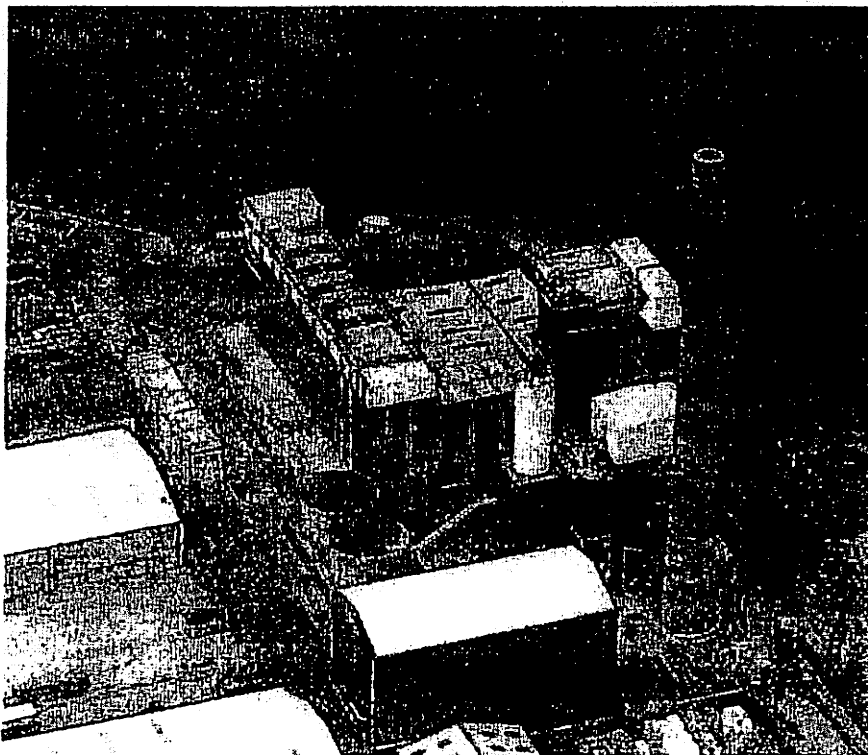


Greater Manchester Waste Limited

Bolton TRF

Annual Performance Report 2008



	INITIALS	DATE
OK FOR PUBLIC REGISTER	SJ	11/2/09
COPED TO PUBLIC REGISTER	AS	17/11/09

Monthly Emissions

Fuel hour level emission ton	January					February					March					April					May					June															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5						
30	10	400	200	30	60	100	30	10	400	200	20	60	100	30	10	400	200	30	60	100	30	10	400	200	30	60	100	30	10	400	200	20	60	100	30	10	400	200	30	60	100

Monday level hour	4.1	5.7	207.2	194.0	0.0	47.0	00.3	10.3	0.6	107.0	08.3	4.3	87.3	04.4	3.2	4.7	204.2	75.2	2.3	34.2	30.0	5.1	4.2	700.3	02.4	2.6	22.1	21.0	0.7	0.4	370.0	103.3	2.7	14.7	20.4	0.6	7.5	338.6	07.4	2.0	28.0	01.0
Monday level hour	0.3	0.7	169.0	7.2	1.9	0.6	1.0	0.3	0.8	171.0	11.5	2.5	8.8	1.3	0.4	0.3	168.0	8.8	1.4	8.6	1.5	0.8	0.2	159.0	0.8	0.0	0.0	1.5	4.0	1.3	102.7	12.1	1.8	0.4	1.5	2.0	1.0	168.0	0.6	1.5	0.6	1.7
Monday level hour	0.0	0.0	78.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.4	1.6	0.2	0.0	0.0	123.1	0.0	0.0	2.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Monday level hour	10.0	0.0	300.0	50.0	10.0	10.0	50.0	10.0	10.0	0.0	0.0	10.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Monday level hour	0.6	1.8	195.0	16.0	0.0	0.0	0.0	4.0	1.0	0.3	191.0	17.0	2.6	0.5	0.0	0.0	1.5	182.0	13.0	1.7	0.0	3.0	2.6	0.0	170.0	14.0	1.7	0.5	1.0	3.0	0.3	107.0	107.0	23.0	2.1	0.2	7.5	3.5	2.1	100.0	13.0	3.5	0.7	2.0	

Monday level hour	July					August					September					October					November					December																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10								
30.0	10.0	400.0	200.0	20.0	60.0	100.0	30.0	10.0	400.0	200.0	20.0	60.0	100.0	30.0	10.0	400.0	200.0	30.0	60.0	100.0	30.0	10.0	400.0	200.0	30.0	60.0	100.0	30.0	10.0	400.0	200.0	20.0	60.0	100.0	30.0	10.0	400.0	200.0	30.0	60.0	100.0	30.0	10.0	400.0	200.0	30.0	60.0	100.0

