Annual performance report for: MVV Environment Devonport Ltd

Permit Number: EPR/WP3833FT

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	MVV Environment Devonport Ltd Devonport EfW Facility Creek Road Plymouth Devon Pl5 1FL
Description of waste input	Municipal and commercial & industrial waste
Operator contact details if members of the public have any questions	01752-393150

2. Plant description

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.

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 waste water. However, from time to time, disposal of waste water 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.

3. Summary of Plant Operation

Municipal waste received	162,672 tonnes
Commercial and industrial waste received	93,349 tonnes
Hazardous waste received	0 tonnes
Clinical waste received	0 tonnes
Waste wood (biomass) received	0 tonnes
Refuse-derived fuel received	0 tonnes
Solid recovered fuel received	0 tonnes
Other waste received	0 tonnes
Total waste received	255,399 tonnes
Total plant operational hours	8022.5 hours
Total hours of "abnormal operation" (see permit for definition)	0 hours
Total quantity of incinerator bottom ash (IBA) produced	60,857 tonnes
Disposal or recovery route for IBA	Metal reclamation and mineral processing for aggregate substitute
Did any batches of IBA test as hazardous? If yes, state quantity	None
Total quantity of air pollution control (APC) residues produced	7889 tonnes
Disposal or recovery route for APC residues	Disposal to landfill and recovery to Germany for salt mine stabilisation
Total electricity generated for export to the National Grid	177,877 MWh
Total heat produced for export to Devonport Royal Dockyard Ltd	58,943 MWh

4. Summary of Plant Emissions

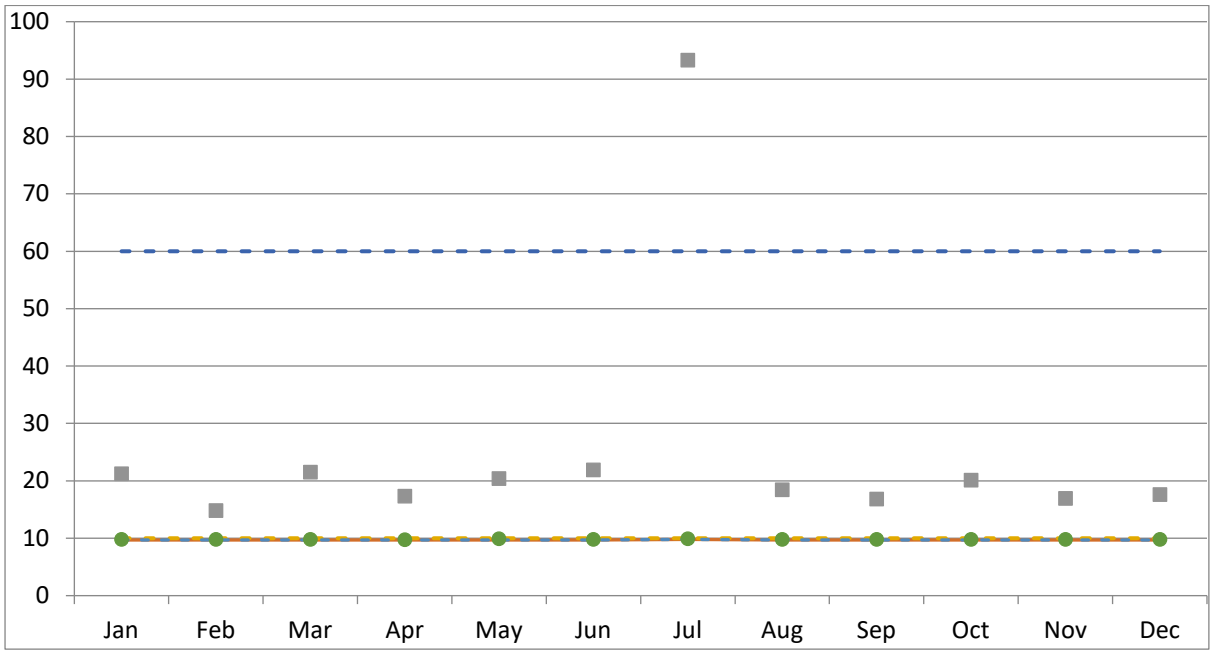
4.1 Summary of continuous emissions monitoring results for emissions to air

The following charts show the performance of the plant against its emission limit values (ELVs) for substances that are continuously monitored.

