# IPPC Permit BJ 7336IL
# Variation SP3736SJ

# Aylesford Newsprint
# Sludge Combustor Annual Performance Report 2010

# Contents

## 1. Introduction

Aylesford Newsprint Limited (ANL) operates a sludge combustor at its Aylesford site and this combustor is subject to monitoring and reporting requirements dictated by the Waste Incineration Directive (WID) 2000/76/EC. Consequently, ANL has to submit to the Environment Agency an annual report summarising the performance of the sludge combustor for the previous year of operation, including an assessment of its emissions against Emission Limit Values (ELVs) detailed in the WID Directive.

This report constitutes ANL's Performance Summary report for its sludge combustor during 2010.

## 2. Summary of Operator & Environmental Permit Details

Table 2.1 below summarises the operator details (Aylesford Newsprint Limited) as well as contact details and the Environmental Permit which applies to the sludge combustor.

**Table 2.1 Summary of Operator & Environmental Permit Details**

| | |
|---|---|
| Name of Company | Aylesford Newsprint Limited |
| Name of Plant | Sludge Combustor |
| Permit & Variation Number | Permit No.: BJ7336IL<br>Variation No.: SP3736SJ |
| Address | Aylesford Newsprint Limited<br>Newsprint House<br>Bellingham Way<br>Aylesford<br>Kent<br>ME20 7DL |
| Phone | 01622 796000 |
| Contact Name | Jenny Harbour |
| Position | Environmental Scientist |
| Description of Waste Burnt | Paper making waste (sludge and effluent treatment plant sludges) |

## 3. Plant Description

The main purpose of the activities at the installation is the production of newsprint from recycled newspapers and magazines. A directly associated activity within the installation includes the treatment of aqueous effluent by means of an on-site biological effluent treatment plant. Both the paper production process and the on-site biological treatment of aqueous effluent give rise to sludge and these sludges are incinerated in an on-site sludge combustor.

Dewatered sludge is transferred to a storage silo from which it is fed to the sludge combustor. The combustion of sludge generates heat and this heat is recovered in an integral boiler system, which in turn generates steam. The steam generated is fed to a turbine for power generation.

The gases that are generated by the combustion process are cleaned and discharged through a dedicated stack. There are no releases to water or sewer from the air pollution abatement system.

The ash that is produced in the sludge combustor is collected and sent off-site for re-use or disposal.

## 4. Overall Performance

For 2010, the performance of ANL's sludge combustor is summarised in Table 4.1 below. The information has also been presented in the Environment Agency's proforma (See Appendix C).

The sludge combustor's performance was greatly enhanced in 2010 compared to 2009 due to the ability to take ash to Margett's Pit. However, during times when the building industry slowed, the volume of ash taken by our customers was reduced and the sludge combustor operation was closed when the ash silos became full.

**Table 4.1 Overall Performance of ANL's Sludge Combustor (2010)**

| Performance Indicator | Value | Unit |
|---|---|---|
| Maximum sludge throughput Permitted | 150,000 | Tonnes per annum |
| Total waste incinerated | 99,741 | Tonnes |
| Type of waste incinerated | Paper making waste (sludge and effluent treatment plant sludges) | EWC Code 03 03 05 |
| Total Plant Operating Hours | 7109.57 | Hours |
| Steam Generated | 163,380 | Tonnes |
| Natural gas | 31.07 | Kg / tonne of waste incinerated |
| Mass of bottom ash produced | 11.74 | Kg / tonne of waste incinerated |
| Mass of APC residues (fly ash) produced | 651.94 | Kg/ tonne of waste incinerated |

**Table 4.2 Fate of ash from sludge combustor**

| Type of Ash | Fate | % |
|---|---|---|
| Bottom Ash | Landfill | 100% |
| APC Residues (fly ash) | Landfill | 31% |
| | Recycled | 69% |

## 5. Summary of Plant Monitoring

To ensure efficient operation and to safeguard the environment, the following monitoring is undertaken.

**Table 5.1 Details of Sludge Combustor Monitoring Performed**

| Pollutants measured | Continuously | Periodically |
|---|---|---|
| Particulates | ✓ | ✓ |
| Oxides of Nitrogen | ✓ | ✓ |
| Total Organic Carbon (TOC) | ✓ | ✓ |
| Carbon Monoxide | ✓ | ✓ |
| Hydrogen Chloride | | ✓ |
| Hydrogen Fluoride | | ✓ |
| Sulphur dioxide | | ✓ |
| Mercury | | ✓ |
| Cadmium and Thallium | | ✓ |
| Arsenic, Lead, Chromium, Cobalt, Copper, Manganese, Nickel and Vanadium | | ✓ |
| Dioxins/ Furans | | ✓ |

With regard to the pollutants that are monitored continuously, ANL keeps a log of any downtime associated with the individual continuous emission monitoring systems. Table 5.2 summarises the downtime and operational time for each Continuous Emissions Monitor (CEM).

**Table 5.2 Sludge Combustor CEM Downtime (excluding calibration)**

| Continuous Emissions Monitor (CEM) | CEM Hours downtime | CEM % Operational time (based on total operating hours) |
|---|---|---|
| Oxides of Nitrogen ($NO_x$) meter | 48 hours | 99.32% |
| Carbon Monoxide (CO) meter | 48 hours | 99.32% |
| Particulates meter | 48 hours | 99.32% |
| Total Organic Carbon (TOC) meter | 48 hours | 99.32% |

## 6. Summary of Emissions to Air

**Oxides of Nitrogen (as NOx), Particulates and Carbon Monoxide (CO)**

Emissions from the sludge combustor associated with NOx (NO & $NO_2$), particulates and CO are summarised in Charts A1 to A6 (Appendix A). It can be seen from these charts that the average half-hourly emissions of NOx, particulates and CO are all below the Emission Limit Values (ELVs), both for the ½ hourly and daily average ELV. Since the sludge combustor is classed as an existing incinerator in terms of the WID Directive, the limits specified in Table 6.1 below apply.

