Annual performance report for: Veolia ES Leeds Limited, Leeds RERF

Permit Number: EPR/ GP3334CX

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	Leeds Recycling and Energy Recovery Facility Newmarket Approach Cross Green Industrial Estate Leeds West Yorkshire LS9 0RJ
Description of waste input	Predominantly Leeds City residual domestic waste, with third party commercial/ industrial waste and clinical waste.
Operator contact details if members of the public have any questions	Site main contact number 02035678430

2. Plant description

The installation consists of one incineration line with a capacity of 20.5 tonnes per hour. The installation accepts mainly municipal solid waste and also some commercial wastes.

Waste is delivered in covered vehicles or containers to the tipping hall, where it will be tipped to be sorted through the mechanical pre-treatment (MPT) or moved directly into the waste bunker via the intermediate bunker. The MPT can remove metals, plastics, paper and card for recycling. Treatment will be by shredders, screens, magnets, eddy current separators and near infra red optical sorting. The treatment is designed to remove waste for recycling, create a more homogenous feedstock for improved combustion. After treatment waste is transported by conveyor to the waste bunker.

The waste in the bunker will be mixed with a crane to prevent anaerobic conditions and hence odour.

Waste is loaded into the incinerator, using the crane, via the feed hopper. The waste feeds onto a moving reverse acting grate, where it is burned. Primary and secondary air supply is controlled to ensure good combustion conditions. A temperature of at least 850°C for at least 2 seconds is achieved.

Unburnt material is called bottom ash and is quenched in water, ferrous metal is removed by magnet. The bottom ash is transported by conveyor to an indoor storage area. It is then sent off site to a suitably licensed waste treatment facility for recovery.

Combustion air is treated to reduce the level of pollutants emitted. SNCR using dry urea, is used for oxides of nitrogen. Bag filters for particulate matter, dry lime injection for acidic gases and activated carbon injection for dioxins and mercury. After clean up, the gases will be emitted to air through a 75m high stack.

The bag filters will collect Air Pollution Control (APC) residues. These are transferred to a silo then to a tanker for removal from site. Sealed bags are sometimes used instead of a tanker. APC residues are taken off site for disposal or sent for use in waste neutralisation at a suitably licensed facility.

Steam is generated in the boiler and this steam is used to drive a turbine to generate electricity. Approximately 11MW will be exported to grid per hour. The installation is designed so that it can also supply heat energy to the council district heating network which is currently in the construction stage.

3. Summary of Plant Operation

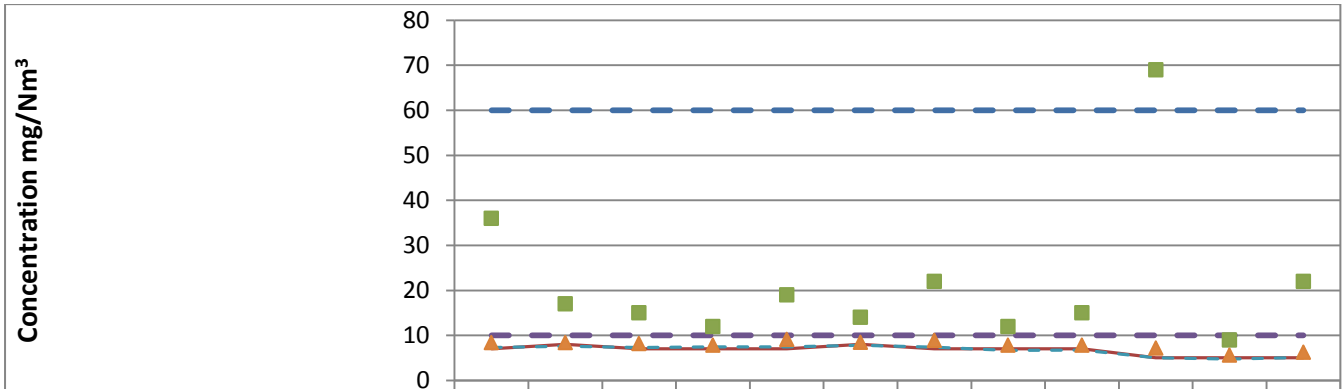
Municipal waste received	168,866 tonnes
Commercial and industrial waste received	19,626 tonnes
Clinical waste received	273 tonnes
Other waste received (Food Waste)	32 tonnes
Total waste received	188,797 tonnes
Total plant operational hours	8349 hours
Total hours of “abnormal operation” (see permit for definition)	0 hours
Total quantity of incinerator bottom ash (IBA) produced	38,146 tonnes
Disposal or recovery route for IBA	Ballast Phoenix Sheffield for recovery of metals and processing of ash for aggregate. Code R5
Did any batches of IBA test as hazardous? If yes, state quantity	None
Total quantity of air pollution control (APC) residues produced	3,529 tonnes for neutralisation/treatment
Disposal or recovery route for APC residues	3416T for use to offset acidic waste. Code D9 112 sent for storage to Minosus. Code D12
Total electricity generated for export to the National Grid	98382 MWh

