



Annual Performance Report 2019

Permit EPR/EP3034SN

Eastcroft EfW

WasteNotts (Reclamation) Limited

Year: 2019

Address: Incinerator Road, Off Cattle Market Road, Nottingham, NG2 3JH

Tel: 0115 9869505

Email: info.eastcroft@fccenvironment.co.uk

Prepared by: Michael Day Position: Environment Manager

Approved by: Tony Cox Position: General Manager

Version: 1

Issue Date: 24/1/2020

Contents		
	Subject	Page
	Facility Information	3
	Operational Data	4
	Operational Summary	5
	Performance Form 1	6
	Energy Form 1	7
	Permit Compliance	8
	Improvements	9
	Public Liaison	10
	Residue Quality	11
	Emissions to Air (periodically monitored)	12
	Emissions to Air (continuously monitored)	13
	Hydrogen Chloride emissions	14
	Sulphur Dioxide emissions	15
	Oxides of Nitrogen emissions	16
	Total Organic Carbon emissions	17
	Particulate Matter emissions	18
	Carbon Monoxide emissions	19
	Ammonia emissions	20

Version Control		
Section	Information	Date
1	First issue.	24/1/2020

Distribution		
Copy	Name, Role	No.

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.

Plant Description and Design

The EfW facility currently comprises two incineration streams each capable of burning up to 11.7 tonnes/hour of municipal and light commercial and industrial waste. The plant has a theoretical capacity of just over 200,000 tonnes per annum; however with planned maintenance the annual throughput is approximately 185,000 tonnes. The site has planning permission to add a third line to the plant which is included in the scope of the Environmental Permit (EP3034SN) but has yet to be developed.

The facility generates around 50 tonnes of steam per hour with no electrical generation undertaken at the Eastcroft facility. Steam is exported to a third party (EnviroEnergy) who operate a combined heat and power facility providing electricity and feeding into Nottingham's district heating network.

Summary of Operational Processes and Procedures

Municipal waste and non-hazardous commercial/industrial/trade waste is delivered to site by lorry and tipped into one of two refuse bunkers inside the tipping hall. Deliveries are typically made from Monday to Saturday morning. Waste is transferred from the bunkers by grab crane into the feed chute of each incinerator stream. Waste is only fed to the incinerator if the temperature is above 850°C.

Each incinerator stream has a moving grate on which the waste is burned, with preheated air being injected from below the grate. Combustion air is drawn from the tipping hall and boiler hall to reduce odours and dust levels in these areas and fed to the furnace via an air preheater which can raise the temperature of the air up to 160°C. Two auxiliary burners, fired on gas oil, are installed halfway up each combustion chamber to maintain temperatures above the 850°C threshold. The auxiliary burners are also used to pre-heat the incinerators before start up.

Ammonium hydroxide is injected into the furnaces to reduce emissions of nitrogen oxides (this technique is known as selective non-catalytic reduction or SNCR). Hot gases from the combustion chamber pass to a boiler in which steam is raised and sent to the London Road Heat Station (operated by EnviroEnergy) for supply of heat to the district heating system and generation of electricity. Flue gases leaving the boiler are cooled to about 130°C in the economiser to achieve the correct temperature for gas treatment.

Incinerator bottom ash is quenched in water and collected in a residuals bunker inside the building. The silo is emptied regularly and the bottom ash is sent for metal extraction and use as a substitute aggregate.

Fly ash entrained within the incinerator exhaust gases, together with any accumulations of dust removed from the walls of the economiser by the shot cleaning system, is treated in the air pollution control equipment.

Each incinerator stream has its own dedicated air pollution control equipment. Cooled flue gases leaving the economiser are dosed with a mixture of hydrated lime, activated carbon and recirculated reagent, in order to reduce acid gases (by reaction with the lime), and other substances such as heavy metals and hydrocarbons (by adsorption onto the activated carbon). The exhaust gases and reagent particles are then filtered in a four compartment fabric filter to remove the dust burden. The fabric filters are regularly cleaned by reverse jet pulses, and the collected end product is stored in the APC residue silo. The APC residue silo is regularly emptied and the residue used to treat industrial acidic wastes before final disposal in a suitably licensed landfill site.

The treated exhaust gases from both streams are discharged via the 91m high stack. The final emissions from the municipal waste incinerator are continuously monitored for particulate matter, sulphur dioxide, nitrogen oxides, carbon monoxide, hydrogen chloride, volatile organic compounds and ammonia prior to entry into the main stack.

Operational Data

Plant Size	200,000 tonnes pa	MWth	MWe
No. of combustion lines	2	No. of Turbines:	0

Waste types received	Unit	Q1	Q2	Q3	Q4	Year Total	%
Household / Local Authority	tonnes	51,705	48,530	38,266	49,616	188,117	99.9%
Commercial & Industrial		-	25	2	69	96	0.1%
Total waste received		51,705	48,554	38,269	49,686	188,213	100.0%
Rejected Waste		-	-	-	-	-	-
Waste transferred out		-	-	-	-	-	-

Energy Usage / Export	Unit	Q1	Q2	Q3	Q4	Year Total	KWh/te
Power Generated	MWh	-	-	-	-	-	-
Power Exported		-	-	-	-	-	-
Power Used on site		2,277	2,332	1,719	2,335	8,663	46
Power Imported		2,277	2,332	1,719	2,335	8,663	46
Parasitic Load	%	-	-	-	-	-	-
Thermal Energy Produced	GWh	117	104	94	106	420	2
Thermal Energy Exported	GWh	117	104	94	106	420	2
R1 value		n/a					

Waste Disposal & Recovery	Unit	Q1	Q2	Q3	Q4	Year Total	% inputs
APC Residues - produced	tonne	1,308	1,292	894	1,234	4,728	2.5%
IBA - produced	tonne	9,626	10,370	7,301	9,358	36,654	19.5%

Raw Material Usage	Unit	Q1	Q2	Q3	Q4	Year Total	kg or Ltr /te
Mains Water	m ³	914	951	916	1,114	3,895	0.02
Other Water	m ³	-	-	-	-	-	-
Ammonia	kgs	138,180	125,040	99,220	140,600	503,040	2.67
Activated Carbon	kgs	25,518	26,610	19,507	27,392	99,027	0.53
Lime / hydrated lime	kgs	285,815	289,793	213,766	266,168	1,055,542	5.61
Fuel oil	ltrs	36,036	24,571	48,126	42,033	150,766	0.80
Gas	cf	-	-	-	-	-	-
Other		-	-	-	-	-	-