**Table 6.1 WID Emission Limit Values for ANL's Sludge Combustor**

| Substance | Emission Limit Value (mg/m3) | |
|---|---|---|
| | ½ Hourly Average | Daily Average |
| Oxides of Nitrogen | 400 | 200 |
| Particulates | 30 | 10 |
| Carbon Monoxide | 100 | 50 |
| Total Organic Carbon (TOC) | 20 | 10 |
| **Source:** ANL's Environmental Permit BJ7336IL/ Variation SP3736SJ | | |

**Total Organic Carbon**

The sludge combustor is classed as an existing incinerator in terms of the WID Directive, the TOC limits specified in Table 6.1 apply.

Emissions from the sludge combustor associated with TOC are summarised in Charts A7 and A8 (Appendix A). It can be seen from these charts that the average half-hourly emissions of TOC are all below the Emission Limit Values (ELVs), both for the ½ hourly and daily average ELV.

The 6-monthly spot sample indicates that volatile organic compounds (VOCs) expressed as TOC did not breach this limit (see table B2, Appendix B).

**VOCs, Gaseous chloride and fluorides, Dioxins, Furans, PCBs and Metals**

Emissions from the sludge associated with VOCs, Gaseous chloride and fluorides, Dioxins, Furans, PCBs and metals are sampled every 6 months. Table B1 (Appendix B) summarises the sample results obtained for 2010 whilst Table B2 (Appendix B) summarises the WID Emission Limit Values. From Table B2, it can be seen that the sludge combustor at ANL's Installation is compliant with the ELVs stated in WID.

## 7. Emissions to Water

There are no emissions to water attributable to the operation of the sludge combustor.

## 8. Summary of Plant Compliance

### Compliance with Permit Conditions

There were no non-compliances of the Environmental Permit BJ7336IL during 2010.

### Summary of Enforcement Actions

There were no enforcement actions for the year 2010 associated with the sludge combustor.

## 9. Summary of Plant Improvements

There were no plant improvements for the year 2010 associated with the sludge combustor.

## 10. Summary of Information made available to the Public

In furtherance of its objective for social responsibility, Aylesford Newsprint Limited publishes an annual report that summarises its Safety, Health, Environmental and Fire Prevention (SHEF) policy and performance for the previous year. These SHEF reports provide a summary of the following aspects of Aylesford Newsprint's business:

- Environmental Performance,
- Safety Performance
- Operation performance
- Community/ Stakeholder Issues
- Targets for the forthcoming year.

The SHEF report is available from Aylesford Newsprint's website (www.aylesford-newsprint.co.uk )

In addition, as part of its Permit obligations, reports are submitted to the Environment Agency on a regular basis and these reports summarise the emissions to the environment as well operational performance. These reports are held by the Environment Agency.

This report is held by the Environment Agency as well as being available from Aylesford Newsprint's website.

