



Hanson Cement,
Padeswood Works

Annual Report as Required by

Condition 4.2.2

Permit EA/EPR/BL1096IB/V010

1 Introduction

Condition 4.2.2 of PPC Permit BL1096 requires an annual performance report. This condition is specified in Variation V010:

4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year.

The report(s) shall include as a minimum:

- (a) A review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
- (b) The functioning and monitoring of the plant involved with the burning of waste derived fuels, in a format agreed with the Environment Agency. The report shall, as a minimum requirement (as required by Article 12(2) of the Waste Incineration Directive) give an account of the running of the process and the emissions into air and water compared with the emission standards in the WID.

Note this replaces the requirements of the previous permit variations up to V050. An application to surrender the landfill section of the Permit was made on 18th December 2009 and the condition reported above replaces Condition 4.2.1 of previous permits and therefore no reporting will be made here on the landfill.

2 Condition 4.2.2 (a)

2.1 Emissions to Air

The main emissions to air from the installation are from the kiln via the main stack (emission point A8). These are covered in some detail in the response to condition 4.2.1 (b).

The cement mills and associated equipment (emission points A3 to A7) and the kiln cooler (emission point A9) are the remaining major sources of emissions to air. The permit also includes emission limits and specific monitoring standards for these emission points.

Table 2.1 provides a summary of performance of these emission points based on the monitoring data collected during 2010.

Permit Reference	Description	Daily Average Limit (mg/m ³)	Annual Mean (mg/m ³)	Standard deviation	Predicted 99.7% compliance
A3	Cement Mill 1	30	Not used in 2010		
A4	Cement Mill 2	30	Not used in 2010		
A5	Cement Mill 3	30	2.62	1.56	7.30
A6	Cement Mill 4	30	2.90	4.95	17.75
A7	Cement Mill 4 classifier	30	0.61	2.75	9.16
A9	Clinker Cooler	50	0.29	0.23	0.98

Table 2.1 Summary of emissions for air monitoring points other than A8.

The “Predicted 99.7% compliance” value is a statistical estimate of a limit value that 99.7% (or 997 out of every 1000) monitored results would be compliant.

Considering the cement mill filters and the relevant emission points, there were no breaches of the daily emission limits in 2010 from these points.

There were a total of 10 notifications of unauthorised releases or breaches to air from the site in 2010 which are summarised in table 2.2. These are discussed again in the response to condition 4.2.2 (b) where appropriate but a similar summary follows:

Type	Short Description	Date of Notification
Limit Breach	NOx daily emissions over limit	08/03/10
Dust	Failure of vent seal on fine coal storage silo	11/03/10
Dust	Over pressure of system, resulting in emission of raw meal	02/06/10
Fumes	Kiln inlet seal breach	09/06/10
Dust/Fumes	Kiln cooler/hood, due to loss of torque/temp in kiln	09/09/10
Limit Breach	Mercury measured above limit during quarterly emission tests	11/10/10
Dust	Failure of expansion joint between cooling tower and ID fan duct	08/12/10
Dust	Dust release during material fall whilst cleaning cyclone	17/12/10
Limit Breach	NOx and HCl daily emissions over limit	24/12/10
Limit Breach	NOx daily emissions over limit	29/12/10

Table 2.2 Summary Part A notifications for 2010 for releases to air.

There were 5 dust and/or fumes releases during the year that resulted in reportable incidents. The largest was estimated at 100kg from the outlet seal of the kiln and resulted from the over pressurisation of the system. The kiln and feed were stopped immediately and the spillage cleared.

Breaches of the daily NOx ELV were reported on three separate occasions in 2010 along with one HCl ELV breach. All the reported breaches occurred during periods of instability on the kiln system during start up operations when the kiln was running for relatively short amounts of time during the 24hr reporting period.

The limit breach for Mercury occurred during quarterly emissions monitoring and was reported to site by Northumbrian Water Scientific Services who carried out the stack emissions (A8) testing. Investigations are still ongoing into the source of the mercury and will be reported when all the appropriate analysis is available.

2.2 Emissions to Water

The discharges to water from the installation are via emission point W1. There were no unauthorised releases to water during 2010.

