

# Annual performance report for: LondonEnergy Ltd

Permit Number: EPR/ YP3033BE

Year: 2018

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	LondonEnergy Ltd EcoPark, Advent Way Edmonton London N18 3AG
Description of waste input	<ul style="list-style-type: none"><li>▪ Mixed household waste which arrives in refuse collection vehicles (Municipal Solid Waste – MSW),</li><li>▪ Residual household waste arising from household waste sites (civic amenity wastes),</li><li>▪ Non-hazardous commercial and industrial dry wastes with similar characteristics to household wastes,</li><li>▪ Non-infectious clinical waste, and</li><li>▪ Other non-hazardous non recoverable combustible wastes</li></ul>
Operator contact details if members of the public have any questions	0208 803 1322

## 2. Plant description

The EcoPark Energy Centre consists of 5 boilers, 4 turbines and 4 flue gas treatment streams. The boilers are a rolling grate technology and the plant is equipped with Atmospheric Pollution Control (APC) measures that ensure that the plant conforms to the requirements set out in the Waste Incineration Directive 2000/76/EC (WID) in all respects. In practice, the pollutant abatement technologies applied will limit the emission concentrations to levels below the limit values.

The heat from the process is utilised to generate potentially 40 MW of electricity, of which in excess of up to 80% is exported to the local electricity distribution network, thus saving valuable fossil fuel resources.

The burning process significantly reduces the volume of waste. Ferrous and non-ferrous metals are recycled as is Incinerator Bottom Ash (IBA). The IBA is recycled utilising established methodology for use as a secondary aggregate e.g. for asphalt. The effect of reducing the volume by recovery of this material means that landfill void space is conserved. Equally as important, the use of secondary aggregates reduces the demand upon the quarrying of primary aggregates.

The EcoPark Energy Centre plant operates on a continuous 24-hour basis throughout the year, apart from partial planned and unplanned shutdowns. Incidents that cause unplanned shutdowns are dealt with in accordance with the appropriate planned actions. To offer maximum flexibility to

the Local Authorities waste collection services, and to minimise local impact, particularly during peak traffic times, the facility is permitted to accept waste on a 24-hour basis.

### 3. Summary of Plant Operation

Municipal waste received	510,831 tonnes
Hazardous waste received	0 tonnes
Clinical waste received	470 tonnes
Waste wood (biomass) received	0 tonnes
Refuse-derived fuel received	0 tonnes
Solid recovered fuel received	6,739 tonnes
Other waste received	0 tonnes
Total waste received	518,067 tonnes
Total plant operational hours	7,610 hours (Operational hours is calculated against a total of 8,760 hours per year x 5 boilers = 43,800 hours per year – actual recorded operating hours for 5 boilers combined is 38,051 hours)
Total hours of “abnormal operation” (see permit for definition)	None
Total quantity of incinerator bottom ash (IBA) produced	92,842 tonnes
Disposal or recovery route for IBA	IBA is sent to Ballast Phoenix (EPR/AB3938AN) which is processed to produce IBAA.
Did any batches of IBA test as hazardous? If yes, state quantity	None
Total quantity of air pollution control (APC) residues produced	17,210 tonnes
Disposal or recovery route for APC residues	All APC residues are sent to Castle Environmental for disposal at their hazardous waste disposal sites
Total electricity generated for export to the National Grid	240,259 MWhrs exported to UKPN Distribution System from a total generation of 278,321MWhrs

