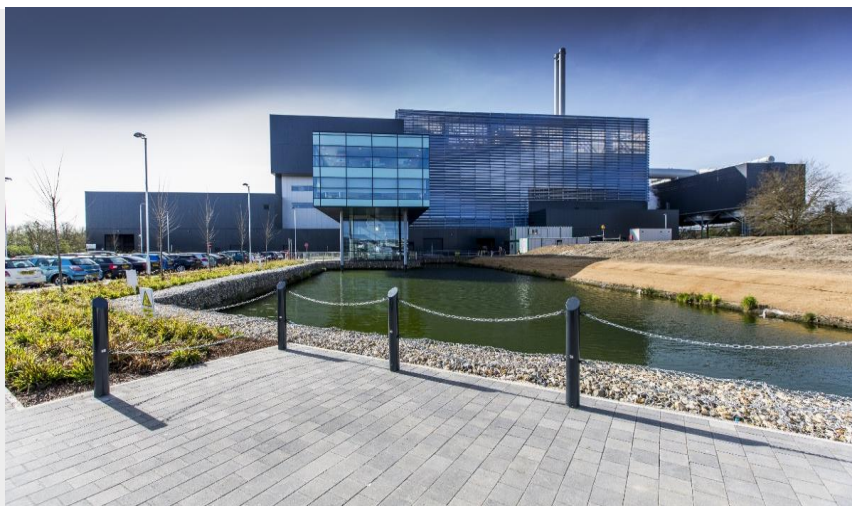




Annual Performance Report 2019

Permit EPR/WP3438HZ

Suez Suffolk Energy from Waste Facility

Suez Recycling and Recovery

Year: 2019

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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

This non-hazardous waste incinerator operates 24/7 and can receive up to 295,000 tonnes of municipal waste and commercial/Industrial waste. The plant has two furnace lines with a processing capacity of 295,000 tonnes per annum. The heat produced by waste incineration is used to raise superheated steam which generates 177,000 MWh/annum of electricity.

Activities associated with the incineration are receipt and storage of municipal waste and commercial/industrial waste, production of steam and electricity, abatement of flue gas and handling of Incinerator Bottom Ash (IBA) and Air Pollution Control Residue (APCR).

Suffolk EfW commissioning finished on 1st December 2014, when the plant was handed over from the EPC contractor to SUEZ UK. Permit conditions apply since then. The data included in this report corresponds to the following period: 1st January 2019 to 31st December 2019.

Summary of Operational Processes and Procedures

RECEPTION HALL & BUNKER

Incoming waste is delivered to site by refuse collection trucks. It is then checked in, weighed and delivered into the reception hall. A large reception hall allows for refuse collection trucks to manoeuvre and tip waste safely. Air needed for combustion is drawn into the furnace from here so that negative pressure is maintained in order to avoid odour and dust escaping the building. Waste vehicles reverse to a wheel stop and tip their loads into a large concrete bunker. Mixing of waste occurs as the cranes driver sorts the waste looking for unsuitable material to be removed, and to improve the homogeneity of the incinerator feedstock.

CONTROL ROOM

The plant's control room centralises the operation of all equipment, including the grab cranes used to mix and load waste into a hopper that feeds the furnace. All on-site functions are monitored automatically and manually. Its systems verify in real time that equipment is functioning properly, continuously monitor the combustion gas, and maximise the efficiency of the entire EfW process.

GRATE AND BOILER

Waste is lifted into the charging hoppers by the crane. From here it falls into the furnace-charging chute and then is introduced onto the grate system by hydraulic feeders for incineration. An auxiliary burner can be used to help keeping the temperature above 850°C if required. The thermal energy released from the burning is used to convert water to super-heated steam along a boiler composed of 6 vertical passes. At high pressure, this steam drives a turbine to generate electricity.

ELECTRICITY GENERATION

Electricity is generated at 11kv, with an electric production of 185,136 MWh/annum and exporting 164,116 MWh/annum to the national grid.

INCINERATOR BOTTOM ASH (IBA)

Ash left on the grate after incineration is carried by conveyor, after quenching, to the IBA processing facility. Up to 65,000 tonne of IBA is processed on site by the removal of ferrous and non-ferrous metal, stabilised and separated into fraction sizes of IBA prior to the export from site of the processed IBA and metals for re-use.

EMISSION CONTROL & AIR POLLUTION CONTROL RESIDUE (APCR)

The gases from the furnace are subject to a rigorous cleaning process involving urea as selective non-catalytic reduction (SNCR), lime and active carbon injections. This removes oxides of nitrogen, acidic gases, dioxins, and heavy metals from the gas stream. The cleaned gas passes through fine-fabric bag filters to remove solid particles before it is emitted through the stack. The resultant APCR residue, or fly-ash, contains particles from the incineration process, lime used in the flue gas treatment, salts and carbon dust. It is stored in a sealed silo until it is tankered away for recycling.

EMISSIONS MONITORING

Operational Data

Plant Size	295,000 tonnes pa	86 MWth	25 MWe
No. of combustion lines	2	No. of Turbines:	1

Waste types received	Unit	Q1	Q2	Q3	Q4	Year Total	%
Household / Local Authority	tonnes	63,534	51,196	66,389	59,834	240,953	89.0%
Commercial & Industrial		8,212	2,905	5,982	8,736	25,836	9.5%
Hazardous		-	-	-	-	-	-
Clinical		1,037	542	1,277	1,126	3,983	1.5%
Waste wood (biomass)		-	-	-	-	-	-
Refuse derived fuel		-	-	-	-	-	-
Solid recovered fuel		-	-	-	-	-	-
Other [020103]		-	-	-	4	4	0.0%
Other [Please specify]		-	-	-	-	-	-
Other [Please specify]		-	-	-	-	-	-
Total waste received		72,784	54,644	73,649	69,700	270,776	100.0%
Rejected Waste		13	-	0	11	25	0.0%
Waste transferred out		-	-	-	-	-	-

Energy Usage / Export	Unit	Q1	Q2	Q3	Q4	Year Total	KWh/te
Power Generated	MWh	50,788	37,123	52,167	45,059	185,136	684
Power Exported		45,114	32,712	46,345	39,944	164,116	606
Power Used on site		-	-	-	-	-	-
Power Imported		1	338	180	182	701	3
Parasitic Load	%	11.2%	12.7%	11.5%	11.7%	11.7%	-
Thermal Energy Produced	GWh	177	136	184	163	660	2
Thermal Energy Exported		-	-	-	-	-	-
R1 value		-	-	-	0.79	Operational	-