Summary of Hours	Line/Unit	Q1	Q2	Q3	Q4	Year Total	
Hours of waste combustion, total	1	2,138	2,162	1,676	2,198	8,174	93.3%
Hours of waste combustion, total	2	2,111	2,184	1,553	2,133	7,980	91.1%
Hours of heat / steam export		4,249	4,346	3,229	4,331	16,154	n/a
Abnormal Events	qty.	None	None	None	None	-	no
Abnormal operation	hours	None	None	None	None	-	0.00%
Permit Breaches	qty.	None	None	None	None	-	no

Summary of Plant Operations and Maintenance during the reporting year

During 2019 the facility ran for 16,154 hours across the 2 lines representing an availability of 92.2% with 188,213 tonnes delivered to site compared to a permit limit of 200,000 tonnes per annum. The vast majority of this waste was delivered by the local authorities of Nottingham and the surrounding area and most other wastes being categorised as municipal (Chapter 20 of the List of Wastes Regulations).

The facility operated within the permit limits throughout 2019 with no periods of abnormal operation or complaints received.

The plant provided 420 Gwh of energy in the form of steam and hot water to the EnviroEnergy facility who operate a combined heat and power station, providing electricity to private customers, the national grid and provides heating to households and commercial premises through their district heating system. Eastcroft receives all electrical supply and water for the process from EnviroEnergy.

The main period of downtime related to a planned maintenance period within July where both routine maintenance that cannot be undertaken while the plant is operational took place and some major replacements to boiler parts were also undertaken. Further modifications and optimisation to the bag house which was rebuilt in the 2018 outage took place which have proven effective in maintaining low particulate emission levels. A new Continuous Emissions Monitoring system was also installed which undertook quality assurance testing and integration into the process control with the system to go live in 2020.

Summary of Residue Handling for the reporting year

Incinerator Bottom Ash (IBA) is sampled 4 times per year for permit compliance purposes, in particular for Total Organic Content where the permit has a limit of 3%. Full compliance was achieved during 2019; no values were above 3% with an average value of 0.95% achieved.

Additional testing of IBA is undertaken in order to correctly classify the IBA. 24 samples (2 per month) were taken in 2019 to assess for any hazardous content within the IBA. During 2019 all 24 sample results were returned confirming the classification of the IBA as non-hazardous.

All metals within the IBA are sent along with the non-hazardous IBA to a third party company who operate a permitted facility dedicated to management of bottom ash. Metals are segregated and sent for recycling while the remaining incinerator bottom ash is used as a substitute aggregate material for use within the construction industry.

Air Pollution Control Residues (APCr) formed from the cleaning of the flue gases are also analysed on a quarterly basis, albeit with no limits set within the permit. The APCr is tankered to a permitted treatment site where the material is used to neutralise highly acidic wastes before the resulting residue is sent for disposal.

2019 Annual Reporting Performance Form 1

Permit EPR/EP3034SN
Facility: Eastcroft EfW

Operator: WasteNotts (Reclamation) Limited
Form: Performance 1

Reporting Period from: 01 January 2019 to: 31 December 2019

2019 Annual Reporting of Waste Disposal and Recovery

Waste Description	Disposal Route(s)	Disposal Tonnes	Recovery Tonnes	% / tonne of waste incinerated
1) Hazardous Wastes				
APC Residues	D13	4,727.8		2.5%
IBA				-
				-
				-
Total Hazardous Waste		4,727.8	0.0	2.5%
2) Non-Hazardous Wastes				
IBA	R05		36,654.4	19.5%
Ferrous Metal				-
Process Water				-
				-
				-
Total Non-Hazardous Waste		0.0	36,654.4	19.5%
TOTAL WASTE		4,727.8	36,654.4	22.0%

Operator's comments :

All metal is accounted for within the IBA which is separated by a third party IBA recycling facility.

2019 Annual Reporting of Water and Other Raw Material Usage

Mains Water	3895	m ³	0.02	m ³ /te
Total Water	3895	m ³	0.02	m ³ /te
Urea / Ammonia	503040	kg	2.67	kg/te
Activated Carbon	99027	kg	0.53	kg/te
Lime / hydrated lime / Sodium Bicarb.	1055542	kg	5.61	kg/te

Operator's comments :

2019 Annual Reporting of other performance indicators

Operating hours for the year, hours	8174	7980						
Number of periods of abnormal operation, qty.	0	0						
Cumulative hours of abnormal operation for this year, hours	0	0						

Operator's comments :

Signed: _____



Date: 24/1/2020

2019 Annual Reporting of Energy Usage/Export

Permit EPR/EP3034SN

Operator: WasteNotts (Reclamation) Limited

Facility: Eastcroft EfW

Form: Energy 1

Reporting Period from: 01 January 2019 to: 31 December 2019

Energy Source	Energy Usage	Unit	Specific Usage (KWh/tonne incinerated)
Electricity Produced	0	MWh	-
Electricity Imported	8663	MWh	46
Electricity Exported	0	MWh	-
Gas Oil	127.8	tonnes	0.00068
Steam/hot water exported	420	GWh	2

Operator's comments :

Eastcroft sends steam to a third party who operate a combined heat and power facility and thus no electricity generation is provided from Eastcroft in the returns and all electricity is imported from the combined heat and power station operators (EnviroEnergy).

Signed: _____



Date: 24/1/2020

Summary of Permit Compliance

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	100%	100%
Oxides of nitrogen	100%	100%
Sulphur dioxide	100%	100%
Carbon monoxide	100% 95% of 10-min averages	100%
Total organic carbon	100%	100%
Hydrogen chloride	100%	100%

Summary of any notifications or non-compliances under the permit

Date	Summary of notification or non-compliance [including Line/Reference]	Reason	Measures taken to prevent reoccurrence

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

Date	Summary of complaint [including Line/Reference]	Reason *	Measures taken to prevent reoccurrence

* including whether substantiated by the operator or the EA

Summary of Plant Improvements**Summary of any efficiency improvements that have been completed within the year.**

Further work to optimise the plant have taken place, with modifications to the bag filter cells which were installed in 2018. This has resulted in low and stable particulate levels and also resulted in significant energy use reductions.

