Annual Performance Report for Eastcroft Energy from Waste Facility

Permit No: EP3034SN

Year – 2007

Report produced by

Waste Recycling Group
On behalf of WasteNotts (Reclamation) Ltd

Report Issued: 27 January 2008

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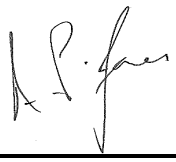
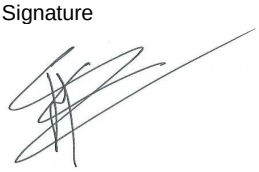
Date: 27/01/08	Signature 	Signature 	Signature

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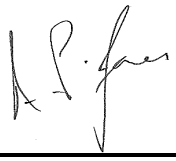
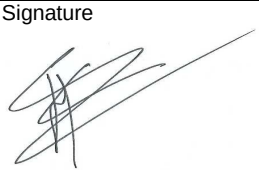
Date: 29/01/08	Signature 	Signature 	Signature

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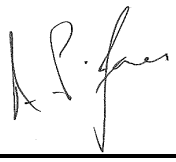
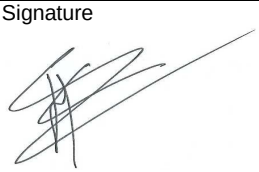
Date: 07/03/2008	Signature 	Signature 	Signature

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Glossary

	Definition
^{o}C	Degrees Centigrade
APC	Air Pollution Control
As	Arsenic
BAT	Best Available Technique
BS EN	British Standard - European
CDM	Construction Design Management
CEMs	Continuous Emission Monitoring
CHP	Combined Heat & Power
CFD	Computational Flow Dynamics
Co	Cobalt
CO	Carbon Monoxide
Cr	Chromium
Cu	Copper
CV	Calorific Value
EA	Environment Agency
EfW	Energy from waste
EWC	European Waste Catalogue
FGT	Flue Gas Treatment
HAZOP	Hazardous operations
HCl	Hydrogen Chloride
HWRC	Household Waste Recycling Centre
ID	Induced draught
LRHS	London Road Heat Station
Mn	Manganese
NDHS	Nottingham District Heating Scheme
NHIC	Non Hazardous Industrial & Commercial
Ni	Nickel
NOx	Oxides of Nitrogen
OS	Ordnance Survey
Pb	Lead
PPC	Pollution Prevention Control
PPE	Personal Protective Equipment
Sb	Antimony
SNCR	Selective Non Catalytic Reduction
SOx	Oxides of Sulphur
TOC	Total Organic Carbon
V	Vanadium
WID	Waste Incineration Directive
WNR	WasteNotts (Reclamation) Ltd
WRE	White Rose Environmental
WRG	Waste Recycling Group

Introduction

This report is required to be produced under the Waste Incineration Directive's Article 12(2) requirements on access to information and public participation, which requires the operator to produce an annual report to the Regulator on the functioning and monitoring of the plant and to make this available to the public.

The Nottingham Waste Incinerator installation at Eastcroft comprises the Energy from Waste facility operated by WasteNotts (Reclamation) Limited (WNR) and the clinical waste incinerator operated by White Rose Environmental Limited (WRE). WNR is owned by Waste Recycling Group (WRG). This report relates only to the Energy from Waste facility.

The Energy from Waste facility is located at

Incinerator Road
Off Cattle Market Road
Nottingham
NG2 3JH

OS Grid Reference: SK45823391

The Energy from Waste facility is part of the Nottingham District Heating Scheme which produces heat and power for local users by burning around 160,000 tonnes of waste from Nottingham, Nottinghamshire and the surrounding area each year. Non hazardous municipal waste, or similar, is brought to the facility after people have sorted out materials for recycling at home and at the Household Waste Recycling Centres.

The Eastcroft Energy from Waste facility generates nearly 20 megawatts of thermal energy in the form of steam, which helps to reduce the need for non-renewable fossil fuels and produces electricity for the local grid and heat for homes in the city centre.

Steam from the facility is sent by pipes to an energy generation facility on London Road. From there it is used for district heating in around 1,000 local homes and converted to electricity for distribution to the grid..

Housing in St Ann's is served by power and heat from the facility, as are the Victoria Shopping Centre, the Nottingham Magistrates Court and the National Ice Centre, amongst others.

Using waste to generate heat and power helps to reduce the need for fossil fuels. A proportion of the waste brought to Eastcroft comes from renewable sources (paper, wood, organic materials, etc.). The Government encourages the use of renewable energy sources as a way of reducing our need for fossil fuels, which are a major cause of climate change.

Waste in Nottingham and the county continues to grow year on year and although improvements are being made in recycling, there is still a vast amount of waste to manage. In 1998/99 the city and county together produced more than 600,000 tonnes of municipal waste and a further 3 million tonnes of waste from businesses. All of this has to go somewhere.

Landfills in the county have been taking the majority of this waste, but they are filling up. Further, there are clear National and European policies to reduce the amount of waste sent to landfill.

One option is to extend capacity at the Energy from Waste facility, so that more waste can be taken to generate useful heat and power and the need for landfill can be reduced.

Waste Recycling Group has resubmitted a planning application for a third line at Eastcroft, capable of managing a further 100,000 tonnes a year of local waste. The application was not determined by Nottingham City Council's Planning Committee within the timeline set by government guidelines . WRG have lodged an appeal against this decision.

Should a member of the public want a copy of this report or wish to make comments then please use the following contact information

Email: info.eastcroft@wrg.co.uk
Web: www.wrg.co.uk/eastcroft
Post Eastcroft EfW Facility
Incinerator Road
off Cattle Market Road
Nottingham
NG2 3JH
Call: 0845 601 5432

Plant Description

The EfW facility currently comprises two incineration streams each capable of burning up to 11.5 tonnes/hour of municipal and light commercial and industrial waste. Approximately 160,000 tonnes of waste is burned in the plant per year at the present time. Waste Recycling Group the owner of WasteNotts (Reclamation) Ltd has proposed to add a third line to the plant. Planning permission was sought and not determined the matter is now subject to an appeal. Should the appeal be successful and the third line built it will be capable of burning up to 13 tonnes/hour of similar waste. The third line will increase the capacity of the incineration process to approximately 260,000 tonnes per year. The third line is included in the scope of the PPC permit (EP3034SN).

The following sections describe the existing operations at Eastcroft EfW. A summary of the proposals for the third line is given at the end of this description.

Raw materials handling

Municipal waste and non-hazardous commercial/industrial/trade waste is delivered to site by lorry and tipped into one of two refuse bunkers inside the tipping hall. Deliveries are typically made from Monday to Saturday morning. Waste is transferred from the bunkers by grab crane into the feed chute of each incinerator stream. Waste is only fed to the incinerator if the temperature is above 850^{o}C.

Incineration

Each incinerator stream has a moving grate on which the waste is burned, with air being injected above and below the grate. Combustion air is drawn from the tipping hall and boiler hall to reduce odours and dust levels in these areas. Two auxiliary burners, fired on gas oil, are installed halfway up each combustion chamber to maintain temperatures above the 850^{o}C threshold. The auxiliary burners are also used to pre-heat the incinerators before start up. Ammonium hydroxide is injected into the furnaces to reduce emissions of nitrogen oxides (this technique is known as selective non-catalytic reduction or SNCR).

Hot gases from the combustion chamber pass to a boiler in which steam is raised and sent to the London Road Heat Station for supply of heat to the district heating system and generation of electricity. Flue gases leaving the boiler are cooled to about 130^{o}C in the economiser to achieve the correct temperature for acid gas treatment.

Ash handling system

Grate ash (known as bottom ash) is quenched in water and collected in a residuals bunker inside the building. Ferrous metal items are removed by a magnetic separator (and are sent for recycling) and the bottom ash is stored in a silo on site. The silo is emptied regularly and the bottom ash is sent for landfill disposal, where it is used beneficially as top cover or as a road building material.

Fly ash entrained within the incinerator exhaust gases, together with any

accumulations of dust removed from the walls of the economiser by the shot cleaning system, is treated in the air pollution control equipment.

Air pollution control (APC) equipment

Each incinerator stream has its own dedicated air pollution control equipment. Cooled flue gases leaving the economiser are dosed with a mixture of hydrated lime, activated carbon and recirculated reagent, in order to reduce acid gases (by reaction with the lime), and other substances such as heavy metals and hydrocarbons (by adsorption onto the activated carbon). The exhaust gases and reagent particles are then filtered in a four compartment fabric filter to remove the dust burden. The fabric filters are regularly cleaned by reverse jet pulses, and the collected end product is stored in the APC residue silo. The APC residue silo is regularly emptied and the residue disposed of to a licensed landfill site.

Stack emission

The treated exhaust gases from both streams are discharged via the 91m high stack. The final emissions from the municipal waste incinerator are continuously monitored for particulate matter, sulphur dioxide, nitrogen oxides, carbon monoxide, hydrogen chloride, volatile organic compounds and ammonia prior to entry into the main stack.

Outline Description of the Third Line

Engineering details of the proposed third line are not yet available since WRG has not yet awarded the contract for the design and build of the incinerator extension. However it is known that the third line will mainly comprise:

- Waste reception into the existing tipping hall and waste bunkers.
- Two new grab cranes serving the existing incineration lines and the third line.
- A moving grate incinerator and integrated steam raising boiler designed to meet the temperature and residence time requirements of the Waste Incineration Directive. The incinerator plant is likely to be housed in a separate building from the existing lines.
- An ash collection and handling system for incinerator bottom ash with an automatic conveying system to the existing bottom ash silo.
- Abatement of nitrogen oxide emissions in the incinerator combustion chamber by selective non-catalytic reduction and/or flue gas recirculation.
- An air pollution control system similar to that for the existing lines, ie. comprising acid gas neutralisation, carbon injection and dust filtration.
- Emission of the treated flue gases via the currently unused semi-circular flue in the existing stack.
- Continuous and periodic monitoring of all emitted pollutants in the stack.
- An effluent treatment plant for all effluents which cannot be reused within the process, including backflush water from the boiler water treatment plant, overflow from the wet ash handling system and surface water drainage.