Monday level hour	15.0	4.8	312.0	170.0	2.0	67.4	45.3	7.2	0.0	280.0	123.5	2.4	22.2	01.7	3.0	2.0	220.0	31.1	0.0	10.4	12.0	4.3	4.2	310.7	07.3	10.3	20.0	02.2	10.3	5.3	307.0	107.0	3.0	22.0	10.0	0.0	0.2	264.0	113.0	2.0	01.0	02.0		
Monday level hour	2.5	0.6	170.0	10.2	1.5	0.2	1.4	2.0	0.7	170.0	11.5	2.1	7.0	1.0	0.5	0.1	164.0	14.0	7.0	0.0	0.2	0.5	0.0	170.7	0.6	2.0	0.4	0.0	4.1	1.0	160.0	11.7	3.0	0.6	1.3	0.1	0.0	160.0	7.4	1.3	7.4	1.2		
Monday level hour	0.1	0.0	00.0	0.0	0.3	1.1	0.0	0.1	0.0	23.4	0.1	0.0	0.0	2.0	0.5	103.0	10.2	0.9	0.4	1.5	0.0	0.1	113.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Monday level hour	10.0	0.0	200.0	50.0	10.0	10.0	50.0	10.0	10.0	0.0	0.0	10.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Monday level hour	0.7	1.0	104.0	10.0	3.3	10.0	6.3	4.0	1.0	104.0	71.0	1.9	0.2	0.1	0.0	2.4	103.0	10.2	1.3	0.5	20.0	1.7	1.1	101.0	12.0	1.5	0.0	0.2	1.0	1.0	100.0	0.0	1.0	0.0	5.0	5.0	0.2	3.0	170.0	10.3	1.0	19.5	0.0				

**Annual performance report for Bolton Thermal Recovery
Facility
Permit number BS3042 IM
Year 2008**

1 Introduction.

Bolton Thermal Recovery Facility, Raikes Lane, Bolton, BL3 2NH.
Operated by Greater Manchester Waste Ltd on behalf of Greater Manchester Waste Disposal Authority.

The plant burns mixed municipal waste from Bolton MBC, Bury MBC, Salford CC and Rochdale MBC in varying quantities, it also incinerates commercial waste, trade waste, animal by products and confiscated items from the police and customs.

For further copies of this report or any comment please contact S Entwistle Operations Manager at Greater Manchester Waste Ltd, Bolton Thermal Recovery Facility, Raikes Lane, Bolton, BL3 2NH

2 Plant Description.

The installation is a single incinerator designed to have a capacity to burn municipal waste at approximately 16 tonnes an hour. Waste types are brought to the site by road transport (mainly council collection vehicles) which enters the site via a weighbridge. Acceptable waste is discharged into a reception pit with a holding capacity of 1530m³ and any excess is discharged onto the floor of the tipping hall, both of which are enclosed within a building. Waste is transferred from the reception pit to the incinerator feed hopper by crane operated grab. From the hopper, it falls by gravity onto the inclined four hearth rocking grate. Primary combustion air is provided through grate and secondary combustion air is provided via ports in the roof of the furnace. Supplementary oil fired burners are used to ensure that the combustion temperature of the waste combustion gases are raised to a minimum of 850°C at all times when waste is being burned on the incinerator grates and particularly during start up and shut down.

Heat from the burning of the waste is used in the heat recovery boiler to raise steam which, in turn is used in the steam turbine driven alternator to generate electricity which is used for powering plant auxiliaries and the surplus is exported to the national grid.

On exiting the heat recovery boiler the combustion gases pass into a reaction area where lime and activated carbon are injected into the gas stream to remove acid gases and organic vapours. The gases then pass through a filter where the scrubbing agents and the dust in the combustion gases are collected before the cleaned gases are discharged to atmosphere via a 60 metres high chimney. A proportion of the scrubbing reagents are recycled in the process. Storage silos are provided for the lime, activated carbon, recycled reagent and the filter dust (APC ash). Ammonia is injected into the combustion gases, to control oxides of nitrogen release, as they pass through the heat recovery boiler.

Ash residues discharge from the incinerator grate and fall into a water quenching trough. The ash is drained of surplus moisture, ferrous metal is recovered and the remaining residue is stored before being sent for reuse.

Continuous emission monitors are installed to analyse the exhaust gases from the chimney and include particulates, sulphur dioxide, oxides of nitrogen, carbon monoxide, hydrogen chloride, TOC and ammonia.

Water is abstracted from the River Croal for use in the cooling tower and for process use. Excess water from the cooling tower is returned to the River Croal.

Surface water from the combustion gas treatment and ash quenching area is recycled to the process. Solids filtered from the river water along with some of the river water is discharged to sewer.