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

All improvement conditions relating to the existing facility have been completed in advance of 2019. 2 improvement conditions remain within the current permit, these relate to the potential expansion of the facility and the addition of a third line. These conditions cannot be progress further until plans for the development of a third line have been concluded.

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.

No changes have been undertaken that require a permit variation. Over the next year as part of the BREF implementation process there may be variations required to update the permit to incorporate the latest requirements of the Waste Incineration BREF.

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

New Continuous Emissions Monitoring Systems (CEMS) were installed in 2019 with additional redundancy added to ensure compliance levels are maintained and reduce the likelihood of the plant having to come off line if it were not able to provide continuous monitoring due to failure of the CEMS failures.

Details of Public & Stakeholder Liasion

Summary of events held during the reporting year.	
Date	Description
9/1/2019	Community Liaison group meeting
18/7/2019	Community Liaison group meeting

List of events planned for next year	
Date	Description
15/1/2020	Community Liaison group meeting
15/07/2020	Community Liaison group meeting

If you wish to be involved in the public liasion programme, please contact 0115 9869505

Residue Quality Monitoring Requirements

Summary of monitoring undertaken and compliance
Monitoring of residues for permit compliance was undertaken with full compliance to the residue limit recorded. No specific events were recorded during 2019.
All 24 samples taken and analysed as per the ESA protocol were returned demonstrating that the Incinerator Bottom Ash should be classified as non-hazardous.

Commentary on any specific events	
Date & Event	Description

Residue Quality Monitoring Results			
Parameter (unit)	Limit	Normal Operation	
		Bottom ash	APC Residues
Loss on Ignition (%)	N/A		
ToC (%)	<3%	0.95%	
No. of Assessments Undertaken		4	4
No. of Hazardous Assessments		24	

Comments :

Emissions to Air (periodically monitored)

Summary of monitoring undertaken, standards used and compliance					
Emissions monitoring is undertaken on a bi-annual basis using independent MCERT accredited monitoring individuals. The frequency of testing and standards used for monitoring are those which are prescribed within the permit.					

Results of emissions to air that are periodically monitored					
Substance	Ref. Period	Emission Limit Value	Average		
			A1	A2	
Hydrogen fluoride	1 hr	2 mg/m ³	0.405	0.28	
Cd and Th and their compounds	6-8hrs	0.05 mg/m ³	0.001	0.001	
Hg and its compounds	6-8hrs	0.05 mg/m ³	0.00055	0.0004	
Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V and their compounds	6-8hrs	0.5 mg/m ³	0.07	0.05	
Dioxins & Furans (I-TEQ)	6-8hrs	0.1 ng/m ³	0.004	0.0095	
PCBs (WHO-TEQ Humans / Mammals)	6-8hrs	None set ng/m ³	0.00025	0.0002	
PCBs (WHO-TEQ Fish)	6-8hrs	None set ng/m ³	0.00011	0.0001	
PCBs (WHO-TEQ Birds)	6-8hrs	None set ng/m ³	0.028	0.02675	
Dioxins & Furans (WHO-TEQ Humans / Mammals)	6-8hrs	None set ng/m ³	0.005	0.01	
Dioxins & Furans (WHO-TEQ Fish)	6-8hrs	None set ng/m ³	0.006	0.0115	
Dioxins & Furans (WHO-TEQ Birds)	6-8hrs	None set ng/m ³	0.0065	0.015	
Anthanthrene	6-8hrs	None set µg/m ³	0.0049	0.0064	
Benzo(a)anthracene	6-8hrs	None set µg/m ³	0.0049	0.00725	
Benzo(a)pyrene	6-8hrs	None set µg/m ³	0.0049	0.0055	
Benzo(b)fluoranthene	6-8hrs	None set µg/m ³	0.0049	0.0055	
Benzo(b)naphtho(2,1-d)thiophene	6-8hrs	None set µg/m ³	0.00655	0.0091	
Benzo(c)phenanthrene	6-8hrs	None set µg/m ³	0.00655	0.00735	
Benzo(ghi)perylene	6-8hrs	None set µg/m ³	0.0049	0.0064	
Benzo(k)fluoranthene	6-8hrs	None set µg/m ³	0.0049	0.0055	
Cholanthrene	6-8hrs	None set µg/m ³	0.00655	0.00645	
Chrysene	6-8hrs	None set µg/m ³	0.0049	0.0055	
Cyclopenta(cd)pyrene	6-8hrs	None set µg/m ³	0.0065	0.00645	
Dibenzo(ai)pyrene	6-8hrs	None set µg/m ³	0.00815	0.00745	
Dibenzo(ah)anthracene	6-8hrs	None set µg/m ³	0.0049	0.0064	
Fluoranthene	6-8hrs	None set µg/m ³	0.015	0.0326	
Indeno(123-cd) pyrene	6-8hrs	None set µg/m ³	0.0049	0.0055	
Naphthalene	6-8hrs	None set µg/m ³	0.11	0.0976	
Comments :					

Emissions to Air (continuously monitored)

Summary of monitoring undertaken, standards used and compliance									
Continuous emissions monitoring is undertaken in line with the permit requirements and the BS 14181 standard.									