## 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.

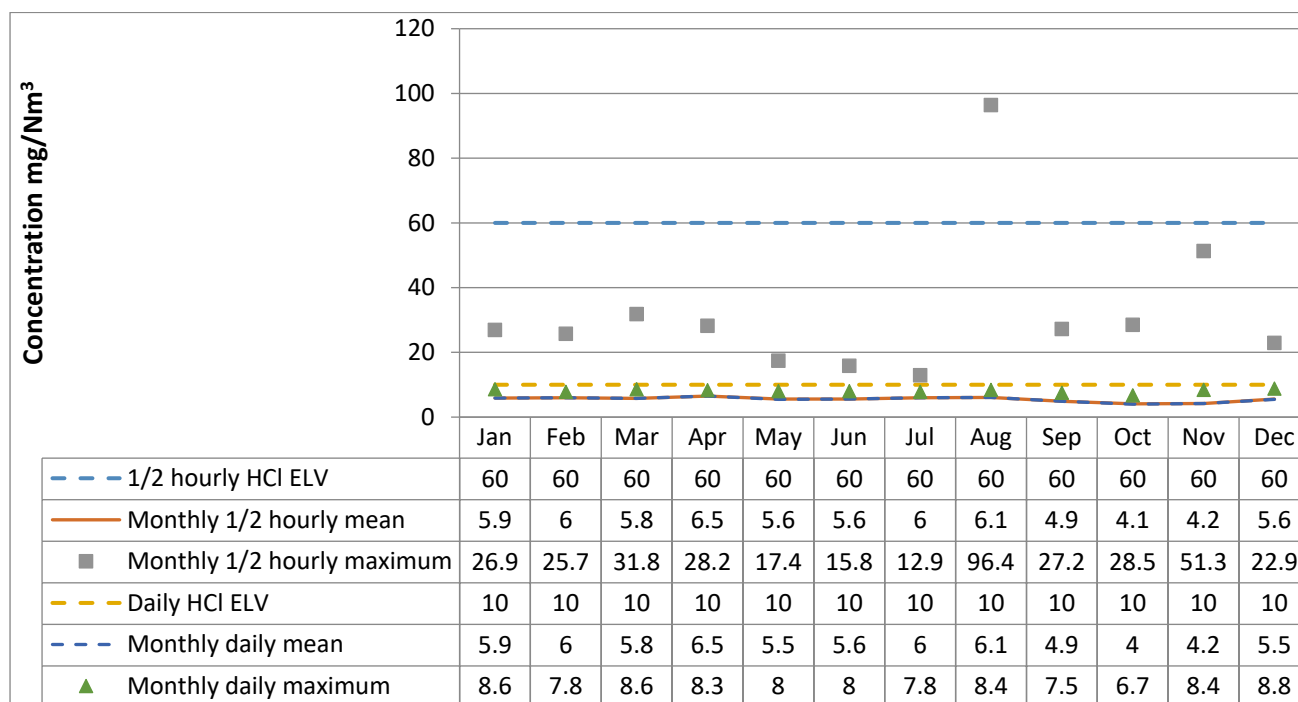


A1.xls

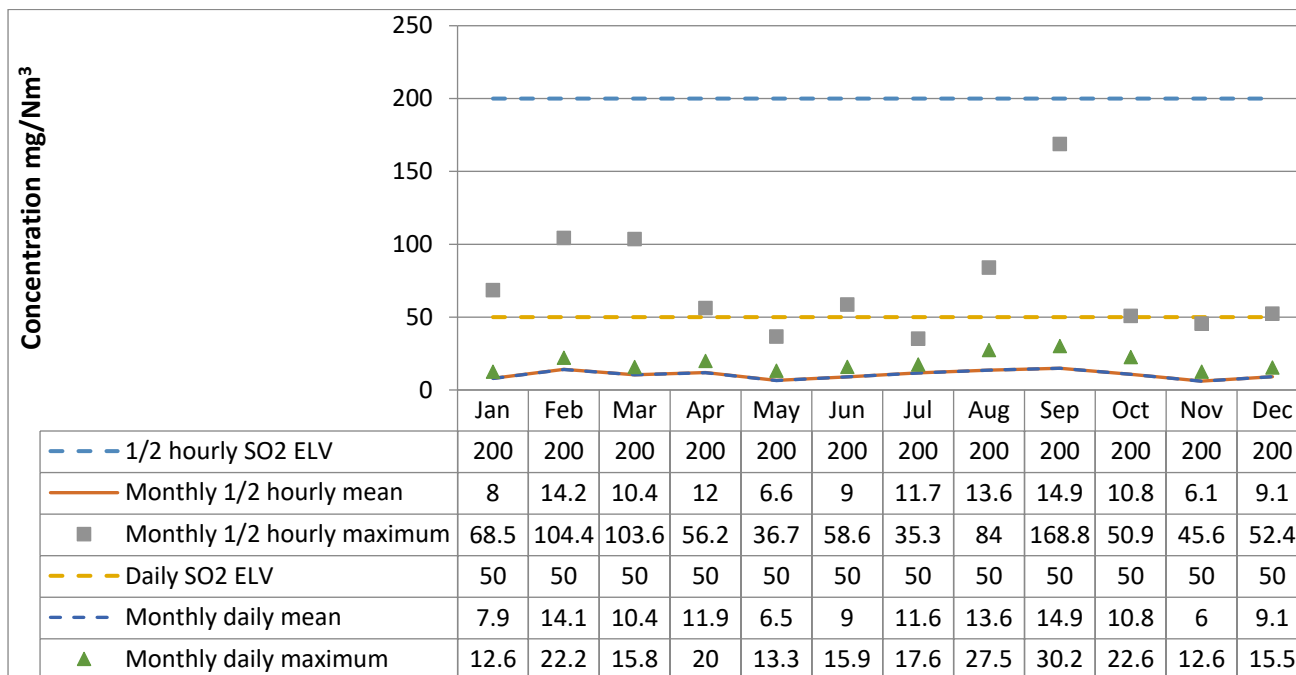


A2.xls

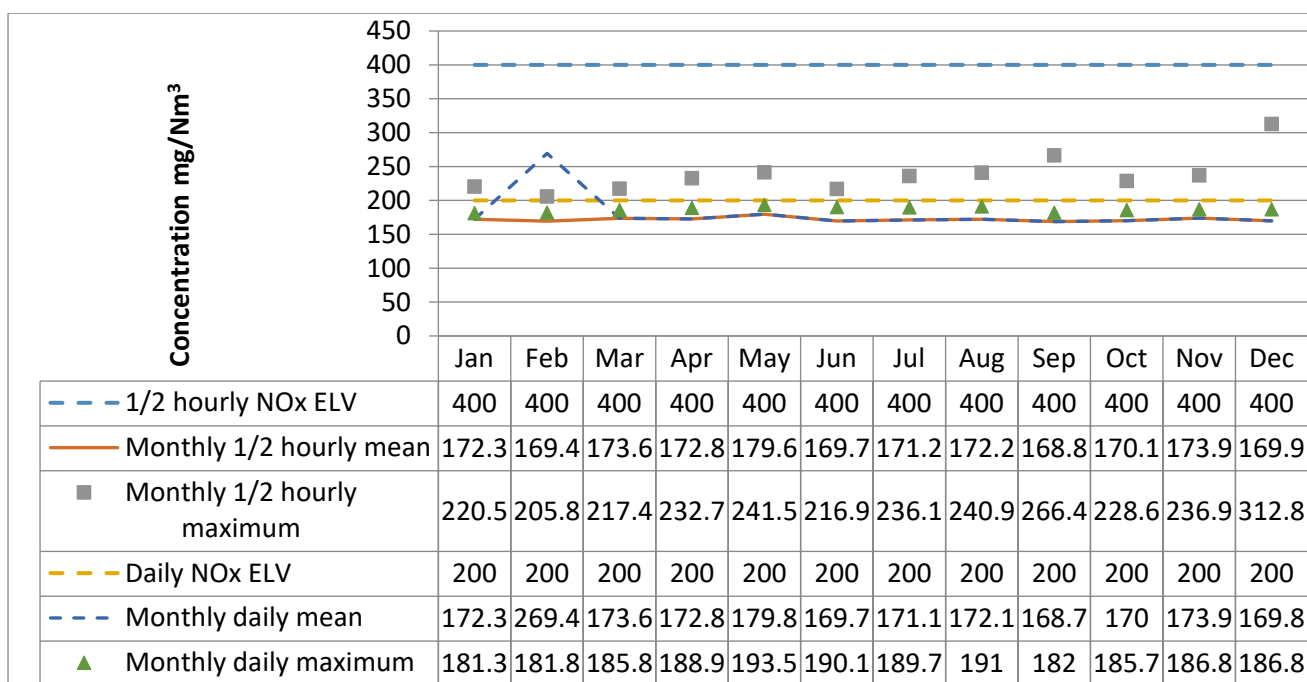