Waste Disposal & Recovery	Unit	Q1	Q2	Q3	Q4	Year Total	% inputs
APC Residues - produced	tonnes	1,582	1,193	1,547	1,433	5,754	2.1%
IBA - produced		14,682	11,938	9,732	11,037	47,389	17.5%
Metals recycling		2,432	2,153	2,425	2,195	9,205	3.4%
WEEE		3	3	3	3	12	0.0%
160303 - Unused Lime		-	2	-	-	2	0.0%
150202 - Bag Filter		-	9	-	-	9	0.0%
190113 - Fly Ash/Grit		-	147	-	15	162	0.1%

Raw Material Usage	Unit	Q1	Q2	Q3	Q4	Year Total	kg or Ltr /te
Mains Water	m ³	11,403	11,530	11,656	11,656	46,246	170.79
Other Water	m ³	-	-	-	-	-	-
Ammonia / Urea	kgs	205,836	151,085	158,463	140,112	655,496	2,420.81
Activated Carbon	kgs	21,068	16,032	21,176	19,490	77,766	287.20
Lime / hydrated lime	kgs	609,288	448,782	512,431	346,088	1,916,589	7,078.14
Fuel oil	ltrs	97,667	96,130	12,995	99,087	305,880	1,129.64
Gas	cf	-	-	-	-	-	-
Other		-	-	-	-	-	-

Summary of Hours	Line/Unit	Q1	Q2	Q3	Q4	Year Total	
Hours of waste combustion, total	1	2,142	1,480	2,208	2,006	7,836	x %
Hours of waste combustion, total	2	2,105	1,709	2,208	1,957	7,979	x %
Hours of waste combustion, total		-	-	-	-	-	x %
Hours of waste combustion, total		-	-	-	-	-	x %
Hours of waste combustion, total		-	-	-	-	-	x %
Hours of turbine operations, total	1	2,145	1,740	2,208	2,065	8,158	x %

Hours of turbine operations, total						-	x %
Hours of heat / steam export		-	-	-	-	-	n/a
Abnormal Events	qty.	-	1	-	1	2	yes
Abnormal operation	hours		2	-	1	3	0.03%
Permit Breaches	qty.	3	3	1	4	11	yes

Summary of Plant Operations and Maintenance during the reporting year

The final economisers (condensate pre-heaters) were replaced during the April and May outages on both lines in 2019. The replacement of the initially designed and installed heating surfaces which were significantly fouled/blocked causing unnecessary burden on the ID fans and associated parasitic power loss. The new heating surface has performed well and following inspection in the October outage has suffered acceptable levels of fouling.

The bag filters were replaced in the April and May outages on both lines in 2019. Whilst the bags were removed the casing of the bag house was inspected and the opportunity to repair areas of the casing that had suffered corrosion. This repair of the holed casing has greatly improved the burden on the ID fan by reducing flow.

Major improvements to the urea handling system have been achieved in 2019. At the beginning of the year significant blockages were experienced within the Silo and immediate downstream handling systems. In the early part of the year this led to a decision to suspend bulk deliveries and manually feed urea into the hoppers delivered to the site in bags. The manual handling was then improved to allow the bagged urea to be air fed into the hoppers, significantly mitigating the manual handling. A set of trials were developed to test the performance of alternate urea products. The outcome of the trials identified the most appropriate urea for our system and operation with this urea in a controlled manner through the Silo was begun by feeding increasing the quantity of bulk delivered urea. Operation with the Silo has now been successful since November of 2019.

Summary of Residue Handling for the reporting year

Incinerator bottom ash is sorted and then transferred as aggregate, ferrous and non-ferrous metals for reprocessing. APRr and fly ash residues are stored in a silo and then taken by tanker for landfill disposal.

2019 Annual Reporting Performance Form 1

Permit EPR/WP3438HZ

Operator: Suez Recycling and Recovery

Facility: Suez Suffolk Energy from Waste Facility

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	Landfill	5,754		2.1%
IBA				-
				-
				-
Total Hazardous Waste		5,754.5	0.0	2.1%
2) Non-Hazardous Wastes				
IBA	Reprocessing	47,388.9		17.5%
Ferrous Metal	Reprocessing	6,196.9		2.3%
Process Water				-
Non Ferrous Metal	Reprocessing	3,008.5		1.1%
				-
Total Non-Hazardous Waste		56,594.3	0.0	20.9%
TOTAL WASTE		62,348.7	0.0	23.0%

Operator's comments :

2019 Annual Reporting of Water and Other Raw Material Usage

Raw Material	Usage	Unit	Specific Usage	Unit
Mains Water	46,246	m ³	0.17	m ³ /te
Total Water	46,246	m ³	0.17	m ³ /te
Urea / Ammonia	655,496	kg	2.42	kg/te
Activated Carbon	77,766	kg	0.29	kg/te
Lime / hydrated lime / Sodium Bicarb.	1,916,589	kg	7.08	kg/te

Operator's comments :

2019 Annual Reporting of other performance indicators

Parameter	Results by Line					Turbine 1	Turbine 2
	A1	A2	A3	A4	A5		
Operating hours for the year, hours	7,836	7,979				8,158	
Number of periods of abnormal operation, qty.	1	1					
Cumulative hours of abnormal operation for this year, hours	1.5	1					

Operator's comments :

Signed: _____

Date: _____

2019 Annual Reporting of Energy Usage/Export

Permit EPR/WP3438HZ

Operator: Suez Recycling and Recovery

Facility: Suez Suffolk Energy from Waste Facility

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	185,136	MWh	684
Electricity Imported	700.983	MWh	3
Electricity Exported	164,116	MWh	606
Gas Oil		tonnes	
Steam/hot water exported	0	GWh	-

Operator's comments :

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Signed: _____

Date: _____

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%	99.73%
Sulphur dioxide	99.98%	100%
Carbon monoxide	100%	100%
Total organic carbon	99.98%	100%
Hydrogen chloride	99.97%	99.73%
Hydrogen fluoride		
	xx %	xx %