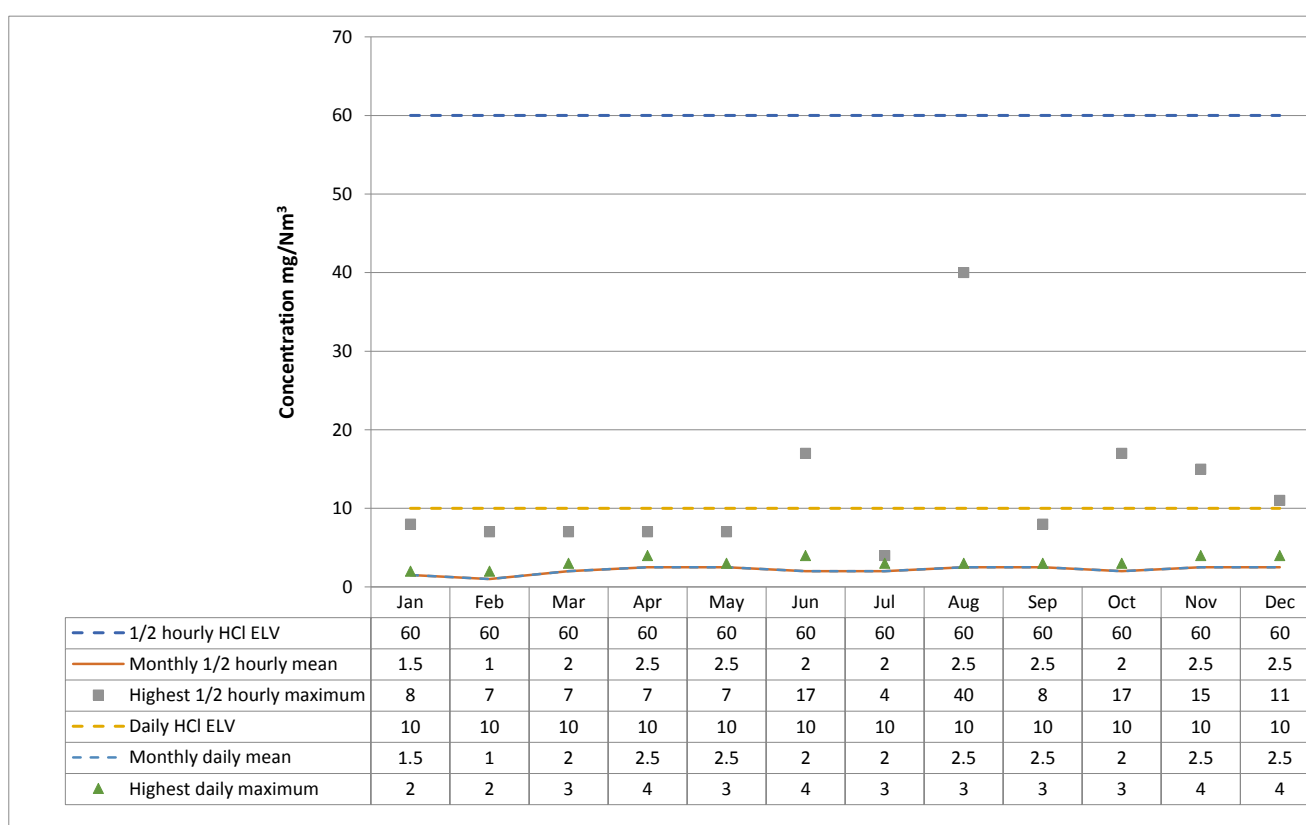
Results of emissions to air that are continuously monitored										
Substance	Reference Period	Emission Limit Value	A1		A2					
			Max.	Avg.	Max.	Avg.				
Oxides of nitrogen	Daily mean	200 mg/m ³	193	155.17	186	142.33				
	½ hourly mean	400 mg/m ³	314	155.17	317	142.33				
Particulates	Daily mean	10 mg/m ³	4	1.08	3	0.83				
	½ hourly mean	30 mg/m ³	10	1.08	15	0.83				
Total Organic Carbon	Daily mean	10 mg/m ³	1	0	1	0.25				
	½ hourly mean	20 mg/m ³	8	0	6	0.25				
Hydrogen chloride	Daily mean	10 mg/m ³	4	2.33	3	1.92				
	½ hourly mean	60 mg/m ³	17	2.33	40	1.92				
Sulphur dioxide	Daily mean	50 mg/m ³	26	11.08	24	8.58				
	½ hourly mean	200 mg/m ³	115	11.08	108	8.58				
Carbon monoxide	Daily mean	50 mg/m ³	25	5.42	17	7.92				
	95%ile 10-min avg *	150 mg/m ³ *	21.81	10.33	23.58	13.76				
Ammonia	Daily mean	No limit set	4	1.42	11	2.00				
Comments :										

Monitoring of Hydrogen Chloride emissions

Whole Installation

See Notes in Cell Q3

mg/Nm ³	1/2 Hourly Reference Periods			Daily Reference Periods		
2019	1/2 hourly HCl ELV	Monthly 1/2 hourly mean	Highest 1/2 hourly maximum	Daily HCl ELV	Monthly daily mean	Highest daily maximum
Jan	60	1.5	8	10	1.5	2
Feb	60	1	7	10	1	2
Mar	60	2	7	10	2	3
Apr	60	2.5	7	10	2.5	4
May	60	2.5	7	10	2.5	3
Jun	60	2	17	10	2	4
Jul	60	2	4	10	2	3
Aug	60	2.5	40	10	2.5	3
Sep	60	2.5	8	10	2.5	3
Oct	60	2	17	10	2	3
Nov	60	2.5	15	10	2.5	4
Dec	60	2.5	11	10	2.5	4