4. Summary of Plant Emissions

4.1 Summary of continuous emissions monitoring results for emissions to air

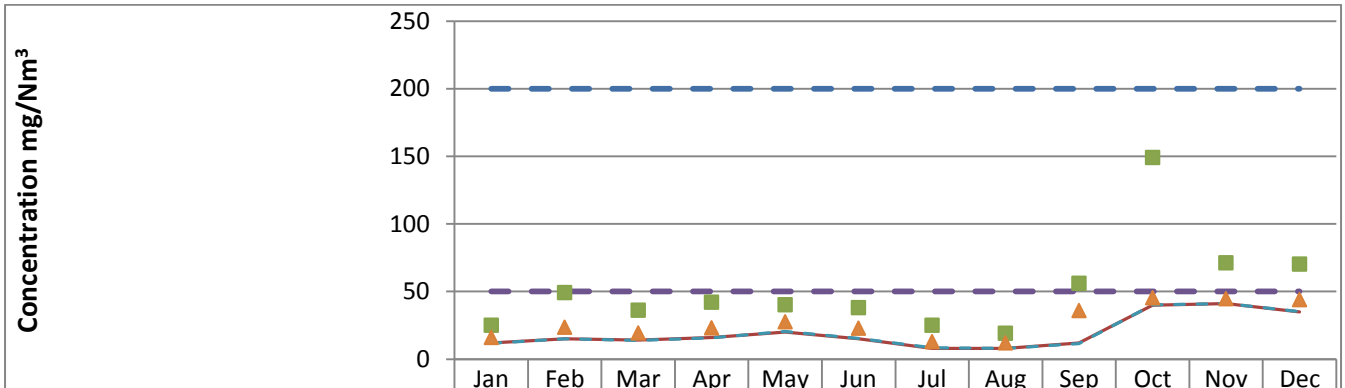
The following charts show the performance of the plant against its emission limit values (ELVs) for substances that are continuously monitored.