- A steam turbine at the Eastcroft site for generation of electricity for sale to the grid, and possible supply of residual heat to the district heating scheme.
- An air cooled condenser to condense the residual steam and return it to the boiler system.

Summary of plant operation

The PPC forms relating to annual data can be found in Appendix 1.

Plant size including number of lines

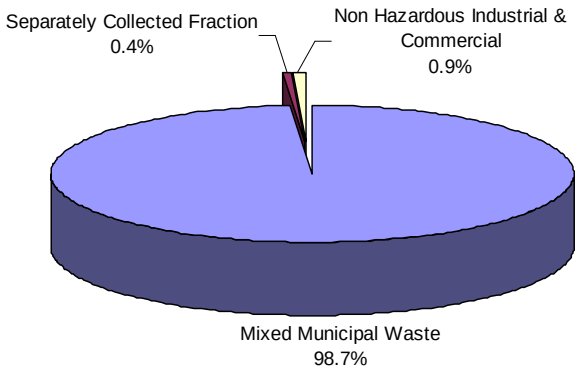
The Eastcroft Energy from Waste facility is designed around two process streams each with a capacity of 11.5 tonnes per hour with the waste having an average calorific value (CV) of 8.5 MJ/kg. The facility however can easily deal with fluctuations in the composition of the waste and has a design CV range of 6 – 12 MJ/kg which it can accept without any adverse effects.

The theoretical maximum capacity of the plant assuming a 'low' CV waste input and the plant running every hour of the year would be approximately 260,000 tonnes. In reality the plant accepts waste with a CV of around 8.5MJ/kg and has to be shut down for annual maintenance and other works, this results in a historical throughput of around 150 – 160,000 tonnes every year.

Under normal operation the facility does not need supplementary fuel to sustain the combustion process. Additional Fuel is only required for start-up and shut down, to ensure that no waste is burnt at less than 850 ^{o}C.

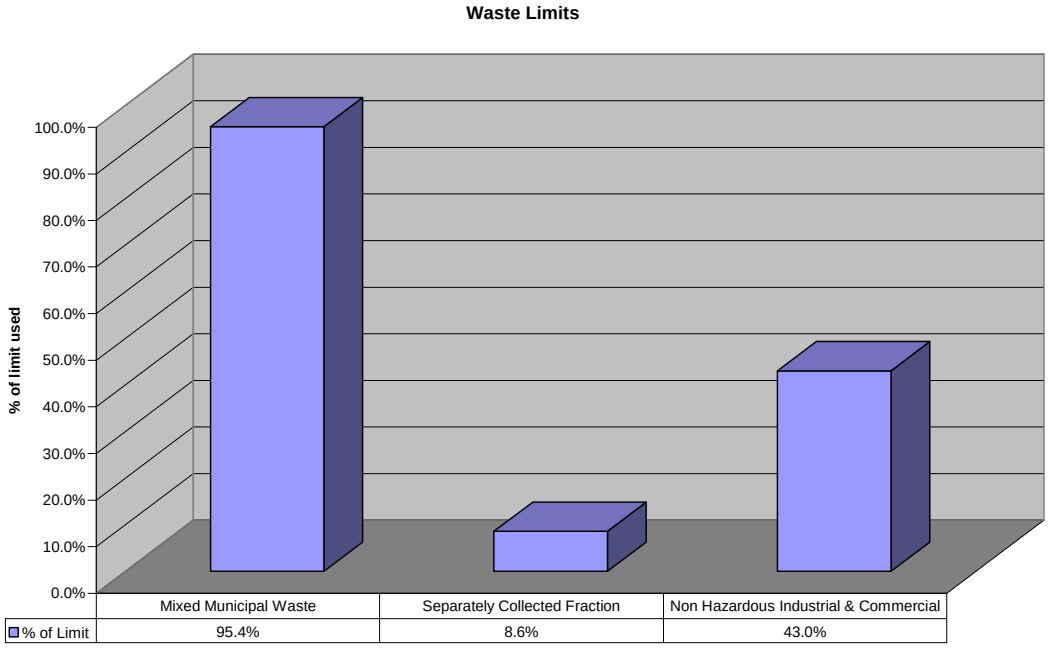
Annual Waste Throughputs

Figure 1: Breakdown by category for waste input



The facility took in approximately 153,000 tonnes of waste in the reporting period. The vast majority of this waste was mixed municipal waste from Nottingham City, Nottinghamshire and the surrounding area. A breakdown of the waste inputs is shown in Figure 1. This identifies how much waste was municipal, non hazardous industrial & commercial and separately collected fractions. The separately collected fraction tends to be waste such as confidential paper from sources such as the police, solicitors etc.

Figure 2: Percentage of waste inputs against the specified limits



As required through the Waste Incineration Directive Article 4(4) the permit identifies the types of waste by European Waste Catalogue (EWC) code and can potentially give maximum quantities of waste which can be accepted at Eastcroft.

The EWC codes have been grouped together into three main headings and maximum quantities assigned. The groupings and quantities are as shown below:

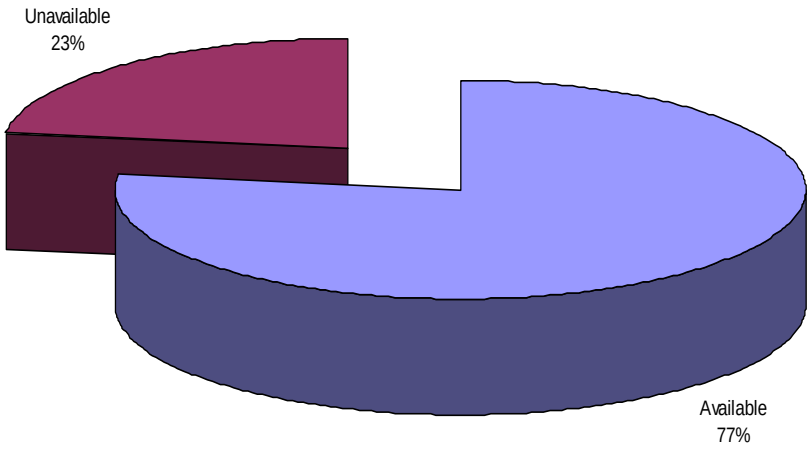
- Municipal Waste
  Limit 160,000 tonnes Actual 154,069 tonnes
- Separately Collected Fraction
  Limit 8,000 tonnes Actual 686 tonnes
- Non Hazardous Industrial & Commercial
  Limit 3,200 tonnes Actual 1,377 tonnes

Figure 2 shows the quantity of waste received against the limit as a percentage. It can be clearly seen from the graph that the Eastcroft facility was within its limits.

Total Plant Operational Hours

The Eastcroft facility is similar to all plants in the fact that it has a computerised maintenance management system. This allows the Operators to schedule in maintenance activities and predict when systems are likely to fail. This coupled with the experience of the Operator maximises the availability of the plant. However it must be recognised that no system is perfect and that the plant will have to come offline either because the repair necessitates it or the works are unforeseen.

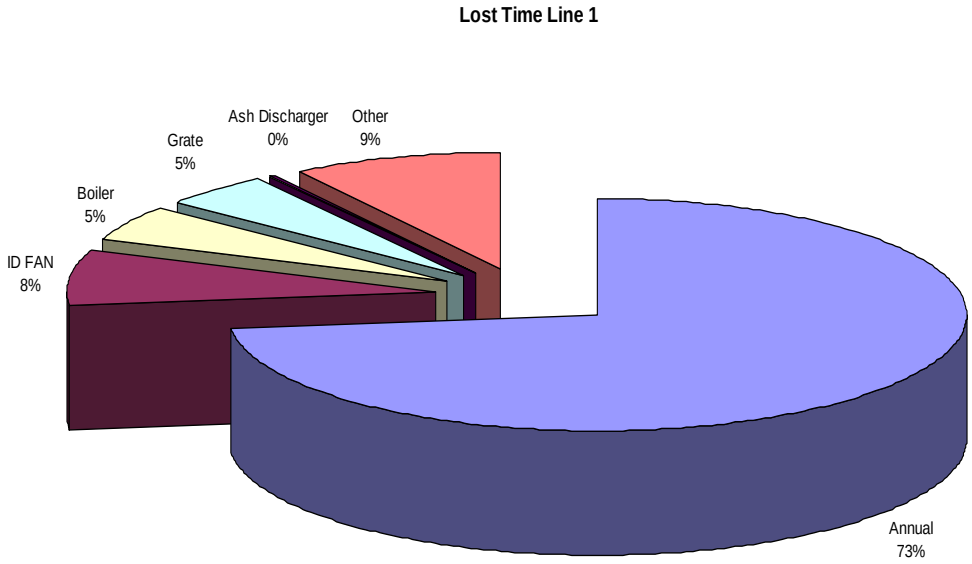
Figure 3: Plant Availability



In total the two lines operated for 13,538 hours giving an overall availability of 77% for the reporting period, as seen in Figure 3.

The analysis of lost time for the plant is broken down into various categories in Figure 4.

Figure 4: Analysis of Lost Time



The biggest lost time element was due to the annual overhaul. This is the planned shutdown period during which maintenance and inspections are carried out. This typically takes place in the summer months when the district heating demand is at its lowest.