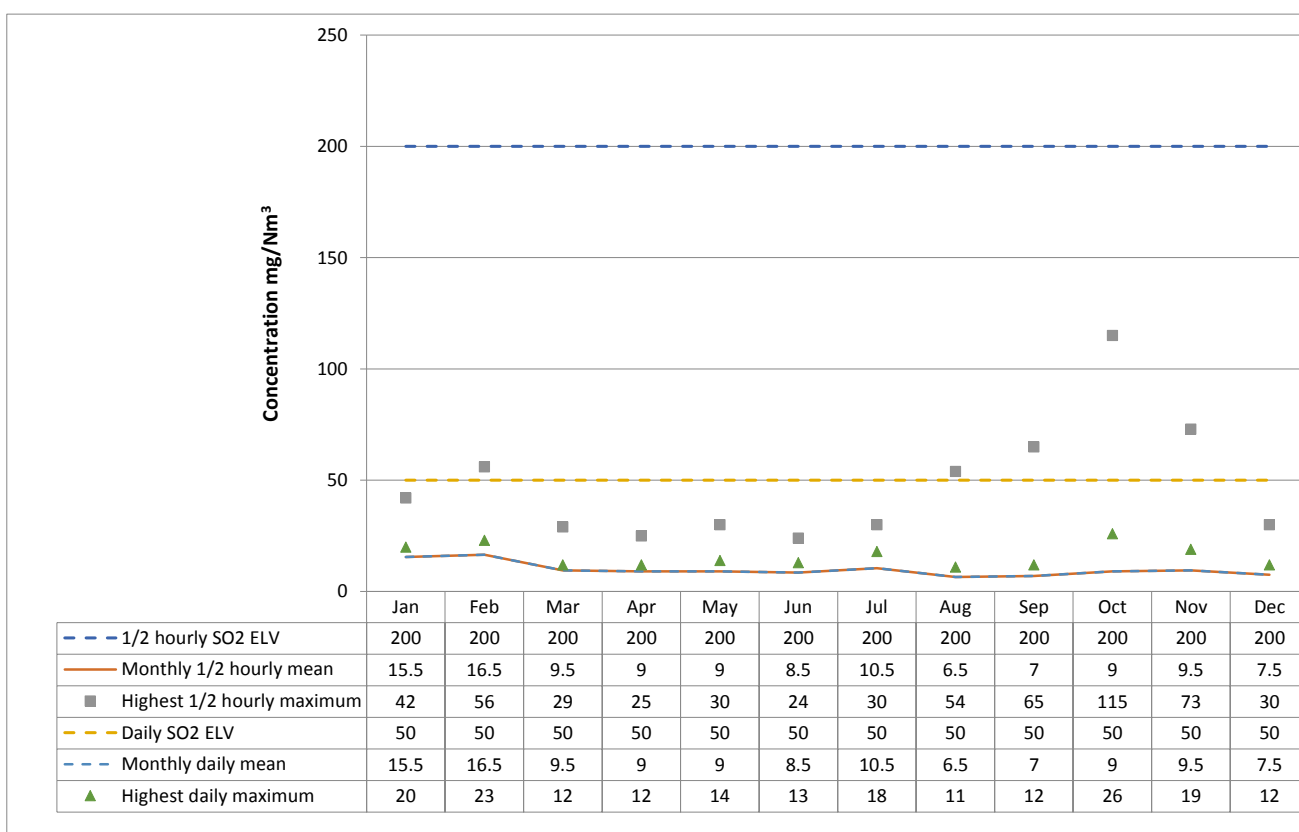
Comments :

Monitoring of Sulphur dioxide emissions

Whole Installation

See Notes in Cell Q3

mg/Nm ³	1/2 Hourly Reference Periods			Daily Reference Periods		
2019	1/2 hourly SO2 ELV	Monthly 1/2 hourly mean	Highest 1/2 hourly maximum	Daily SO2 ELV	Monthly daily mean	Highest daily maximum
Jan	200	15.5	42	50	15.5	20
Feb	200	16.5	56	50	16.5	23
Mar	200	9.5	29	50	9.5	12
Apr	200	9	25	50	9	12
May	200	9	30	50	9	14
Jun	200	8.5	24	50	8.5	13
Jul	200	10.5	30	50	10.5	18
Aug	200	6.5	54	50	6.5	11
Sep	200	7	65	50	7	12
Oct	200	9	115	50	9	26
Nov	200	9.5	73	50	9.5	19
Dec	200	7.5	30	50	7.5	12



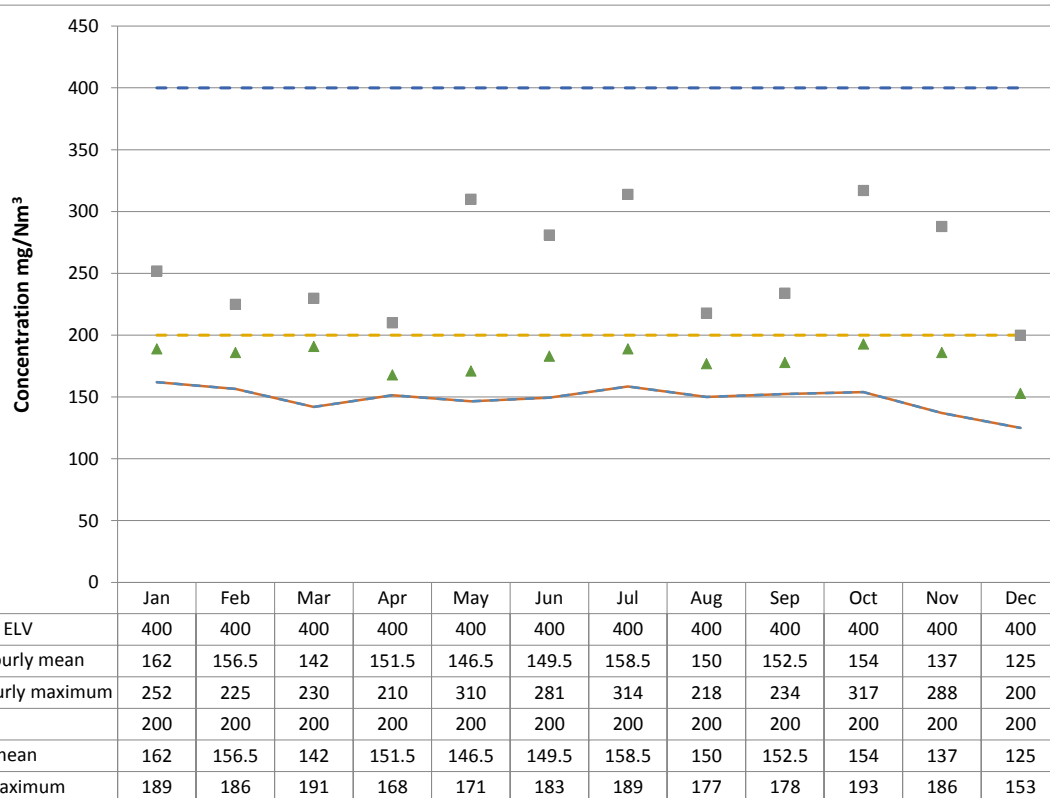
Comments :

Monitoring of Oxides of Nitrogen emissions

Whole Installation

See Notes in Cell Q3

mg/Nm ³	1/2 Hourly Reference Periods			Daily Reference Periods		
2019	1/2 hourly NOx ELV	Monthly 1/2 hourly mean	Highest 1/2 hourly maximum	Daily NOx ELV	Monthly daily mean	Highest daily maximum
Jan	400	162	252	200	162	189
Feb	400	156.5	225	200	156.5	186
Mar	400	142	230	200	142	191
Apr	400	151.5	210	200	151.5	168
May	400	146.5	310	200	146.5	171
Jun	400	149.5	281	200	149.5	183
Jul	400	158.5	314	200	158.5	189
Aug	400	150	218	200	150	177
Sep	400	152.5	234	200	152.5	178
Oct	400	154	317	200	154	193
Nov	400	137	288	200	137	186
Dec	400	125	200	200	125	153

