
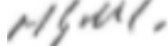




Annual Performance Report 2019
WP3833FT
MVV Environmental Devonport Ltd
Devonport Energy from Waste CHP

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Signed			22nd Jan 2020

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Signed			22nd Jan 2020

Version: 2.0

Issue Date: 12/11/2019

Contents		
Section	Subject	Page
1	Facility Information	4
2	Operational Data	5
3	Operational Summary	6
4	Performance Form 1	7
5	Energy Form 1	8
6	Permit Compliance	9
7	Improvements	10
8	Public Liasion	11
9	Residue Quality - Optional	12
10	Emissions to Water	13
11	Emissions to Air (periodically monitored)	15
12	Emissions to Air (continuously monitored)	16
13	Hydrogen Chloride emissions	17
14	Sulphur Dioxide emissions	18
15	Particulate Matter emissions	19
16	Oxides of Nitrogen emissions	20
17	Total Organic Carbon emissions	21
18	Carbon Monoxide emissions	22

Version Control		
No	Information	Date
1	Emission data input	06/01/2020
1.1	Issue out to business functions for data input	06/01/2020
1.2	Collate inputs	13/01/2020
1.3	Collate inputs	17/01/2020
1.4	Review and Reconciliation	21/01/2020
2	Final Review and sign off	22/01/2020

Distribution	
1	Electronically in IMS Cloud Based System
2	Facility Manager
3	Operations Manager
4	QHSE Manager
5	Contracts Manager
6	Environment Agency
7	SWDWP (Client)

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 installation is designed to dispose of residual municipal waste, and commercial and industrial waste of a similar nature to residual municipal waste, by incineration. These wastes are currently landfilled. Energy is recovered from the incineration process in the form of electricity, which is fed into the national grid, and steam, which is used within the adjacent naval dockyard.

The installation is designed with a maximum operating capacity of 265,000 tonnes per year. The incinerator is of a mass burn design. Waste is delivered by road and tipped within the main building in the Tipping Hall directly into the Waste Bunker. The waste is stored and mixed in the waste bunker prior to being burnt in a moving grate incinerator plant. Heat from the combustion process is used to generate steam at high pressure. The high-pressure steam is fed to a steam turbine to generate electricity. Lower pressure steam is supplied to the Devonport dockyard. This replaces steam currently generated at the dockyard in a combustion plant burning natural gas. Heat not recovered in the form of electricity or steam is dissipated through air cooled condensers.

Summary of Operational Processes and Procedures

The installation uses a combination of techniques for treating emissions from the combustion process in order to prevent and minimise pollution. These are:

- Good combustion control
- Selective non-catalytic reduction for NO_x control
- Dry scrubbing with sodium bicarbonate and activated carbon for the control of acid gases, metals and dioxins and furans
- Bag filters for particulate control
- A 95m chimney

The incineration process results in solid residues of incinerator bottom ash and air pollution control residues. Treatment for recovery or disposal of solid residues takes place clear from the installation with only minimal storage occurring onsite.

The installation processes maximise reuse and recycling all its own water, which comprises that from periodic boiler blowdown and boiler feed water treatment wastewater. However, from time to time, disposal of wastewater to sewer will be required.

The site is in the northern section of Her Majesty's Naval Base, Devonport Dockyard in Plymouth.

The installation receives primarily mixed residual municipal wastes to include a range of commercial and industrial wastes which can be safely burnt in the incineration plant. Pre-treatment of waste is not carried out, other than the shredding of some bulky items. However, the installation does not receive wastes intended to be recovered or recycled unless they are contaminated to the extent that they are unsuitable for recovery or recycling or would otherwise be destined for landfill.

Operational Data							
Plant Size		tonnes pa	265,000	MWth		MWe	
No. of combustion lines	1	No. of Turbines:		1			

Waste types received	Unit	Q1	Q2	Q3	Q4	Year Total	%
Household / Local Authority	tonnes	41,882	42,984	42,438	41,479	168,783	63.7%
Commercial & Industrial		27,071	18,023	21,433	29,743	96,270	36.3%
Hazardous		-	-	-	-	-	0.0%
Clinical		-	-	-	-	-	0.0%
Waste wood (biomass)		-	-	-	-	-	0.0%
Refuse derived fuel		-	-	-	-	-	0.0%
Solid recovered fuel		-	-	-	-	-	0.0%
Total waste received			68,953	61,007	63,871	71,222	265,053
Rejected Waste						-	-
Waste transferred out						-	-

Energy Usage / Export	Unit	Q1	Q2	Q3	Q4	Year Total	KWh/te
Power Generated	MWh	52,309	48,029	53,447	51,974	205,759	776
Power Exported		47,646	43,801	48,595	47,127	187,169	706
Power Used on site		4,663	4,228	4,852	4,847	18,590	70
Power Imported		-	204	12	100	316	1
Parasitic Load	%	8.9%	9.2%	9.1%	9.5%	9.2%	
Thermal Energy Produced	GWh	25	9	3	12	48	0
Thermal Energy Exported	GWh	25	9	3	12	48	0
R1 value					0.89	Design / Operational	

Disposal & Recovery	Unit	Q1	Q2	Q3	Q4	Year Total	% inputs
APC Residues - produced	tonnes	2,135	1,849	1,953	2,227	8,164	3.1%
IBA - produced		17,143	15,785	17,536	17,742	68,206	25.7%
Metals recycling		-	-	-	-	-	-