#### Line A1 - Hydrogen chloride



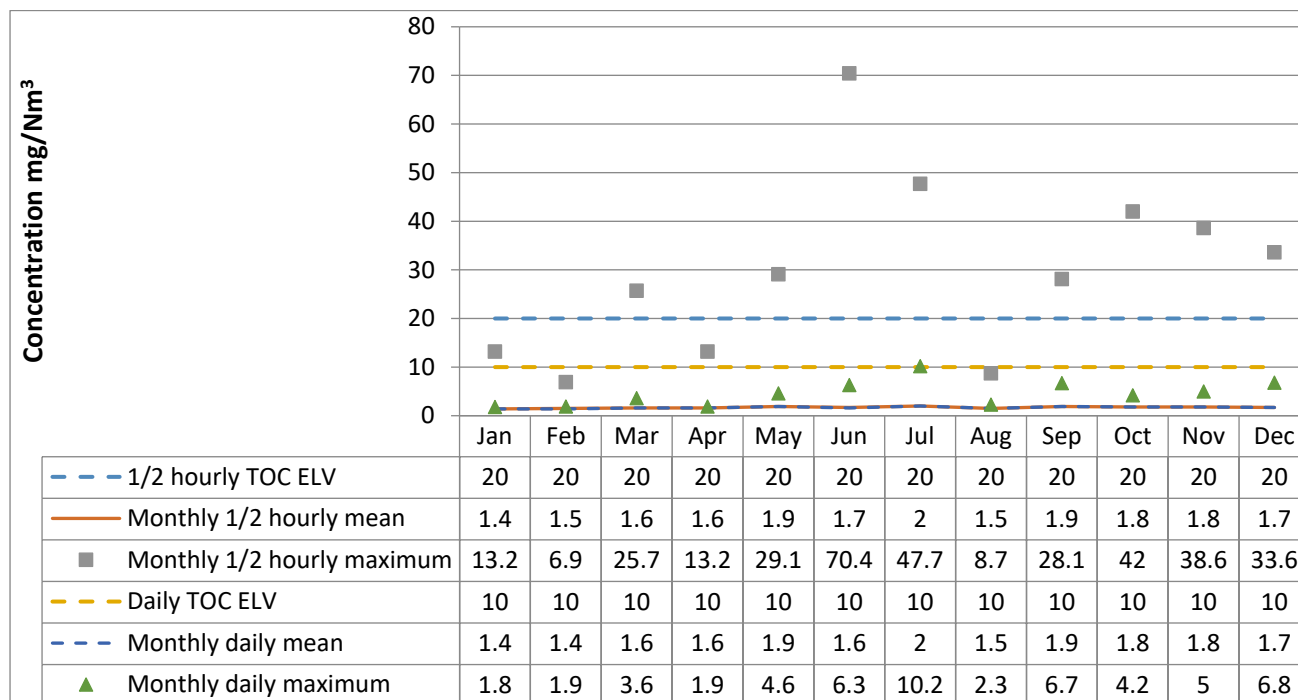
#### Line A1 – Sulphur dioxide



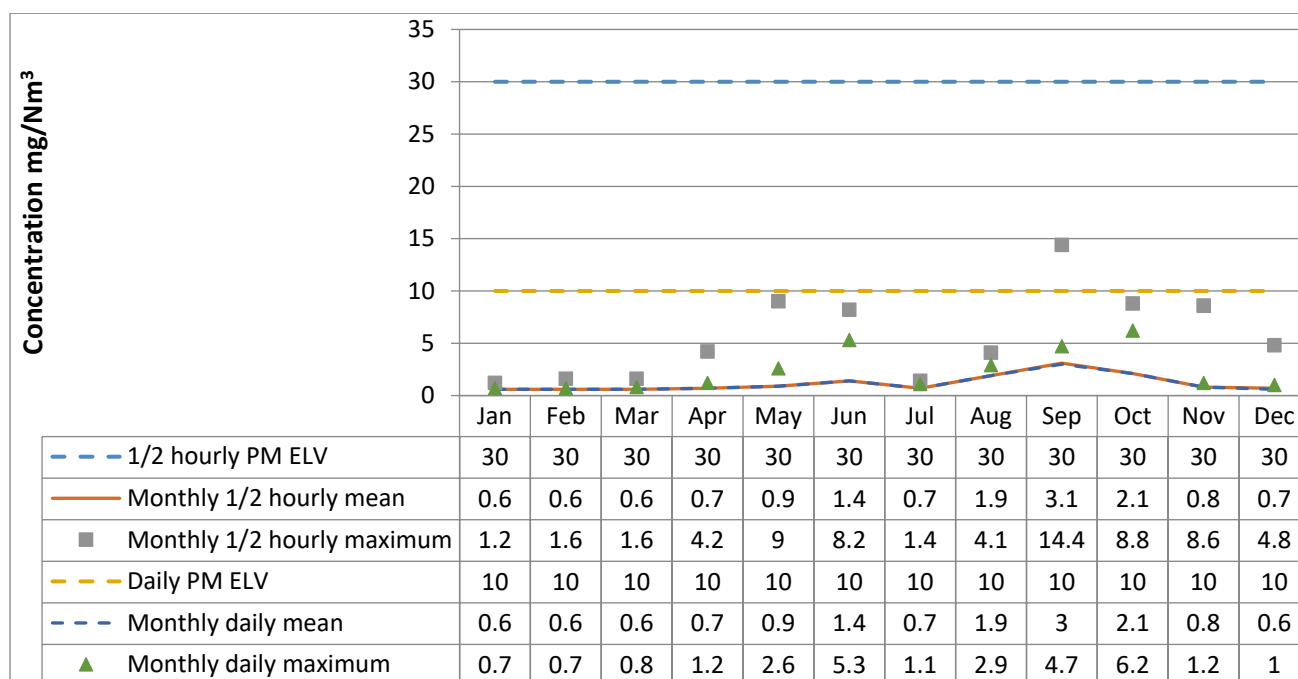
#### Line A1 – Oxides of nitrogen



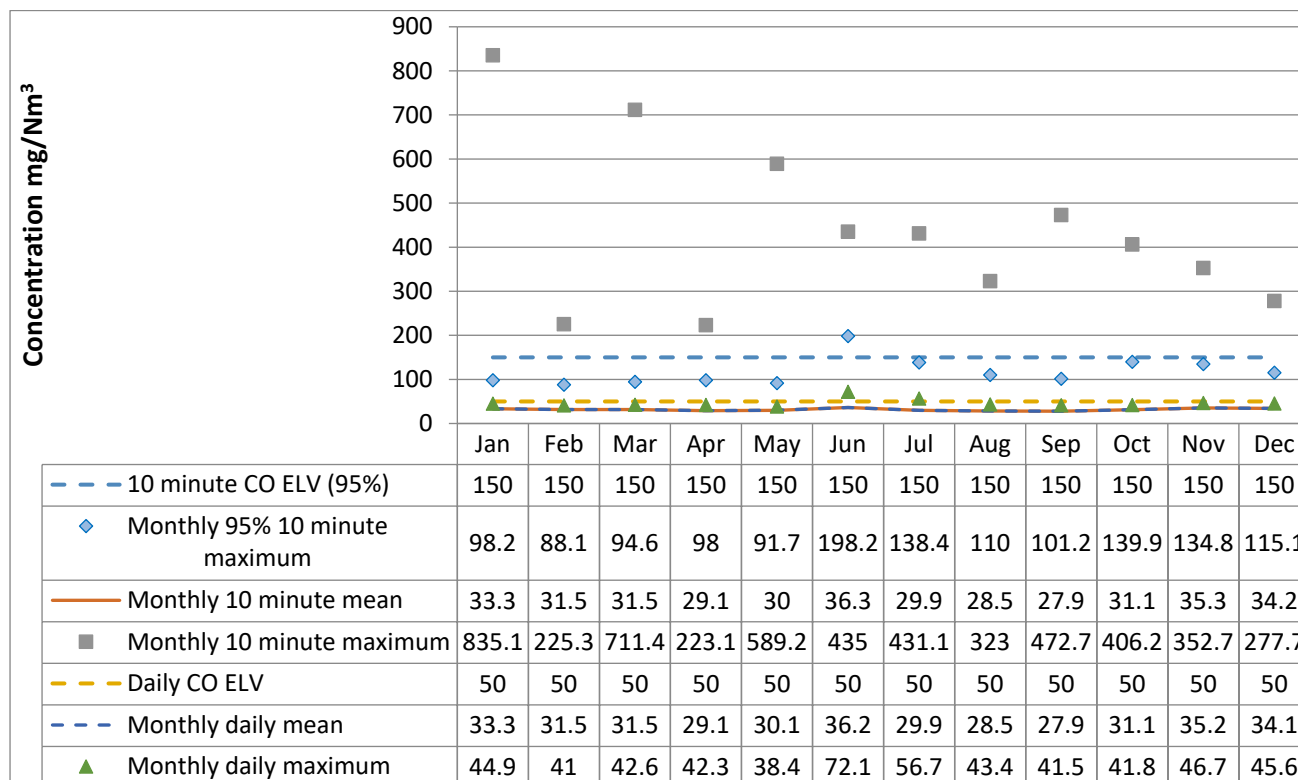
