

Environment Agency statement

New EA annual report form template (see below)

Incinerator permits have a condition that requires operators to submit an annual report on "the functioning and monitoring of the incineration plant in a format agreed with the Environment Agency. The report shall, as a minimum requirement (as required by Chapter IV of the Industrial Emissions Directive) give an account of the running of the process and the emissions into air and water compared with the emission standards in the IED."

We have drafted a standard template for operators to use for these reports in order to improve consistency across the sector - please see below. Our plan is to ask operators to use this template on a voluntary basis for their 2018 reports, but to then make the format mandatory for future years.

Annual performance report for: EPR Eye Power Station

Permit Number: EPR/BP3635LA

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	EPR Eye Ltd Oaksmere Business Park Eye Suffolk IP23 8BW
Description of waste input	Poultry litter, waste wood & screenings (seeds/husks).
Operator contact details if members of the public have any questions	Tel: 01379 871100 Info.eye@eprl.co.uk

2. Plant description

The installation is a co-incinerator power station utilising poultry litter, waste wood and other biomass materials including seed husks as the fuel. Gas oil is used as a fuel during start up and shut down of the plant as well as for stabilising combustion. The ash by-product is sent to landfill.

Heat from the boiler is used to produce steam which is passed through a turbine connected to a generator.

The installation is located approximately 3.5 km from Eye on a small business park/industrial estate on a former airfield. A number of other businesses and industrial operations are located in the immediate vicinity of the installation, beyond which the land use is predominantly agricultural with a small number of residential properties.

The installation discharges to a tributary of the River Dove, approximately 1.5 km to the south of the site.

A description of the process operated at the installation is as follows:

Biomass fuel is delivered to the site in covered lorries. The lorry is firstly weighed on an enclosed weighbridge in the tipping hall after which it passes to the fuel mixing shed via an airlock where the load is tipped. In the mixing shed, the fuel is blended using a front-end loader equipped with a weighing device. At night, the blended fuel is transferred to the unloading pits in the fuel hall.

Following tipping into the unloading pits, the fuel is removed by one of two computer-controlled grab cranes to one of four fuel storage pits where it is stored for 2-3 days prior to combustion. From the pits the fuel is then moved by the grab cranes to a central loading pit from which it is removed by a walking floor supplying four drag-link conveyors, each of which in turn supplies a double flap valve which feeds one section of a stepped moving grate.

The Aalborg vertical shaft boiler comprises four passes with no evaporative tubes in the second pass to achieve IED time/temperature requirements, a superheater in the third pass and economiser in the fourth pass.

Cold primary air is supplied to the combustion chamber via a fan and is drawn from the main fuel store. Hot primary air and secondary air fans draw air from the boiler house. Primary and secondary air supply to each grate section is independently controlled.

Sodium bicarbonate is injected into the combustion gas stream after the economiser to abate emissions of sulphur dioxide and hydrogen chloride. Particulate emissions are abated using a multi-compartment fabric filter with pulse jet cleaning. Ash from the bag filters and bottom ash is collected in closed containers and sent to landfill.

Raw towns' water is treated in an ion-exchange plant to produce water for the boiler. After passing through the turbine, steam is condensed in air-cooled condensers. The condensed water is then returned to the boiler for re-use.

Waste water from the ion exchange plant and boiler water blowdown is passed to a holding tank where the pH is adjusted prior to discharge into the storm water system and a holding pond, and then to the River Dove. Surface and roof water from the installation and water from the lorry wash is also discharged via the same system, and drainage routed via interceptors and silt traps where necessary.

The installation operates an externally-audited environmental management system which is accredited to ISO 14001.