Raw Material Usage	Unit	Q1	Q2	Q3	Q4	Year Total	kg or Ltr /te
Mains Water	m ³	16,791	15,296	11,244	14,035	57,366	216.43
Other Water	m ³	NA	NA	NA	NA	-	-
Ammonia / Urea	kgs	71,200	68,700	64,890	55,700	260,490	982.78
Activated Carbon	kgs	9,050	11,100	12,780	14,220	47,150	177.89
Lime / hydrated lime	kgs	1,256,000	1,065,000	1,249,000	1,220,000	4,790,000	18,071.86
Fuel oil	ltrs	12,825	165,968	60,190	113,537	352,520	1,330.00
Gas	cf	NA	NA	NA	NA	-	-

Summary of Hours	Line	Q1	Q2	Q3	Q4	Year Total	
Hours of waste combustion, t	1	2,155	1,934	2,135	2,113	8,337	95.2%
Hours of turbine operations, t	1	2160	1929.3	2136.5	2126.5	8352.3	95.3%
Hours of heat / steam export		2,160	1,929	2,137	1,839	8,065	92.0%
Abnormal Events	qty.	-	-	-	-	-	None
Abnormal operation	hours	-	-	-	-	-	0.00%
Permit Breaches	qty.	-	-	-	-	-	None

Summary of Plant Operations and Maintenance during the reporting year

The plant continues to run very well and the operational year 2019 has seen the highest "On Waste Fire" availability thus far achieving 8,337 hrs on waste which equates to 95.2% availability for the year. CHP supply remains lower than plant capability with seasonal average ranging from an average high of 16t/hr in Jan to a low of 2.1t/hr in Sept. The Summer period average is just 3.58t/hr. The system is capable of supplying max 39t/hr. MVV continue to explore other CHP supply possibilities. Despite this low CHP supply the average Net Efficiency is 35.37%

The main planned maintenance shutdown was conducted in June when most of the remaining outstanding warranty defect works were completed and inspections concluded that wear to the combustion chamber and corrosion to the fireside boiler tubing and superheaters will not hinder future plant availability.

Eco 3 was replaced with a stainless steel, teflon coated unit which is expected to last for the remainder of the plants contract life.

The combustion control system has undergone significant fine tuning during this operational year in order to increase waste bed depth thus thermally protecting the grate bars and improving the emissions output by better stabilising the combustion conditions.

Major Maintenance\Repair Works

Vapour duct internal coating due to build corrosion

Detailed inspections of Stack, flue gas path, boiler grate, conveyors, desluggers, refractory, boiler tube thickness, critical fans, main greabox and motors.

Turbine exhaust repairs / Economiser 3 change

Replacement of economiser 1 shields

Grate repairs / Feeder table repairs / Significant refractory repairs / Riddling chute overplating repairs due to corrosion

Planned maintenance on SNCR system, Burners, Cranes, all HV systems, all sensor systems, frequency convertors, thermal imaging system, fire detection and suppression systems, hydraulic systems.

Crane grab repairs / Crane rope drum replacement

Replacement of HCL chemical tank

Started replacement of all process water pipework

All programmed planned maintenance activities.

Summary of Residue Handling for the reporting year

For the duration of the year Incinerator Bottom Ash (IBA) has been transported from site on a daily basis to Victoria Wharf to be temporarily stored and then shipped to the Netherlands to be processed by Rock Solid to create an IBA aggregate.

For the duration of the year APCr has predominantly been collected from site and transported to FCC in Leeds for treatment and hazardous landfill disposal. A small fraction has been transported to Germany for the purpose of salt mine reclamation.

Trans Frontier Shipping audit in Q3 which delivered more than satisfactory and compliant result.

Annual Reporting Performance Form 1

0
Facility: 0

Operator: 0
Form: Performance 1

Reporting Period from: 1st Jan 2019 to: 31st Dec 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		8,163.0	0.0	3.1%
IBA		0.0	0.0	-
Total Hazardous Waste		8,163.0	0.0	3.1%
2) Non-Hazardous Wastes				
IBA		0.0	68,206.0	25.7%
Ferrous Metal				-
Process Water		0.0	0.0	0.0%
Total Non-Hazardous Waste		0.0	68,206.0	25.7%
TOTAL WASTE		8,163.0	68,206.0	28.8%

Annual Reporting of Water and Other Raw Material Usage

Raw Material	Usage	Unit	Specific Usage	Unit
Mains Water	57366	m ³	0.22	m ³ /te
Total Water	57366	m ³	0.22	m ³ /te
Urea / Ammonia	260490	kg	0.98	kg/te
Activated Carbon	47150	kg	0.18	kg/te
Lime / hydrated lime / Sodium Bicarb.	4790000	kg	18.07	kg/te

Annual Reporting of other performance indicators

Parameter	Results by Line	
	A1	Turbine 1
Operating hours for the year, hours	8337	8352.3
Number of periods of abnormal operation, qty.	0	0
Cumulative hours of abnormal operation for this year, hours	0	0

Annual Reporting of Energy Usage/Export

0

Operator: 0

Facility: 0

Form: Energy 1

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

Energy Source	Energy Usage	Unit	Specific Useage (KWh/tonne incinerated)
Electricity Produced	205,759	MWh	776
Electricity Imported	315.6	MWh	1
Electricity Exported	187,169	MWh	706
Steam/hot water exported	48	GWh	0