The boiler has suffered from some tube failures and these have had to be repaired in a manner that is acceptable to the boiler inspector. Failures take a long time to repair as the unit has to come off line, cooled and the water emptied from the boiler to allow the works to proceed. Once the works have been completed the boiler is filled and a pressure test is carried out. Once this is done the boiler can then be returned to service. The minimum length of time is typically 30 hours although this can easily increase depending on the location of the repair.

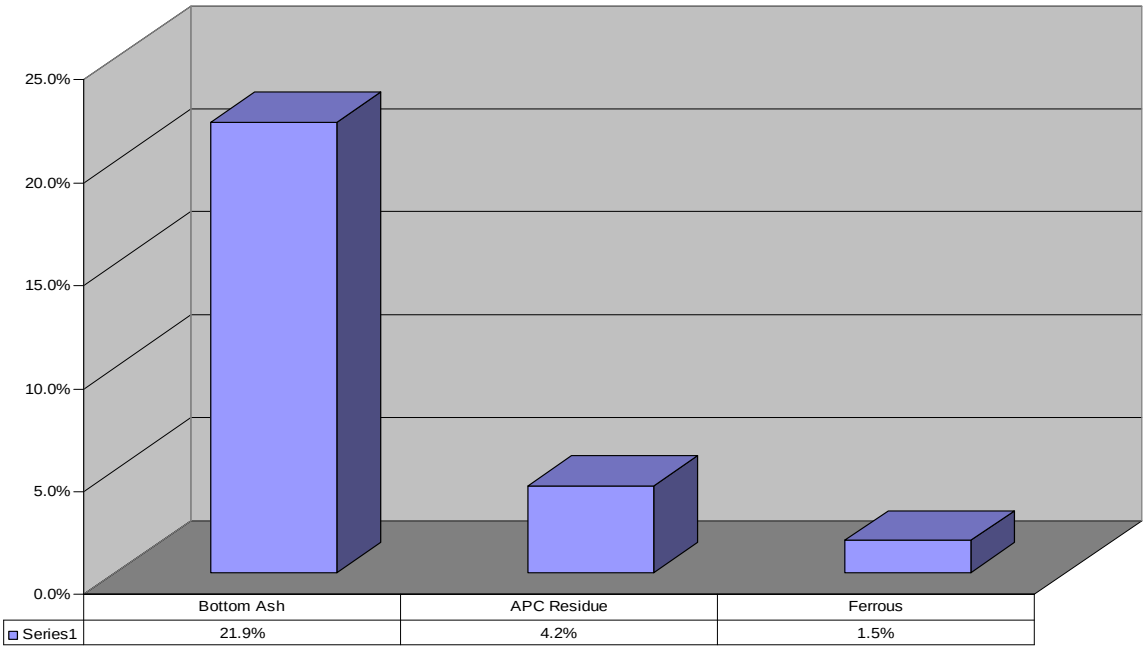
Normal operational difficulties were experienced with the grate such as grate bars lifting. This is caused by waste getting under the moving bars. The result is that the units have to come off and personnel have to get on the grate to reposition the bars. Normally whilst this work is carried out the opportunity is taken to inspect the grate and carry out other maintenance activities.

Towards the end of the reporting period a problem occurred with the Induced Draft Fan on one of the boilers. This necessitated it being shutdown and inspected. Upon inspection it was found that a complete overhaul was necessary, this was completed within 3 weeks (over Christmas) and the fan replaced and returned to service early in the New Year.

The plant has also been affected from other minor issues that have required the units to come off for safety reasons.

Residue production

Figure 5: Quantity of Residue Produced as a % of the input



The plant produces three types of residue;

- Bottom Ash – an inert material left over from the combustion process. This material is currently sent to local landfill sites where it is used as daily top cover and as a road building material. This saves on virgin materials which would otherwise be used.
- Air Pollution Control Residue – A mixture of lime and other particles that have been captured by the Flue Gas Treatment Facility. This material gets sent to a treatment facility where it is mixed with other waste before final disposal in a suitable landfill site
- Ferrous – the ferrous metal in the bottom ash is reclaimed using a magnet. This material is sent away for recycling.

The quantities of residues produced can be seen in Figure 5.

Energy Production

The Eastcroft EfW Facility is part of the Nottingham District Heating Scheme providing energy in the form of steam to the heat station at London Road owned by EnviroEnergy which in turn is wholly owned by Nottingham City Council.

The premises on London Road convert the energy into electricity and hot water. Electricity is supplied to major customers using dedicated cabling. Hot water is distributed to customers over the extensive pipe network that covers much of the city centre. Customers have heat exchangers rather than boilers to keep their building warm and to provide a constant supply of hot water.

EnviroEnergy's customers include the National Ice Arena, the Broadmarsh and Victoria shopping centres, the Inland Revenue offices beside the canal, Capital One's UK headquarters and Nottingham Trent University as well as over 4,600 domestic consumers.

In 2001 EnviroEnergy generated 61,862 mWh of electricity and distributed 177,279 mWh for heat and hot water. Waste produced by 250,000 homes and businesses was used as a fuel to generate this energy. EnviroEnergy have 60 miles of pipes beneath the streets of city centre Nottingham.

If energy were not recovered from Nottingham's waste, fossil fuels would be burnt and more land would be required for landfill sites. By using Nottingham Green Energy our customers are helping to tackle global warming and over time they will also save themselves money.

For the reporting period Eastcroft generated 994TJ of energy in the form of steam

Summary of plant emissions

The monitoring requirements are set out in Section 2.2 of the permit.

The plant is required to carry out both continuous monitoring as well as extractive tests four times a year however the emissions to be measured do vary. In addition to this the EA carry out a full suite of tests during a year. The EA tests are unannounced i.e. the EA turn up without prior warning.

Pollutants Measured

Pollutants Measured	Continuously	Periodically
Particulates	✓	✓
Oxides of Nitrogen	✓	✓
Sulpur dioxide	✓	✓
Carbon Monoxide	✓	✓
Ammonia	✓	✓
Total Organic carbon	✓	✓
Hydrogen Chloride	✓	✓
Mercury		✓
Cadmium & Thallium		✓
Group III Metals		✓
PCDD & PCDF; (Dioxins & Furans)		✓
Hydrogen Fluoride		✓

Control of emissions

The control of the emissions is explained in the “Plant Description” section although for ease of reference the control measures have been summarised below:

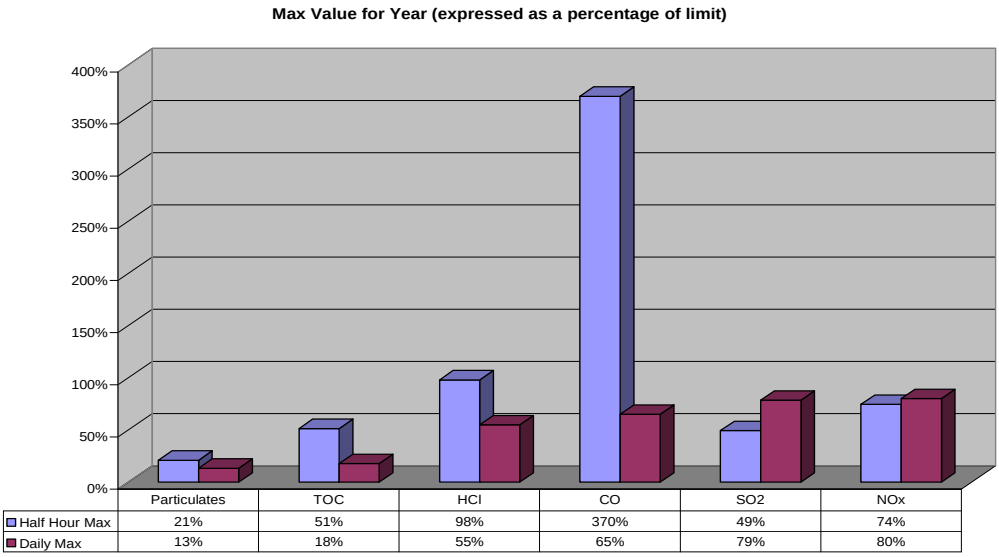
- The acidic gases (Sulphur Dioxide & Hydrogen Chloride) are controlled by the addition of lime to the flue gases.
- Carbon Monoxide and the Total Organic Carbons are controlled through the combustion controls which affect the amount of air in the combustion chamber
- Oxides of Nitrogen are controlled by adding sufficient amounts of ammonium hydroxide solution. The use of computers allows the system to react to the changing parameters within the boiler exactly controlling the levels of NOx and minimising the formation of ammonia.
- The particulates or dust are captured by the bag filters which are highly effective capturing around 99.9% of the particles generated from the process.

Figures 6 & 7 show the maximum daily and half hourly values recorded in the reporting period. Line 1 stayed with the prescribed emission levels at all times. There were 2 high CO readings that stayed within the daily limits which occurred in October & November.