3. Summary of Plant Operation

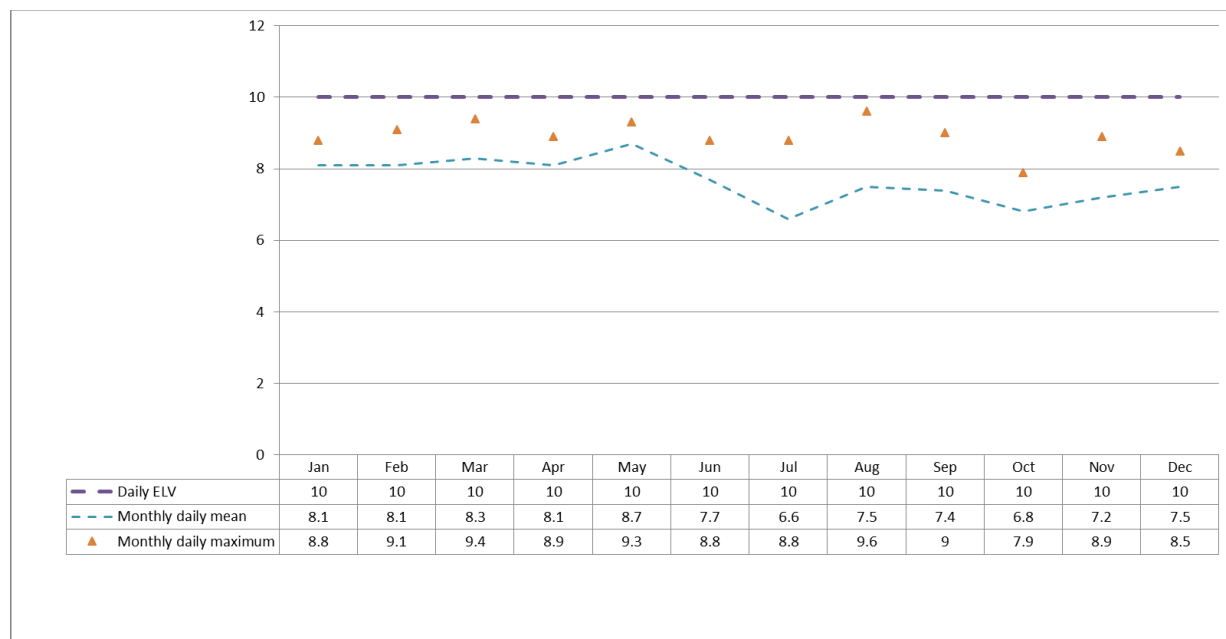
Waste wood (biomass) received	53,310 tonnes
Poultry Litter (biomass) received	67,470 tonnes
Screenings (biomass) received	1,862 tonnes
Total waste received	122,642 tonnes
Total plant operational hours	7,821 hours
Total hours of “abnormal operation” (see permit for definition)	0 hours
Total quantity of incinerator bottom ash (IBA) produced	3,243 tonnes
Disposal or recovery route for IBA	Masons Landfill
Did any batches of IBA test as hazardous? If yes, state quantity	None
Total quantity of air pollution control (APC) residues produced	3,605 tonnes
Disposal or recovery route for APC residues	Masons Landfill
Total electricity generated for export to the National Grid	84,645 MWh