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 (8337Hrs)	
	Half-hourly limit	Daily limit
Particulates	100%	100%
Oxides of nitrogen	100%	100%
Sulphur dioxide	99.90%	100%
Carbon monoxide	99.98%	100%
Total organic carbon	100%	100%
Hydrogen chloride	99.90%	99.72%

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
17/01/2019	Schedule 5 HCL Daily Average Exceedance	Fouling in bicarb silo	Improved delivery cycle and challenged supplier on product quality and moisture content.
14/06/2019	Schedule 5 HCL Half Hour Average Exceedance	Bicarb Mill defect during start up	Defect promptly rectified
14/06/2019	Schedule 5 CO Half Hour Average Exceedance	Plant trip resulting in lock out of combustion fans	Plant operation recovered.
24/07/2019	Schedule 5 CO x 2 and SO2 Half Hour Average Exceedance	ID Fan ABB Drive Cooling Fan Failure	Feed chute closed, burners started and drive exchanged.

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

Date	Summary of complaint [including Line/Reference]	Reason *	Measures taken to prevent reoccurrence
11/01/2019	Complainant reported smell of burning	Investigation found cause to be off site at a residential premises	None
04/06/2019	Complainant reported high frequency noise 0350Hrs.	ID fan was not brought off load during controlled and sequential shut down.	Shutdown procedure revised to ensure this is undertaken.
04/06/2019	Complainant reported low frequency noise 1020 Hrs	Investigation found that our industrial neighbour has a defective LEV fan unit generating vibration and resonance.	None
05/07/2019	Resident disturbed by loud vacuum type noise.	Investigation found that the bulk tanker driver was using apparatus with roller shutter doors open.	Drivers re-briefed on the site requirements to close openings whilst operating plant.

* 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.

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

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.

Details of Public & Stakeholder Liasion**Summary of events held during the reporting year.**

Date	Description
05/04/2019	CIWM new members event
12/04/2019	Great British spring clean - litter pick (50 x attendees from local community)
14/08/2019	Annual facility open day (250 x attendees from local community)
July and November 2019	2 x 1 week work experience student placements
Jan 2019 - Dec 2019	68 x school visits (> 2,040 children)
Jan 2019 - Dec 2019	120 x other visits (> 960 people)

List of events planned for next year

Date	Description
Feb-20	Community litter pick
Mar-20	Big Bang Science Fair
Apr-20	Annual facility open day
Jan 2020 - Dec 2020	School visits

Residue Quality Monitoring Requirements

Summary of monitoring undertaken and compliance

Jan 2019 to April 2019 two IBA samples analysed per month.

April 2019 to December 2019 one IBA sample analysed per month

APCR continues as a quarterly sample and analysis regime as per permit requirements.

Quarterly and annual residue returns completed

Commentary on any specific events

Date & Event	Description
	None in this reporting period

Residue Quality Monitoring Results

Parameter (unit)	Limit	Normal Operation	
		Bottom ash	APC Residues
Loss on Ignition (%)	<5%	2.23 (annual average)	
ToC (%)	<3%	1.36 (annual average)	
No. of Assessments Undertaken	---	15	4
No. of Hazardous Assessments	---	0	

Comments :

MVV Devonport until 31st March 2019 undertook fortnightly sampling of Incinerator Bottom Ash iaw WM3 and ESA protocol. A justification was presented to the EA based on confidence from 104 non-hazardous data sets, and in pursuit of reduction in sampling frequency. Upon approval and as of the 1st April 2019, we now undertake sampling and analysis on a monthly basis. Air Pollution Control Residues continue as per permit requirements at 3 monthly.

Emissions to Water

Summary of monitoring undertaken and compliance

Continuous monitoring undertaken

Quarterly retruns issued to regulator

P-Red list analysis undertaken, all determinands returned as below limits of detection.

Commentary on any specific events

Date & Event	Description
May / June 2019	Water treatment plant dosing tank exchange due to OEM defect

Emissions to Water / Sewer

Parameter	Monitoring Frequency	Limit	Target	Max.	Average
Flow	Continuous	No limit	No limit	5.24m3/hr	1.9m3/hr
Temperature	Continuous	No limit	No limit	33.09°C	18.8°C

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

Bi-annual testing law permit using MCERTS accredited and technically endorsed contractor