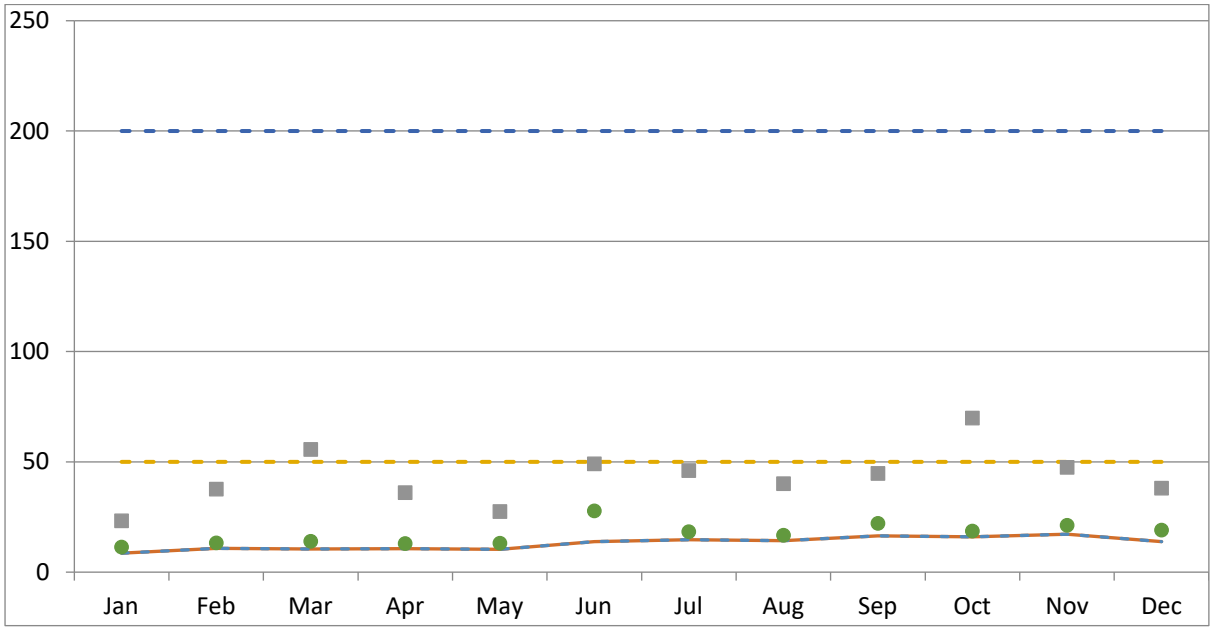
Monthly emissions summary daily ELVs o

Monthly emissions summary incl half-hou

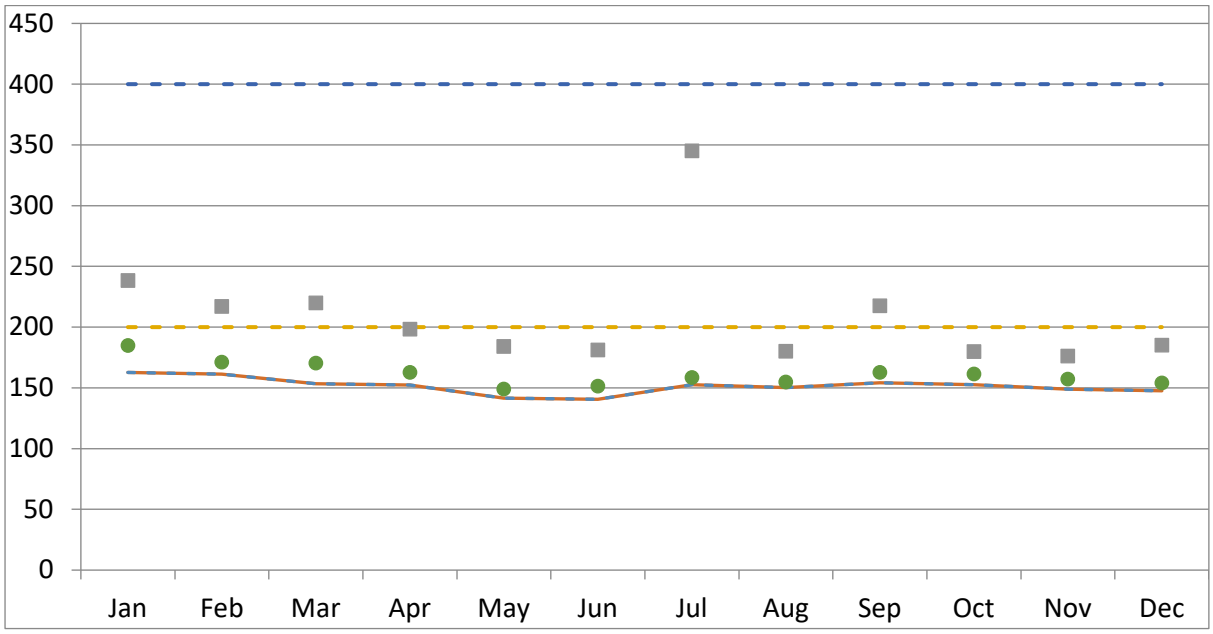