# Appendix A

## Summary of Sludge Combustor Emissions

## (Oxides of Nitrogen, Carbon Monoxide, Particulates and TOC)

**Chart A1 Oxides of Nitrogen (January – June 2010)**

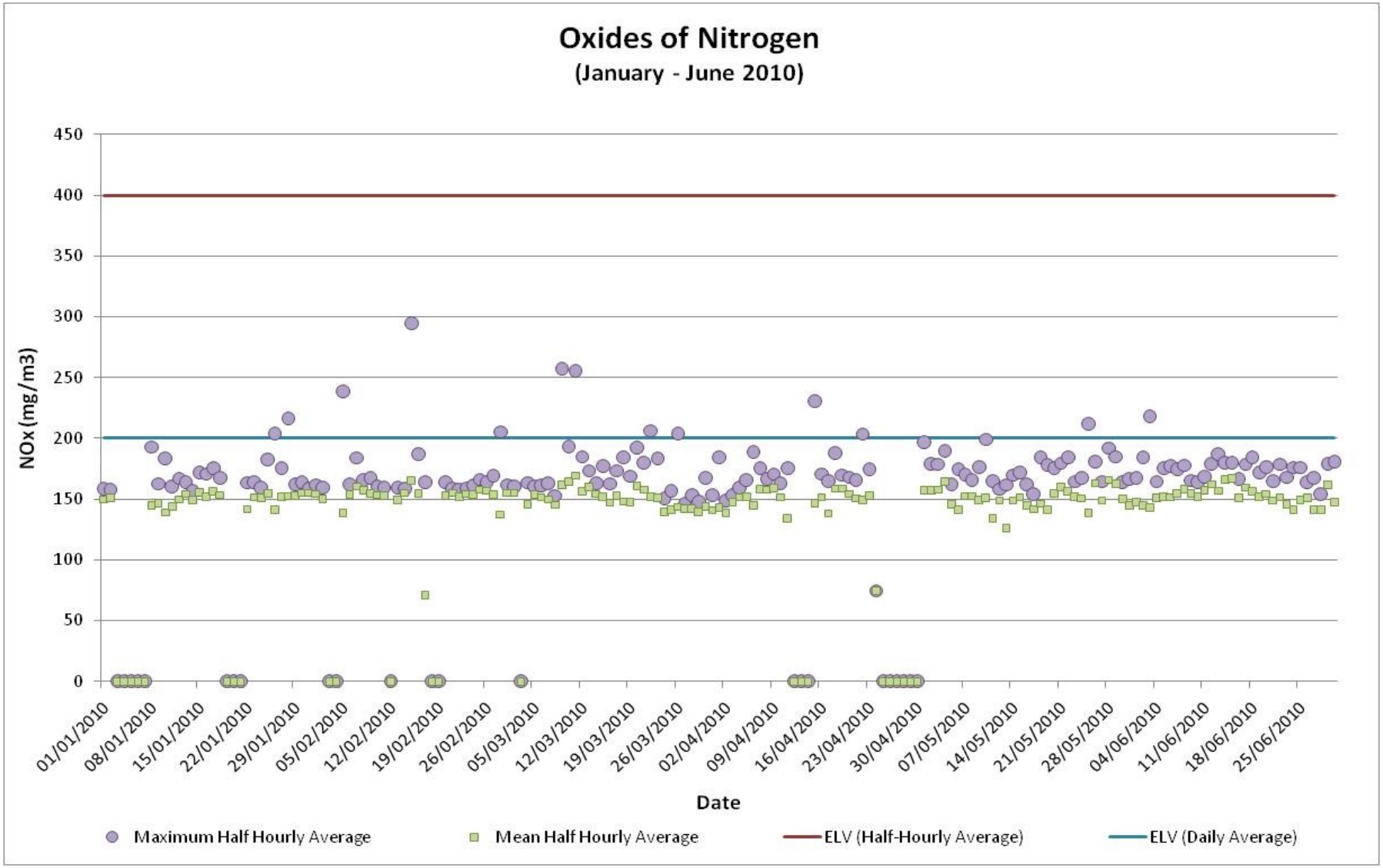