Results of emissions to air that are periodically monitored

Substance	Ref. Period	Emission Limit Value	May-19	Oct-19	Average
					A1
Hydrogen fluoride	1 hr	2 mg/m ³	0.22	0.16	0.19
Cd and Th and their compounds	6-8hrs	0.05 mg/m ³	0.00093	0.00086	0.000895
Hg and its compounds	6-8hrs	0.05 mg/m ³	0.0016	0.0069	0.00425
Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V and their compounds	6-8hrs	0.5 mg/m ³	0.28	0.95	0.615
Dioxins & Furans (I-TEQ)	6-8hrs	0.1 ng/m ³	0.0014	0.0058	0.0036
PCBs (WHO-TEQ Humans / Mammals)	6-8hrs	None set ng/m ³	0.0018	0.00114	0.00147
PCBs (WHO-TEQ Fish)	6-8hrs	None set ng/m ³	8.7E-06	5.3E-05	0.0003085
PCBs (WHO-TEQ Birds)	6-8hrs	None set ng/m ³	0.00053	0.0024	0.001465
Dioxins & Furans (WHO-TEQ Humans / Mammals)	6-8hrs	None set ng/m ³	0.0014	0.005	0.0032
Dioxins & Furans (WHO-TEQ Fish)	6-8hrs	None set ng/m ³	0.0015	0.006	0.00375
Dioxins & Furans (WHO-TEQ Birds)	6-8hrs	None set ng/m ³	0.0025	0.013	0.00775
Anthanthrene	6-8hrs	None set µg/m ³	0.016	0.015	0.0155
Benzo(a)anthracene	6-8hrs	None set µg/m ³	0.016	0.007	0.0115
Benzo(a)pyrene	6-8hrs	None set µg/m ³	0.016	0.0007	0.00835
Benzo(b)fluoranthene	6-8hrs	None set µg/m ³	0.016	0.00084	0.00842
Benzo(b)naphtho(2,1-d) thiophene	6-8hrs	None set µg/m ³	0.016	0.0067	0.01135
Benzo(c)phenanthrene	6-8hrs	None set µg/m ³	0.016	0.0007	0.00835
Benzo(ghi)perylene	6-8hrs	None set µg/m ³	0.016	0.0018	0.0089
Benzo(k)fluoranthene	6-8hrs	None set µg/m ³	0.016	0.0088	0.0124
Cholanthrene	6-8hrs	None set µg/m ³	0.016	0.0007	0.00835
Chrysene	6-8hrs	None set µg/m ³	0.016	0.0095	0.01275
Cyclopenta(cd)pyrene	6-8hrs	None set µg/m ³	0.016	0.0007	0.00835
Dibenzo(ai)pyrene	6-8hrs	None set µg/m ³	0.016	0.0007	0.00835
Dibenzo(ah)anthracene	6-8hrs	None set µg/m ³	0.016	0.0007	0.00835
Fluoranthene	6-8hrs	None set µg/m ³	0.016	0.0007	0.00835
Indeno(123-cd) pyrene	6-8hrs	None set µg/m ³	0.016	0.0013	0.00865
Naphthalene	6-8hrs	None set µg/m ³	0.047	0.26	0.1535

Emissions to Air (continuously monitored)

Summary of monitoring undertaken, standards used and compliance

Continuous emission monitoring to meet BS EN 14181 / BS EN 15267-3

Bi-annual to meet BS ISO 15713 / BS EN 14385 / BS EN 13211 / BS EN 14791 / BS EN ISO 21258 / BS EN 1948 Parts 1, 2 and 3 / BS EN 1948-4 / BS ISO 11338 Parts 1 and 2 for all other determinands specified within the permit.

Results of emissions to air that are continuously monitored

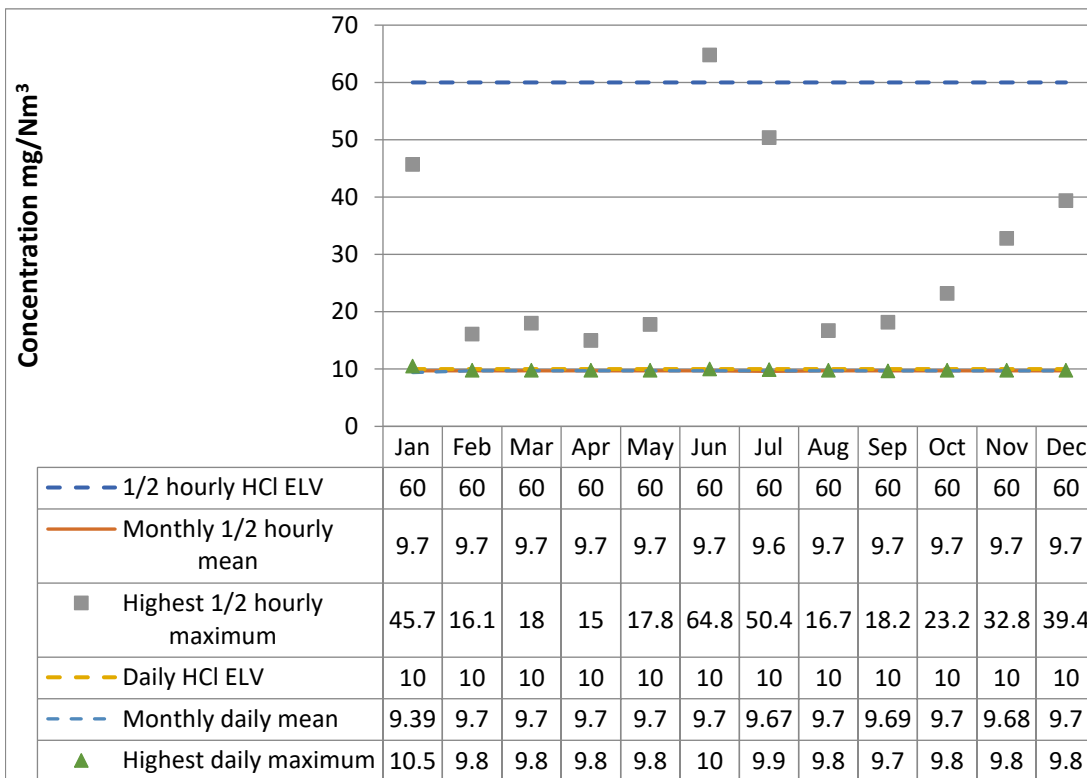
Substance	Reference Period	Emission Limit Value	A1	
			Max.	Avg.
Oxides of nitrogen	Daily mean	200 mg/m ³	196.3	179.22
	½ hourly mean	400 mg/m ³	237	179.1
Particulates	Daily mean	10 mg/m ³	0.1	0.1
	½ hourly mean	30 mg/m ³	0.5	0.1
Total Organic Carbon	Daily mean	10 mg/m ³	2.2	0.43
	½ hourly mean	20 mg/m ³	15.9	0.43
Hydrogen chloride	Daily mean	10 mg/m ³	10.5	9.66
	½ hourly mean	60 mg/m ³	64.8	9.69
Sulphur dioxide	Daily mean	50 mg/m ³	24.3	14.81
	½ hourly mean	200 mg/m ³	226.5	14.8
Carbon monoxide	Daily mean	50 mg/m ³	13.5	1.86
	½ hourly mean *	100 mg/m ³ *	361.6	1.93