The emissions from Line 2 were within the expected parameters during the whole of the year

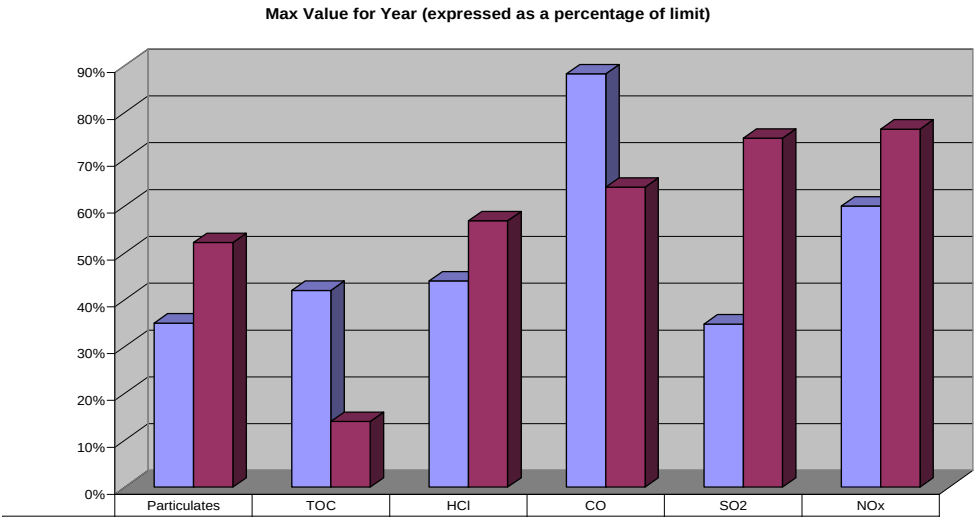
More detailed graphs showing the plants performance on a month by month basis can be found in Appendix 2.

Figure 6: Line 1 Max Values for Year



	Particulates	TOC	HCl	CO	SO2	NOx
Half Hour Max	21%	51%	98%	370%	49%	74%
Daily Max	13%	18%	55%	65%	79%	80%

Figure 7: Line 2 Max Values for the Year



	Particulates	TOC	HCl	CO	SO2	NOx
Half Hour Max	35%	42%	44%	88%	35%	60%
Daily Max	52%	14%	57%	64%	74%	76%

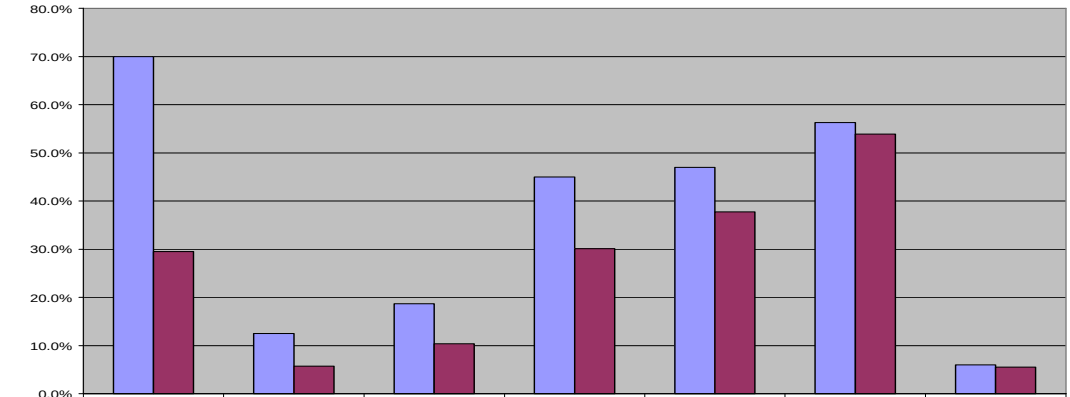
Periodical Monitoring (Extractive testing)

Emissions to Air

Within the permit there is an obligation to carry out extractive tests on the substances emitted from the stack. These tests act as a comparison for the CEMs equipment. Some substances are checked bi-annually others are measured quarterly. A UKAS certified company carries out these tests and submits a report to WRG. The results from the tests are included in the quarterly report to the EA.

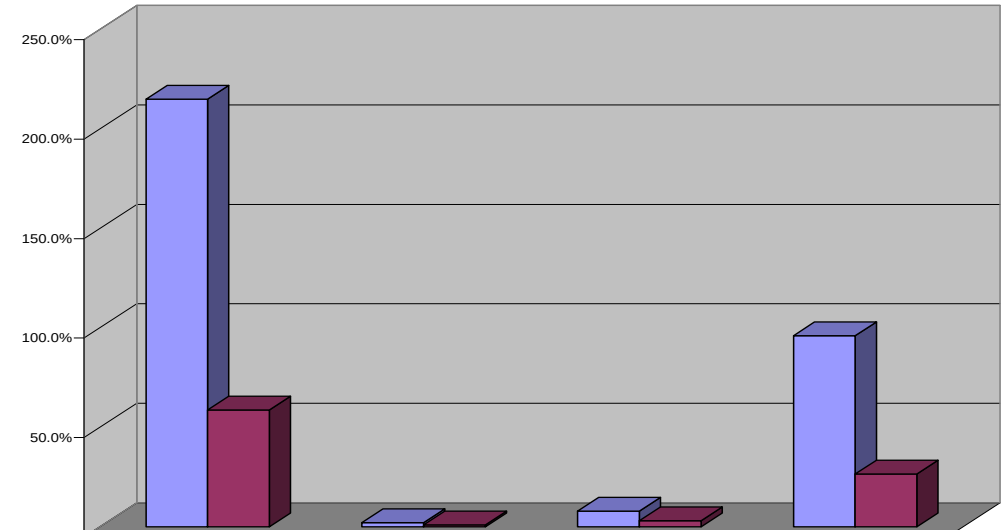
Figures 8 & 9 show the extractive monitoring results. Most of the substances measured are well within the limits set in the permit with the exception of Hydrogen Fluoride which was high for one of the tests. This has been reviewed and is believed to be due to the variability of the waste feedstock.

Figure 8: Bi- annual results showing the maximum and average reading from Lines 1 & 2 expressed as an average of the limit



	Particulates	Total Organic Carbons	Hydrogen Chloride	Carbon Monoxide	Sulphur Dioxide	Oxides of Nitrogen	Dioxins / Furans
Max	70.0%	12.5%	18.7%	45.0%	47.0%	56.3%	6.0%
Average	29.5%	5.8%	10.4%	30.1%	37.8%	53.9%	5.5%

Figure 9: Quarterly extractive Results showing the maximum and average values from Lines 1 & 2 expressed as a % of the limit

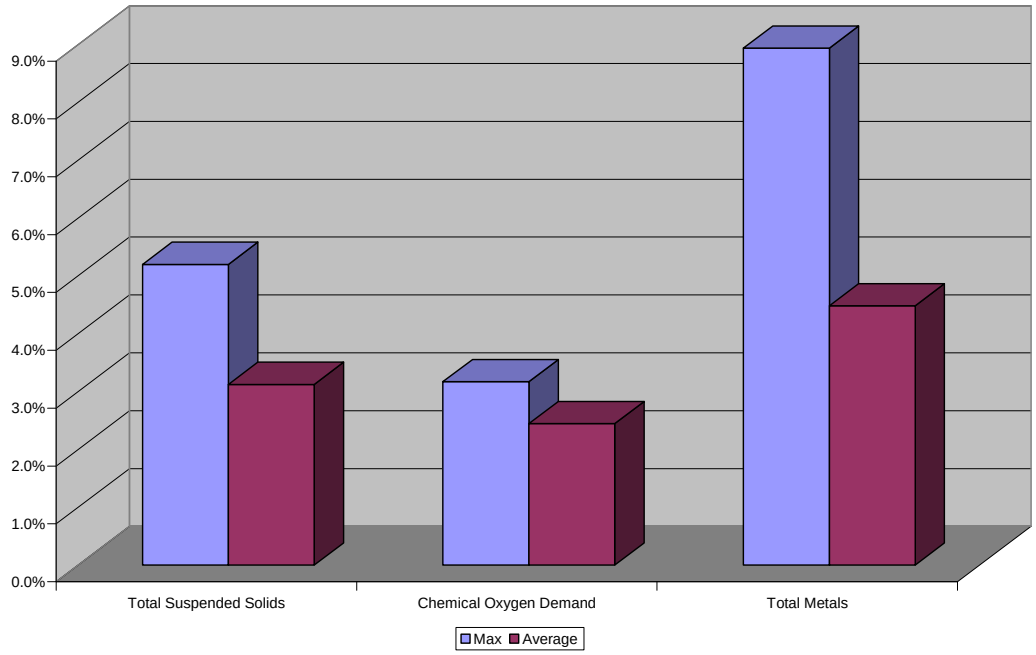


	Hydrogen Flouride	Cadmium, Thallium & compounds	Mercury & Compounds	Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V & compounds
Max	215.0%	2.0%	7.8%	96.0%
Average	58.7%	0.9%	3.1%	26.5%

Emissions to water

Limits for the emissions to sewer are set in Table 2.2.2.8 of the PPC permit applicable to Eastcroft. These require the substances flowing over the v-notch weir for lines 1 & 2 to be measured quarterly. The method for monitoring is given in the permit.