4. Summary of Plant Emissions

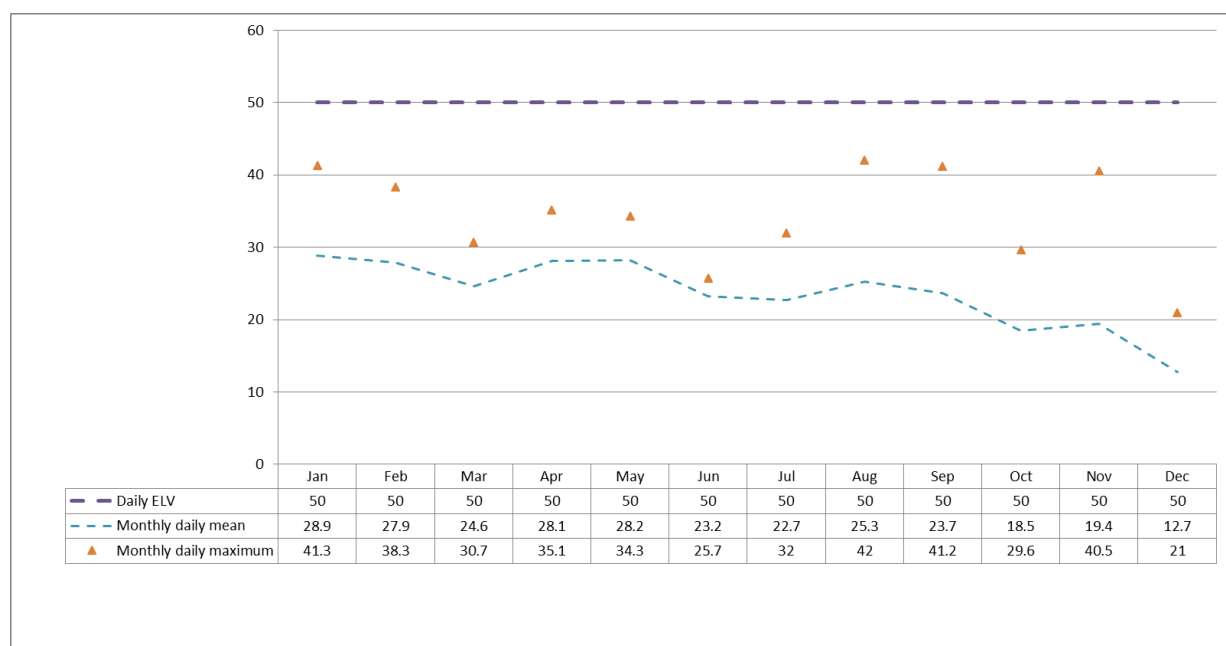
4.1 Summary of continuous emissions monitoring results for emissions to air