* = delete or amend as appropriate

Monitoring of Hydrogen Chloride emissions

See Notes in Cell Q3

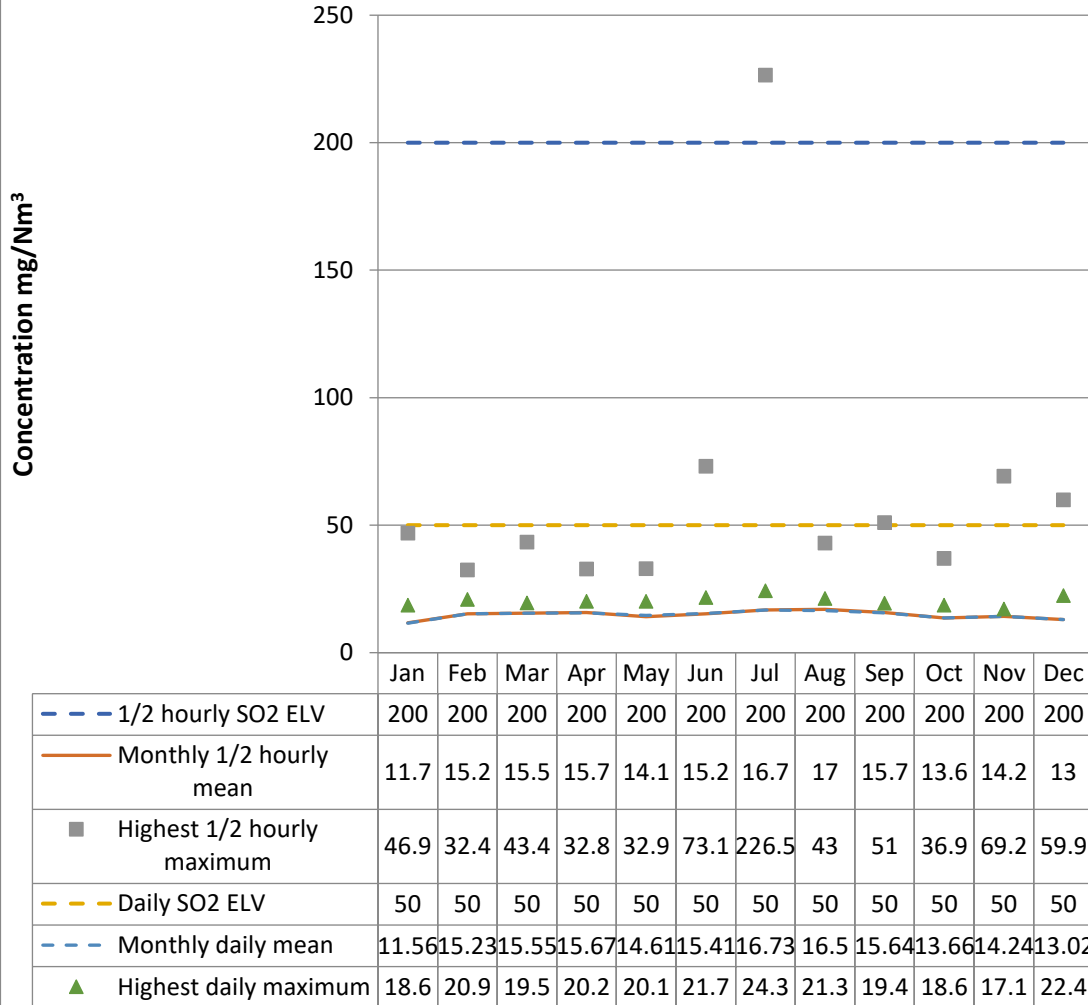
mg/Nm ³	1/2 Hourly Reference Periods			Daily Reference Periods		
	1/2 hourly HCl ELV	Monthly 1/2 hourly mean	Highest 1/2 hourly maximum	Daily HCl ELV	Monthly daily mean	Highest daily maximum
Jan	60	9.7	45.7	10	9.39	10.5
Feb	60	9.7	16.1	10	9.7	9.8
Mar	60	9.7	18	10	9.7	9.8
Apr	60	9.7	15	10	9.7	9.8
May	60	9.7	17.8	10	9.7	9.8
Jun	60	9.7	64.8	10	9.7	10
Jul	60	9.6	50.4	10	9.67	9.9
Aug	60	9.7	16.7	10	9.7	9.8
Sep	60	9.7	18.2	10	9.69	9.7
Oct	60	9.7	23.2	10	9.7	9.8
Nov	60	9.7	32.8	10	9.68	9.8
Dec	60	9.7	39.4	10	9.7	9.8