2.3 Compliance

In 2010 there were 11 notifications of non-compliance via Schedule 6 Notifications. This represents an on-going reduction against previous years: there being 22 submitted in 2009, 89 submitted in 2007 and 134 submitted in 2006. Brief details of the 2010 notifications are provided in 4.2.2 (b)

The additional non-compliance to those listed in table 2.2 was for a noise limit breach the source of which was identified, an ongoing maintenance program was put in place to mitigate the noise levels until a full repair/replacement could be carried out in Q1 2011.

3 Condition 4.2.2 (b)

This report is produced using the standard EA Annual WID Report template and is included in the following pages.

Annual Performance Report for Hanson Cement Padeswood Works: 2010

Permit Number EA/EPR/BL1096IB/V010

This report is required under the Waste Incineration Directive (WID) Article 12(2): - requirements on access to information and public participation. This requires the operator of an incineration or co-incineration plant to produce an annual report to the Regulator on the functioning and monitoring of the plant and to make this available to the public. To satisfy the requirements of the Directive the following information is provided:

1 Introduction

Name of company	Castle Cement Limited (currently trading as Hanson Cement)
Name of plant	Padeswood Works
Permit number	EA/EPR/BL1096IB/V010
Address	Padeswood, Mold, Flintshire, CH7 4HB.
Telephone	01244 550330
Contact name	Miss Victoria Smith
Position	Quality & Environment Manager
Further information	<p>There was one operational kiln at the Padeswood Works in 2010. This kiln is authorised to burn Cemfuel[®], Profuel[®], SRF, MBM and chipped tyres as kiln fuels in addition to more traditional fossil fuels such as coal, petcoke and kerosene. Coal and petcoke may originate anywhere in the world.</p> <p>Cemfuel[®] is manufactured from a range of waste streams including spent solvents, paint and ink residues, spent carbon absorbers and waste oils. The individual waste producers are located around the UK. Cemfuel[®] is produced by another Heidelberg Group company in the UK (SRM) via a number of processes including distillation, fractionation, grinding, melting, dissolving, filtering and blending.</p> <p>Profuel[®] and SRF are solid fuels produced to a tight specification. Non hazardous - produced from wastes such as paper, board, offcuts and scrap supplied by Manufacturers. Also includes mixed fibre/plastic from Waste Processors. No Profuel was used in 2010</p> <p>MBM is supplied by John Pointon & Sons of Leek, Staffordshire.</p> <p>Chipped tyres are derived from scrap tyres and supplied by a processing facility in Manchester.</p>

Copies of this report can be obtained via the Public Register.

2 Plant description

The principal purpose of the activities at the installation is to manufacture cement.

Limestone, the main raw material, is extracted from a local quarry. This material is then crushed at the quarry in a dedicated crushing plant to a size of 95% no larger than 75 mm. The crushed stone is transported by road to the cement works where it is dried and crushed in a vertical roller mill with other minor components such as sand and pulverised fuel ash (PFA) to produce raw meal, a fine powder that is the feedstock for the cement kiln.

The raw meal is conveyed to the top of the pre heater tower. The meal is heated by the exhaust gases from the kiln as it passes down the tower until it reaches the calciner. This is a combustion chamber located between the kiln inlet and the bottom stage cyclone in which approximately 60% of the thermal energy required for the kiln is input. In the calciner the material temperature reaches ca. 900°C which results in most of the carbon dioxide in the limestone being driven off, a process called calcination. Fuels permitted to be burned in the calciner are coal, petcoke, chipped tyres, SRF, MBM and Profuel®.

The calcined material enters the kiln, which is a slightly inclined tube rotating at approximately three revolutions per minute. As the kiln rotates the material moves down to the discharge end undergoing a series of complex reactions to produce cement clinker. To complete the required chemical reactions the material must reach a temperature in the region of 1450°C. The thermal energy required at this point is supplied via the kiln burner, a co-axial pipe that is permitted to use coal, petcoke, Cemfuel®, SRF, MBM and Profuel®. The heated material leaves the kiln and is cooled to control the chemical reactions; the heat recovered is used as combustion air in the kiln and calciner. The cooled clinker is then directed to a purpose built store for later grinding in the cement mills.