Hydrogen chloride Concentration mg/Nm^3



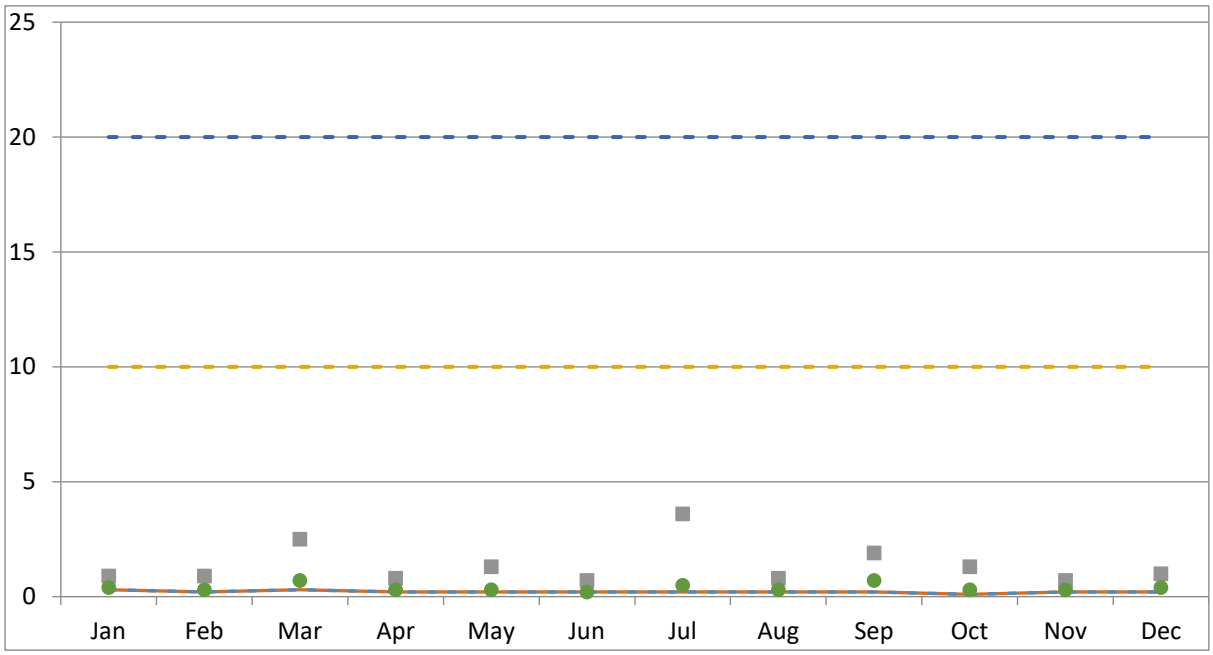
Sulphur dioxide Concentration mg/Nm^3