Monitoring of Sulphur dioxide emissions

See Notes in Cell Q3

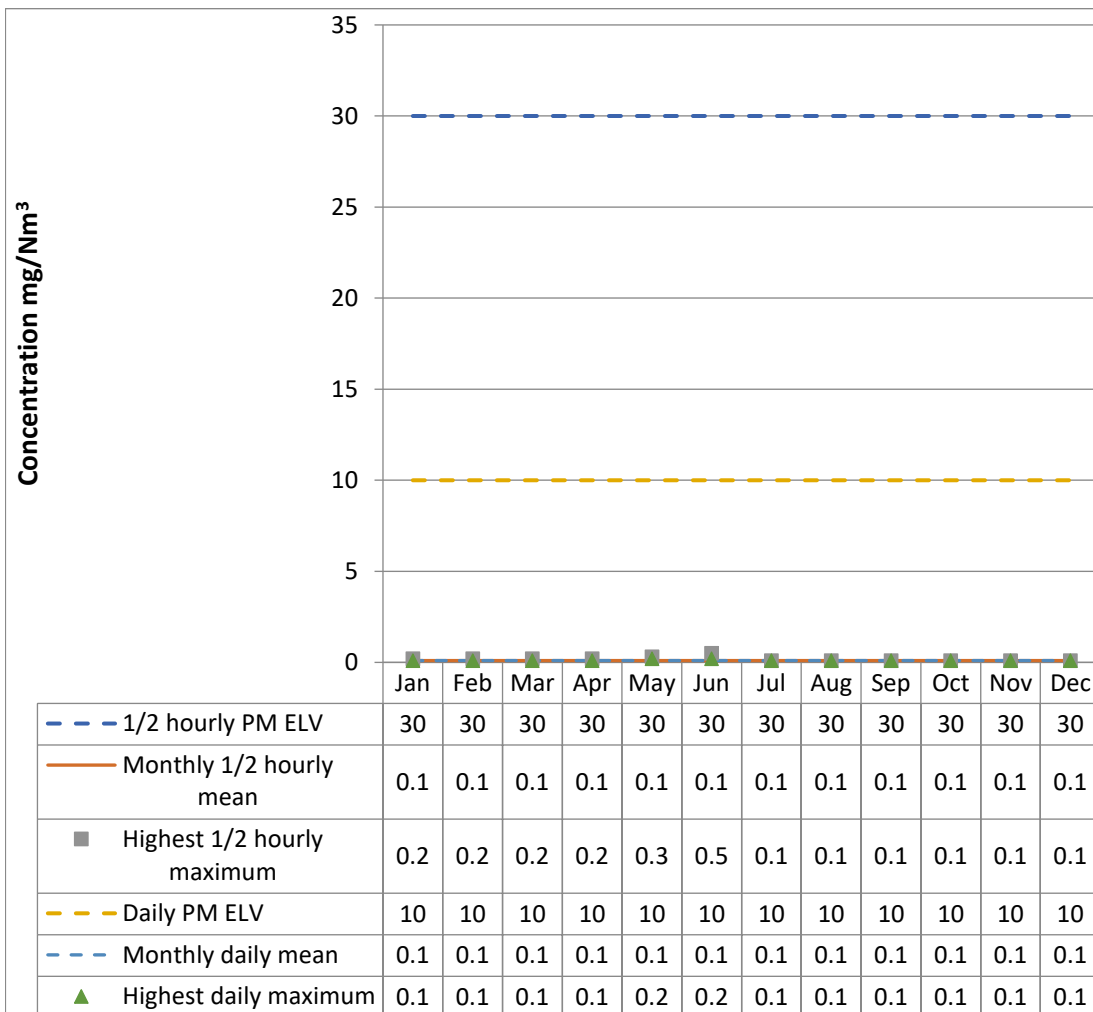
mg/Nm ³	1/2 Hourly Reference Periods			Daily Reference Periods		
	1/2 hourly SO2 ELV	Monthly 1/2 hourly mean	Highest 1/2 hourly maximum	Daily SO2 ELV	Monthly daily mean	Highest daily maximum
Jan	200	11.7	46.9	50	11.56	18.6
Feb	200	15.2	32.4	50	15.23	20.9
Mar	200	15.5	43.4	50	15.55	19.5
Apr	200	15.7	32.8	50	15.67	20.2
May	200	14.1	32.9	50	14.61	20.1
Jun	200	15.2	73.1	50	15.41	21.7
Jul	200	16.7	226.5	50	16.73	24.3
Aug	200	17	43	50	16.5	21.3
Sep	200	15.7	51	50	15.64	19.4
Oct	200	13.6	36.9	50	13.66	18.6
Nov	200	14.2	69.2	50	14.24	17.1
Dec	200	13	59.9	50	13.02	22.4