The clinker is transported from the storage facility by a series of conveyor belts and transferred to the cement mill feed hoppers. The clinker is dosed, along with gypsum, limestone and other minor additives which control the properties of the finished cement to the cement mills. There are four cement mills although only two were in operation in 2010, each ball mill is equipped with fabric filters to minimise releases of dust to air. The cement is transported pneumatically to storage silos before being despatched in bulk road tankers. The packing facility was mothballed in August 2009 following a restructure at the Works in response to the downturn in the construction industry.

3 Summary of plant operation

3.1 Plant details.

One cement kiln with the capacity to burn waste materials operates on site: for historic reasons this is known as kiln 4. The kiln is rated to produce ca. 1,000,000 tonnes per annum of cement clinker, although the actual production would be closer to 900,000 tonnes per annum inclusive of plant shutdowns.

The tonnage of cement produced is dependant on the clinker incorporation in the final product but approximates to 10% greater than the clinker production.

3.2 Annual waste throughputs.

The amount of waste burned in 2010 is summarised in the table below.

Waste type	EWC code	Tonnes used
Cemfuel [®]	19 02 08	4008
Chipped tyres	16 01 03	75
Profuel [®]	19 02 10	0
MBM	02 02 03	3667
SRF	19 12 10	1156

Table 3.1, Amount of waste burned in 2010

3.3 Operational hours

The total hours of operation of the kiln and the total tonnage of cement clinker produced in 2010 is summarised in the table below.

Equipment	Annual production 2010	Operational hours 2010
Kiln 4	171,520 tonnes	1810 hours

The annual shutdown of the kiln took place throughout January and February. During this time major maintenance to the plant took place. Additional outages occurred in April into May (6 weeks), June into August (10 weeks), October into November (ca. 7 weeks). These outages were principally due to a lack of sales rather than maintenance work.

3.4 Residues

The only residue which may be produced by the kiln is bypass dust. Commissioning of the bypass system commenced during 2008 and was completed in 2009. Almost 190 tonnes of bypass dust was sent off-site in 2010 for recovery. Of this 35.02 tonnes was returned to site for use as a raw material since it is mainly comprised of oxides of the insoluble elements such as aluminium and silicon.

4 Summary of plant monitoring.

4.1 Pollutants measured.

Emissions from kiln 4 main stack (point A8) are monitored continuously for particulate matter, carbon monoxide, sulphur dioxide, hydrogen chloride, oxides of nitrogen, and total organic carbon. In addition to the continuous monitoring, periodic monitoring is carried out for hydrogen fluoride, a range of metals, persistent organic pollutants, and other more volatile organic species. The following summarises the emissions measured and the frequency.

Pollutants Measured	Continuously	Periodically
Particulate matter		
VOC's as total organic carbon		
Hydrogen chloride		
Carbon monoxide		
Sulphur dioxide		
Oxides of nitrogen		
Hydrogen fluoride		
Cadmium & thallium and their compounds (total)		
Mercury and its compounds		
Zinc and its compounds		
Group III metals* & their compounds		
Dioxins and furans		
Dioxin-like polychlorinated biphenyls (PCB's)		
Polycyclic aromatic hydrocarbons (PAH's)		
Benzene		
1,3-butadiene		

Table 4.1, Emissions measured from A8 and the frequency

* Group III metals as defined in the most recent variations of PPC Permit BL1096 are antimony, arsenic, chromium, cobalt, copper, lead, manganese, nickel and vanadium.

4.2 Availability of continuous emissions monitors.

The percentage of time during the year when the kiln was in operation that the continuous emission monitors were operating normally is summarised in the table below.

Continuous emission monitor	% Time operating normally
Particulates	99.9
Carbon monoxide	99.9
Sulphur dioxide	99.9
Oxides of nitrogen	99.9
Hydrogen chloride	99.5
Total organic carbon	99.9

Table 4.2, Emission monitors operating percentage

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In practise, the continuous monitoring equipment was operating normally for a slightly greater percentage of the time when substitute fuels were being used than indicated above. For the purposes of this report the above conservative figures are sufficiently accurate.

4.3 Summary of continuous emissions monitor data.

Continuous emission data is submitted monthly to the Environment Agency. This information is required by permit EA/EPR/BL1096/V010 and shows the average emission concentration for the month, the maximum daily mean concentration, the maximum half hourly mean concentration and the number of half hours and/or days in the month the relevant limit was exceeded for each pollutant. The kiln operating time during the month for which each continuous monitor was available is also supplied in relation to kiln run-time.