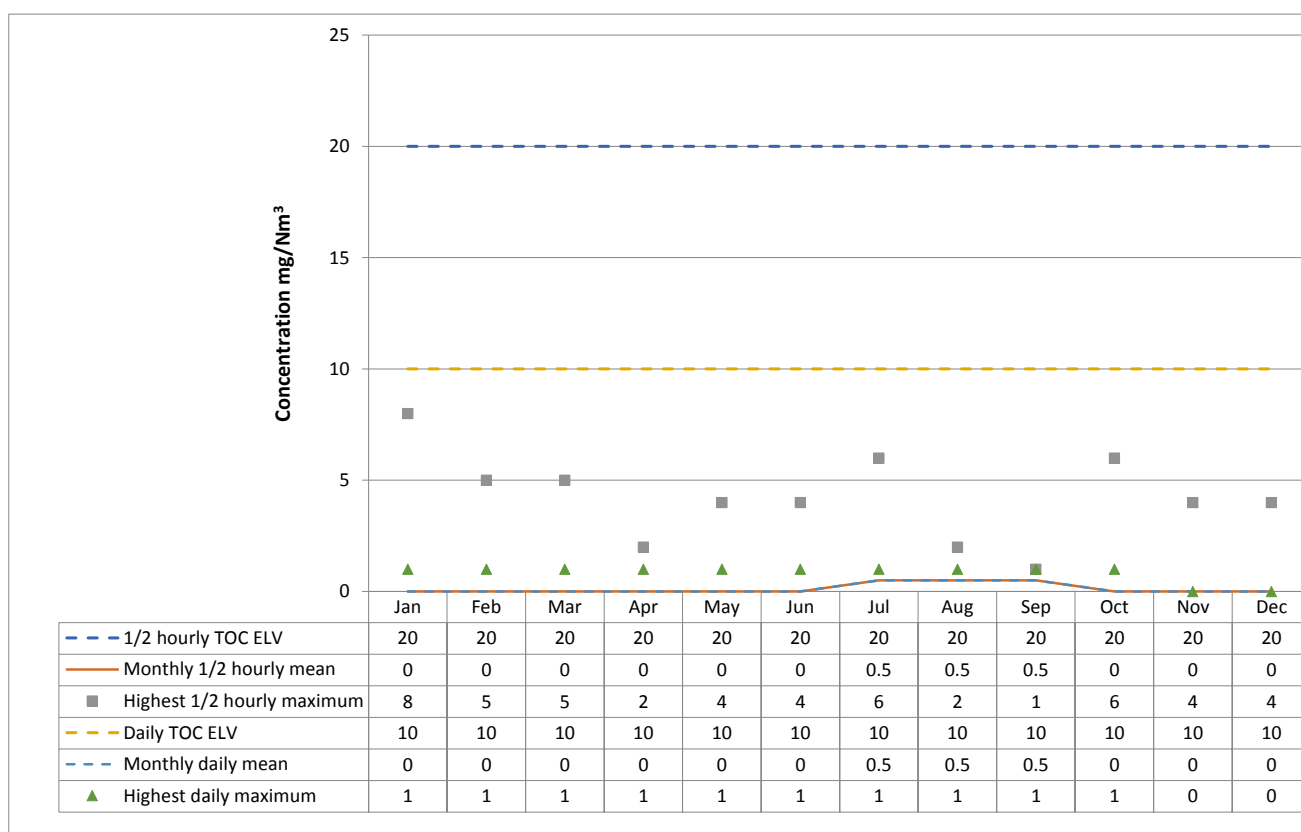


Comments :

Monitoring of Total organic carbon emissions Whole Installation

See Notes in Cell Q3

mg/Nm ³	1/2 Hourly Reference Periods			Daily Reference Periods		
2019	1/2 hourly TOC ELV	Monthly 1/2 hourly mean	Highest 1/2 hourly maximum	Daily TOC ELV	Monthly daily mean	Highest daily maximum
Jan	20	0	8	10	0	1
Feb	20	0	5	10	0	1
Mar	20	0	5	10	0	1
Apr	20	0	2	10	0	1
May	20	0	4	10	0	1
Jun	20	0	4	10	0	1
Jul	20	0.5	6	10	0.5	1
Aug	20	0.5	2	10	0.5	1
Sep	20	0.5	1	10	0.5	1
Oct	20	0	6	10	0	1
Nov	20	0	4	10	0	0
Dec	20	0	4	10	0	0