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
29/01/2019	Notification SUF 001-19, submitted 30/1/19	See notification	See Part B
08/02/2019	Notification SUF 002-19, submitted 11/2/19	See notification	See Part B
14/02/2019	Notification SUF 003-19, submitted 15/2/19	See notification	See Part B
04/04/2019	Notification SUF 004-19, submitted 4/4/19	See notification	See Part B
20/04/2019	Notification SUF 005-19, submitted 23/4/19	See notification	See Part B
24/04/2019	Notification SUF 006-19, submitted 24/4/19	See notification	See Part B
30/04/2019	Notification SUF 007-19, submitted 30/4/19	See notification	See Part B
21/08/2019	Notification SUF 008-19, submitted 22/8/19	See notification	See Part B
22/10/2019	Notification SUF 009-19, submitted 23/10/19	See notification	See Part B
24/11/2019	Notification SUF 0010-19, submitted 25/11/19	See notification	See Part B
25/11/2019	Notification SUF 0011-19, submitted 26/11/19	See notification	See Part B
02/12/2019	Notification SUF 0012-19, submitted 3/12/19	See notification	See Part B
17/12/2019	Notification SUF 0013-19, submitted 17/12/19	See notification	

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

Date	Summary of complaint [including Line/Reference]	Reason *	Measures taken to prevent reoccurrence
15/03/2019	Odour complaint received from member of public.	Not substantiated by site or	N/A
27/03/2019	Odour complaint received from member of public.	Not substantiated by site or	N/A
16/05/2019	Odour complaint received from member of public.	Not substantiated by site or	N/A
25/05/2019	Odour complaint received from member of public.	Not substantiated by site or	N/A
06/06/2019	Dust complaint received from member of public.	Not substantiated by site or	N/A
21/06/2019	Odour complaint received from member of public.	Not substantiated by site or	N/A

* 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.**

Minor improvements to the plant cycle efficiency through minimisation of parasitic loads where possible.
Consider to investigate the potential of heat supply to improve the overall plant efficiency.

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

N/A

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.

Permit variation - ERP/WP3438HZ/V007 - To increase allowable waste throughput to 295,000 tonnes per year.
Environmental impacts considered as part of the application and were considered not to lead to a significant increase in environmental impact.

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

The operator will continue to implement plant improvements as the opportunity arises.

Details of Public & Stakeholder Liasion

Summary of events held during the reporting year.	
Date	Description
March, July, November	Community Liasion Group mtgs
May	Extraordinary CLG mtg re capacity increase
June	Public drop in sessions re planning/permitting changes

List of events planned for next year	
Date	Description
March, July, November	Community Liasion Group mtgs

If you wish to be involved in the public liasion programme, please contact Oliver Morrall

Residue Quality Monitoring Requirements

Summary of monitoring undertaken and compliance
Quarterly ash analysis carried out.

Commentary on any specific events	
Date & Event	Description

Residue Quality Monitoring Results			
Parameter (unit)	Limit	Normal Operation	
		Bottom ash	APC Residues
Loss on Ignition (%)	<5%		
ToC (%)	<3%	1.08	
No. of Assessments Undertaken	---	4	
No. of Hazardous Assessments	---	0	

Comments :

Emissions to Water

Summary of monitoring undertaken and compliance

Commentary on any specific events
--

Date & Event	Description

Emissions to Water / Sewer

Parameter	Monitoring Frequency	Limit	Target	Max.	Average

Emissions to Air (periodically monitored)**Summary of monitoring undertaken, standards used and compliance**

Periodic monitoring undertaken twice per year by MCERTs accredited contractor.

Results of emissions to air that are periodically monitored

Substance	Ref. Period	Emission Limit Value	Average				
			A1	A2	A3	A4	A5
Hydrogen fluoride	1 hr	2 mg/m ³	0.0265	0.025			
Cd and Th and their compounds	6-8hrs	0.05 mg/m ³	0.001	0.00085			
Hg and its compounds	6-8hrs	0.05 mg/m ³	0.00115	0.00145			
Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V and their compounds	6-8hrs	0.5 mg/m ³	0.062	0.0117			
Dioxins & Furans (I-TEQ)	6-8hrs	0.1 ng/m ³	0.00074	0.0008			
PCBs (WHO-TEQ Humans / Mammals)	6-8hrs	None set ng/m ³	3.46E-05	3.94E-05			
PCBs (WHO-TEQ Fish)	6-8hrs	None set ng/m ³	2.4E-06	2.45E-06			
PCBs (WHO-TEQ Birds)	6-8hrs	None set ng/m ³	0.000364	0.000268			
Dioxins & Furans (WHO-TEQ Humans / Mammals)	6-8hrs	None set ng/m ³	0.000635	0.00072			
Dioxins & Furans (WHO-TEQ Fish)	6-8hrs	None set ng/m ³	0.000745	0.00085			
Dioxins & Furans (WHO-TEQ Birds)	6-8hrs	None set ng/m ³	0.00166	0.00147			
Anthanthrene	6-8hrs	None set µg/m ³	0.016	0.014			
Benzo(a)anthracene	6-8hrs	None set µg/m ³	0.016	0.014			
Benzo(a)pyrene	6-8hrs	None set µg/m ³	0.016	0.014			
Benzo(b)fluoranthene	6-8hrs	None set µg/m ³	0.016	0.014			
Benzo(b)naphtho(2,1-d)thiophene	6-8hrs	None set µg/m ³	0.025	0.0215			
Benzo(c)phenanthrene	6-8hrs	None set µg/m ³	0.025	0.0215			
Benzo(ghi)perylene	6-8hrs	None set µg/m ³	0.016	0.014			
Benzo(k)fluoranthene	6-8hrs	None set µg/m ³	0.016	0.014			
Cholanthrene	6-8hrs	None set µg/m ³	0.016	0.014			
Chrysene	6-8hrs	None set µg/m ³	0.016	0.014			
Cyclopenta(cd)pyrene	6-8hrs	None set µg/m ³	0.025	0.0215			
Dibenzo(ai)pyrene	6-8hrs	None set µg/m ³	0.016	0.014			
Dibenzo(ah)anthracene	6-8hrs	None set µg/m ³	0.016	0.014			
Fluoranthene	6-8hrs	None set µg/m ³	0.0425	0.0215			
Indeno(123-cd) pyrene	6-8hrs	None set µg/m ³	0.016	0.014			
Naphthalene	6-8hrs	None set µg/m ³	0.0905	0.7235			

Comments :

Emissions to Air (continuously monitored)