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

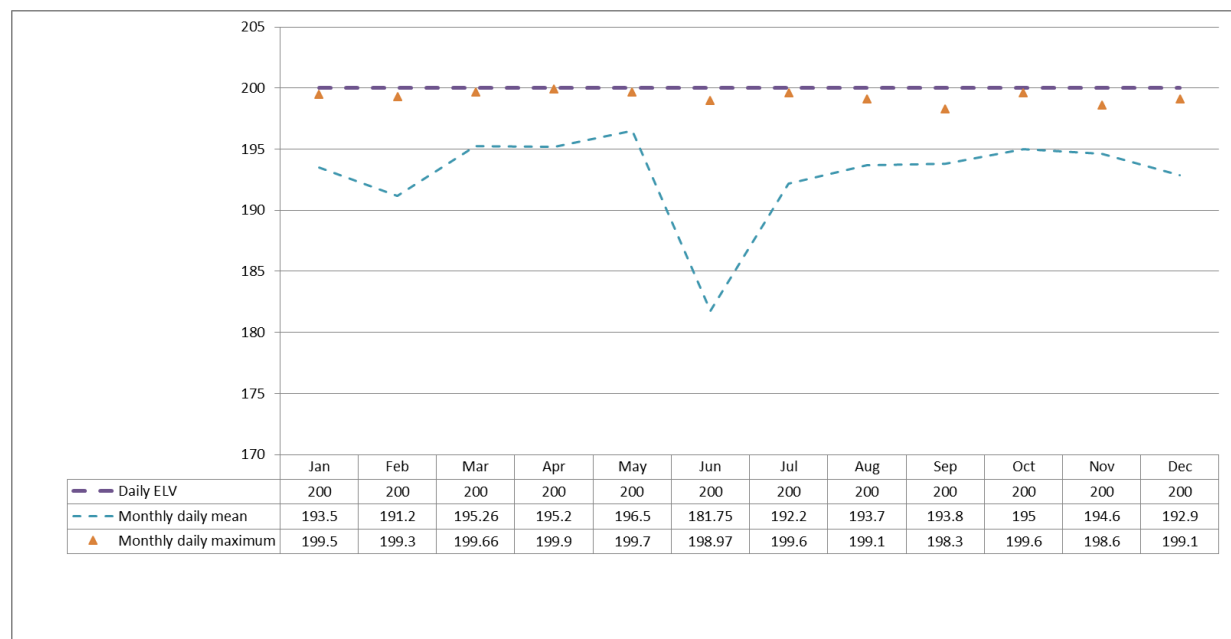
4.1.1 Hydrogen chloride



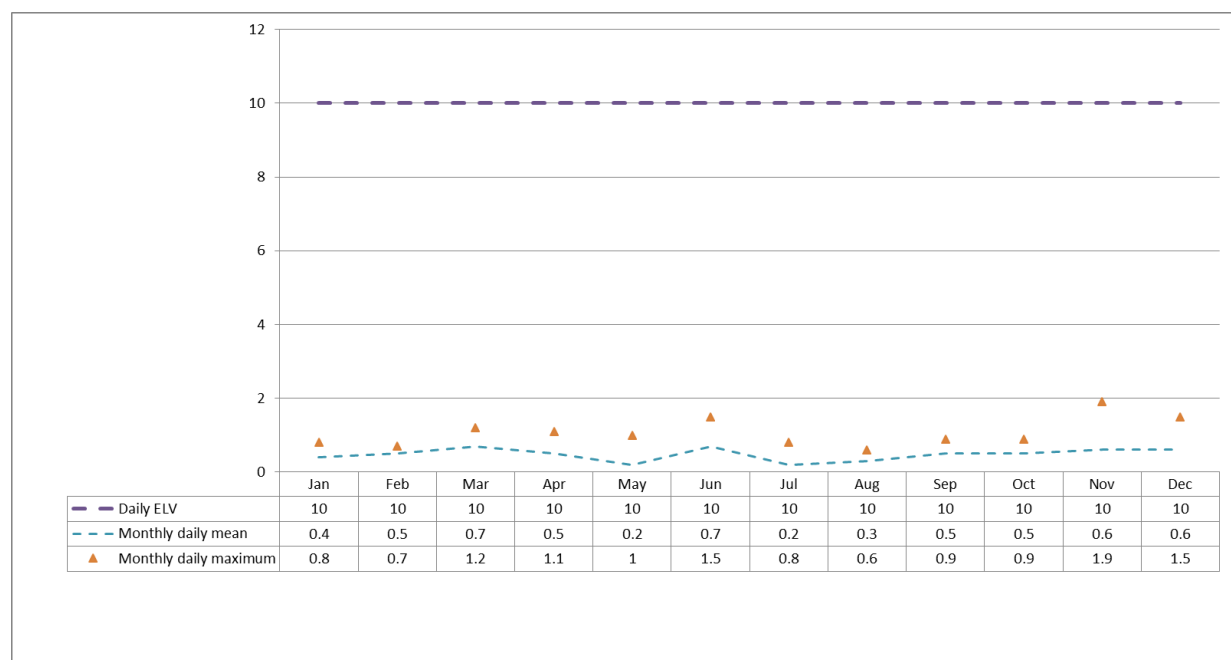
4.1.2 Sulphur dioxide



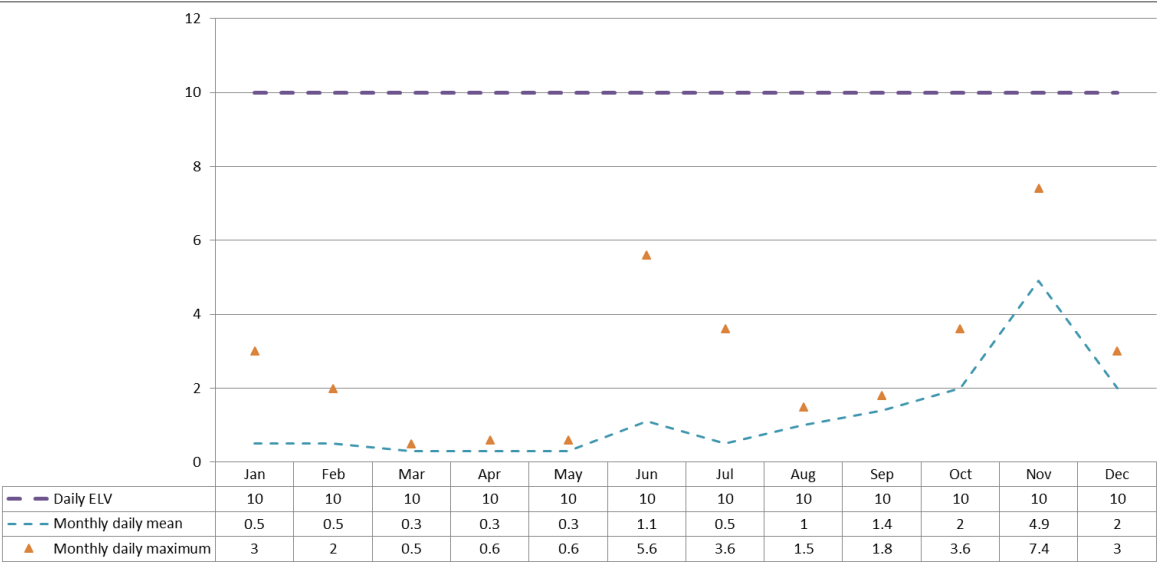
4.1.3 Oxides of nitrogen



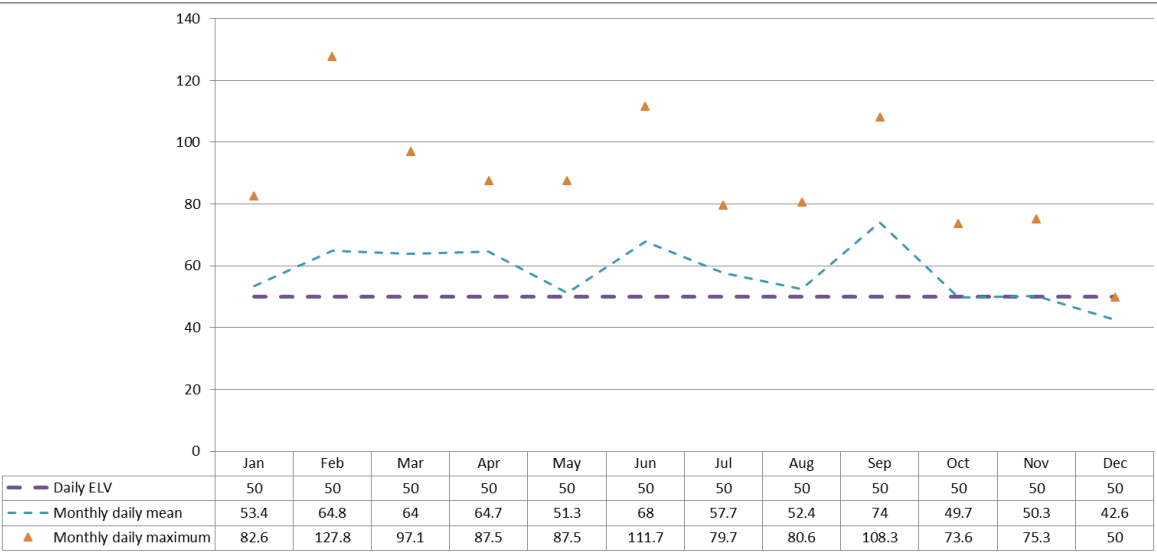
4.1.4 Total organic carbon



4.1.5 Particulates



4.1.6 Carbon monoxide



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	
		17/05/18	12/10/18
Mercury and its compounds	0.3 mg/m ³	0.0007 mg/Nm ³	0.0008 mg/Nm ³
Cadmium & thallium and their compounds (total)	0.3 mg/m ³	0.0003 mg/Nm ³	0.0007 mg/Nm ³
Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.3 mg/m ³	0.01 mg/Nm ³	0.03 mg/Nm ³
Dioxins and furans (I-TEQ)	0.07 ng/m ³	0.007 ng/m ³	0.02 ng/Nm ³

4.3 Summary of monitoring results for emissions to water

The following table summarises the analysis results of monitoring of emissions to water for each quarter:

Total suspended solids;

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Daily/monthly ELV (mg/m ³)		60			60			60			60	
Sample Tested		16			52			15			45	

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
	Daily limit
Particulates	100%
Oxides of nitrogen	100%
Sulphur dioxide	100%
Carbon monoxide	45 %
Total organic carbon	100%
Hydrogen chloride	100%
Hydrogen fluoride	N/A