**Chart A2 Oxides of Nitrogen (July – December 2010)**

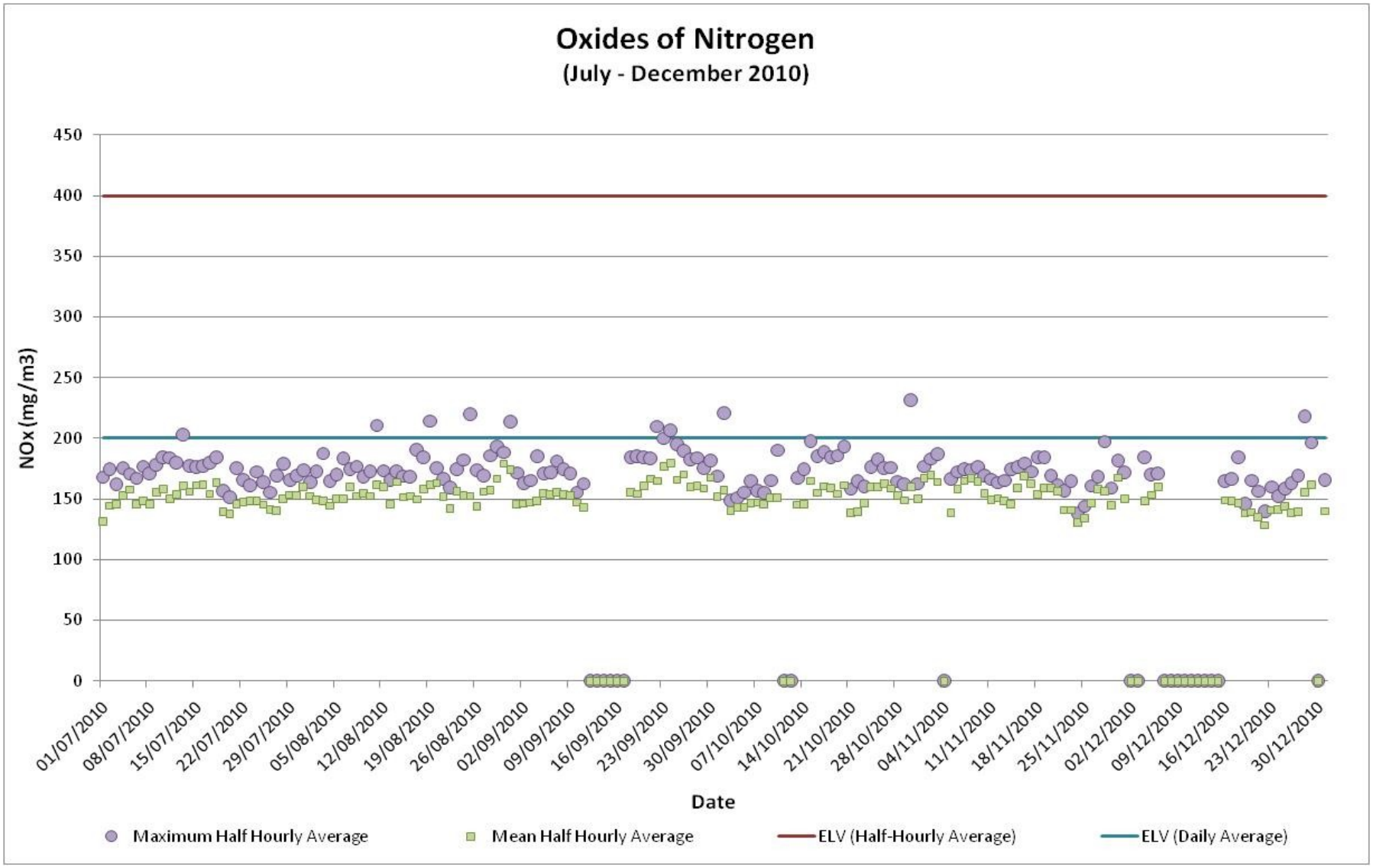


**Chart A3 Particulates (January – June 2010)**

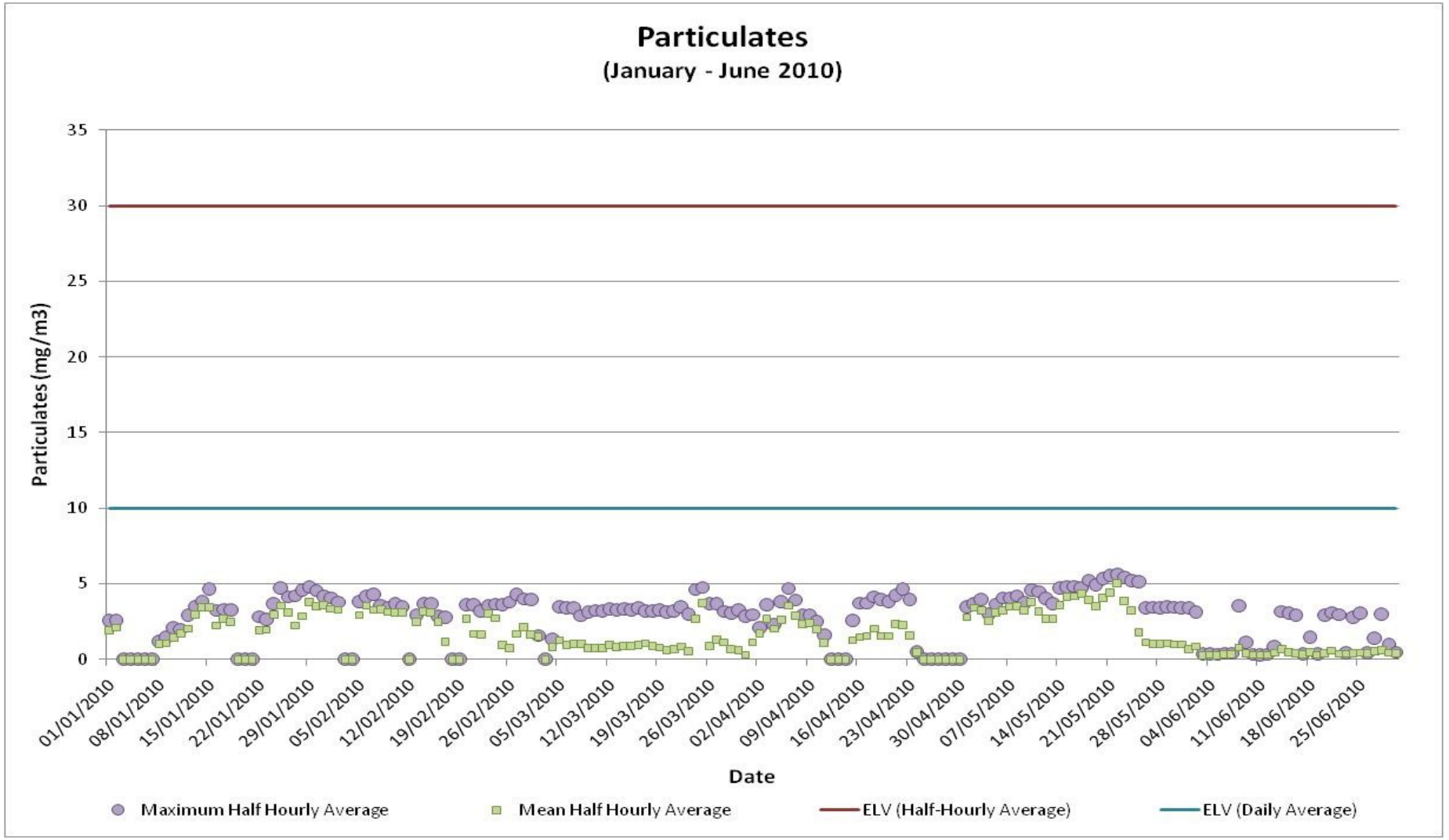