Summary of monitoring undertaken, standards used and compliance												

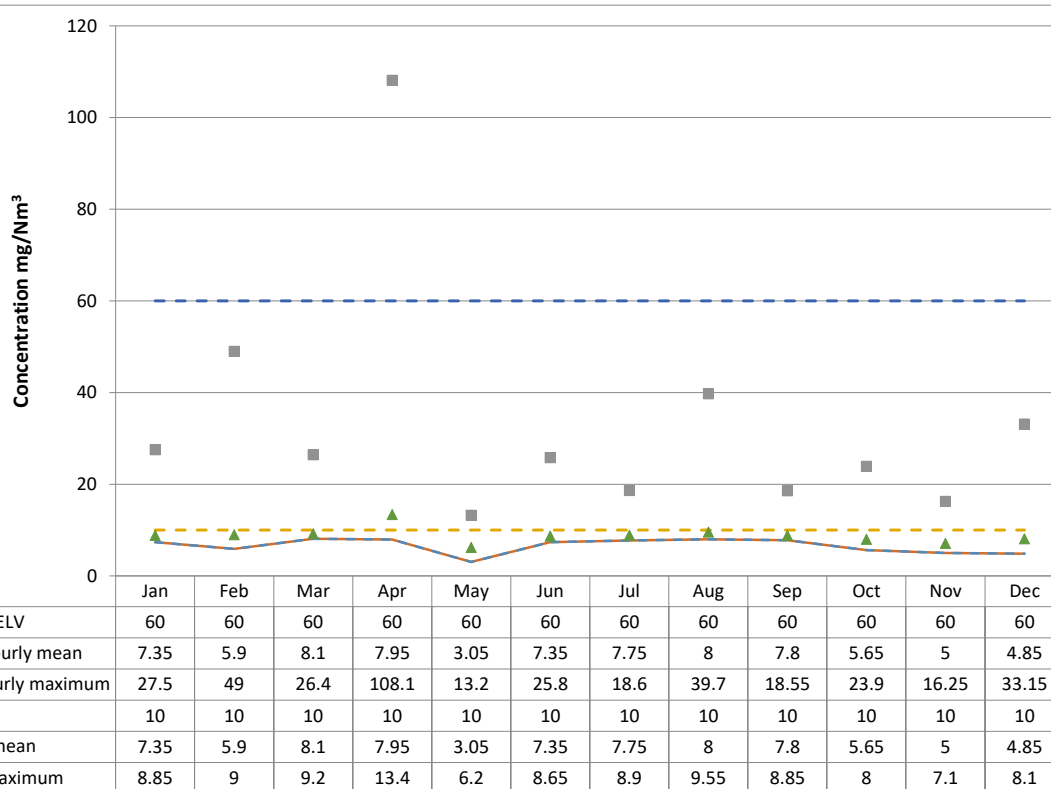
Results of emissions to air that are continuously monitored												
Substance	Reference Period	Emission Limit Value	A1		A2		A3		A4		A5	
			Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.	Avg.
Oxides of nitrogen	Daily mean	200 mg/m ³	210.0	179.5	188.0	178.9						
	½ hourly mean	400 mg/m ³	353.8	179.5	316.5	178.9						
Particulates	Daily mean	10 mg/m ³	7.5	2.3	0.8	2.3						
	½ hourly mean	30 mg/m ³	11.6	2.3	1.7	2.3						
Total Organic Carbon	Daily mean	10 mg/m ³	0.9	0.5	1.3	0.5						
	½ hourly mean	20 mg/m ³	28.0	0.5	29.4	0.5						
Hydrogen chloride	Daily mean	10 mg/m ³	9.3	6.7	17.7	6.7						
	½ hourly mean	60 mg/m ³	74.1	6.7	192.9	6.7						
Sulphur dioxide	Daily mean	50 mg/m ³	44.2	16.7	43.0	16.7						
	½ hourly mean	200 mg/m ³	265.6	16.7	242.5	16.7						
Carbon monoxide	Daily mean	50 mg/m ³	6.6	1.2	8.0	0.9						
	95%ile 10-min avg *	150 mg/m ³ *	24.4	1.2	8.2	0.9						
Ammonia	Daily mean	No limit set				0.0						
* = delete or amend as appropriate												
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	7.35	27.5	10	7.35	8.85
Feb	60	5.9	49	10	5.9	9
Mar	60	8.1	26.4	10	8.1	9.2
Apr	60	7.95	108.1	10	7.95	13.4
May	60	3.05	13.2	10	3.05	6.2
Jun	60	7.35	25.8	10	7.35	8.65
Jul	60	7.75	18.6	10	7.75	8.9
Aug	60	8	39.7	10	8	9.55
Sep	60	7.8	18.55	10	7.8	8.85
Oct	60	5.65	23.9	10	5.65	8
Nov	60	5	16.25	10	5	7.1
Dec	60	4.85	33.15	10	4.85	8.1



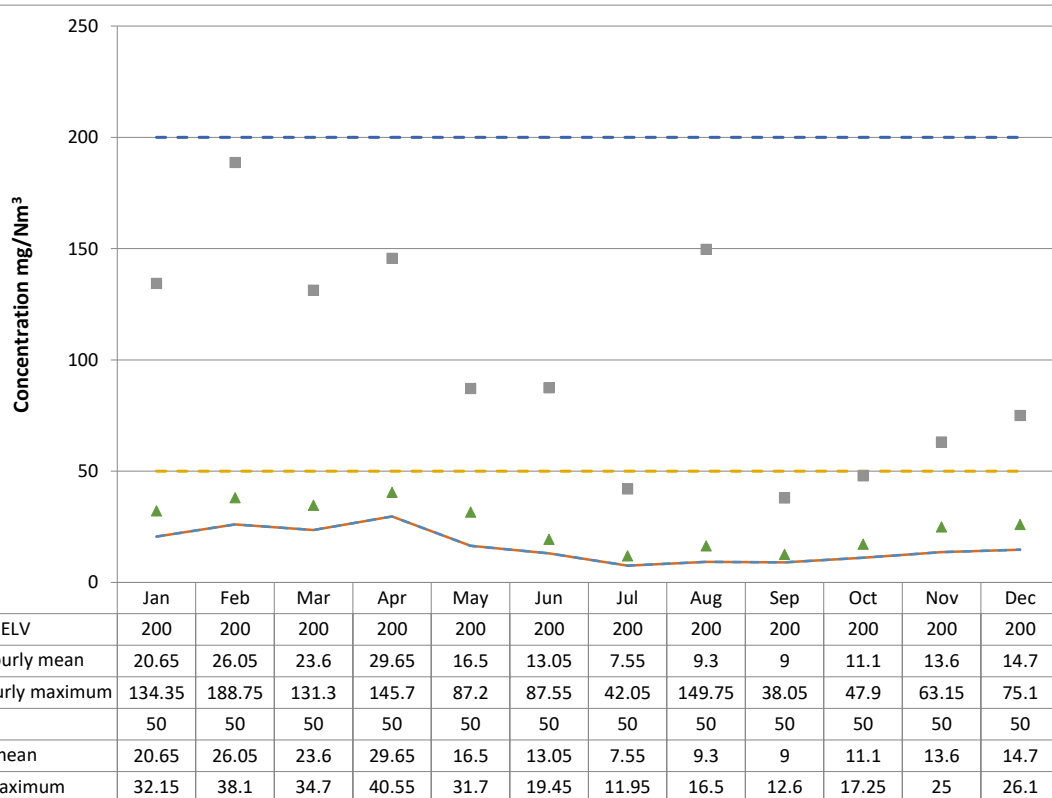
Comments :