Monitoring of Particulate matter emissions

See Notes in Cell Q3

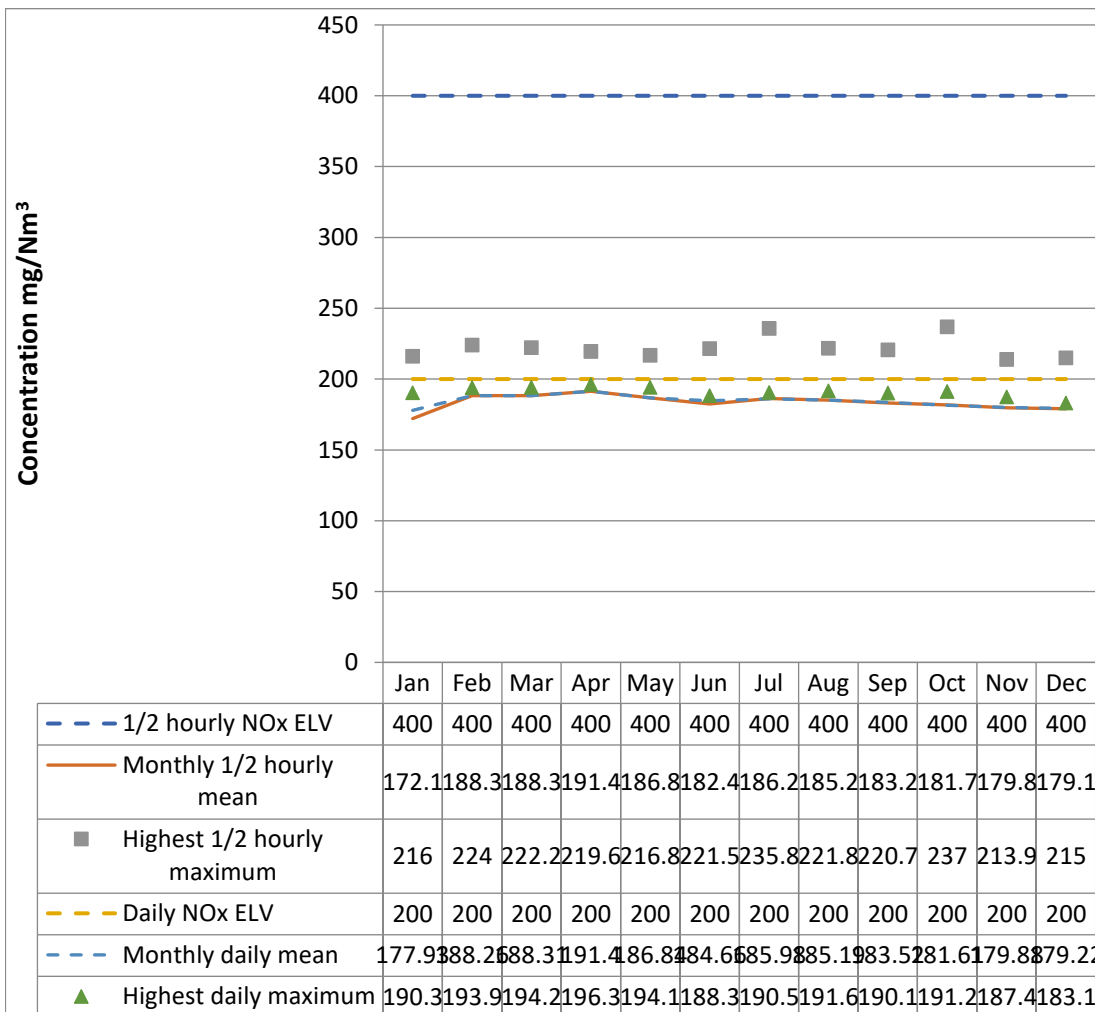
mg/Nm ³	1/2 Hourly Reference Periods			Daily Reference Periods		
	1/2 hourly PM ELV	Monthly 1/2 hourly mean	Highest 1/2 hourly maximum	Daily PM ELV	Monthly daily mean	Highest daily maximum
Jan	30	0.1	0.2	10	0.1	0.1
Feb	30	0.1	0.2	10	0.1	0.1
Mar	30	0.1	0.2	10	0.1	0.1
Apr	30	0.1	0.2	10	0.1	0.1
May	30	0.1	0.3	10	0.1	0.2
Jun	30	0.1	0.5	10	0.1	0.2
Jul	30	0.1	0.1	10	0.1	0.1
Aug	30	0.1	0.1	10	0.1	0.1
Sep	30	0.1	0.1	10	0.1	0.1
Oct	30	0.1	0.1	10	0.1	0.1
Nov	30	0.1	0.1	10	0.1	0.1
Dec	30	0.1	0.1	10	0.1	0.1