Line 1 - Hydrogen chloride



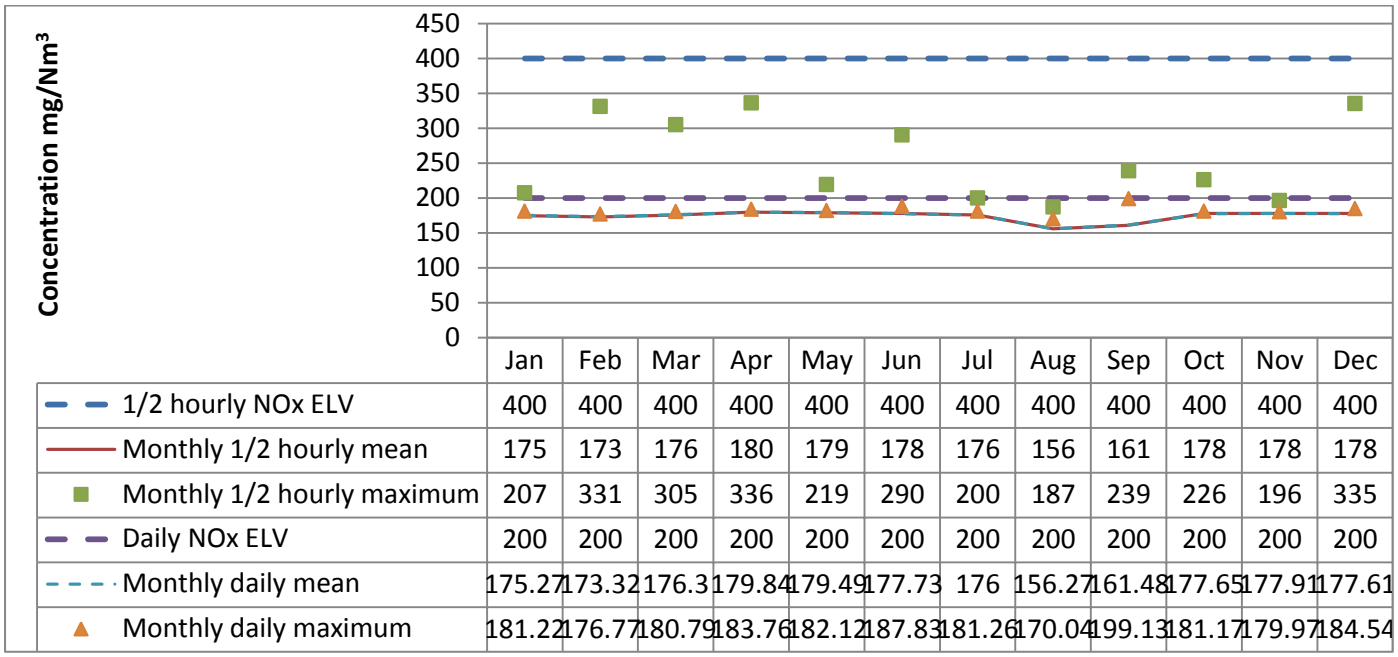
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly HCl ELV	60	60	60	60	60	60	60	60	60	60	60	60
Monthly 1/2 hourly mean	7	8	7	7	7	8	7	7	7	5	5	5
Monthly 1/2 hourly maximum	36	17	15	12	19	14	22	12	15	69	9	22
Daily HCl ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	7.33	7.59	7.3	7.42	7.47	7.83	7.4	6.64	6.72	5.03	4.73	5.13
Monthly daily maximum	8.43	8.4	8.2	7.83	9.11	8.5	8.94	7.82	7.85	7.22	5.64	6.29