## Line A1 – Total organic carbon



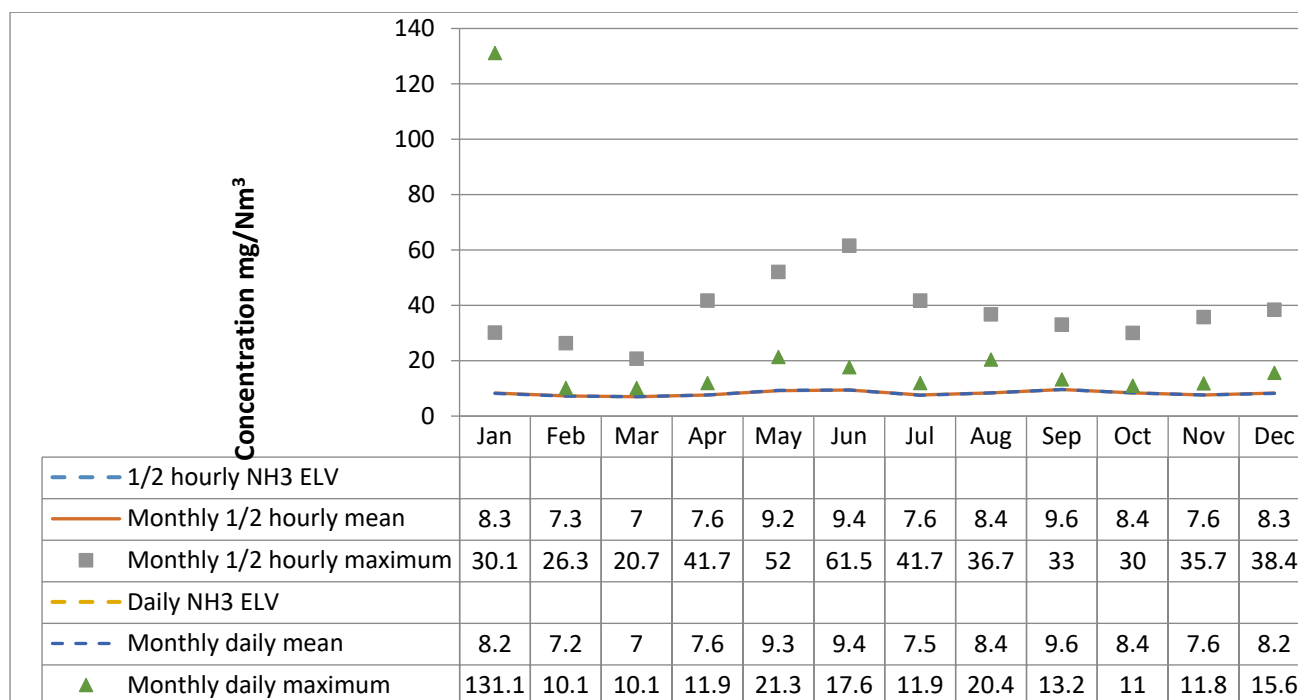
## Line A1 – Particulates



## Line A1 – Carbon monoxide

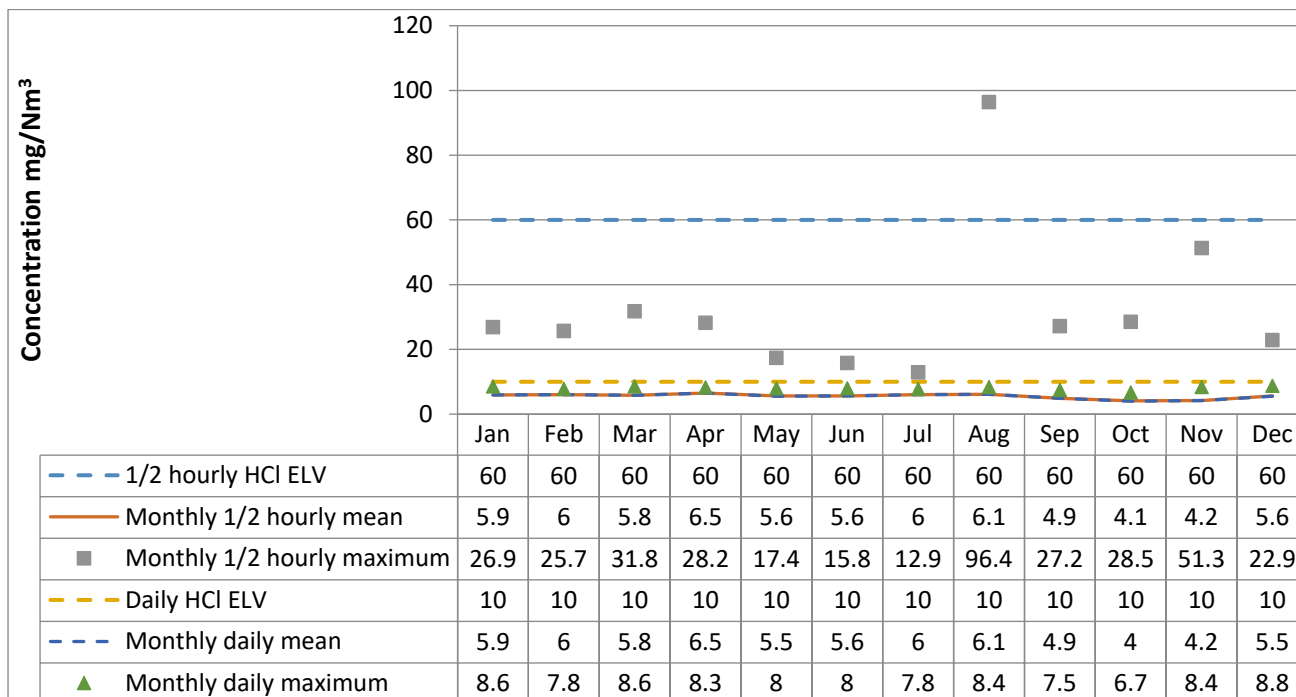