3 Summary of plant operations

(a) The plant is single furnace

(b)

Permitted Waste types in tonnes		
Waste type	Limitation	Total
Mixed Municipal waste	Domestic, bulky and street market collections	94165.06
Commercial Waste	Cardboard, packaging and confidential documents	600.59
Animal by- product	International catering waste	52.42
Trade waste	Similar to household waste	933.82
Confiscated Items	Brought in by police/customs	4.28

(c) Total Plant operational hours were 7222

Bi annual planned shut down's May 468 hrs November 610

Significant plant failures

Planned

Boiler tube failure June/July	108 hrs
Refractory Furnace failure	53 hrs
Faulty Safety valve superheater line	61 hrs

(d)

Residues Produced in tonnes		
Bottom Ash	Air Pollution Control	Metal
20615	2888.86	1647.36
Recovered	Hazardous Landfill	Recovered

(e)

Electricity Produced MW/h		
Generated	Exported	Average MW/h
55280	45319	7.65/6.27

This is equivalent to supplying 5000 houses		

4 Summary of Plant Emissions

(a) Pollutants Measured continuously to Air

Particulate	Total hydrocarbons (THC)	Hydrogen Chloride (HCl)	Carbon Monoxide (CO)	Sulphur Dioxide (SO ₂)	Oxides of Nitrogen (NO _x)	Ammonia (NH ₃)
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Pollutants Measured continuously to Water

Temperature	Free Chlorine	pH
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Pollutants Measured Periodically to Air

Bi-annually			
Particulate	Total hydrocarbons (THC)	Hydrogen Chloride	Carbon Monoxide
Sulphur Dioxide (SO ₂)	Oxides of Nitrogen (NO _x)	Dioxins	Ammonia (NH ₃)
Nitrous Oxide N ₂ O	Dioxin-like PCB's (WHO-TEQ ¹ Humans/mammals)		

Quarterly			
Hydrogen Fluoride (HF)	Cadmium & thallium & their compounds	Mercury & its compounds	SB,As,Pb,Co,Cu,Mn,and V and their compound (Metals)

(b) % operations time when Continuous Emissions Monitoring equipment (CEM) were operating normal was 100%

	Env. Agency (est. April)	First quarter	Second quarter	Third quarter	Fourth quarter
Particulate	1	<2	0.4	<0.5	<0.5
TOC	0.6	<2	11.1	3.42	10.55
HCL		0.15	<0.01	<0.02	<0.01
HF		8	8	4	4
CO		18	18	3	8.7
SO ₂		171	171	239	193
N ₂ O				2	
Dioxins & Furans		0.0067 ng/m ³			<0.0049 ng/m ³
NH ₃		0.48			0.51
metals		0.071	0.027	0.101	0.033
Cadmium		0.0007	0.002	0.002	<0.003
Thallium		0.0004	<0.001	0.003	<0.002
Dioxins & furans 2,10,1					
Humans/animals		0.0040 ng/m ³	0.0040 ng/m ³		0.0055 ng/m ³
Fish minimum		0.0040 ng/m ³	0.0040 ng/m ³		0.0051 ng/m ³
Birds minimum		0.0057 ng/m ³	0.0057 ng/m ³		0.001 ng/m ³
PCBs (who-12)					
Humans/animals		0.0016 ng/m ³	0.0016 ng/m ³		0.0017 ng/m ³
Fish minimum		0.0008 ng/m ³	0.0008 ng/m ³		0.0001 ng/m ³
Birds minimum		0.0034 ng/m ³	0.0034 ng/m ³		0.0042 ng/m ³
PAH's (WID suite)		<0.0003	<0.0003		

(d) Periodic emissions monitoring results.

(c) CEM's Data See Appendix

5 Summary of plant compliance.

(a)

Percentage of time the plant was compliant with the permit conditions						
Particulate	TOC	HCL	CO	SO ₂	NO _x	NH ₃
100%	100%	100%	100%	100%	100%	100%

(b) **Non-Compliances**

(i) No None compliances.

(c) **Abnormal operations (maximum 60 hrs per year)**

24 hrs and 25 mins claimed as abnormal operations in 2008

(d) **Complaints**

No complaints received

(e) **Formal Enforcement Actions**

No formal enforcement action.

6 Summary of plant improvements

The following improvements have been carried out:

- Improved communication in turbine hall by installing speech active ear defenders.
- Redirected cooling tower sump discharge pump from the sewer to the cooling pond.
- Control site speed by installing a chicane barrier.

7 Summary of information made available

(a) Bolton Thermal Recovery Liaison Forum meets every six months in May and November. Representatives attend from the three ward Councils, Local Residents Associations, Environmental Agency, Bolton Environmental Health Organisation and GM Waste. The agenda covers the following topics:-

- 1 Complaints
- 2 Plant Performance
- 3 Waste Incinerated, Bottom Ash, APC ash produced
- 4 Electricity Generated
- 5 Report on TRF Emission Performance and Monitoring program
- 6 Environment Agency Report/Comments
- 7 GMW Environment Department Report
- 8 AOB.

Minutes from the meeting are circulated to all present.

(b) Bolton Thermal Recovery Information is available at:

Environment Agency
Appleton House
430 Birchwood Boulevard
Birchwood
Warrington
WA3 7WD

Bolton Environment Department
Weston House
Weston Street
Bolton
Lancashire
BL3 2AR.

GM Waste Limited
PO Box 151
Higher Swan Lane
Bolton, BL3 3WW

Appendix