Line 1 – Sulphur dioxide



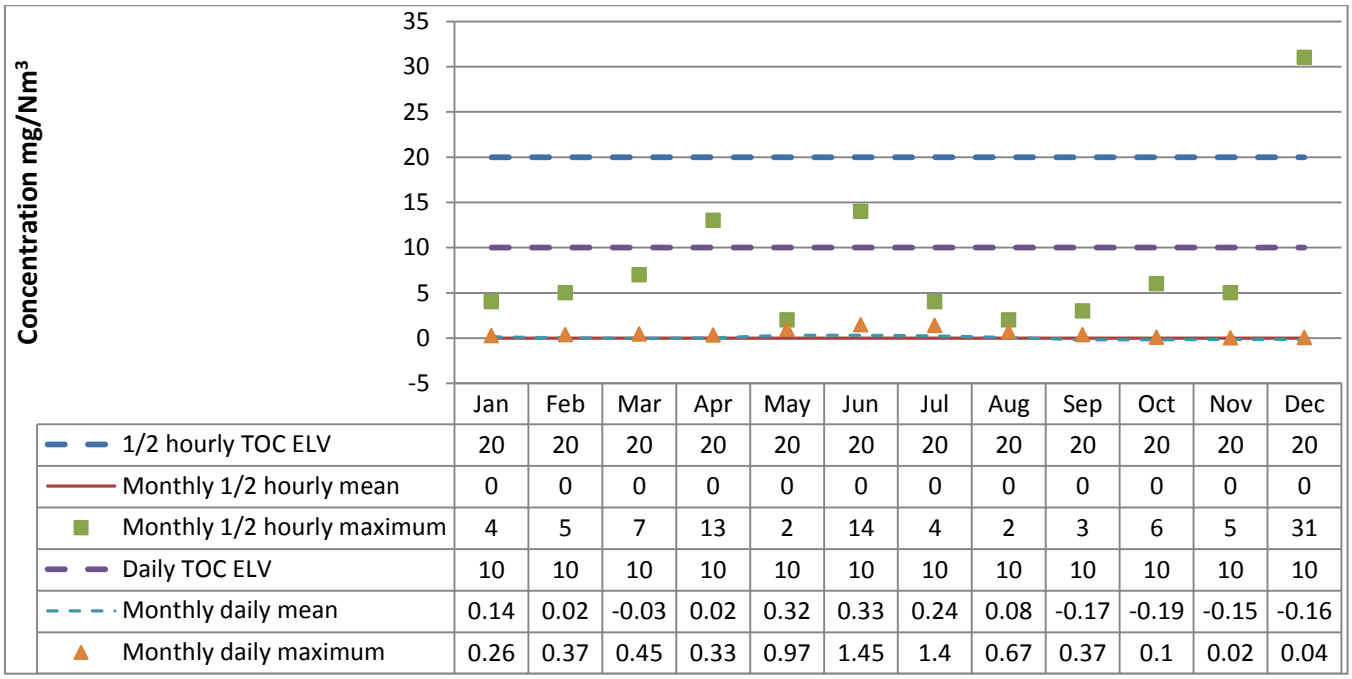
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly SO2 ELV	200	200	200	200	200	200	200	200	200	200	200	200
Monthly 1/2 hourly mean	12	15	14	16	20	15	8	8	12	40	41	35
Monthly 1/2 hourly maximum	25	49	36	42	40	38	25	19	56	149	71	70
Daily SO2 ELV	50	50	50	50	50	50	50	50	50	50	50	50
Monthly daily mean	11.81	14.95	13.89	15.87	20.42	15.27	8.46	8.05	11.62	40.13	41.21	35.24
Monthly daily maximum	15.87	23.36	19.25	23.04	27.47	22.75	12.84	11.91	35.81	45.3	44.46	43.74