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	20.65	134.35	50	20.65	32.15
Feb	200	26.05	188.75	50	26.05	38.1
Mar	200	23.6	131.3	50	23.6	34.7
Apr	200	29.65	145.7	50	29.65	40.55
May	200	16.5	87.2	50	16.5	31.7
Jun	200	13.05	87.55	50	13.05	19.45
Jul	200	7.55	42.05	50	7.55	11.95
Aug	200	9.3	149.75	50	9.3	16.5
Sep	200	9	38.05	50	9	12.6
Oct	200	11.1	47.9	50	11.1	17.25
Nov	200	13.6	63.15	50	13.6	25
Dec	200	14.7	75.1	50	14.7	26.1



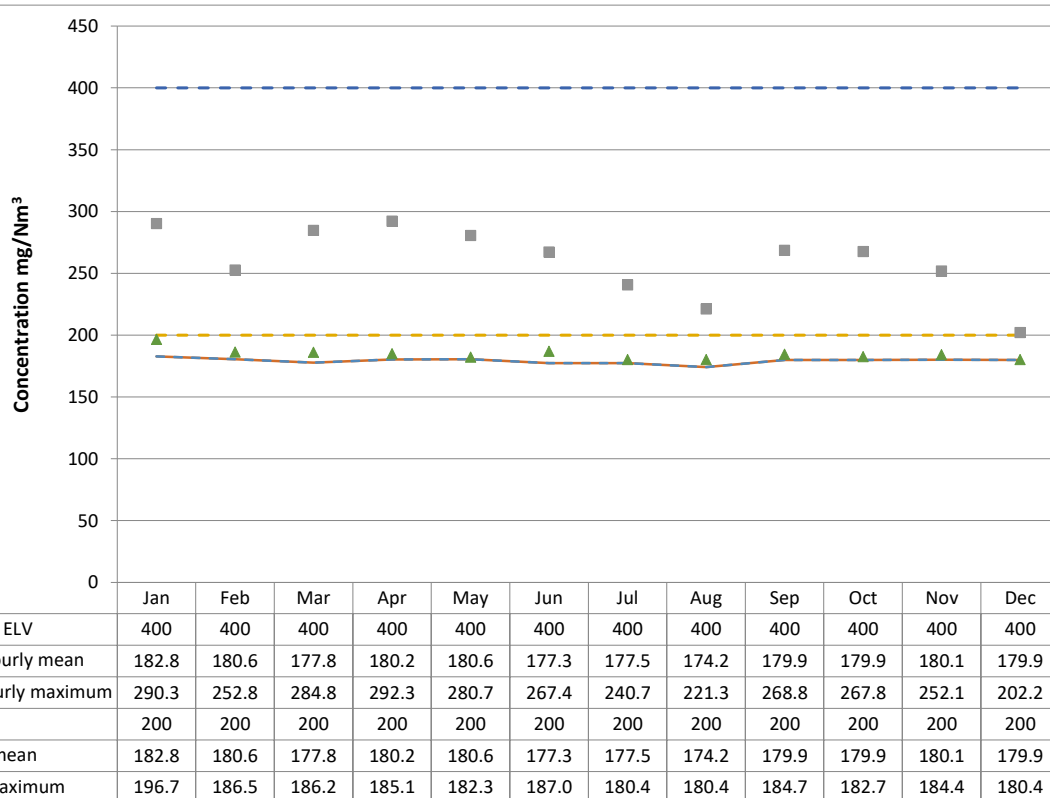
Comments :

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	182.8	290.3	200	182.8	196.7
Feb	400	180.6	252.8	200	180.6	186.5
Mar	400	177.8	284.8	200	177.8	186.2
Apr	400	180.2	292.3	200	180.2	185.1
May	400	180.6	280.7	200	180.6	182.3
Jun	400	177.3	267.4	200	177.3	187.0
Jul	400	177.5	240.7	200	177.5	180.4
Aug	400	174.2	221.3	200	174.2	180.4
Sep	400	179.9	268.8	200	179.9	184.7
Oct	400	179.9	267.8	200	179.9	182.7
Nov	400	180.1	252.1	200	180.1	184.4
Dec	400	179.9	202.2	200	179.9	180.4