## Line A1 – Ammonia

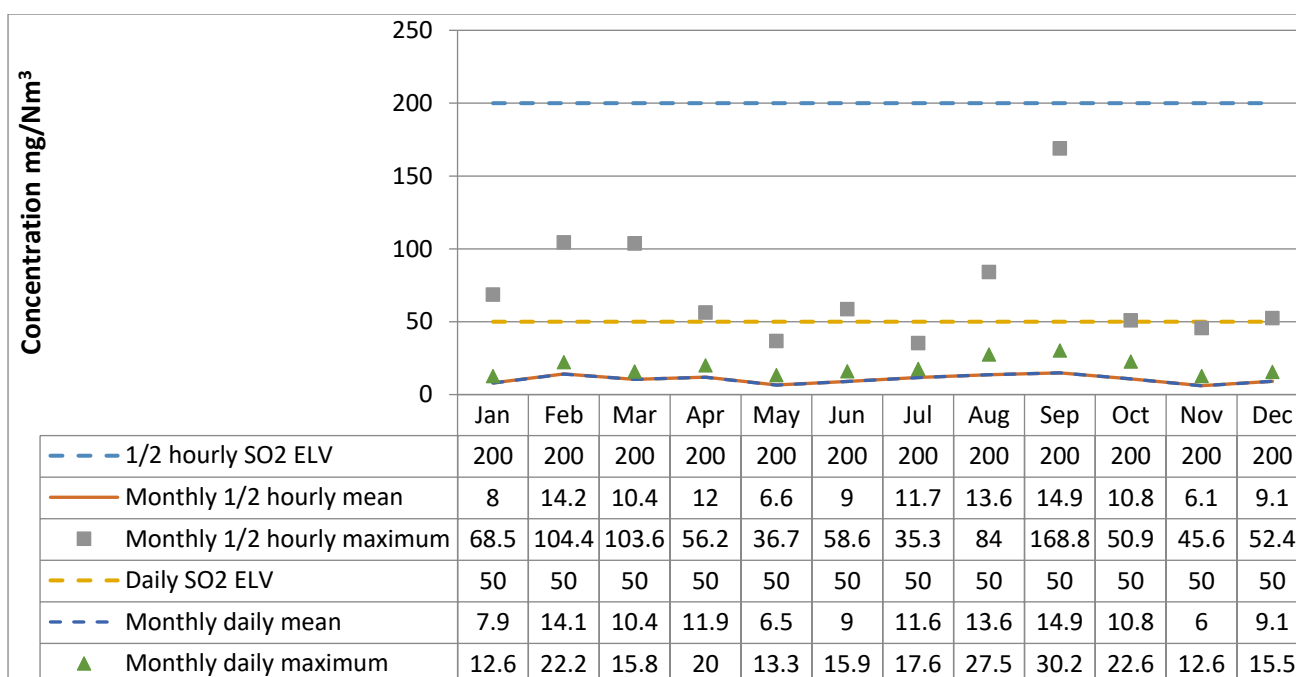


## Line A2

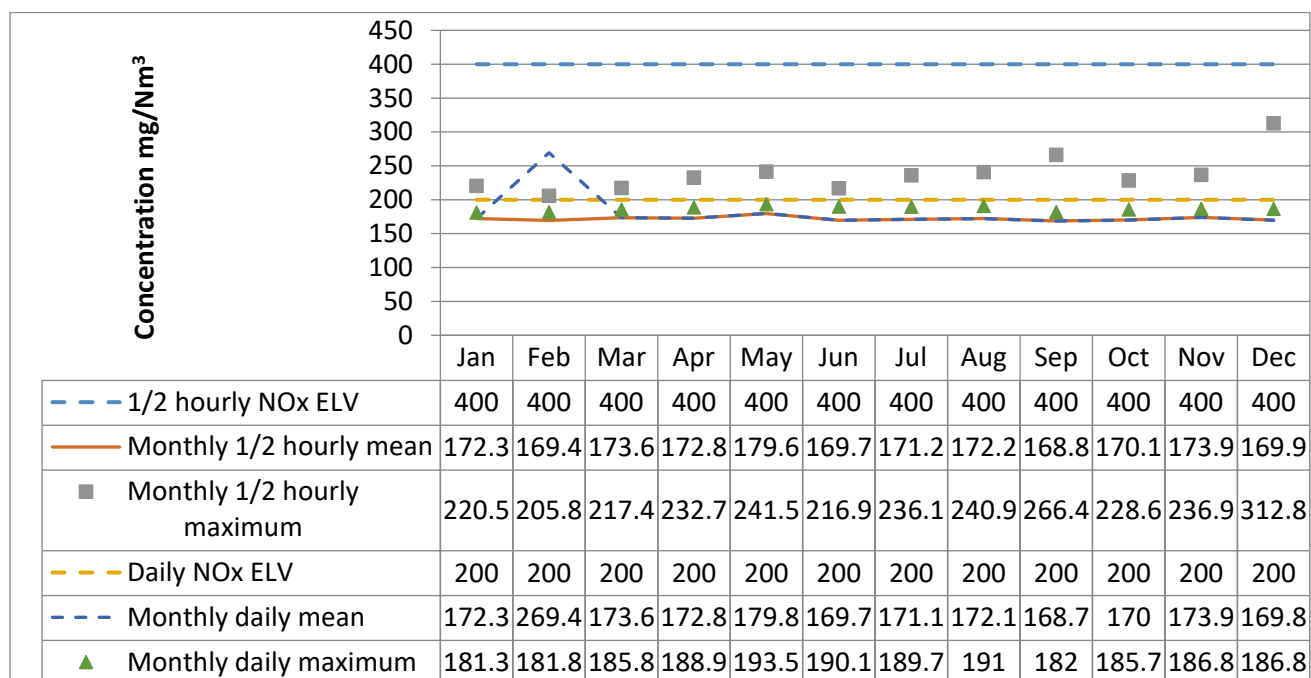
### Line A2 - Hydrogen chloride



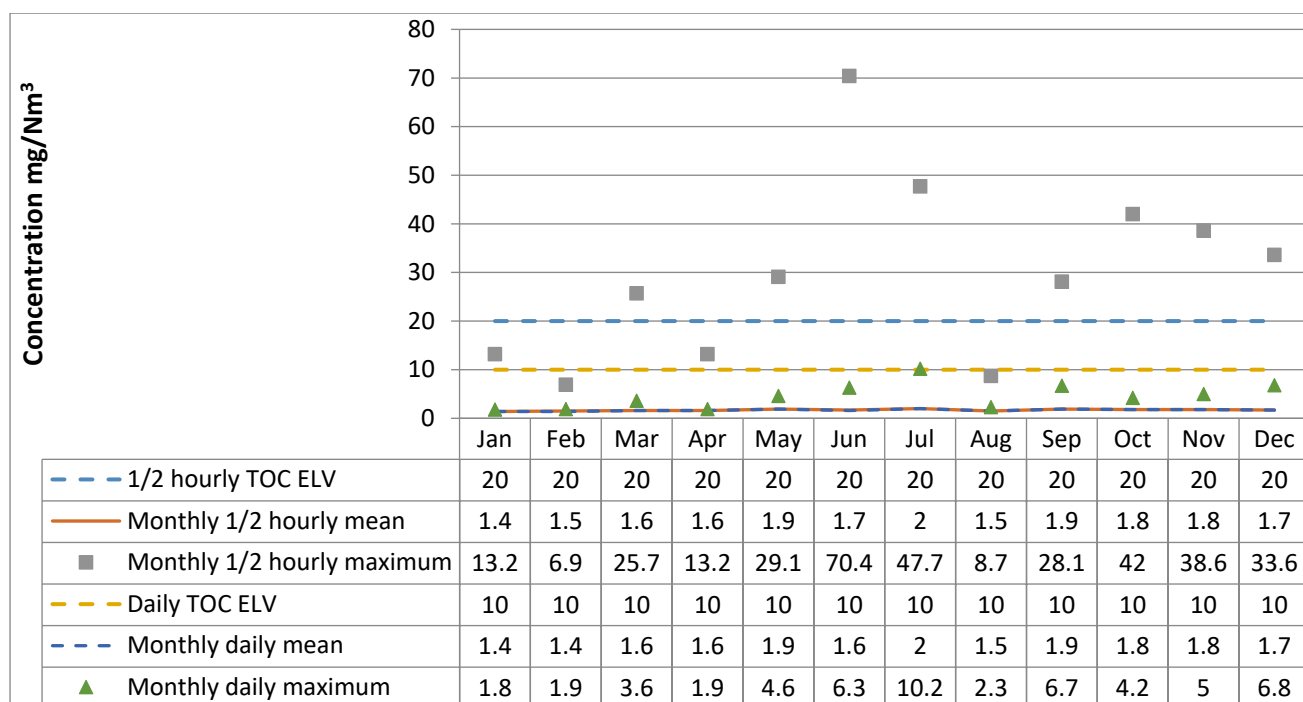
## Line A2 – Sulphur dioxide



## Line