Figure 10: Emissions to Water



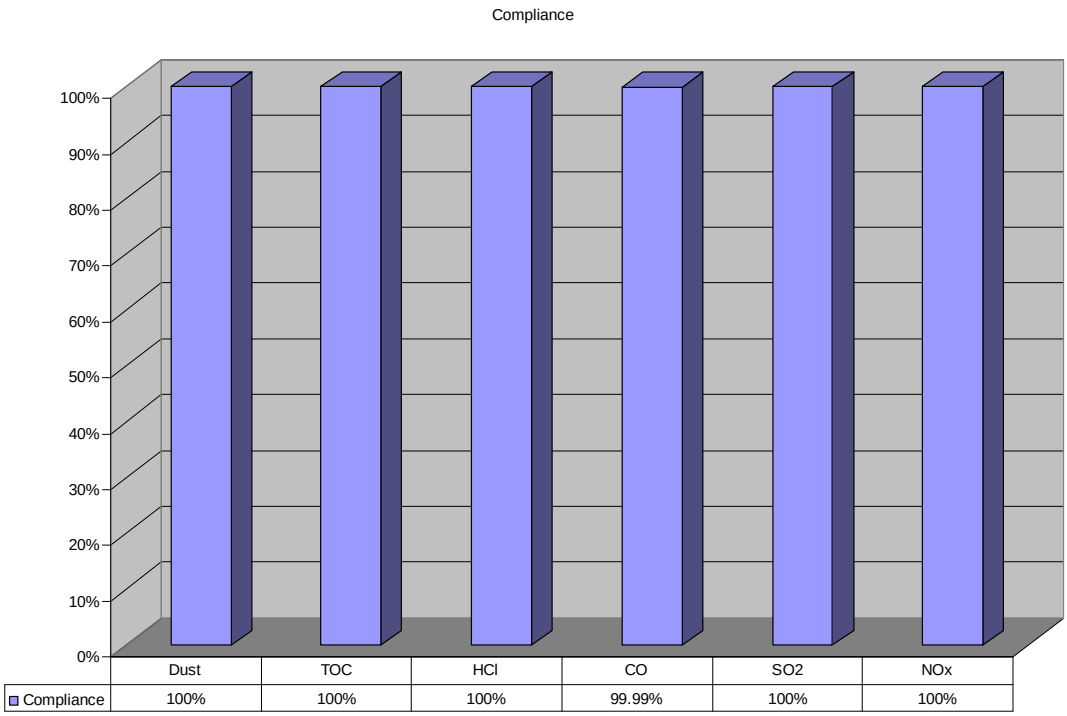
It can clearly be seen in the figure above that the plant remained easily in compliance for all of the quarterly checks.

The pH of the process water going to sewer was between 10.19 and 12.2 averaging at 11.6.

Summary of plant compliance

Compliance with emissions to air

Figure 11: Compliance with emissions



	Dust	TOC	HCl	CO	SO2	NOx
Compliance	100%	100%	100%	99.99%	100%	100%

During the reporting period there were 2 exceedance of the emission limits. The first exceedance occurred when a tube burst in the boiler quickly extinguishing the fire and causing a CO spike. The exceedance lasted for 1 half hour and produced approximately 3kg of Carbon Monoxide. The second exceedance occurred when a suspected gas bottle released its contents into the furnace causing a CO spike. The exceedance lasted for 1 half hour and produced approximately 6kg of Carbon Monoxide.

The replacement of boiler tubes is part of the ongoing maintenance plan and boiler panels are in the process of being replaced in a systematic planned way. Three quarters of the original tubes have now been replaced on both boilers. The remaining tubes are planned to be replaced during the 2008 shutdown.

The tubes are subjected to random thickness tests at least once a year as well as statutory checks by a competent person. However a full survey of the boiler covering the whole tube on every panel cannot be carried out. Whilst these checks are being made if the tubes are found to be thinning they are replaced as a matter of course.

Formal Enforcement Notices

WNR did not receive any Enforcement Notices or Intentions to Prosecute from the EA for the reporting period.

Summary of plant improvements

Improvement Conditions

Within the PPC permit applicable to the EfW facility, the EA set out ten improvement conditions in Table 1.4.1. WRG has not been required to submit responses to any improvement conditions during this reporting period.

Review of potential for CHP Line 3

(Table 1.4.1 Reference 9 Submission by 28/12/06)
WRG are actively discussing with EnviroEnergy the possibility of using the steam generated from Line 3 on the existing District Heating System. There are many benefits in utilising the steam in this way such as improved efficiencies. Although discussions continue no further work can be undertaken until such time that planning is approved.

The original planning application made by WRG was rejected in September 2006, however WRG have appealed this decision.

Verification of combustion conditions for Line 3

(Table 1.4.1 Reference 10 Submission by 3 months after Takeover of L3)

No work can be done on this until Line 3 is under construction.

Other Plant Improvements

Lime Trials: Eastcroft is continuing to trial different types of lime used in the flue gas treatment process. At the start of the reporting period Limbux Lime, produced by Buxton Lime, was predominately used. However it has come to WRGs attention that there are alternative products on the market. An initial test has been carried out with one material which has an increased surface area thus enabling increased efficiency of capture of the acid gases, and it is hoped to trial other alternatives in 2008. The initial test did show a small decrease in material used but a full scale test and further analysis still has to be completed.

Tanker: WRG have sought and received permission to install equipment to allow APC Residues to be removed from site using tankers. The APC residues can now be sent directly to a tanker without the need to mix the APC residue with water on site. The benefits of this system are:

- Number of vehicle movements reduced as the tankers have a greater capacity than the containers.
- Less waste is produced as addition of water will be eliminated.
- The overall operation is cleaner and power consumption will be reduced as no mixing is required on site.

This scheme has been successfully & extensively trialled during 2007.A tender has been issued to the market, the tender submissions will be reviewed and a contractor chosen to install the system before the end of 2008.

Summary of information made available

General information about Waste Recycling Group and the Eastcroft Energy from Waste Facility can be found at www.wrg.co.uk and www.wrg.co.uk/eastcroft , alternatively written enquiries can be sent to the following address:

Eastcroft Energy from Waste Facility
Incinerator Road
Off Cattle Market Road
Nottingham
NG2 3JH

For telephone enquiries please phone 0845 601 5432 quoting Eastcroft as a reference.

Information held on the public register can be found at:

Environment Agency Trentside Scarrington Road West Bridgford Nottingham NG2 5FA Tel: 0115 846 3608	City of Nottingham City Development Lawrence House Talbot Street Nottingham NG1 5NT Tel: 0115 915 6410

In both cases members of the public are advised to phone to arrange a viewing. This is to allow the sites time to make the information requested more accessible. This information can be viewed during normal working hours e.g. 09:00 to 17:00.

The Nottingham Waste Incinerator Installation has an active liaison group involving representatives from the following groups:

- Waste Recycling Group
- White Rose Environmental
- Dalkia Utility Services
- Environment Agency
- Nottingham City
- Nottinghamshire County Council
- Nottingham Friends of the Earth
- Nottingham Against Incineration & Landfill
- Clean Air for Bakersfield & Sneinton
- Lady Bay Community Association
- The Green Party
- Women's Environmental Network
- Local Residents

The liaison group currently meets once a quarter to discuss the performance of the installation and future activities. For further information please contact:

Alan Jones
Secretary, Eastcroft Liaison Group
Eastcroft Energy from Waste Facility
Incinerator Road
Off Cattle Market Road
Nottingham
NG2 3JH

Tel: 0115 986 9505
Fax: 0115 986 5129
Email: Alan.jones@wrg.co.uk

Appendix 1

Permit Reference Number : EP3034SN

Operator : WasteNotts (Reclamation) Limited

Reporting of Waste Disposal and Recovery for the year 2007

Waste Description	Disposal Route	Tonnes	Recovery Tonnes
1) Hazardous Wastes			
APC Residue	Landfill	6529	0
Other hazardous wastes			
Total hazardous waste		6529	0
2) Non-Hazardous Wastes			
Bottom Ash	Landfill	33,852	33,852
Ferrous Material.	Recycling	2,395	2,395
Total non-hazardous waste		36,247	36,247
TOTAL WASTE	-	42,776	36,247

Trends in Waste Disposal and Recovery			
Year	Parameter		
	Named Waste	Total Waste	Waste per unit output
2006			
	Bottom Ash	32,198	0.21
	APC Residue	7674	0.05
	Ferrous Material	3013	0.02
2007	Bottom Ash	33,852	0.22
	APC Residue	6529	0.04
	Ferrous Material	2395	0.02

Operator's comments :

Permit Reference Number : EP3034SN

Operator : WasteNotts (Reclamation) Limited

Reporting of Water Usage for the year 2007

Water Source	Usage (m3)	Specific Usage (m3/t)
Mains water	**8221**	**0.0531**

Trends in Water Usage		
Year	Parameter	
	Named Water source	Water per unit output
2006	**Mains water**	**0.0582**

Operator's comments :

Permit Reference Number : EP3034SN **Operator : WasteNotts (Reclamation) Limited**
Installation : Nottingham Waste Incinerator Form Number : Agency Form / EP3034SN / E / Form Dated 22/12/05

Reporting of Energy Usage for the year 2007

Energy Source	Energy Usage Quantity	Primary Energy (MWh)	CO_2 Produced (tonnes)
Electricity imported from London Road Heat Station*	MWh	9661	0[1]
Electricity imported from national grid*	MWh	N/A	N/A[2]
Gas Oil	tonnes	582	582

*** Conversion factor for delivered electricity to primary energy =**

Trends in Energy Usage Year	Parameter		
	Primary Energy usage	CO_2 produced	CO_2 per unit output
2006			
Electricity imported from London Road Heat Station[1]	9,692	0[1]	
Electricity imported from national grid[2]	N/A	N/A[2]	
Gas Oil	389	389	

Operator's comments :
[1]The Electricity imported from London Road is generated from the steam sent by Eastcroft. The CO2 produced is assumed to be zero as it is the process at Eastcroft that produces CO" rather than the activities at London Road. Eastcroft produces approximately 0.39 tonne of CO" for every MW hour of steam.
[2] Eastcroft Does not have a direct connection to the grid.