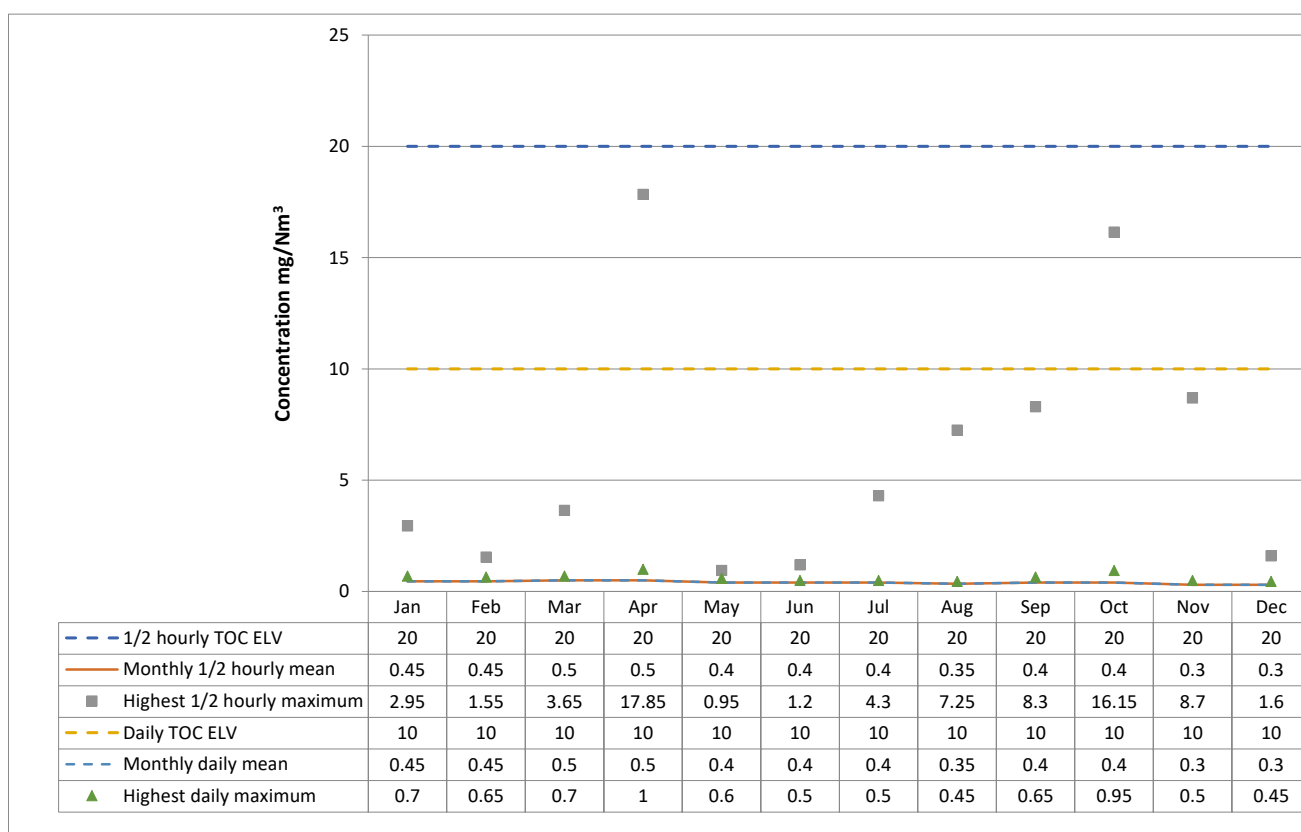


Comments :

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	0.45	2.95	10	0.45	0.7
Feb	20	0.45	1.55	10	0.45	0.65
Mar	20	0.5	3.65	10	0.5	0.7
Apr	20	0.5	17.85	10	0.5	1
May	20	0.4	0.95	10	0.4	0.6
Jun	20	0.4	1.2	10	0.4	0.5
Jul	20	0.4	4.3	10	0.4	0.5
Aug	20	0.35	7.25	10	0.35	0.45
Sep	20	0.4	8.3	10	0.4	0.65
Oct	20	0.4	16.15	10	0.4	0.95
Nov	20	0.3	8.7	10	0.3	0.5
Dec	20	0.3	1.6	10	0.3	0.45



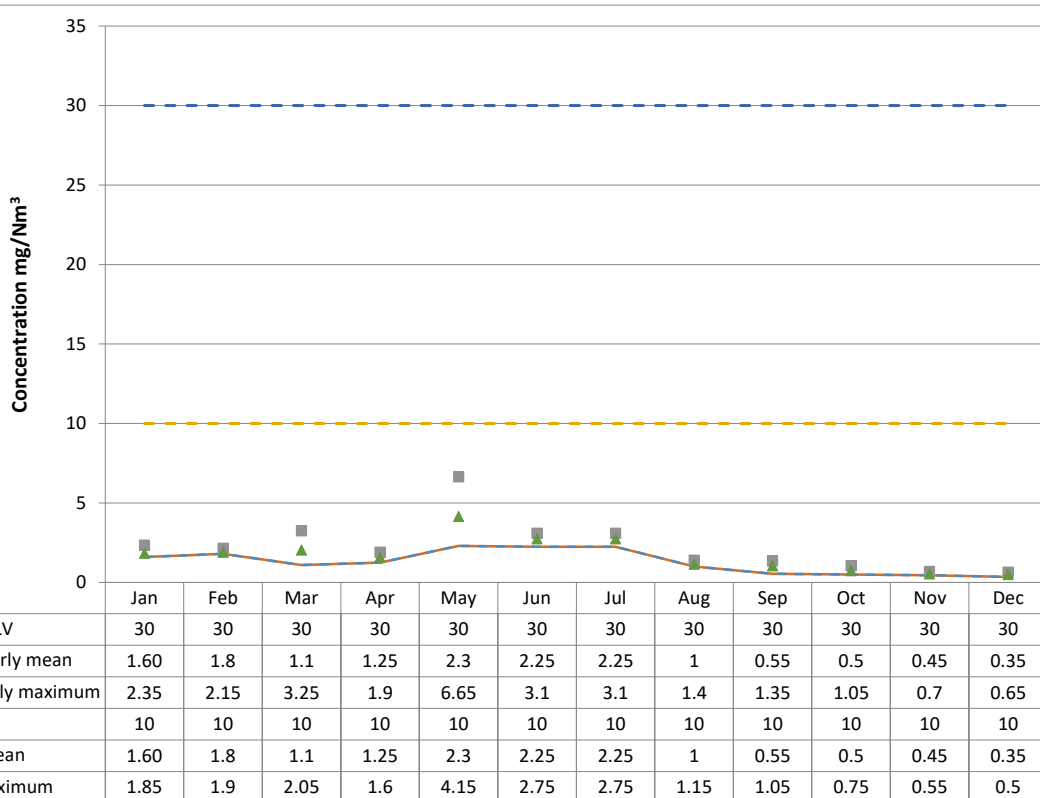
Comments :