Line 1 – Oxides of nitrogen



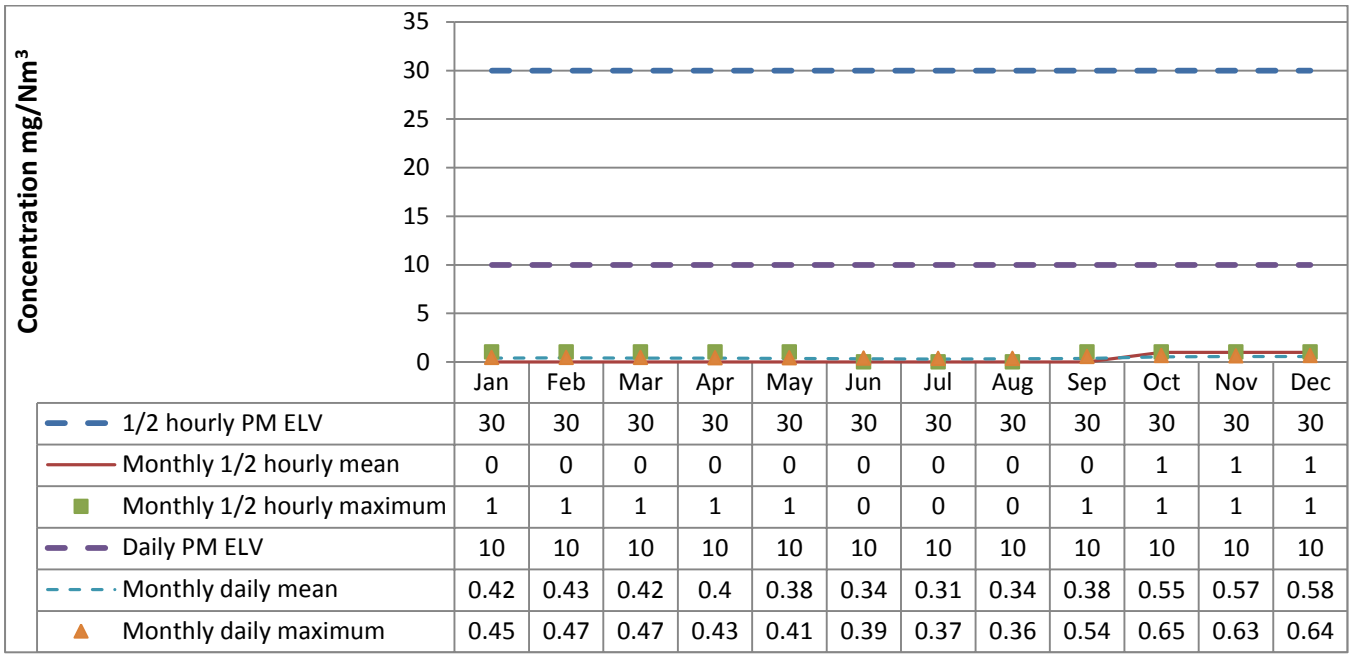
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly NOx ELV	400	400	400	400	400	400	400	400	400	400	400	400
Monthly 1/2 hourly mean	175	173	176	180	179	178	176	156	161	178	178	178
Monthly 1/2 hourly maximum	207	331	305	336	219	290	200	187	239	226	196	335
Daily NOx ELV	200	200	200	200	200	200	200	200	200	200	200	200
Monthly daily mean	175.27	173.32	176.3	179.84	179.49	177.73	176	156.27	161.48	177.65	177.91	177.61
Monthly daily maximum	181.22	176.77	180.79	183.76	182.12	187.83	181.26	170.04	199.13	181.17	179.97	184.54

Line 1 – Total organic carbon



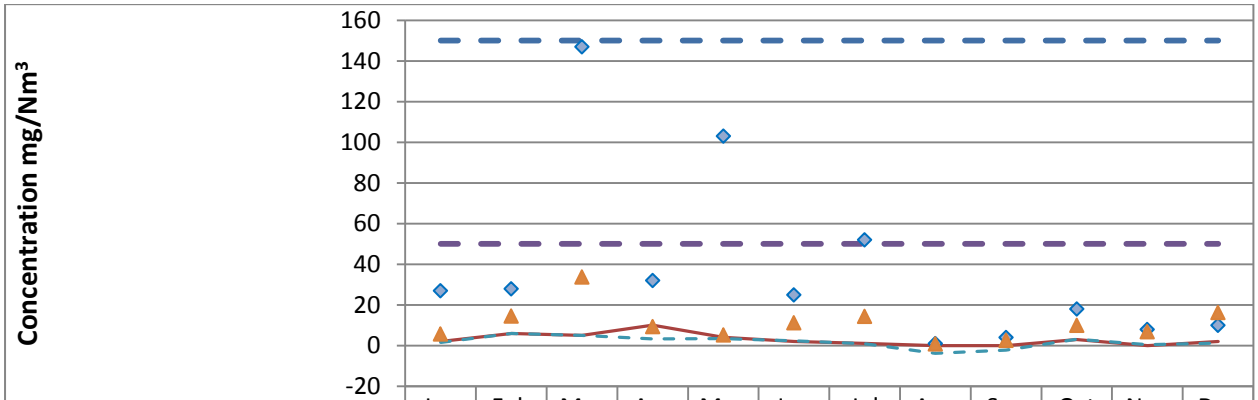
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly TOC ELV	20	20	20	20	20	20	20	20	20	20	20	20
Monthly 1/2 hourly mean	0	0	0	0	0	0	0	0	0	0	0	0
Monthly 1/2 hourly maximum	4	5	7	13	2	14	4	2	3	6	5	31
Daily TOC ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	0.14	0.02	-0.03	0.02	0.32	0.33	0.24	0.08	-0.17	-0.19	-0.15	-0.16
Monthly daily maximum	0.26	0.37	0.45	0.33	0.97	1.45	1.4	0.67	0.37	0.1	0.02	0.04