**Chart A4 Particulates (July – December 2010)**

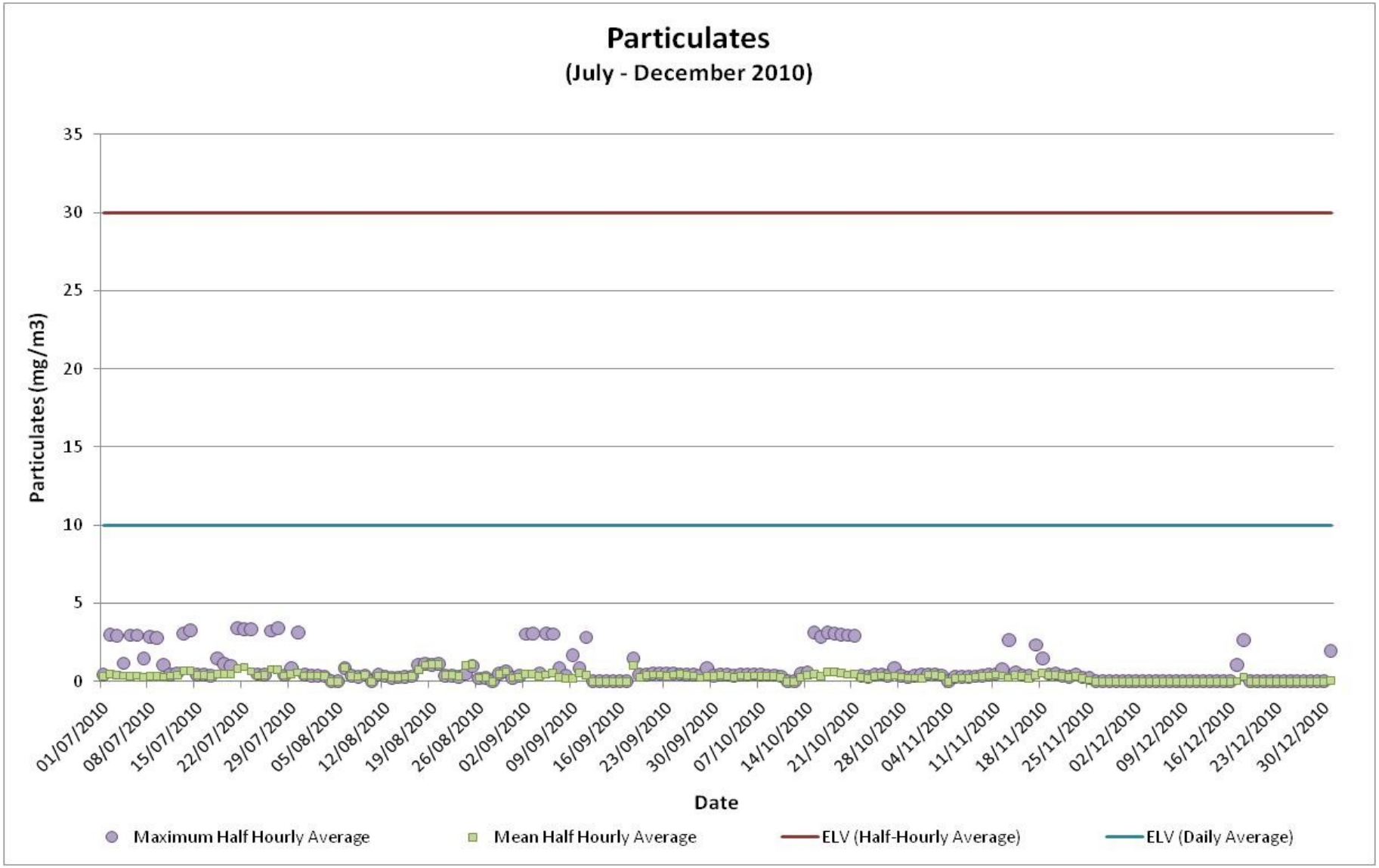


**Chart A5 Carbon Monoxide (January – June 2010)**

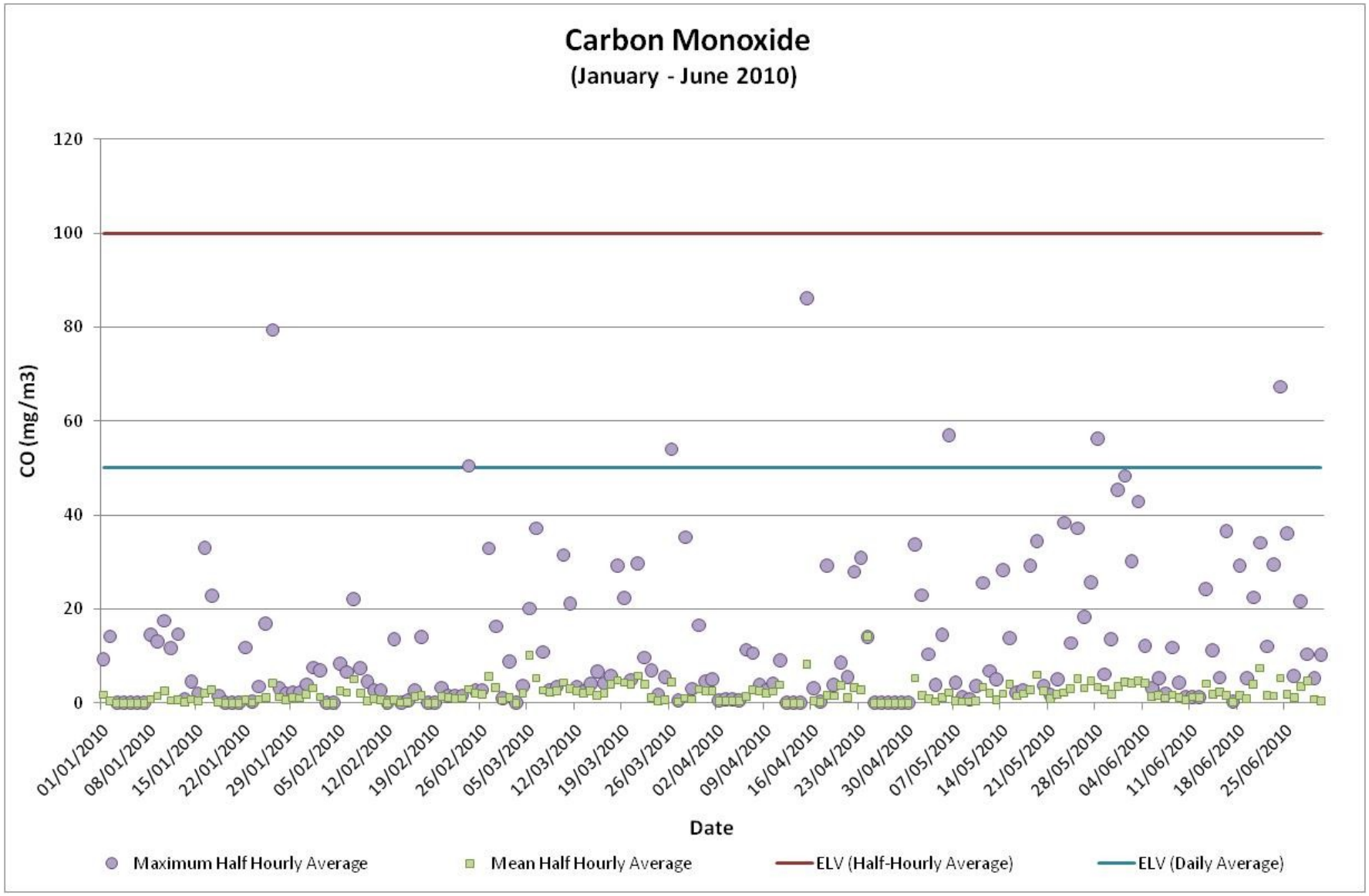