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	1.60	2.35	10	1.60	1.85
Feb	30	1.8	2.15	10	1.8	1.9
Mar	30	1.1	3.25	10	1.1	2.05
Apr	30	1.25	1.9	10	1.25	1.6
May	30	2.3	6.65	10	2.3	4.15
Jun	30	2.25	3.1	10	2.25	2.75
Jul	30	2.25	3.1	10	2.25	2.75
Aug	30	1	1.4	10	1	1.15
Sep	30	0.55	1.35	10	0.55	1.05
Oct	30	0.5	1.05	10	0.5	0.75
Nov	30	0.45	0.7	10	0.45	0.55
Dec	30	0.35	0.65	10	0.35	0.5



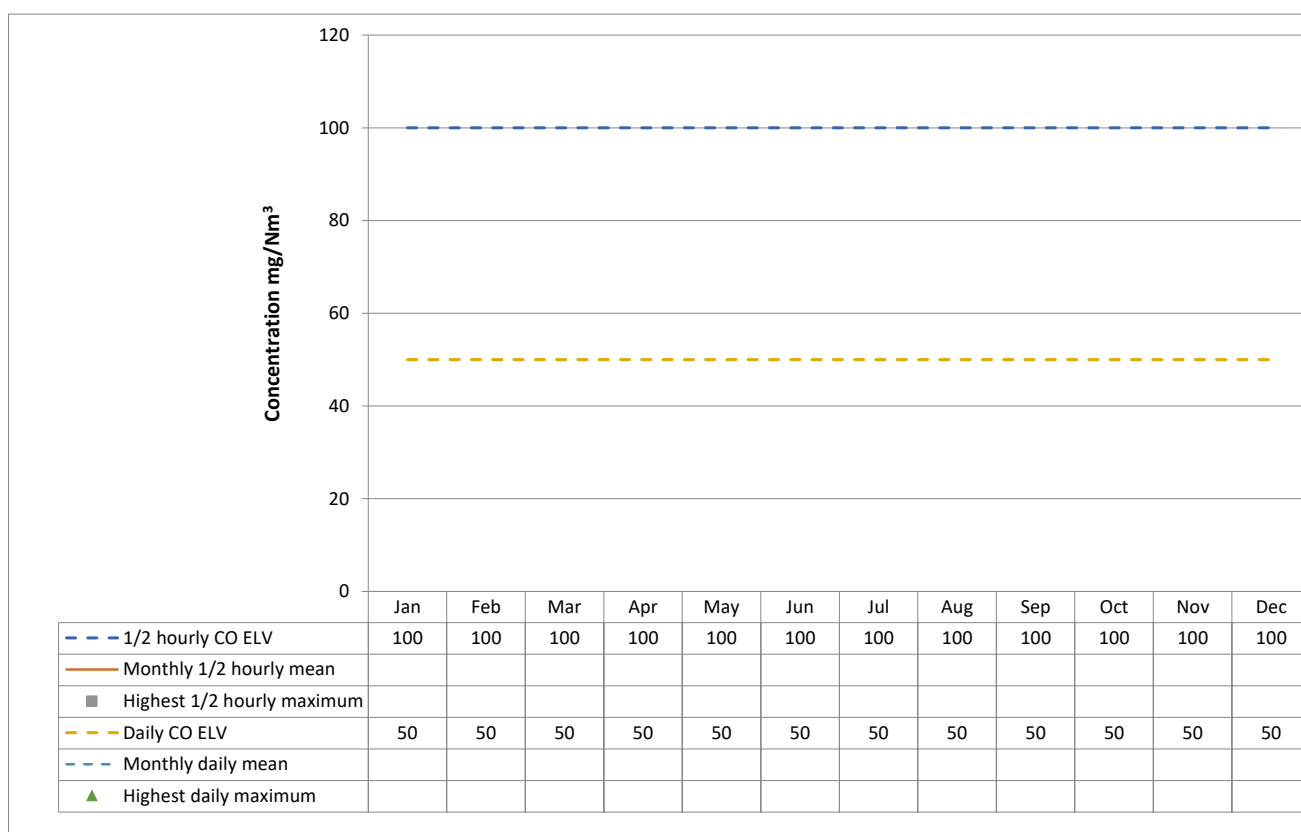
Comments :

Monitoring of Carbon Monoxide (half hourly)

Whole Installation

See Notes in Cell Q3

mg/Nm ³	1/2 Hourly Reference Periods			Daily Reference Periods		
2019	1/2 hourly CO ELV	Monthly 1/2 hourly mean	Highest 1/2 hourly maximum	Daily CO ELV	Monthly daily mean	Highest daily maximum
Jan	100			50		
Feb	100			50		
Mar	100			50		
Apr	100			50		
May	100			50		
Jun	100			50		
Jul	100			50		
Aug	100			50		
Sep	100			50		
Oct	100			50		
Nov	100			50		
Dec	100			50		



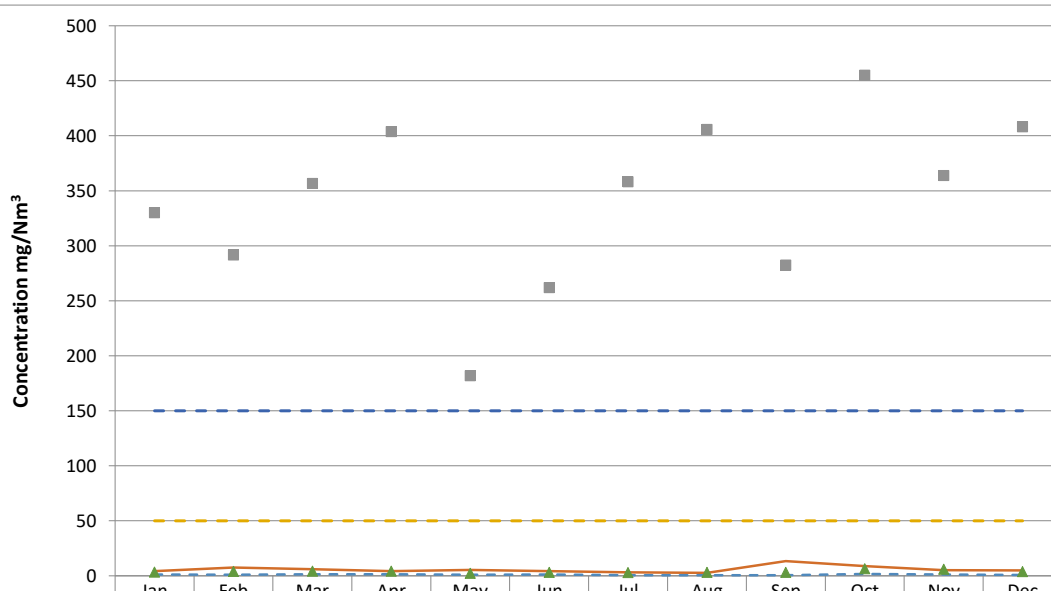
Comments :