Line 1 – Particulates



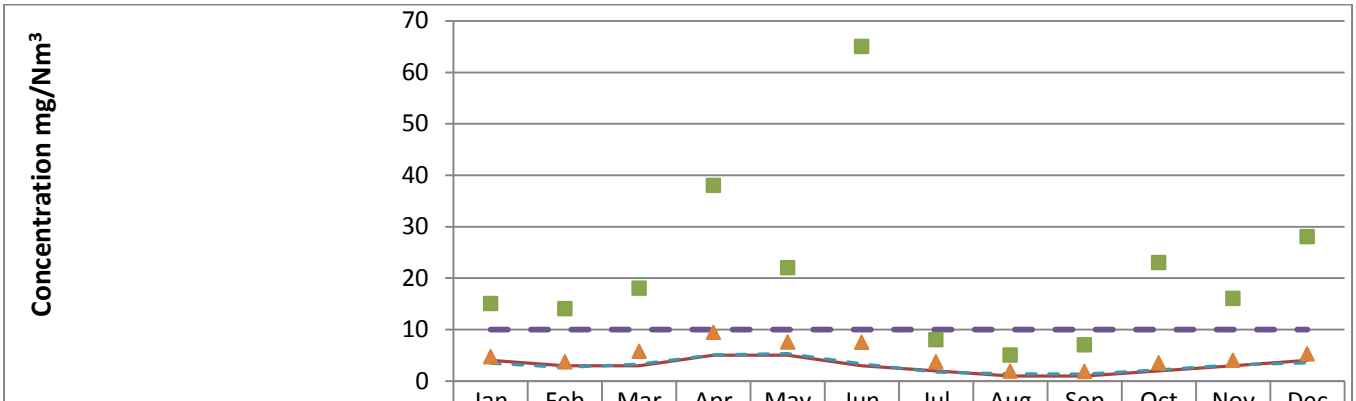
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly PM ELV	30	30	30	30	30	30	30	30	30	30	30	30
Monthly 1/2 hourly mean	0	0	0	0	0	0	0	0	0	1	1	1
Monthly 1/2 hourly maximum	1	1	1	1	1	0	0	0	1	1	1	1
Daily PM ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	0.42	0.43	0.42	0.4	0.38	0.34	0.31	0.34	0.38	0.55	0.57	0.58
Monthly daily maximum	0.45	0.47	0.47	0.43	0.41	0.39	0.37	0.36	0.54	0.65	0.63	0.64

Line 1 – Carbon monoxide



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10 minute CO ELV (95%)	150	150	150	150	150	150	150	150	150	150	150	150
Monthly 95% 10 minute maximum	27	28	147	32	103	25	52	1	4	18	8	10
Monthly 10 minute mean	2	6	5	10	4	2	1	0	0	3	0	2
Daily CO ELV	50	50	50	50	50	50	50	50	50	50	50	50
Monthly daily mean	1.51	5.92	4.99	3.24	3.44	2.31	0.99	-3.77	-2.18	3.07	0.38	1.16
Monthly daily maximum	5.77	14.57	33.71	9.32	5.23	11.21	14.35	0.79	2.58	10	6.78	16.34