**Chart A6 Carbon Monoxide (July – December 2010)**

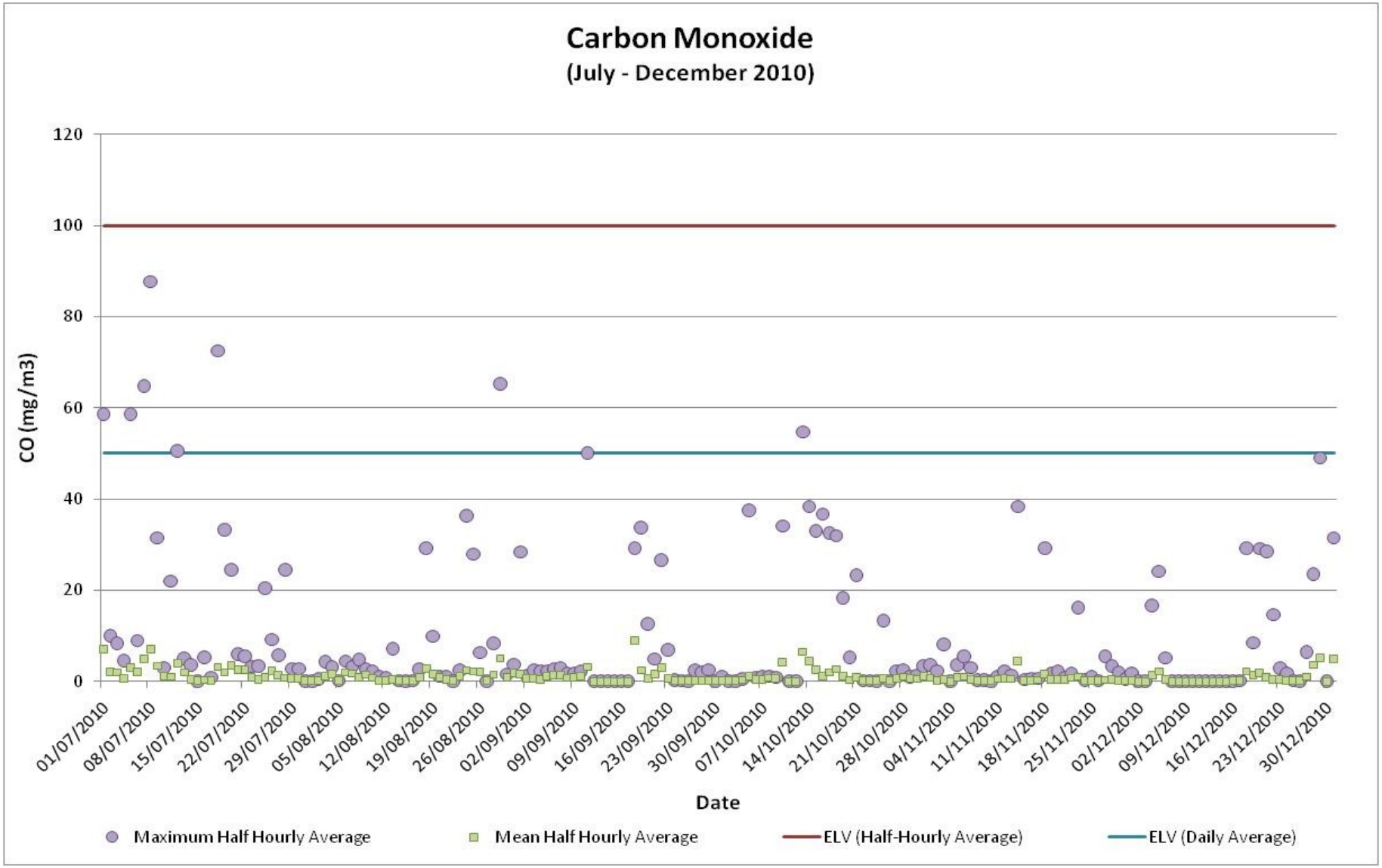


**Chart A7 Total Organic Carbon (January – June 2010)**

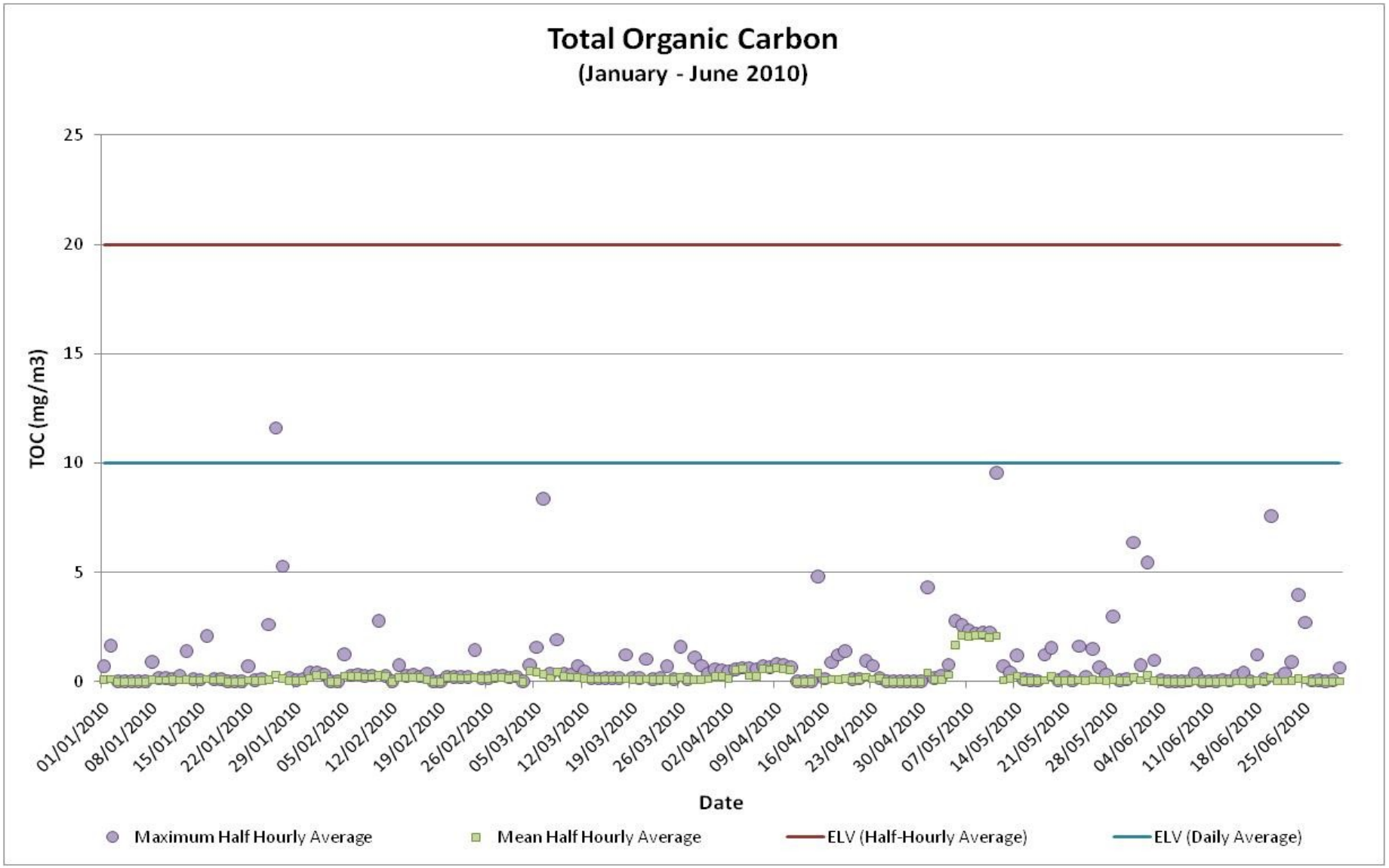
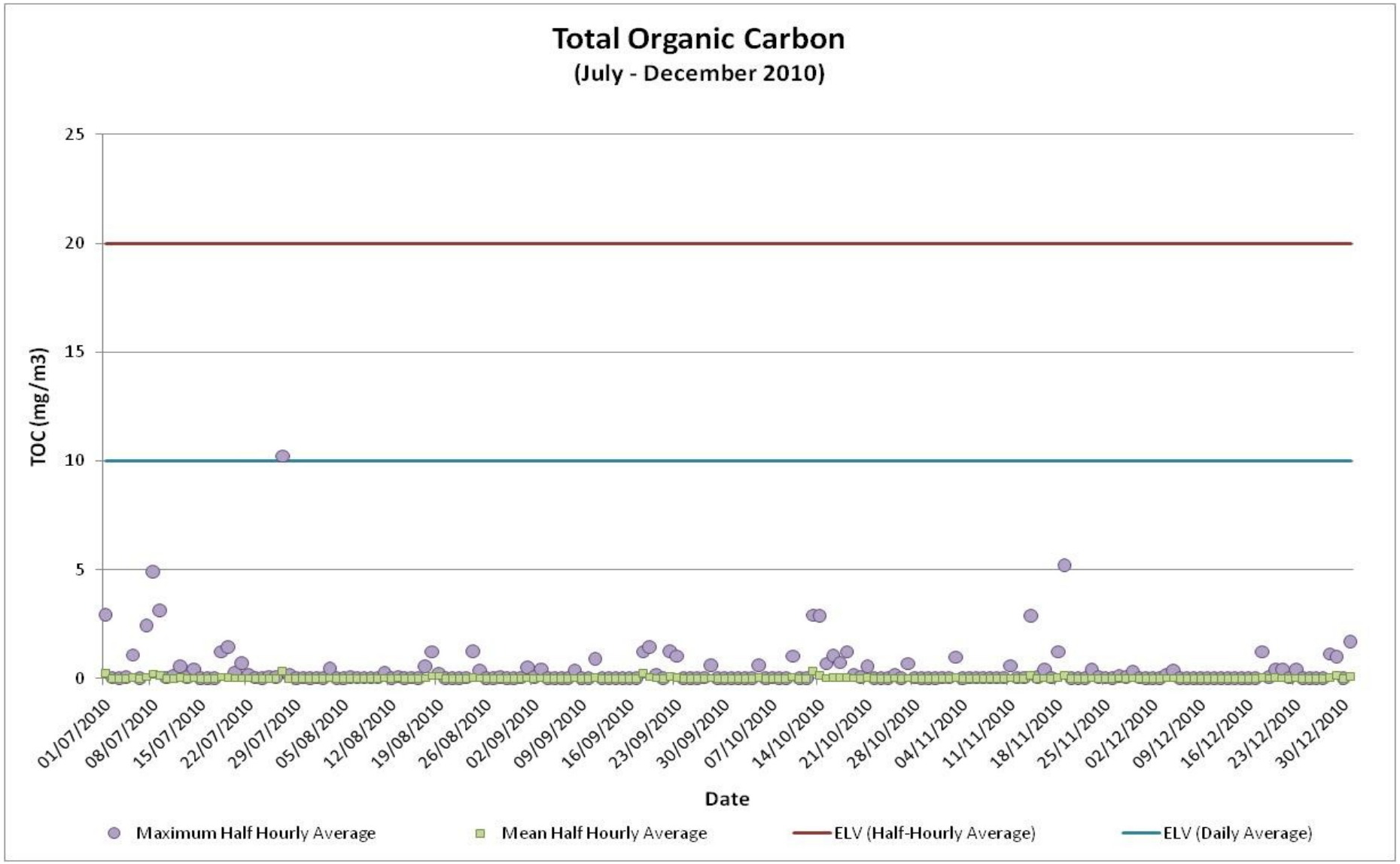