Installation : Nottingham Waste Incinerator Form Number : Agency Form / EP3034SN /PI1/ Form Dated 20/12/05

Reporting of Performance Indicators for the period 2007

Annual Production/Treatment		
Total Municipal Waste Incinerated (including separately collected fractions)	Tonnes	154,755
Total Commercial/Industrial Waste Incinerated	Tonnes	1,377
Steam exported (as measured at London Road Heat Station)	terajoules	994
Hot water exported (as measured at London Road Heat Station)	MWh	31,723
Electrical energy used on installation (MWI and CWI)	KWhrs	9,660,750
Gas oil used	Tonnes	582

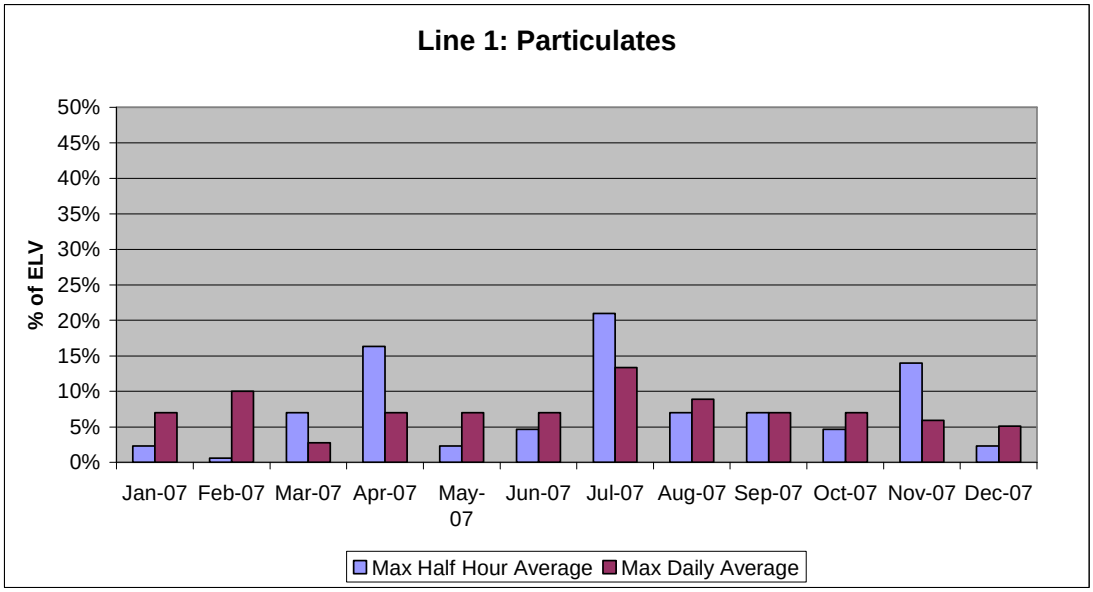
Environmental Performance Indicators

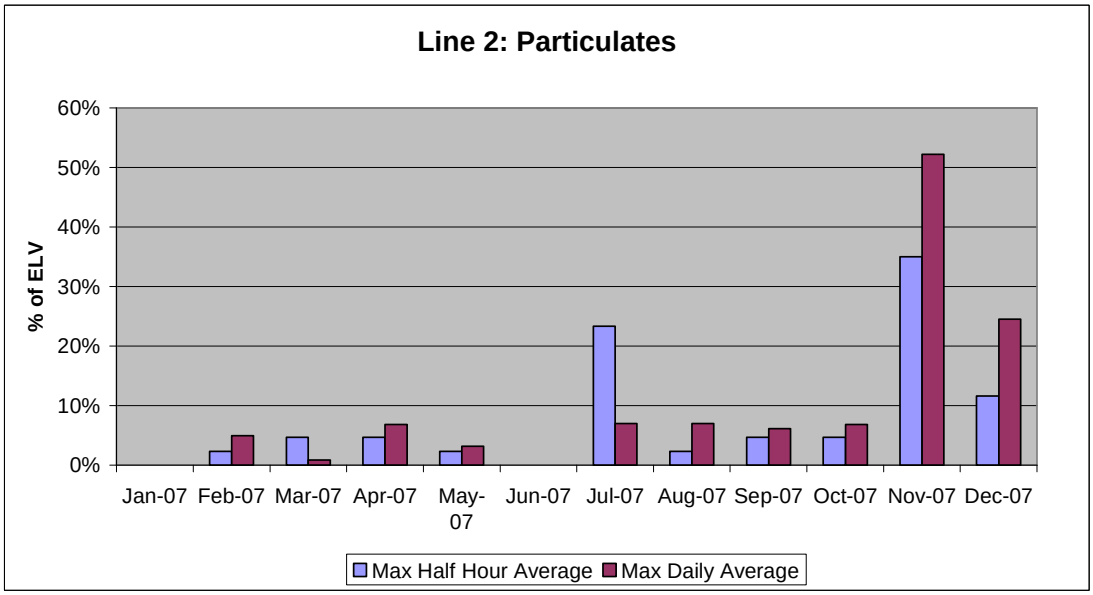
Parameter	Quarterly Average	Units
Electrical Energy imported to site	62	KWHrs/t waste
Fuel oil consumption	3.76	Kg/t waste
Mass of bottom ash produced	218	Kg/t waste
Mass of APC residues produced	42	Kg/t waste
Mass of ammonia used	1.61	Kg/t waste
Mass of carbon used	.25	Kg/t waste
Mass of lime used	8.31	Kg/t waste
Water consumption	0.05	m3/t waste

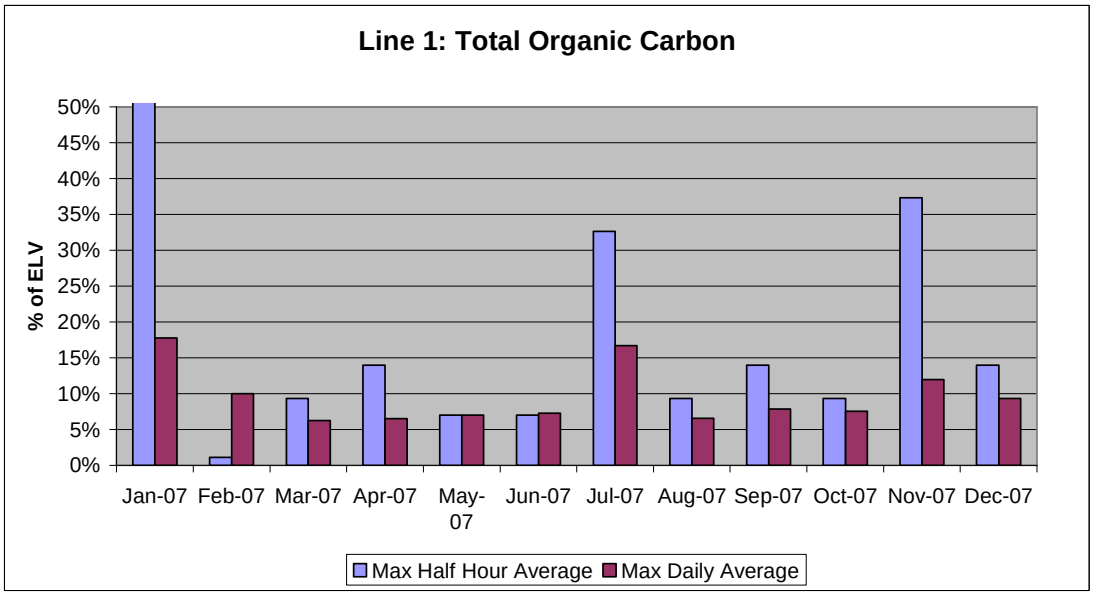
Trends in Environmental Performance Year		
2006		
Parameter	**Quarterly Average**	**Units**
Electrical Energy imported to site	63	KWHrs/t waste
Fuel oil consumption	2.53	Kg/t waste
Mass of bottom ash produced	210	Kg/t waste
Mass of APC residues produced	50	Kg/t waste
Mass of ammonia used	1.95	Kg/t waste
Mass of carbon used	.22	Kg/t waste
Mass of lime used	8.75	Kg/t waste
Water consumption	0.06	m3/t waste

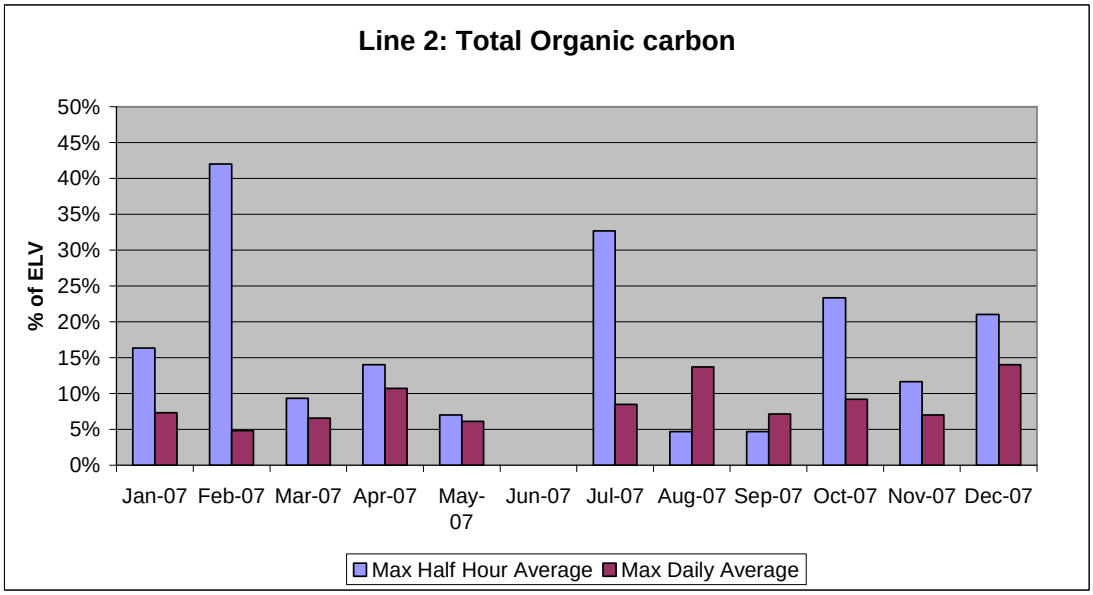
Operator's comments :