Monitoring of Carbon Monoxide (10-minute avg)

Whole Installation

See Notes in Cell S3

mg/Nm ³	10-minute Reference Periods				Daily Reference Periods		
	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
2019							
Jan	150	4.2	1.2	330.2	50	1.2	3.5
Feb	150	7.6	1.0	291.8	50	1.0	4.0
Mar	150	5.9	1.3	356.8	50	1.3	4.3
Apr	150	4.2	1.5	403.9	50	1.5	4.4
May	150	5.3	0.9	181.8	50	0.9	2.3
Jun	150	4.2	1.1	262.0	50	1.1	3.3
Jul	150	3.2	0.6	358.3	50	0.6	2.9
Aug	150	2.7	0.6	405.7	50	0.6	3.2
Sep	150	13.4	0.6	282.5	50	0.6	3.2
Oct	150	8.9	1.7	455.1	50	1.7	6.4
Nov	150	5.0	1.2	364.0	50	1.2	5.9
Dec	150	5.0	0.8	408.3	50	0.8	3.8



95 th ile 10-min avg CO ELV	150	150	150	150	150	150	150	150	150	150	150	150
95 th ile 10-min avg maximum	4.2	7.6	5.9	4.2	5.3	4.2	3.2	2.7	13.4	8.9	5.0	5.0
10-min avg maximum	330.2	291.8	356.8	403.9	181.8	262.0	358.3	405.7	282.5	455.1	364.0	408.3
Daily CO ELV	50	50	50	50	50	50	50	50	50	50	50	50
Monthly daily mean	1.2	1.0	1.3	1.5	0.9	1.1	0.6	0.6	0.6	1.7	1.2	0.8
Highest daily maximum	3.5	4.0	4.3	4.4	2.3	3.3	2.9	3.2	3.2	6.4	5.9	3.8

Comments :

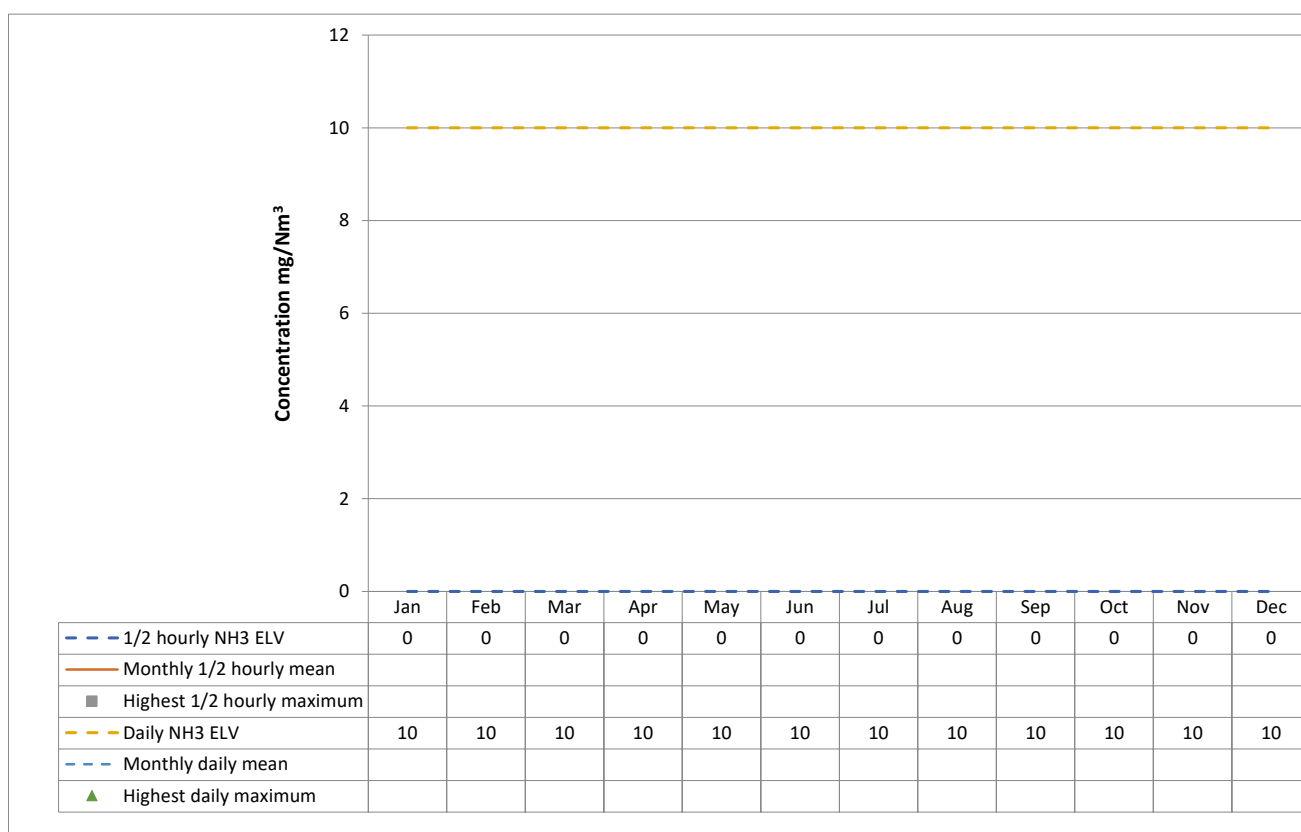
Environment Agency explanatory note: The 10-minute average ELV is based on the "95th percentile". In this case this means that 95% of the 10 minute averages in the relevant 24-hour period (i.e. 137) must be below 150 mg/Nm³, and 5% (i.e. 7) are allowed to be any value above 150 mg/Nm³. Whilst we expect 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			10		
Feb	0			10		
Mar	0			10		
Apr	0			10		
May	0			10		
Jun	0			10		
Jul	0			10		
Aug	0			10		
Sep	0			10		
Oct	0			10		
Nov	0			10		
Dec	0			10		



Comments :

An indicated ELV value of zero in the table above means that no ammonia limit is set in the permit.