A2 – Oxides of nitrogen

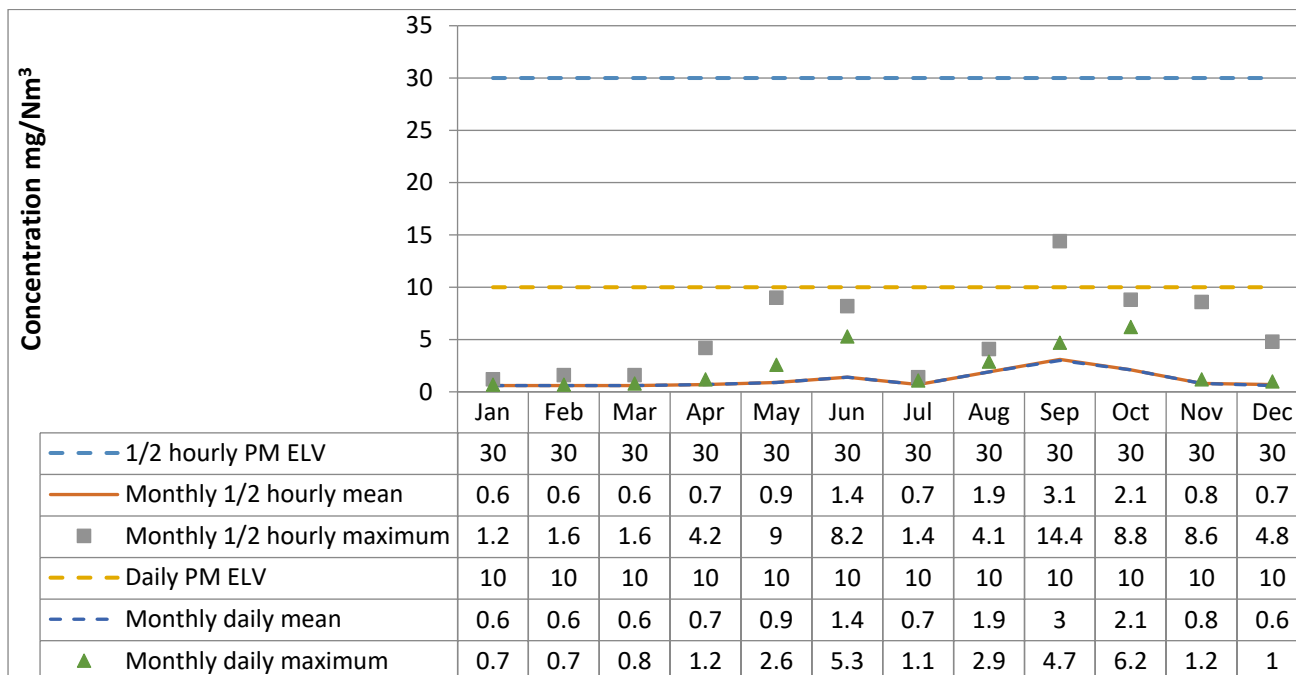


#### Line A2 – Total organic carbon

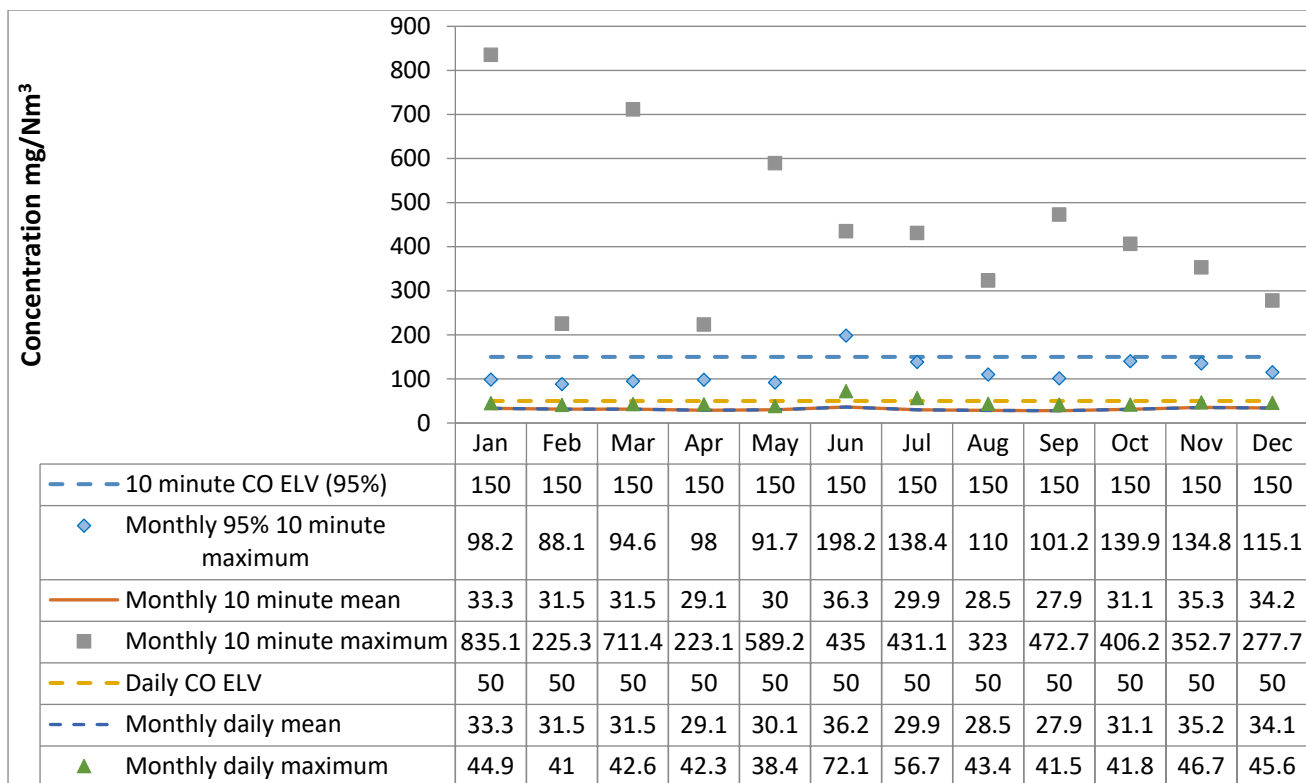


#### Line A2 – Particulates

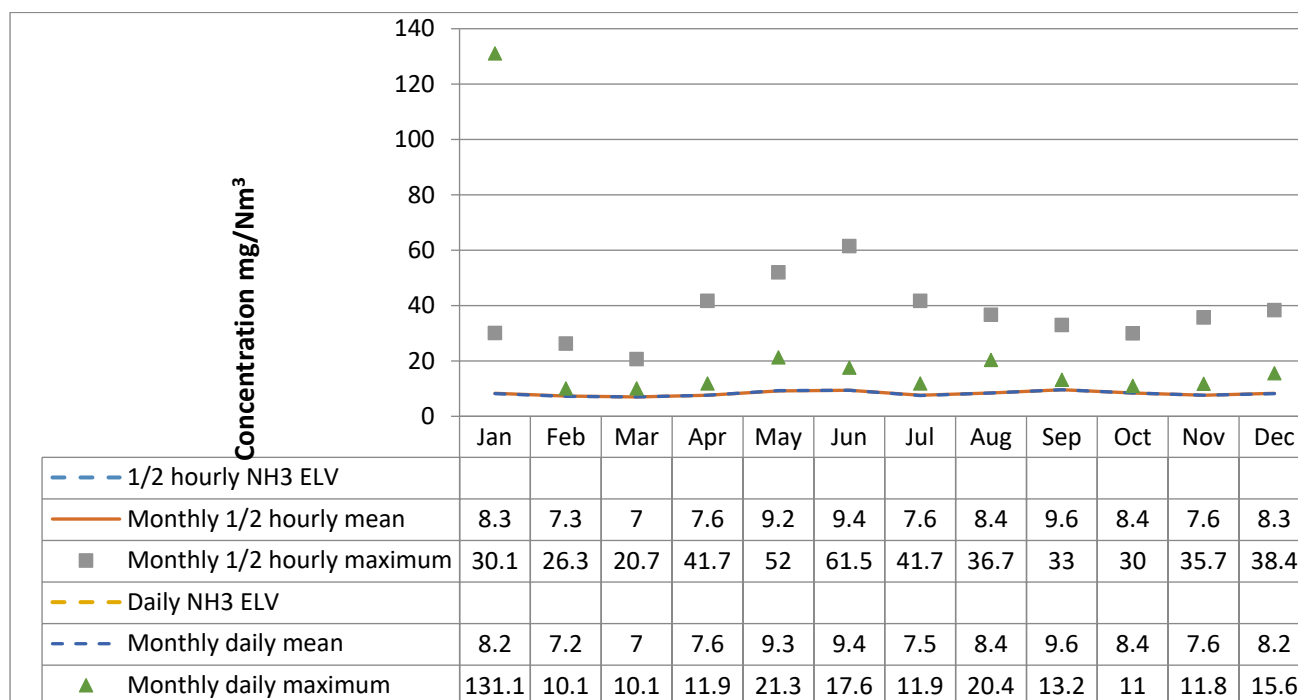




### Line A2 – Carbon monoxide



### Line A2 – Ammonia



## 4.2 Summary of periodic monitoring results for emissions to air

The table below shows the results of periodically monitored substances.