Line 1 – Ammonia



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly NH3 ELV												
Monthly 1/2 hourly mean	4	3	3	5	5	3	2	1	1	2	3	4
Monthly 1/2 hourly maximum	15	14	18	38	22	65	8	5	7	23	16	28
Daily NH3 ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	3.48	2.65	3.29	5.06	5.35	3.37	1.72	1.42	1.35	2.14	3.16	3.56
Monthly daily maximum	4.71	3.69	5.72	9.39	7.55	7.47	3.7	1.9	1.85	3.49	4.03	5.27

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	
		09-11/04/18	01-03/10/18
Mercury and its compounds	0.05 mg/m^3	0.0005 mg/m^3	0.001 mg/m^3
Cadmium & thallium and their compounds (total)	0.05 mg/m^3	0.001 mg/m^3	<0.001 mg/m^3
Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5 mg/m^3	0.0182 mg/m^3	0.021 mg/m^3
Dioxins and furans (I-TEQ)	0.1 ng/m^3	0.0009 – 0.0010 ng/m^3	0.0012 ng/m^3
Hydrogen Fluoride	2 mg/m^3	<0.05 mg/m^3	<0.03 mg/m^3

4.3 Summary of monitoring results for emissions to water

There are no emissions to water from the process [other than clean surface water].

5. Summary of Permit Compliance

5.1 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	99.99 %	100 %
Hydrogen chloride	99.99 %	100 %
Hydrogen fluoride	100 %	100 %

5.2 Summary of any notifications or non-compliances under the permit

Date	Summary of notification or non-compliance	Reason	Measures taken to prevent reoccurrence
22/10/2018	Notification for half hourly HCl ELV exceedance	High levels of plastic introduced to the feed chute	Increased mixing of bulky plastics, identification of load carrier to prevent the material from coming on site again.
03/12/2018	Notification for half hourly TOC ELV exceedance	Explosion of waste on grate moved waste out of combustion zone into burn out lower zone preventing complete combustion of waste.	Increased vigilance from staff when loading waste from lower levels of ERF waste bunker.

5.3 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
19/03/2018	Noise from reversing beeper daily after 7PM	Plant operates 24/5 so mobile plant is in use in tipping hall overnight Sunday to Friday. Could not substantiate if from RERF or Produce Market	Ensured Tipping hall doors are closed after deliveries complete at 6PM to reduce risk of noise travelling off site.
23/07/2018	Odour complaint from east of site (Flexner Road)	Neither ourselves nor the EA could substantiate the complaint, EA conducted random monitoring over following two weeks after attending site on day of complaint and found nothing.	Nil
20/08/2018	Odour complaint from Vac Form, (foul smelling odour)	Wind was blowing from wrong direction to have sent any odour to this complainant.	Nil

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. Attenuator fitted to Mechanical Pre-Treatment air compressor in Baling hall leading to reduced noise within the Baling hall and surrounding area. 2. ERF air compressor dryers replaced with improved units, reducing energy required to fulfil plant air requirements. 3. Mechanical Pre-Treatment ferrous chute reconfigured to lower drop height and move collection skip further into Baling hall. Reduced noise levels, less vehicle movements and improved safety. 4. Cleaning system fitted to Air Cooled Condenser allowing on site staff to conduct cleaning of condenser as required by condition monitoring. Improved energy and plant efficiency.

7. Details of any public liaison planned for 2019:

Date and time	Description	Location
May 2019	Community Liaison Meeting	Leeds RERF

If you wish to be involved in the public liaison programme, please contact Nazneem Grogan, General Manager, 02035678449