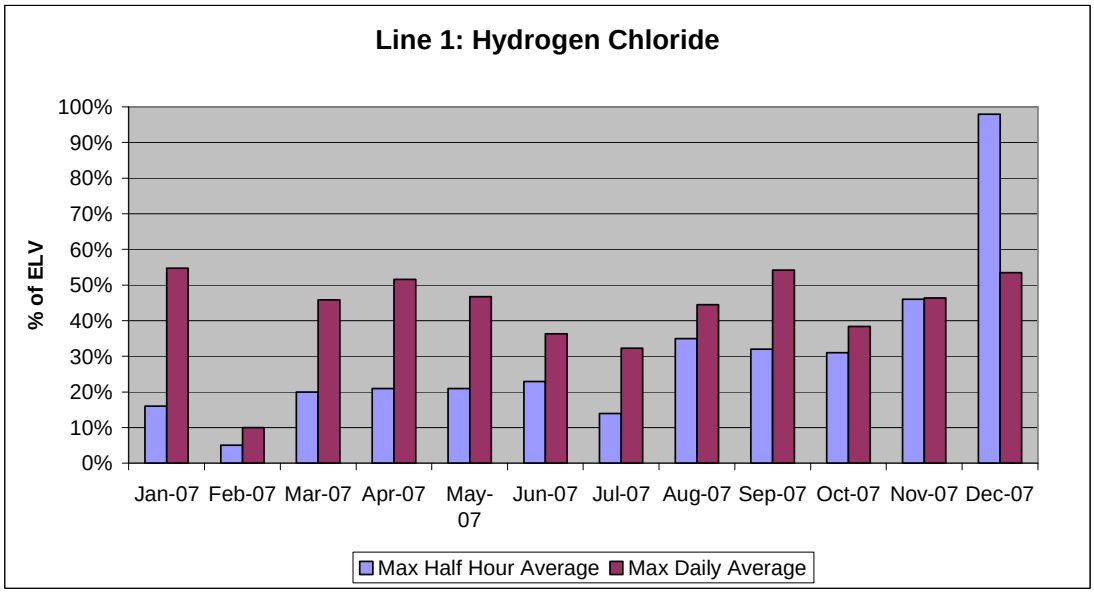
Appendix 2

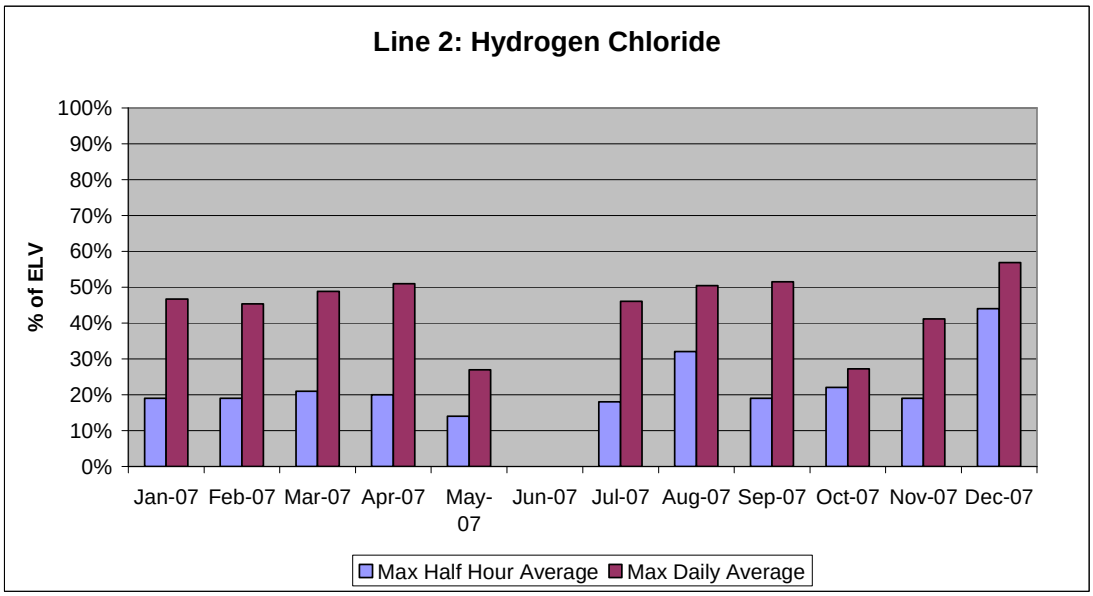

Line 1: Particulates
% of ELV
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Sep-07
Oct-07
Nov-07
Dec-07
Max Half Hour Average
Max Daily Average

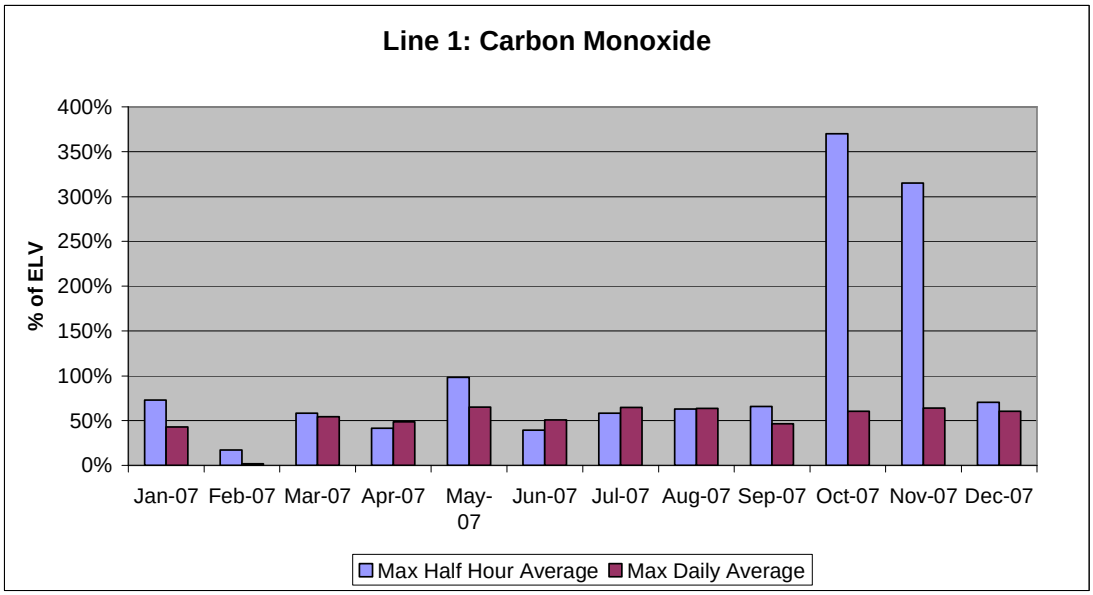

Line 2: Particulates
% of ELV
60%
50%
40%
30%
20%
10%
0%
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Sep-07
Oct-07
Nov-07
Dec-07
Max Half Hour Average
Max Daily Average

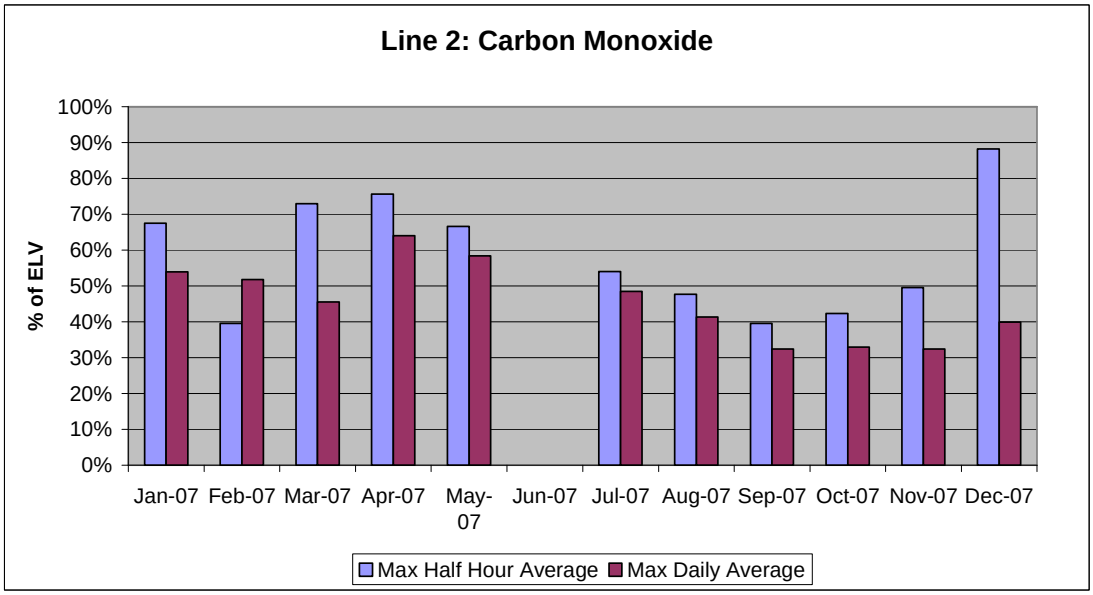

Line 1: Total Organic Carbon
% of ELV
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Sep-07
Oct-07
Nov-07
Dec-07
Max Half Hour Average
Max Daily Average