Monitoring of Oxides of Nitrogen emissions

See Notes in Cell Q3

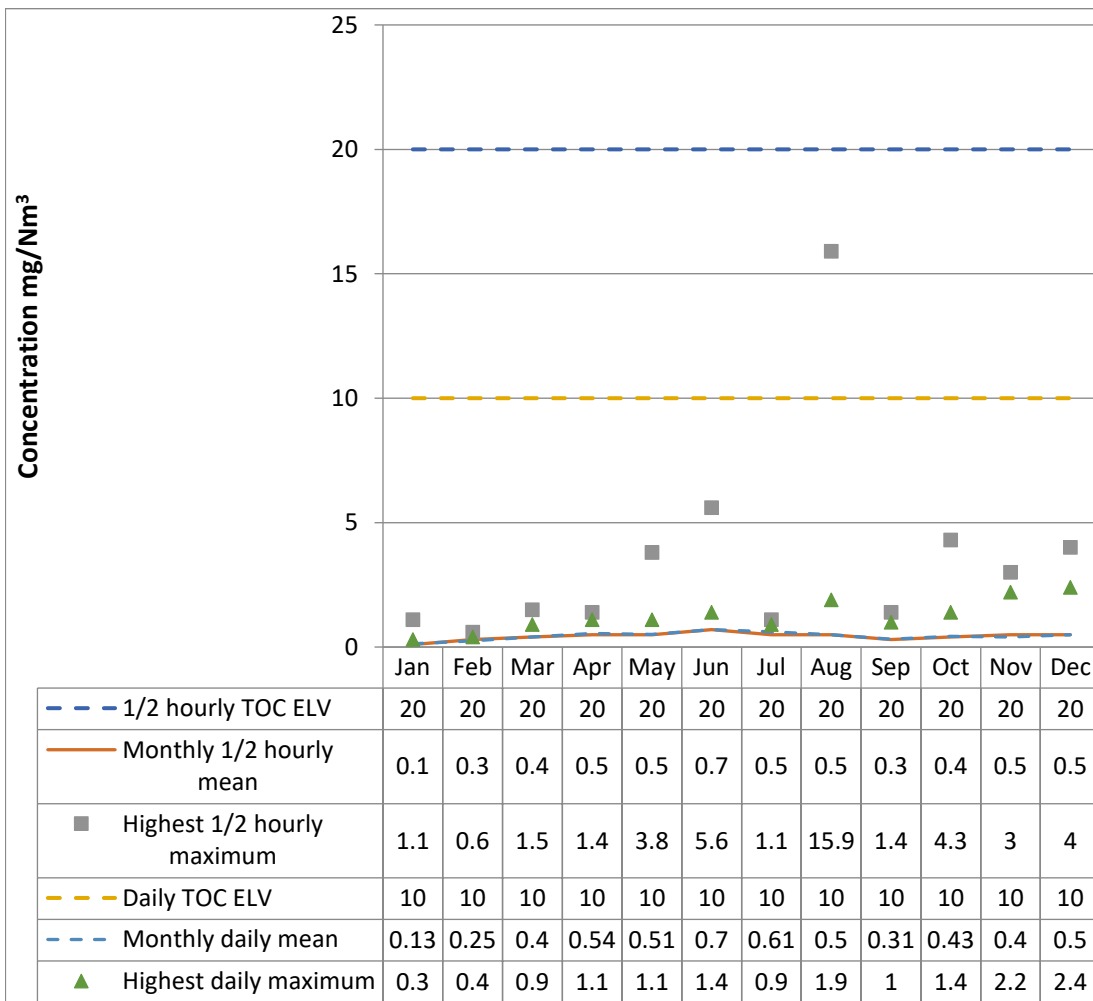
mg/Nm ³	1/2 Hourly Reference Periods			Daily Reference Periods		
	1/2 hourly NOx ELV	Monthly 1/2 hourly mean	Highest 1/2 hourly maximum	Daily NOx ELV	Monthly daily mean	Highest daily maximum
Jan	400	172.1	216	200	177.93	190.3
Feb	400	188.3	224	200	188.26	193.9
Mar	400	188.3	222.2	200	188.31	194.2
Apr	400	191.4	219.6	200	191.4	196.3
May	400	186.8	216.8	200	186.84	194.1
Jun	400	182.4	221.5	200	184.66	188.3
Jul	400	186.2	235.8	200	185.98	190.5
Aug	400	185.2	221.8	200	185.19	191.6
Sep	400	183.2	220.7	200	183.52	190.1
Oct	400	181.7	237	200	181.61	191.2
Nov	400	179.8	213.9	200	179.88	187.4
Dec	400	179.1	215	200	179.22	183.1



Monitoring of Total organic carbon emissions

See Notes in Cell Q3

mg/Nm ³	1/2 Hourly Reference Periods			Daily Reference Periods		
	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	0.1	1.1	10	0.13	0.3
Feb	20	0.3	0.6	10	0.25	0.4
Mar	20	0.4	1.5	10	0.4	0.9
Apr	20	0.5	1.4	10	0.54	1.1
May	20	0.5	3.8	10	0.51	1.1
Jun	20	0.7	5.6	10	0.7	1.4
Jul	20	0.5	1.1	10	0.61	0.9
Aug	20	0.5	15.9	10	0.5	1.9
Sep	20	0.3	1.4	10	0.31	1
Oct	20	0.4	4.3	10	0.43	1.4
Nov	20	0.5	3	10	0.4	2.2
Dec	20	0.5	4	10	0.5	2.4



Monitoring of Carbon Monoxide (half hourly)

See Notes in Cell Q3

mg/Nm ³	1/2 Hourly Reference Periods			Daily Reference Periods		
	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	2.2	20.1	50	2.24	3.7
Feb	100	2.6	7.5	50	2.62	4.1
Mar	100	2.4	8.9	50	2.39	3.4
Apr	100	1.6	6.4	50	1.63	3.1
May	100	1.7	6.9	50	1.7	3.5
Jun	100	1.8	275.2	50	1.05	2
Jul	100	1.2	361.6	50	1.21	13.5
Aug	100	1	46	50	1.02	1.8
Sep	100	0.9	26.9	50	0.9	4.4
Oct	100	2.2	38.7	50	2.2	3.8
Nov	100	2.8	3.1	50	2.85	8.7
Dec	100	2.8	95.4	50	2.61	4.1