A summary of emission data is shown graphically and in tabulated form in Appendix 1 (note that there was zero kiln run-time in January, February, July, October and November 2010 and that there are no half-hour mean ELV's).

4.4 Results of periodic monitoring.

Results of periodic monitoring of emissions are shown in the table below (routine biannual monitoring only – additional fuel trial data was accumulated and reported separately).

Pollutants Measured	Unit	1st half 2010	2nd half 2010
Particulate matter	mg/Nm ³	1.3 (mean of two results)	2.7
VOC's as total organic carbon	mg/Nm ³	27	23
Hydrogen chloride	mg/Nm ³	1.4	1.4
Carbon monoxide	mg/Nm ³	570	541
Sulphur dioxide	mg/Nm ³	42	96
Oxides of nitrogen	mg/Nm ³	471	352
Hydrogen fluoride	mg/Nm ³	<0.027	0.041
Cadmium & thallium & their compounds (total)	mg/Nm ³	0.0015	0.0033
Mercury and its compounds	mg/Nm ³	0.027	0.012
Zinc and its compounds	mg/Nm ³	0.0096	0.0090
Group III metals* & their compounds	mg/Nm ³	0.011	0.024
Dioxins and furans (max)	ng/Nm ³ (I-TEQ)	0.036	0.046 (mean of two results)
Dioxins and furans (max)	ng/Nm ³ (WHO-TEQ)	0.032	0.042 (mean of two results)
Dioxin-like polychlorinated biphenyls (PCB's)	ng/Nm ³ (WHO-TEQ)	0.0045	0.0059 (mean of two results)
Polycyclic aromatic hydrocarbons (PAH's)	mg/Nm ³	0.151	0.142

Table 4.3, Results of periodic monitoring of emissions

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Pollutants Measured	Unit	1st half 2010	2nd half 2010
Benzene**	mg/Nm ³	<0.29 (mean of two results)	No measurements
1,3-butadiene**	mg/Nm ³	0.0056 (mean of two results)	No measurements

Table 4.3 cont, Results of periodic monitoring of emissions

* Group III metals as defined in the most recent variations of PPC Permit BL1096 are antimony, arsenic, chromium, cobalt, copper, lead, manganese, nickel and vanadium.

** These were not monitored in the second half of the year due to lack of time on kiln runs to allow for testing.

5 Summary of plant compliance.

For continuously monitored emissions from the kiln 4 stack the plant met its particulate matter, carbon monoxide, sulphur dioxide and VOC (as total organic carbon) emission limit values (ELV's) 100% of the time. There were three exceedences of the daily ELV for oxides of nitrogen (NO_x), which equates to the plant meeting the daily ELV 96.02% of the time. There was one exceedence of the daily ELV for hydrogen chloride, which equates to the plant meeting the daily 98.67% of the time.

These were all due to short run kiln times on the days where the exceedence occurred, due to kiln start up instabilities and no wastes were being burnt when they occurred.

In terms of emissions subject to extractive monitoring for compliance, there were no breaches of emission limit values. There was, however, a breach of the mercury limit measured during extractive testing carried out as part of the SRF trials carried out 10th to 14th September. This was reported to site by Northumbrian Water Scientific Services who carried out the stack emissions testing. Investigations are still ongoing into the source of the mercury and will be reported when all the appropriate analysis is available. A further monitoring was undertaken in November and the results were 0.012 mg/Nm³. Which are compliant with the ELV.

In addition to the non-compliances resulting from exceedences of the ELV's discussed above a further seven Schedule 6 Notifications (Part A's) were submitted to the EA. Of these:

- There were five Part A notifications submitted for dust and / or fume releases. The largest being for around 100kg.
- The vent seal on the top of the fine coal silo failed releasing a small amount of coal dust. Actions taken include increasing inspections on similar vents and replacing of coal silo seal. There was no significant environmental impact associated with the release.
- Release of approximately 100kg of raw meal from the outlet seal of the kiln caused by over pressurisation of the system due to unstable kiln conditions believed to be a process disturbance due to erratic feed from the SRF/tyre substitute fuel feed system. This was caused by a control problem with the weigh feeder which was switching between the two control modes (volumetric and gravimetric). To resolve this problem the weigh feeder belt speed has been fixed and the control loop modified to allow direct control of the feed screws. There was no significant environmental impact associated with the release.
- Emission principally of hot gas/fumes rather than dust and a negligible quantity of dust settled in the immediate vicinity of the kiln inlet seal. Under normal conditions, the kiln system would maintain sufficient negative pressure to shut down without the resultant emission of fumes from the kiln seal. However, the system was slow to react as a consequence of reduced draft through the cooler bag filter. The cause of this and the root cause of the emission was excessive caking of the cooler filter bags. Bags have been removed, cleaned and replaced in a fit state. There was no significant environmental impact associated with the release.
- Release of around 5kg of raw meal from the expansion joint between the conditioning tower and ducting from the ID fan. Investigation ongoing onto cause, a temporary repair was made and an external supplier has been contracted to undertake physical and thermal checks on all expansion joint seals and to carry out predictive maintenance where required. There was no significant environmental impact associated with the release.

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- Dust was emitted during a cleaning procedure on cyclone 4 when clearing a blockage released material from higher up in the system which caused dust to be vented though panels opened for access. There was no significant environmental impact associated with the release.
- There was also a Part A submitted for a breach of noise limit. This was traced to a damaged journal in SC04. A temporary measure of increasing lubrication and including this on the shift jobs was taken. The journal will be repaired / replaced during the Q1 2011 shutdown.

No Enforcement Notices were issued against the Padeswood Works in 2010.

The Environment Agency prosecuted the company for a number of offences committed between 2005 and 2007. In February 2010 the company pleaded guilty to 4 offences at Mold Crown Court as detailed below. None of these offences were related to the use of waste as fuel at the installation.

Offence	When & where	Person convicted	Sentence
Breach of Conditions of Authorisation – Between 8 th May and 28 th July 2007 in breach of Condition 2.1.2	Castle Cement Padeswood Works	Castle Cement Limited	£100,000 Fine
Breach of Conditions of Authorisation – Between 16 th March and 14 th September 2007 failed to comply with Enforcement Notice in breach of Regulation 32 (1)(d)	Castle Cement Padeswood Works	Castle Cement Limited	£50,000 Fine
Breach of Conditions of Authorisation – Between 1 st August 2005 and 17 th August 2007 in breach of condition Condition 2.3.1	Castle Cement Padeswood Works	Castle Cement Limited	£50,000 Fine
Breach of Conditions of Authorisation – Between 1 st August 2005 and 24 th August 2007 in breach of condition 2.9.1.	Castle Cement Padeswood Works	Castle Cement Limited	£50,000 Fine

Table 5.1 summary of Prosecution and fines imposed.

6 Summary of plant improvements

Plant improvements in 2010 were limited due to the financial controls within the business due to the economic downturn. However, the field trials for the burning on MBM were successfully completed. The SRF system was re-commissioned and emissions technical evaluation monitoring was undertaken. The results from both trials will be reported in 2011.

Work was also started on the noise reduction programme, including a detailed survey, the moving of certain specific point sources of nuisance noise and the introduction of acoustic screening in certain areas. This was completed for the kiln drive in 2010 and further works will be undertaken in 2011.

7 Summary of information made available

Monthly emission data reported to the Environment Agency is published in the public register. The register is held at the following address:

Environment Agency Wales
Chester Road
Buckley
Mold
CH7 3AJ

Hanson Cement Liaison Committee meetings remained scheduled at a frequency of every two months during 2010. This meeting provides a forum for local residents, local groups and elected representatives of local parish and District councils to discuss matters of concern with the company. Representatives of the Environment Agency also attend this meeting.

The 2010 Hanson UK Sustainability report can be downloaded via the website at www.heidelbergcement.com/uk/en/hanson/home.htm

Hanson Cement operates an 'open door' policy enabling members of the public to contact the company to arrange a visit to the site or obtain information. The company can be contacted by the following methods:

By post: Hanson Cement, Padeswood Works, Padeswood, Mold, Flintshire,
CH7 4HB.