**Comments :**

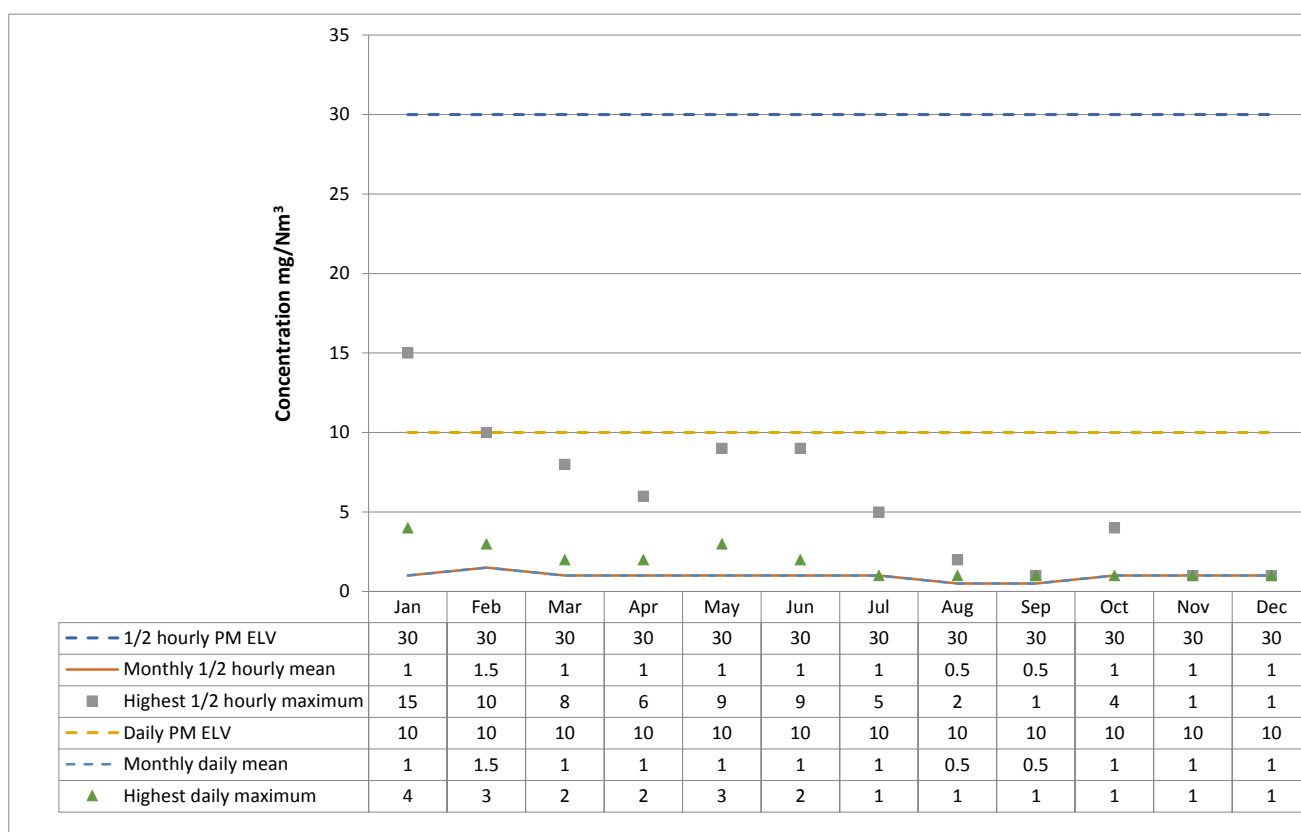
Values inputted to 1 significant figure.

Monitoring of Particulate matter emissions

Whole Installation

See Notes in Cell Q3

mg/Nm ³	1/2 Hourly Reference Periods			Daily Reference Periods		
2019	1/2 hourly PM ELV	Monthly 1/2 hourly mean	Highest 1/2 hourly maximum	Daily PM ELV	Monthly daily mean	Highest daily maximum
Jan	30	1	15	10	1	4
Feb	30	1.5	10	10	1.5	3
Mar	30	1	8	10	1	2
Apr	30	1	6	10	1	2
May	30	1	9	10	1	3
Jun	30	1	9	10	1	2
Jul	30	1	5	10	1	1
Aug	30	0.5	2	10	0.5	1
Sep	30	0.5	1	10	0.5	1
Oct	30	1	4	10	1	1
Nov	30	1	1	10	1	1
Dec	30	1	1	10	1	1

**Comments :**

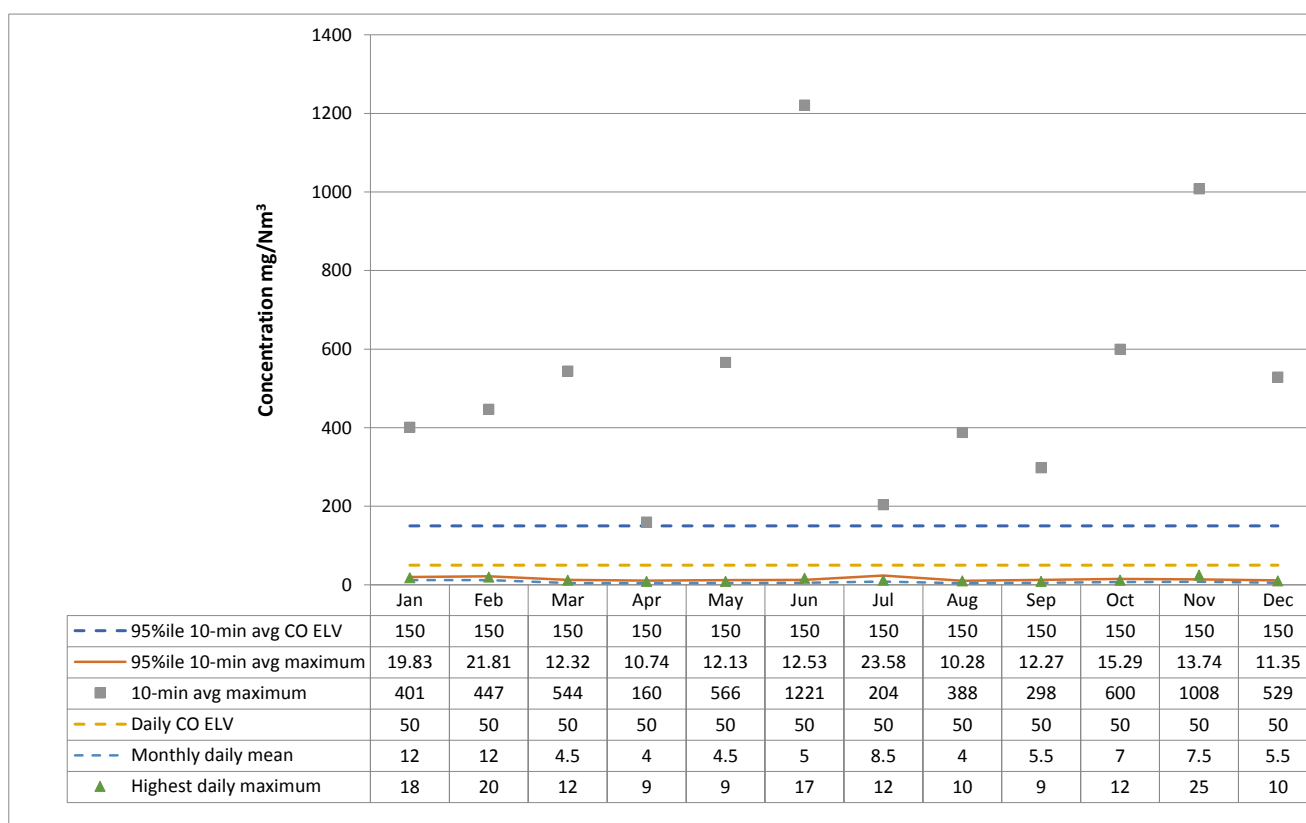
July 1/2 hourly mean greater than daily mean due to short period of running in the month on line 2 due to planned outage where only 1 valid daily average was recorded. Values are inputted to 1 significant figure.