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
01/01/18 - 07/01/18	7 off Breaches of daily ELV for CO.	Following a shortage of waste wood over the festive period, an increased percentage of poultry litter “returns” were used to supplement fuel stocks.	PA/SA air and fuel feed settings adjusted to stabilise combustion.
Remainder of Jan 2018	9 further breaches of daily ELV for CO.	Plant operating on a trial 50:50 fuel blend (poultry litter and waste wood)	PA/SA air and fuel feed settings adjusted to stabilise combustion. Combustion plan in place and agreed with Environment Agency.
Feb. 2018	13 breaches of daily ELV for CO.	9 breaches due to 50:50 fuel blend combustion trials. 4 remaining breaches due to mechanical plant	Continued adjustment to combustion air and fuel feed settings. Fuel conveyor repaired, plant taken offline to

		failure; fuel conveyor and combustion grate.	effect repairs to combustion grate.
March 2018	13 breaches of daily ELV for CO.	10 breaches due to ongoing 50:50 fuel blend combustion trials. 3 remaining breaches due to mechanical plant failure; fuel conveyor and wet ash system.	Ongoing adjustments to combustion air and fuel feed settings. Fuel conveyor repaired, plant taken offline to effect repairs to wet ash system.
April 2018	17 breaches of daily ELV for CO.	All breaches due to combustion instabilities during 50:50 fuel mix trials.	Ongoing adjustments to combustion air and fuel feed settings.
May 2018	14 breaches of daily ELV for CO.	12 breaches due to ongoing 50:50 fuel blend combustion trials. 2 remaining breaches due to mechanical plant failure; fuel conveyor and combustion grate.	Ongoing adjustments to combustion air and fuel feed settings. Load reduction in place whilst repairs carried out to fuel conveyor and combustion grate.
June 2018	16 breaches of daily ELV for CO.	11 breaches due to ongoing 50:50 fuel blend combustion trials. 5 remaining breaches due to mechanical plant failure; fuel moving floor, boiler tube leak and combustion grate.	Ongoing adjustments to combustion air and fuel feed settings. Plant taken off line to carry out repairs to all mechanical failures noted.
July 2018	13 breaches of daily ELV for CO.	All breaches due to ongoing 50:50 fuel blend combustion trials and increasing unreliability of the combustion grate.	Ongoing adjustments to combustion air and fuel feed settings including load reduction. Plan in place for major overhaul of combustion grate during annual outage.
August 2018	11 breaches of daily ELV for CO.	All breaches due to ongoing 50:50 fuel blend combustion trials and increasing unreliability of the combustion grate.	Ongoing adjustments to combustion air and fuel feed settings including load reduction. Fuel blend changed to 60:40 (PL: WW).
September 2018	13 breaches of daily ELV for CO.	All breaches due to ongoing poultry litter/waste wood fuel blend combustion trials.	Ongoing adjustments to combustion air and fuel feed settings following improvement works during annual outage.
October 2018	13 breaches of daily ELV for CO.	All breaches due to ongoing poultry litter/waste wood fuel blend combustion trials.	Ongoing adjustments to combustion air and fuel feed settings following

			improvement works during annual outage.
November 2018	6 breaches of daily ELV for CO.	All breaches due to ongoing poultry litter/waste wood fuel blend combustion trials.	Ongoing adjustments to combustion air and fuel feed settings following improvement works during annual outage. Combustion engineer on site fine tuning combustion settings.
December 2018	None.		

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
	None.		

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.

Modifications to fuel feed system including moving floor ladders and fuel chain conveyors have assisted in achieving consistent and equal fuel distribution across all four lines.

Combustion grate overhaul; replacing existing elements with higher grade material has resulted in increased longevity and less combustion air leakage.

Installation of additional secondary air nozzles, and modification to existing primary air duct work – both giving greater flexibility and improved combustion air distribution.

All of the above have assisted in greater fuel and combustion air distribution which has aided towards emission compliance whilst operating on a poultry litter / waste wood fuel mix.

7. Details of any public liaison planned for 2019:

Date and time	Description	Location
November 2019	Local liaison meeting.	EPR Eye Ltd.

If you wish to be involved in the public liaison programme, please contact;
eye.info@epri.co.uk