**Chart A8 Total Organic Carbon (July – December 2010)**



# Appendix B

## Summary of 6-monthly sample Results &

## Compliance with WID Emission Limit Value (ELVs)

**Table B1 6-monthly Gaseous Emission Test Results for ANL's Sludge Combustor**

| Substance | Units | January to June | | July to December | | Annual Average |
|---|---|---|---|---|---|---|
| | | 19/04/2010 - 21/04/2010 | | 9/11/2010 - 11/11/2010 | | |
| | | Actual | Absolute | Actual | Absolute | |
| VOC's (as TOC) | mg/m3 | 1.2 | 1.2 | 1.30 | 1.30 | 1.3 |
| Gaseous chlorides (as HCl) | mg/m3 | <0.02 | 0.02 | 0.03 | 0.03 | 0.03 |
| Gaseous fluorides (as HF) | mg/m3 | <0.02 | 0.02 | <0.028 | 0.03 | 0.0 |
| Dioxins and furans expressed as TEQ (PCDDs/ PCDFs) (mammals) (ng/m3) | ng/m3 | 0.002 | 0.0020 | 0.0026 | 0.0026 | 0.0023 |
| Dioxins and furans expressed as TEQ (PCDDs/ PCDFs) (birds) (ng/m3) | ng/m3 | 0.004 | 0.0040 | 0.0043 | 0.0043 | 0.0042 |
| Dioxins and furans expressed as TEQ (PCDDs/ PCDFs) (fish) (ng/m3) | ng/m3 | 0.002 | 0.0020 | 0.0028 | 0.0028 | 0.0024 |
| Polychlorinated Aromatic Hydrocarbons (PAHs) | ug/m3 | 0.05 | 0.0500 | 0.29 | 0.29 | 0.17 |
| Polychlorinated biphenyls (PCBs) (Human) TEQ | ng/m3 | 0.0002 | 0.0002 | 0.00024 | 0.00024 | 0.0002 |
| Polychlorinated biphenyls (PCBs) (Birds) TEQ | ng/m3 | 0.002 | 0.0020 | 0.0011 | 0.0011 | 0.0015 |
| Polychlorinated biphenyls (PCBs) (Fish) TEQ | ng/m3 | 0.00002 | 0.0000 | 0.000013 | 0.000013 | 0.000017 |
| Cadmium (mg/m3) | mg/m3 | 0.0006 | 0.0006 | 0.0007 | 0.0007 | 0.00 |
| Mercury (mg/m3) | mg/m3 | 0.005 | 0.0050 | 0.009 | 0.009 | 0.007 |
| Arsenic and compounds (as As) | mg/m3 | 0.02 | 0.0200 | 0.025 | 0.025 | 0.02 |
| Lead and compounds (as Pb) | mg/m3 | Grouped with Arsenic | | | | As Above |
| Chromium and compounds (Cr) | mg/m3 | Grouped with Arsenic | | | | As Above |
| Cobalt and compounds (as Co) | mg/m3 | Grouped with Arsenic | | | | As Above |
| Copper and compounds (as Cu) | mg/m3 | Grouped with Arsenic | | | | As Above |
| Manganese and compounds (as Mn) | mg/m3 | Grouped with Arsenic | | | | As Above |
| Vanadium and compounds ( as V) | mg/m3 | Grouped with Arsenic | | | | As Above |
| Nickel and compounds (as Ni) | mg/m3 | Grouped with Arsenic | | | | As Above |
| Antimony and compounds (as Sb) | mg/m3 | Grouped with Arsenic | | | | As Above |
| Particulates | mg/m3 | 0.22 | 0.22 | 4.10 | 4.10 | 2.16 |
| NO and NO2 expressed as NO2 | mg/m3 | 196 | 196 | 214 | 214 | 205.0 |
| CO | mg/m3 | 1.4 | 1.4 | 0.28 | 0.28 | 0.84 |
| Sulphur dioxide | mg/m3 | 0.02 | 0.02 | 2.40 | 2.40 | 1.2 |