Monitoring of Carbon Monoxide (10-minute avg)

Whole Installation

See Notes in Cell S3

mg/Nm ³	10-minute Reference Periods				Daily Reference Periods		
2019	95 th ile 10-min avg CO ELV	95 th ile 10-min avg maximum	Monthly CO 10-min avg mean	10-min avg maximum	Daily CO ELV	Monthly daily mean	Highest daily maximum
Jan	150	19.83	12	401	50	12	18
Feb	150	21.81	12	447	50	12	20
Mar	150	12.32	4.5	544	50	4.5	12
Apr	150	10.74	4	160	50	4	9
May	150	12.13	4.5	566	50	4.5	9
Jun	150	12.53	5	1221	50	5	17
Jul	150	23.58	8.5	204	50	8.5	12
Aug	150	10.28	4	388	50	4	10
Sep	150	12.27	5.5	298	50	5.5	9
Oct	150	15.29	7	600	50	7	12
Nov	150	13.74	7.5	1008	50	7.5	25
Dec	150	11.35	5.5	529	50	5.5	10

**Comments :**

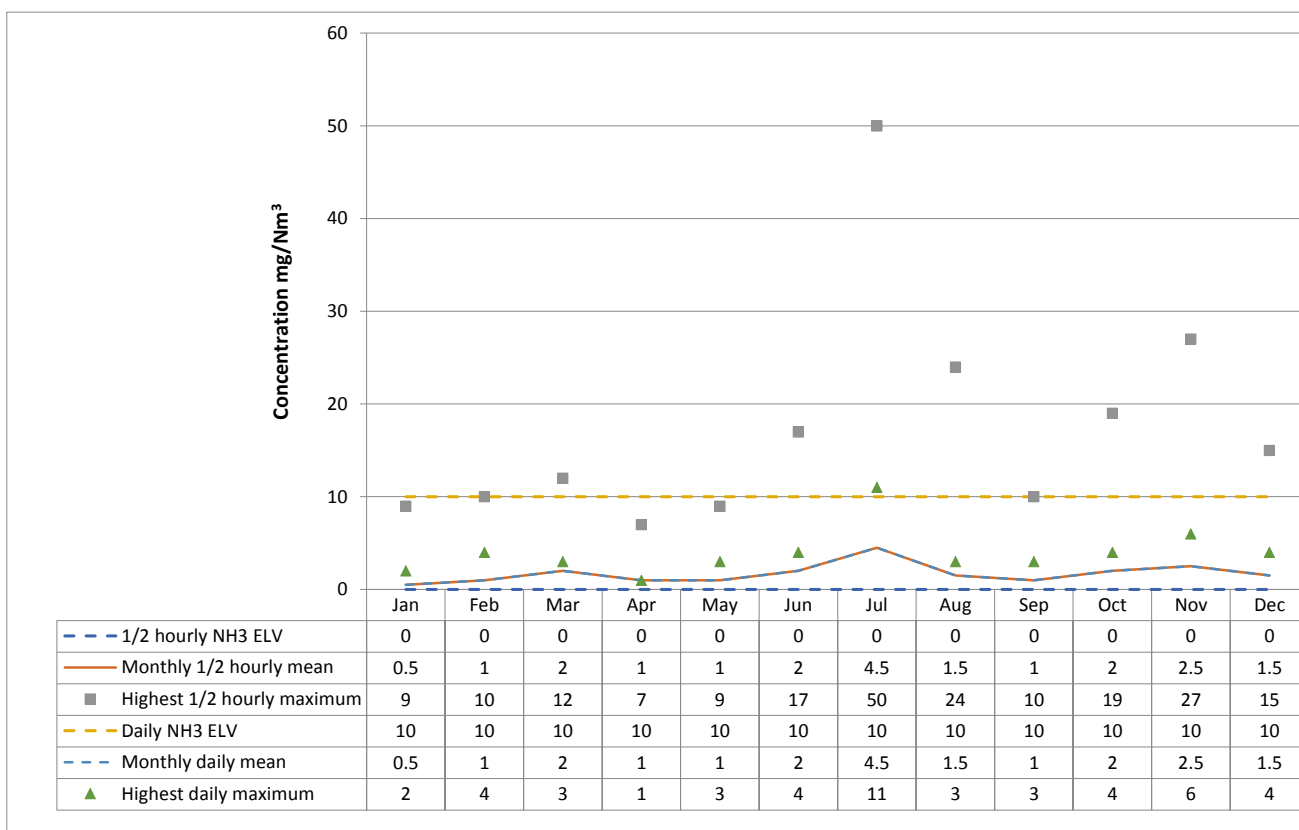
Environment Agency explanatory note: The 10-minute average ELV is based on the "95th percentile". In this case this means that 95% of the 10 minute averages in the relevant 24-hour period (i.e. 137) must be below 150 mg/Nm³, and 5% (i.e. 7) are allowed to be any value above 150 mg/Nm³. Whilst we expect operators to minimise CO emissions at all times, it is perfectly acceptable for the value of the maximum 10-minute average to be above 150 mg/Nm³, provided the 95th percentile ELV has been met for that period.

Monitoring of Ammonia emissions

Whole Installation

See Notes in Cell Q3

mg/Nm ³	1/2 Hourly Reference Periods			Daily Reference Periods		
2019	1/2 hourly NH3 ELV	Monthly 1/2 hourly mean	Highest 1/2 hourly maximum	Daily NH3 ELV	Monthly daily mean	Highest daily maximum
Jan	0	0.5	9	10	0.5	2
Feb	0	1	10	10	1	4
Mar	0	2	12	10	2	3
Apr	0	1	7	10	1	1
May	0	1	9	10	1	3
Jun	0	2	17	10	2	4
Jul	0	4.5	50	10	4.5	11
Aug	0	1.5	24	10	1.5	3
Sep	0	1	10	10	1	3
Oct	0	2	19	10	2	4
Nov	0	2.5	27	10	2.5	6
Dec	0	1.5	15	10	1.5	4

**Comments :**

An indicated ELV value of zero in the table above means that no ammonia limit is set in the permit. Values are inputted to 1 significant figure