By e-mail: enquiries@hanson.com

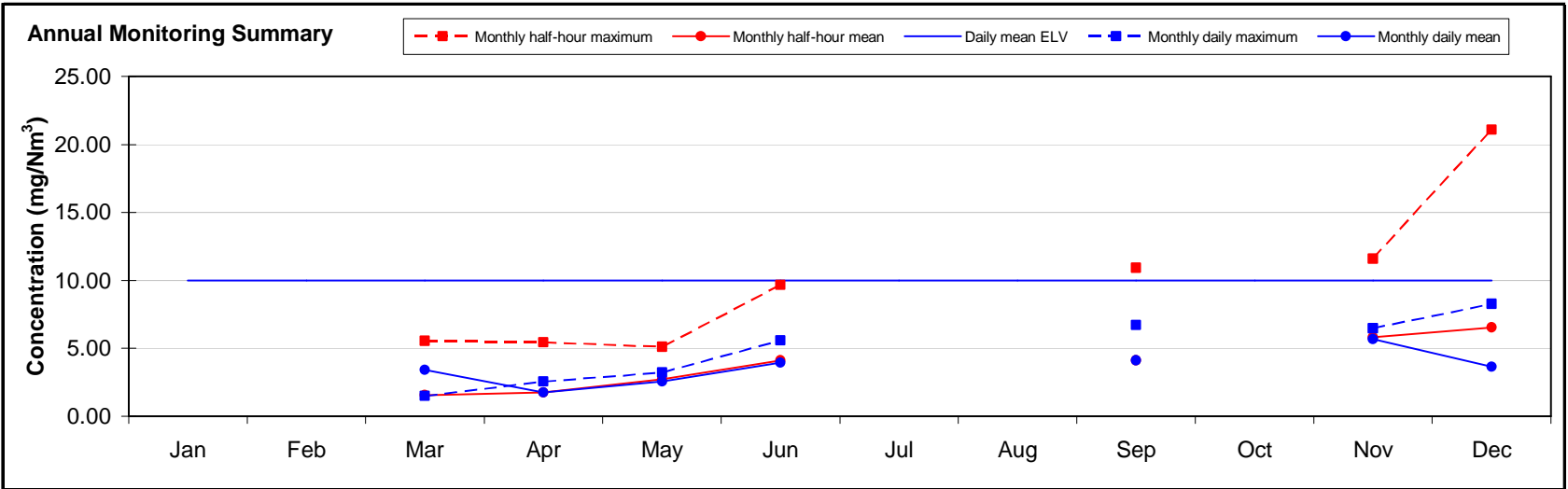
By telephone: 01244 550330

Appendix 1

The following graphs show the annual emission to air of the following continuously monitored pollutants:

A1	Particulate matter.
A2	VOC's as total organic carbon.
A3	Hydrogen chloride.
A4	Carbon monoxide.
A5	Sulphur dioxide.
A6	Oxides of nitrogen.