**Table B2 Comparison of Emissions from ANL's Sludge Combustor and Waste Incineration Directive (WID) Limits**

| Substance | Units | Annual Average | WID Directive Limits | | | | | | Compliant |
|---|---|---|---|---|---|---|---|---|---|
| | | | Daily Average Values (mg/m3) | Half-hourly Average values (mg/m3) | | Heavy Metals Average values (mg/m3) | | Dioxin Limits | |
| | | | | 100% Compliance | 97% Compliance | 30 minutes | 8 hours | ng I-TEQ/Nm3 | |
| VOC's (as TOC) | mg/m3 | 1.3 | 10 | 20 | 10 | - | - | - | Yes |
| Gaseous chlorides (as HCl) | mg/m3 | 0.03 | 10 | 60 | 10 | - | - | - | Yes |
| Gaseous fluorides (as HF) | mg/m3 | 0.0 | 1 | 4 | 2 | - | - | - | Yes |
| Dioxins and furans expressed as TEQ (PCDDs/ PCDFs) (mammals) (ng/m3) | ng/m3 | 0.0023 | - | - | - | - | - | 0.1 | Yes |
| Dioxins and furans expressed as TEQ (PCDDs/ PCDFs) (birds) (ng/m3) | ng/m3 | 0.0042 | - | - | - | - | - | 0.1 | Yes |
| Dioxins and furans expressed as TEQ (PCDDs/ PCDFs) (fish) (ng/m3) | ng/m3 | 0.0024 | - | - | - | - | - | 0.1 | Yes |
| Polychlorinated Aromatic Hydrocarbons (PAHs) | mg/m3 | 0.17 | - | - | - | - | - | - | N/A |
| Polychlorinated biphenyls (PCBs) (Human) TEQ | ng/m3 | 0.0002 | - | - | - | - | - | Non-Specified | N/A |
| Polychlorinated biphenyls (PCBs) (Birds) TEQ | ng/m3 | 0.0015 | - | - | - | - | - | Non-Specified | N/A |
| Polychlorinated biphenyls (PCBs) (Fish) TEQ | ng/m3 | 0.000017 | - | - | - | - | - | Non-Specified | N/A |
| Cadmium (mg/m3) | mg/m3 | 0.001 | - | - | - | 0.05 | 0.1 | - | Yes |
| Mercury (mg/m3) | mg/m3 | 0.007 | - | - | - | 0.05 | 0.1 | - | Yes |
| Arsenic and compounds (as As) | mg/m3 | 0.02 | - | - | - | 0.5 | 1 | - | Yes |
| Particulates | mg/m3 | 2.16 | 10 | 30 | 10 | - | - | | Yes |
| NO and NO2 expressed as NO2 | mg/m3 | 205.0 | 400 | 600 | 400 | - | - | - | Yes |
| CO | mg/m3 | 0.84 | 50 | 100 | - | - | - | - | Yes |
| Sulphur dioxide | mg/m3 | 1.2 | 50 | - | - | - | - | - | Yes |

# Appendix C

## Reporting of Performance Indicators for the period

## 1 January 2010 to 31 December 2010

| Aylesford Newsprint | Sludge Combustor Annual Performance Report 2010 |
|---|---|

Permit Reference Number: SP3736SJ

Operator: Operator name Aylesford Newsprint Ltd

Installation: Aylesford Paper Mills

Form Number: Agency Form /SP3736SJ/ PI1 / 01/11/2005

# Reporting of Performance Indicators for the period 1 January 2010 to 31 December 2010

| Annual Production/Treatment | | |
|---|---|---|
| Total Waste Incinerated | 99,741 | tonnes |
| Steam Generated | 119,602 | tonnes |

**Environmental Performance Indicators**

| Parameter | Quarterly Average | Units |
|---|---|---|
| Natural Gas | 34.88 | kg/tonne of waste incinerated |
| Mass of bottom ash produced | 13.37 | kg/tonne of waste incinerated |
| Mass of APC residues produced | 623.76 | kg/tonne of waste incinerated |

| Trends in Environmental Performance | | |
|---|---|---|
| Year | Parameter | |
| | Supplementary Fuel Oil used | Waste Hazard Score |
| 2006 | Not Applicable | Awaiting clarification from the Environment Agency as to what is required for this parameter. |
| 2007 | Not applicable | |

Operator's comments : The sludge combustor operated as intended and described by the PPC Permit (BJ 7336IL/SP3736SJ) associated with this unit.

Signed …Jenny Harbour…… …… Date…14/01/2011…….
(authorised to sign as representative of Operator)