Table 1: Emission Point A1

Substance	Emission limit value	Results			
		March 2018	June 2018	September 2018	December 2018
Mercury and its compounds	0.05 mg/m <sup>3</sup>	<.0005 mg/m <sup>3</sup>	<.001 mg/m <sup>3</sup>	<0.0006 mg/m <sup>3</sup>	0.0007 mg/m <sup>3</sup>
Cadmium & thallium and their compounds (total)	0.05 mg/m <sup>3</sup>	0.001 mg/m <sup>3</sup>	0.007 mg/m <sup>3</sup>	0.001 mg/m <sup>3</sup>	0.0019 mg/m <sup>3</sup>
Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5 mg/m <sup>3</sup>	0.07mg/m <sup>3</sup>	0.20 mg/m <sup>3</sup>	0.35 mg/m <sup>3</sup>	0.07 mg/m <sup>3</sup>
Dioxins and furans (I-TEQ)	0.1 ng/m <sup>3</sup>		0.01 ng/m <sup>3</sup>		.006 ng/m <sup>3</sup>
Hydrogen Fluoride	2 mg/m <sup>3</sup>	0.05mg/m <sup>3</sup>	<0.02 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>	<0.03 mg/m <sup>3</sup>

Table 2: Emission Point A2

Substance	Emission limit value	Results			
		March 2018	June 2018	September 2018	December 2018
Mercury and its compounds	0.05 mg/m <sup>3</sup>	0.005 mg/m <sup>3</sup>	0.0006 mg/m <sup>3</sup>	0.0004 mg/m <sup>3</sup>	0.001 mg/m <sup>3</sup>
Cadmium & thallium and their compounds (total)	0.05 mg/m <sup>3</sup>	0.0011 mg/m <sup>3</sup>	0.0009 mg/m <sup>3</sup>	0.001 mg/m <sup>3</sup>	0.002 mg/m <sup>3</sup>
Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5 mg/m <sup>3</sup>	0.15 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>	0.06 mg/m <sup>3</sup>	0.18 mg/m <sup>3</sup>
Dioxins and furans (I-TEQ)	0.1 ng/m <sup>3</sup>		0.009 ng/m <sup>3</sup>		.004 ng/m <sup>3</sup>
Hydrogen Fluoride	2 mg/m <sup>3</sup>	0.07mg/m <sup>3</sup>	0.03 mg/m <sup>3</sup>	0.03 mg/m <sup>3</sup>	0.07 mg/m <sup>3</sup>

### 4.3 Summary of monitoring results for emissions to water

Oil and Grease

	W1				W2			
	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec
ELV (mg/l)	20 mg/l spot sample							
Result (mg/l)	1.6	<1	<1	<1	1.3	<1	<1	<1

## 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
19/03/2018	Exceeded TOC ½-hour average	Also experienced elevated CO level. Indicative of a gas canister entrained in the waste being burnt.	
07/05/2018	Exceeded TOC ½-hour average	Also experienced elevated CO level. Indicative of a gas canister entrained in the waste being burnt.	

08/06/2018	Exceeded CO daily average	Mechanical failure at Boiler 5	
08/06/2018	Exceeded CO 10 min averages (95 <sup>th</sup> percentile)	Mechanical failure at Boiler 5	
09/07/2018	Exceeded TOC ½-hour average	Wet waste fed to boiler 5 causing boiler to lose load and temperature	
07/08/2018	Fugitive emission of APC residue	Uncontrolled release of approx. 3 x 1m3 bags of APC residue from FGT3 due to loose bolts	Improved sign-off procedure for the maintenance department
09/08/2018	Exceeded CO daily average	Boiler 1 experienced problems controlling CO	Fans were adjusted which appeared to bring situation under control
21/08/2018	Exceeded HCL 1/2 hr average	HCL level was raised due to lime control system blocking Stream 3 and 4	
05/09/2018	Fugitive emission of APC residue	Uncontrolled release of approx. 2 x 1m3 bags of APC residue from FGT1 due to defective chain on hopper door	Chain on hopper door changed
26/10/2018	Exceeded TOC ½-hour average	Also experienced elevated CO level. Indicative of a gas canister entrained in the waste being burnt.	
10/11/2018	Exceeded CO daily average	Boiler No.1 Secondary Air Fan inverter drive continuously tripping causing generation of CO. Boiler load reduced taken off waste, to gas.	New inverter drive fitted to Secondary Air Fan.

## 5.2 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.**

LondonEnergy had been trialling the injection of a chemical additive, known as MinPlus, into Boiler 3 at its Energy Centre in Edmonton (EPR: YP3033BE) from November 2016 until December 2018.

The purpose of the trial was to confirm that the chemical additive effectively reduces the effect of corrosion and fouling, thereby increasing the lifespan of the superheaters.

At the end of 2017, we confirmed that there was a reduction in fouling, resulting in less frequent cleaning of the tubes and fewer blockages. The reduction in fouling improves the heat transfer, resulting in the improved efficiency of the boilers.

At the end of 2018, we confirmed reduced emissions in the hot flue-gas, increased on-stream time of boiler tubes.

A full report on the findings was submitted to the EA in November 2018.

Due to the cost implications of expanding MinPlus to all five boilers and the capital expenditure allocated to the Energy Centre for 2019, LondonEnergy has decided to stop the Minplus trial as of November 2018. LondonEnergy will review the MinPlus project in 2019 with a view to include the cost of implementing MinPlus across all boilers in the 2020 budget. LondonEnergy will involve the Environment Agency should MinPlus be confirmed as an Energy Centre project for 2020.

### **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.