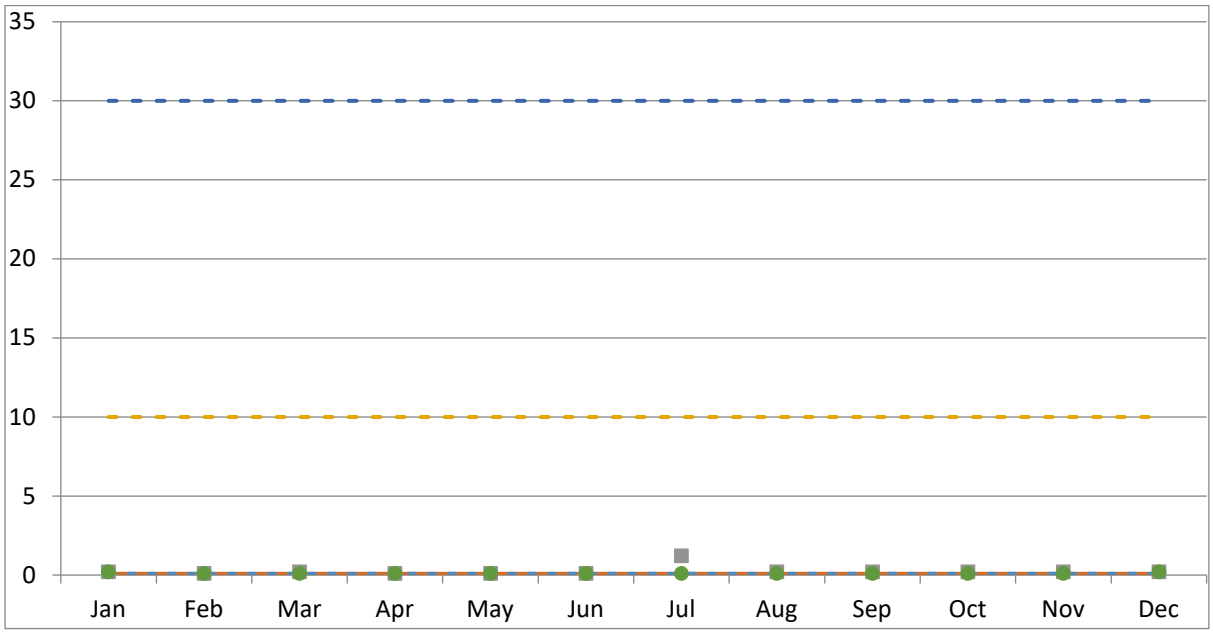
Oxides of nitrogen Concentration mg/Nm^3



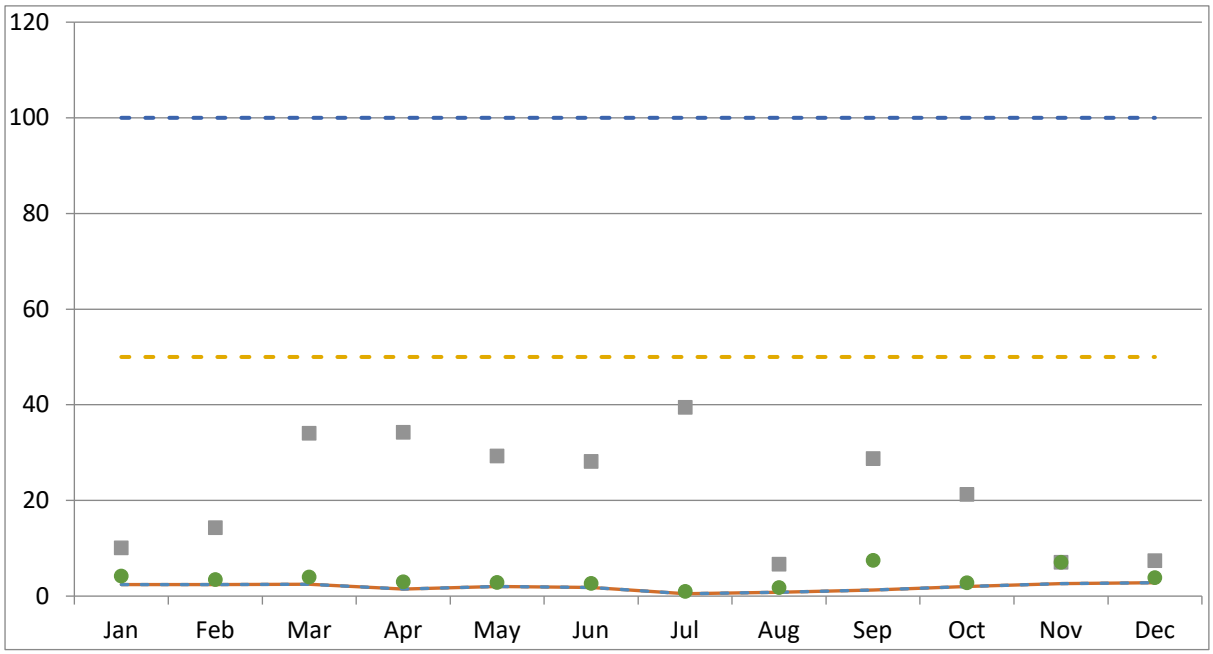
Total organic carbon Concentration mg/Nm^3