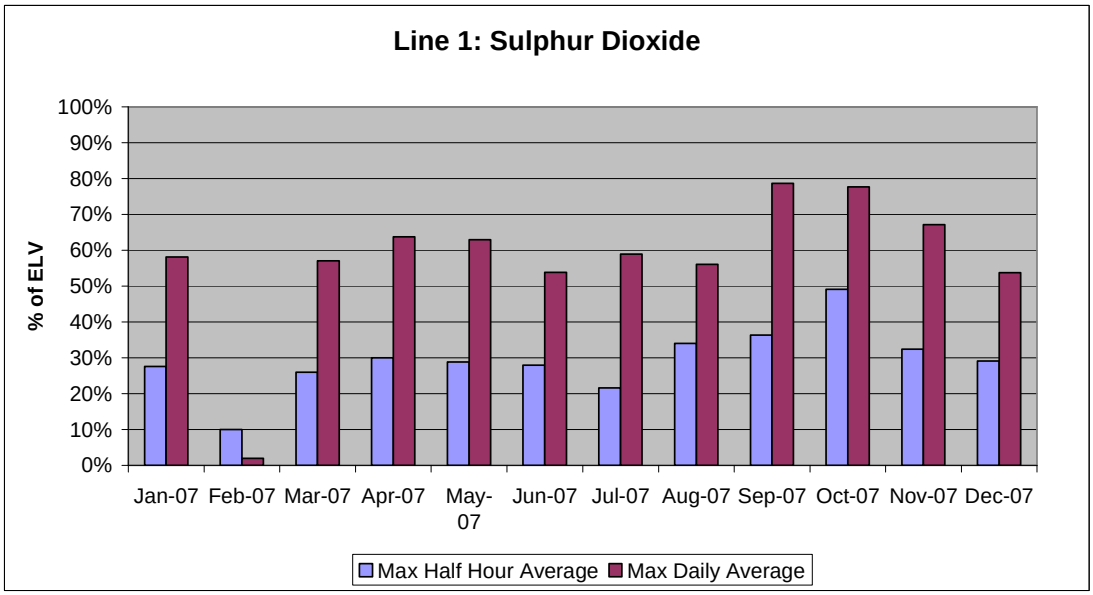

Line 2: Total Organic carbon
% of ELV
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Sep-07
Oct-07
Nov-07
Dec-07
Max Half Hour Average
Max Daily Average

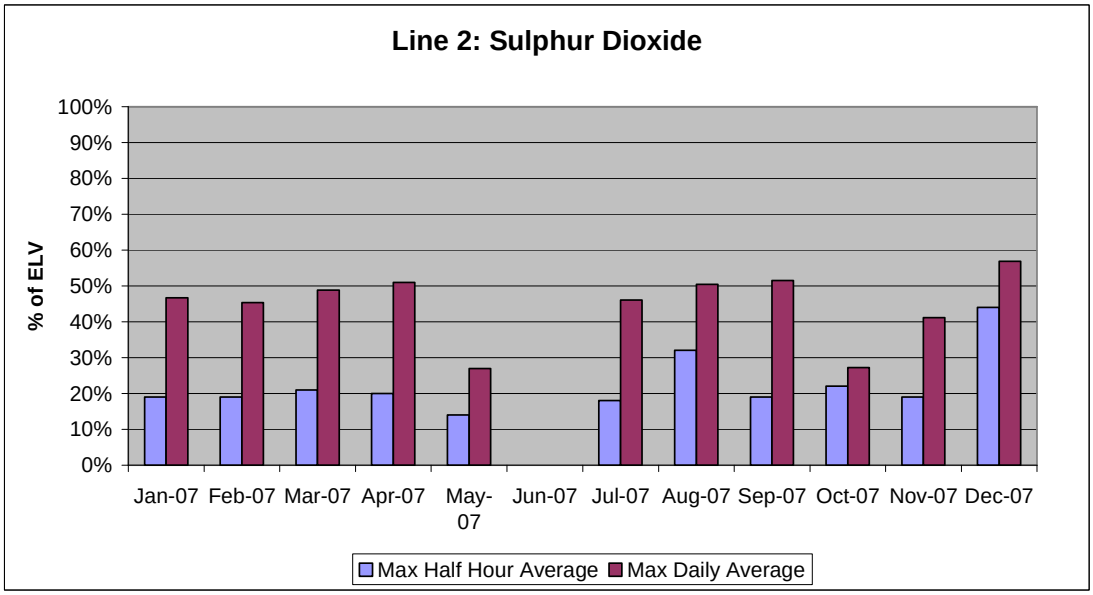

Line 1: Hydrogen Chloride
% of ELV
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Sep-07
Oct-07
Nov-07
Dec-07
Max Half Hour Average
Max Daily Average


Line 2: Hydrogen Chloride
% of ELV
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Sep-07
Oct-07
Nov-07
Dec-07
Max Half Hour Average
Max Daily Average


Line 1: Carbon Monoxide
% of ELV
400%
350%
300%
250%
200%
150%
100%
50%
0%
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Sep-07
Oct-07
Nov-07
Dec-07
Max Half Hour Average
Max Daily Average


Line 2: Carbon Monoxide
% of ELV
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Sep-07
Oct-07
Nov-07
Dec-07
Max Half Hour Average
Max Daily Average


Line 1: Sulphur Dioxide
% of ELV
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Sep-07
Oct-07
Nov-07
Dec-07
Max Half Hour Average
Max Daily Average


Line 2: Sulphur Dioxide
% of ELV
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Jan-07
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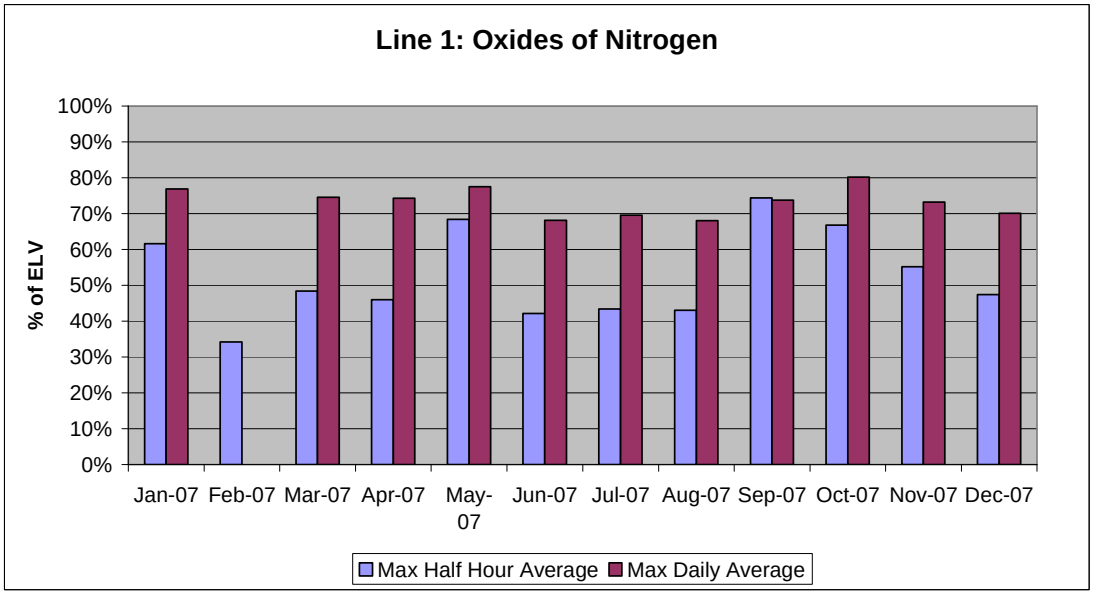
Nov-07
Dec-07
Max Half Hour Average
Max Daily Average


Line 1: Oxides of Nitrogen
% of ELV
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Jan-07
Feb-07
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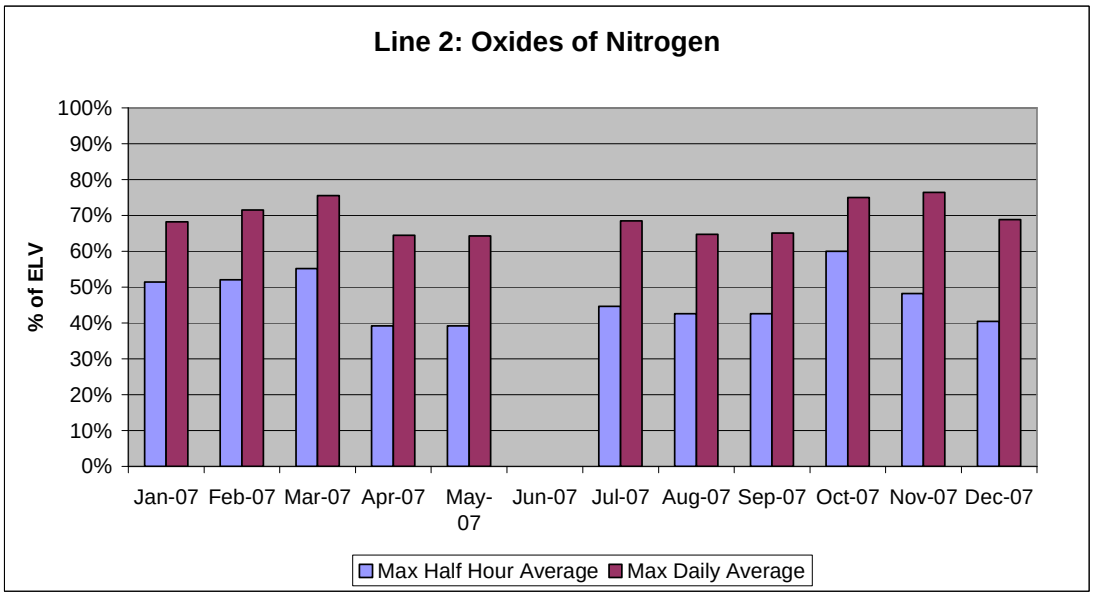
Nov-07
Dec-07
Max Half Hour Average
Max Daily Average


Line 2: Oxides of Nitrogen
% of ELV
100%
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Jan-07
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Oct-07
Nov-07
Dec-07
Max Half Hour Average
Max Daily Average