ³	<0.00086 mg/m ³	8/02/18		0.00067 mg/m ³	7/02/18
Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5 mg/m ³	0.028 mg/m ³	8/02/18		0.031 mg/m ³	7/02/18
Dioxins and furans (I-TEQ)	0.1 ng/m ³	0.0010 ng/m ³ (upper limit)	21/02/18		0.00051 ng/m ³ (upper limit)	20/02/18
Hydrogen Fluoride	2 mg/m ³	< 0.036 mg/m ³	20/02/18		<0.040 mg/m ³	21/02/18
Substance	ELV	Results - Period from 1st July to 31st December				
		Line 1	Date		Line 2	Date
Mercury and its compounds	0.05 mg/m ³	0.0005 mg/m ³	4/12/18		0.0008 mg/m ³	4/12/18
Cadmium & Thallium and their compounds (total)	0.05 mg/m ³	0.013 mg/m ³	4/12/18		0.002 mg/m ³	4/12/18
Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5 mg/m ³	0.020 mg/m ³	4/12/18		0.019 mg/m ³	4/12/18
Dioxins and furans (I-TEQ)	0.1 ng/m ³	0.0044 ng/m ³ (upper limit)	5/12/18		0.0025 ng/m ³ (upper limit)	6/12/18
Hydrogen Fluoride	2 mg/m ³	0.040 mg/m ³	5/12/18		0.075 mg/m ³	6/12/18

4.3 Summary of monitoring results for emissions to water

There are no emissions to water from the process other than surface water runoff.

5. Summary of Permit Compliance

5.1 Compliance with permit limits for continuously monitored plants

Strict environmental controls and proven operating experience greatly assists in the facility remaining compliant within the conditions of its IED 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 2018 Newhaven ERF operated at all times within the limits of the IED.

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

During 2018 two notifications were submitted to EA.

Date	Summary of notification	Reason	Measures taken to prevent reoccurrence
30/07/18	Communication issue between the standby analyser and the data recorder whilst the duty analyser was being serviced.	The analyser software stopped recording.	Maintain planned preventative maintenance on all hardware and software packages.
17/10/18	Smouldering waste identified in the back of a waste vehicle prior to entering the building.	No clearly identifiable ignition source could be found.	Continue vigilance of the waste across the sector group including all storage locations, waste in transit and final destinations. This will ensure that potential source of ignition are managed appropriately.

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

Date of complaint	Summary of complaint	Reason for complaint	If substantiated, measures to prevent reoccurrence
13/02/2018	Local resident report	Odour investigation	Not substantiated
29/06/2018	Local resident report	Odour investigation	Not substantiated
15/08/2018	Local resident report	Odour investigation	Not substantiated
10/09/2018	Local resident report	Odour investigation	Not substantiated
18/09/2018	Local resident report	Odour investigation	Not substantiated
07/10/2018	Megadoor was open on a Sunday for maintenance with EA aware by correspondence.	Enquiry	Not substantiated

No substantiated complaints were received during 2018.

Any complaints received at the facility are recorded and thoroughly investigated by the management team with a full report being kept detailing the outcome of the investigation. All complaints are reviewed monthly by the Veolia Senior Management team and serious incidents are raised at Director level.

6. Summary of Plant Improvements

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

IC11 completed: The operator shall submit the written protocol referenced in condition 3.2.4 for the monitoring of soil and groundwater for approval by the Environment Agency. The protocol shall demonstrate how the operator will meet the requirements of Article 14 (1)(b), 14 (1)(e) and 16(2) of the IED. The procedures shall be implemented in accordance with the written approval from the Environment Agency.

The Newhaven Facility, pre commissioning and throughout the lifetime of the operations of the plant, has established a robust set of soil and groundwater baseline data for the facility. This data is used to monitor the effectiveness and the continued integrity of the pollution prevention infrastructure and provides an early warning sign of any release of polluting substances. The continued collection of data, every 2 years for groundwater and 5 years for soil, will assist in the surrender process and monitor the movement of pollutants in the ground and groundwater beneath the site of the installation. The data will also provide continued evidence that Newhaven ERF is not impacting upon the quality of the groundwater soil.

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.

A variation to amend the carbon monoxide emission limit value from 30 minute averages to 10 minute averages and modernise and consolidate the permit was determined February 2018. There is no resulting environmental impact, 10 minute average assessment periods are a more suitable averaging period for waste incineration activities. No changes have been made to the plant processes.

Summary of any other improvements made to the plant or planned to be made and a summary of the resulting environmental benefits.

Replacement of fluorescent lights with an LED option which are more energy efficient.

Every practicable opportunity to use the heat rejected at the steam condensers for beneficial local use is investigated. To date no cost effective or practicable options have become available. The site will continue to identify all possible opportunities, and investigate the practicalities of its installation. All viable developments will be implemented at the earliest opportunity.



7. Details of any public liaison planned for 2019

Date and time	Description	Location
31.01.2019 at 10:00 am	Community liaison group meeting	Newhaven ERF

If you wish to be involved in the public liaison programme, please contact :

Veolia South Downs

Tel: 08453 550 550 or [click here](#) and send your message.