Particulates Concentration mg/Nm^3



Carbon monoxide Concentration mg/Nm^3



4.2 Summary of periodic monitoring results for emissions to air

The table below shows the results of periodically monitored substances.

Substance	Emission limit value	Results	
		21st-30th May 2018	30th-2nd Nov 2018
Mercury and its compounds	0.05 mg/m^3	0.002 mg/m^3	0.0098 mg/m^3

Cadmium & thallium and their compounds (total)	0.05 mg/m^3	0.008 mg/m^3	0.00072 mg/m^3
Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5 mg/m^3	0.0073 mg/m^3	0.039 mg/m^3
Dioxins and furans (I-TEQ)	0.1 ng/m^3	0.0018 ng/m^3	0.036 ng/m^3
Hydrogen Fluoride	2 mg/m^3	0.17 mg/m^3	0.035 mg/m^3

4.3 Summary of monitoring results for emissions to water

There are no emissions to water from the process. Site surface water is periodically monitored in accordance with planning conditions and South West Water requirements.

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
17/07/2018	Justified odour statutory nuisance as perceived by EA officer during plant outage. Punitive 12 points awarded via compliance assessment report.	Inability to hold the plant under negative pressure whilst in shutdown mode.	Review of odour management plan to incorporate use of carbon filter system for future outage. Formally approved by EA.

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
18/07/2018	2 x Odour complaints from residents off site.	During shutdown plant inability to maintain negative pressure resulting in fugitive odour emission from the waste bunker.	i)Review and installation of shutdown fan via carbon filters. ii)Maximised use of nebulised odour suppression. iii)Waste bunker sealing to limit fugitive odour escape.
18/07/2018	3 x noise complaints	Vacuum tankers operating on site whilst plant roller	Ensure future activities are undertaken either within operating hours

		shutter doors open and outside of operating hours. Advance notice had been issued to local planning authority iaw permit.	and / or with roller shutter doors closed.

6. Summary of plant improvements

Summary of any permit improvement conditions that have been completed within the year and the resulting environmental benefits.
None
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.
1. Improved combustion grate bar design to lengthen life span >8,000hrs 2. Inconel clad combustion chamber front and rear wall tubes under refractory in order to protect tubes in the event of refractory loss during operation 3. Optimise combustion control to increase waste bed depth and realise better thermal protection to grate bars 4. Optimise cleaning of 1st 2nd and 3rd passes and rapping of superheaters to improve thermal heat transfer 5. Optimise Ball Shot cleaning of Economisers as above 6. Continue change to LED Lighting across plant thus reducing parasitic load 7. Continue to optimise abatement systems thus reducing consumables usage whilst remaining within ELVs

7. Details of any public liaison planned for 2019:

Date and time	Description	Location
Monthly	School science curriculum visits	Site visitors centre
Monthly	Community liaison meetings	Site visitors centre
Feb 2019	Community litter pick & clean the creek.	Adjacent woodland and tidal creek.
August 2019	Facility open day and operational site tours to include educational programme as follows; beach litter, wild flower and meadows, toy swap / save toys from incineration	Site visitors centre Adjacent Woodland Site car park
November 2019	Big bang science fait and STEM promotion	Site visitors centre

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

Jane Ford

tel: 01752 – 393156

mobile: 07876135632

email: jane.ford@mvvuk.co.uk