Pollutant: Particulate matter

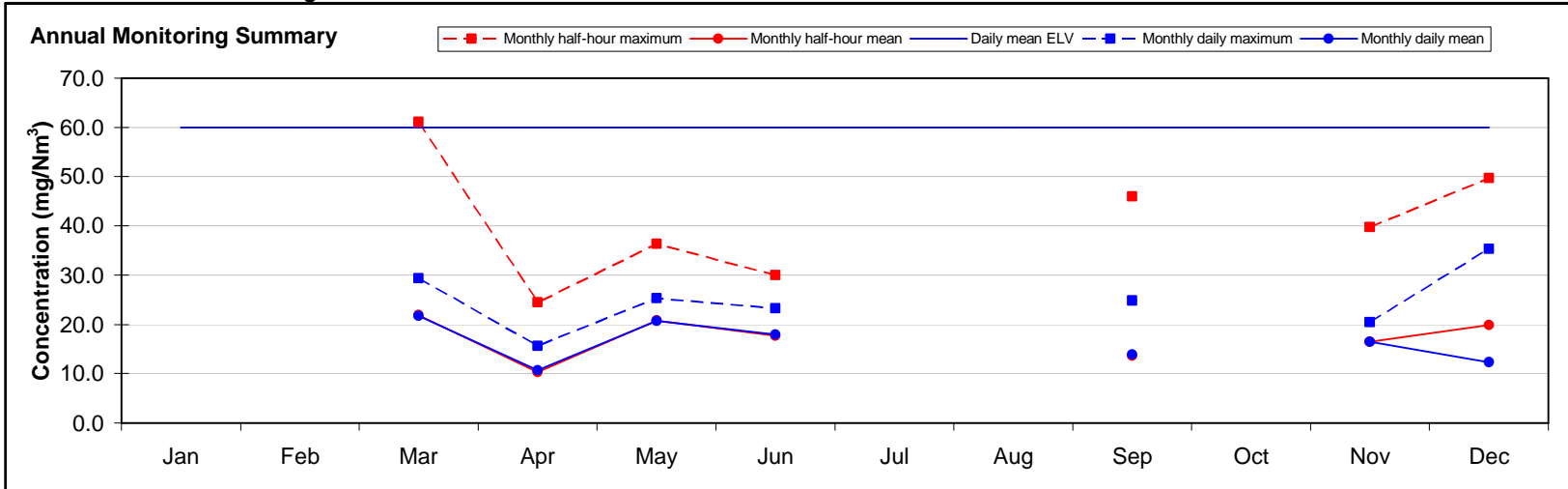


Annual Summary		Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Half-hourly mean	Half-hour mean ELV		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Annual half-hour maximum	21.07			5.54	5.44	5.12	9.65			10.91		11.58	21.07
	Annual half-hour mean	3.83			1.56	1.77	2.71	4.12			4.13		5.82	6.53
Daily mean	Daily mean ELV		10	10	10	10	10	10	10	10	10	10	10	10
	Annual daily maximum	8.26			1.51	2.55	3.22	5.58			6.69		6.49	8.26
	Annual daily mean	3.59			3.41	1.75	2.57	3.96			4.13		5.68	3.64

Exceedences		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Daily Limit		0	0	0	0	0	0	0	0	0	0	0	0

A2 VOC's as Total Organic Carbon.

Pollutant: VOC's as total organic carbon



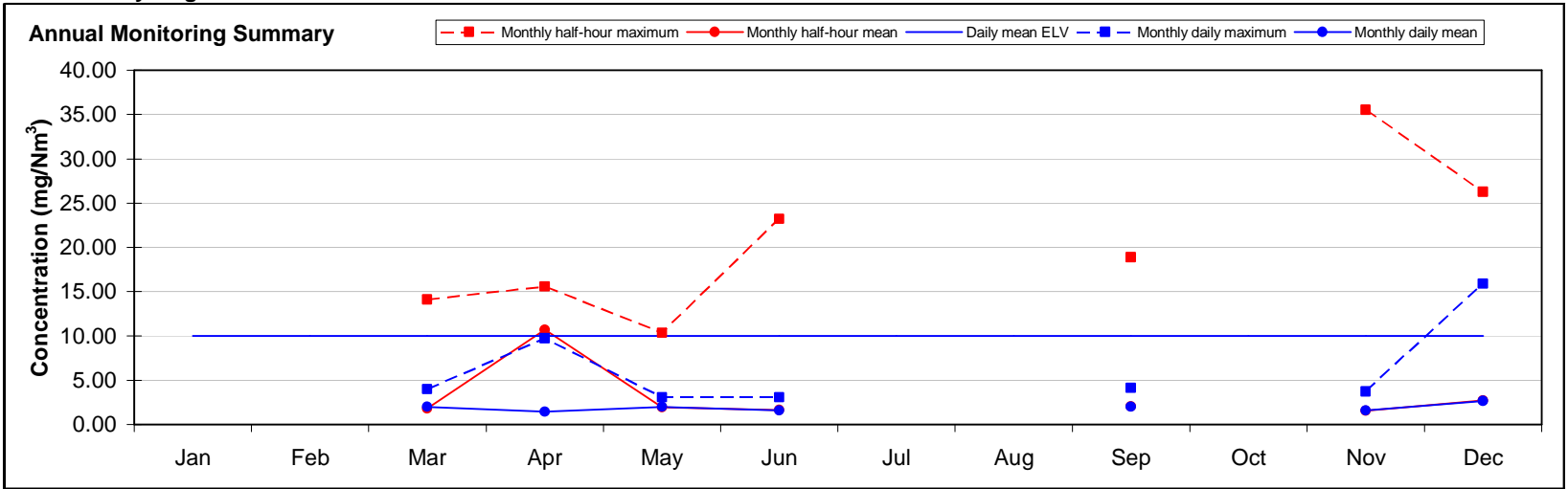
Annual Summary		Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Half-hourly mean		Half-hour mean ELV	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Annual half-hour maximum	61.1			61.1	24.5	36.3	30.0			46.0		39.7	49.7
	Annual half-hour mean	17.1			21.9	10.3	20.8	17.7			13.6		16.5	19.9
Daily mean		Daily mean ELV	60	60	60	60	60	60	60	60	60	60	60	60
	Annual daily maximum	35.3			29.3	15.6	25.3	23.3			24.8		20.4	35.3
	Annual daily mean	16.3			21.7	10.7	20.7	17.9			13.9		16.5	12.3

Exceedences

Daily Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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A3 Hydrogen Chloride.

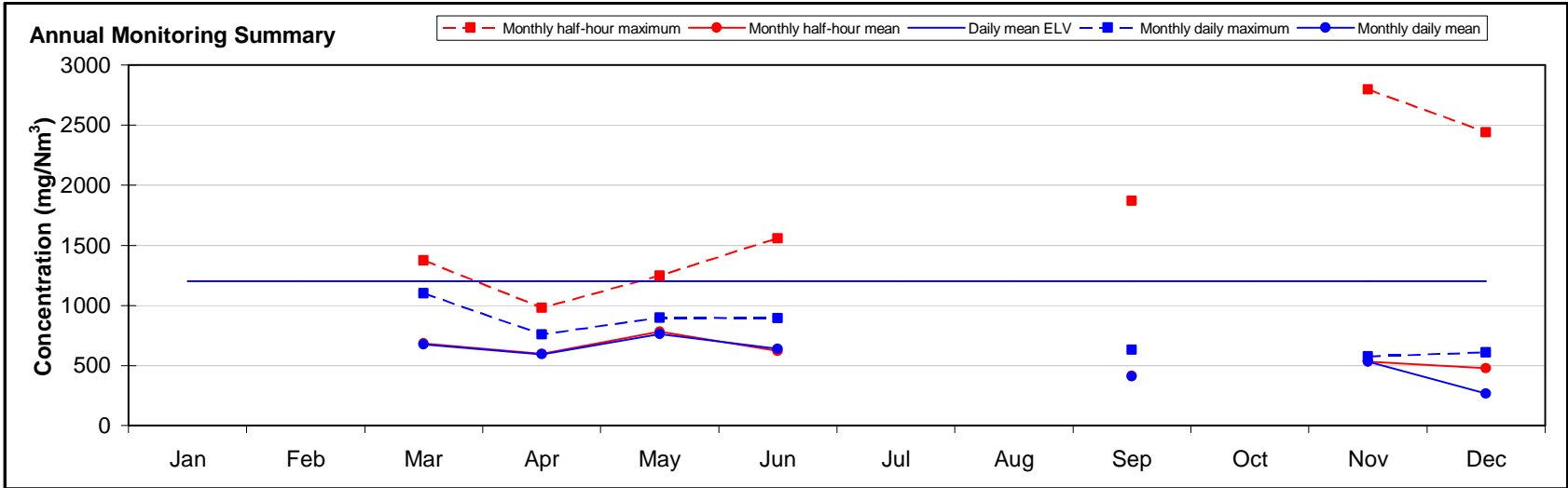
Pollutant: Hydrogen chloride



Annual Summary		Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Half-hourly mean	Half-hour mean ELV		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Annual half-hour maximum	35.53			14.12	15.57	10.31	23.19			18.87		35.53	26.26
	Annual half-hour mean	2.39			1.78	10.67	1.94	1.61			2.02		1.51	2.68
Daily mean	Daily mean ELV		10	10	10	10	10	10	10	10	10	10	10	10
	Annual daily maximum	15.89			3.99	9.72	3.06	3.07			4.10		3.73	15.89
	Annual daily mean	1.89			1.99	1.42	2.00	1.57			1.99		1.57	2.65

Exceedences		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Daily Limit		0	0	0	0	0	0	0	0	0	0	0	1

Pollutant: Carbon monoxide



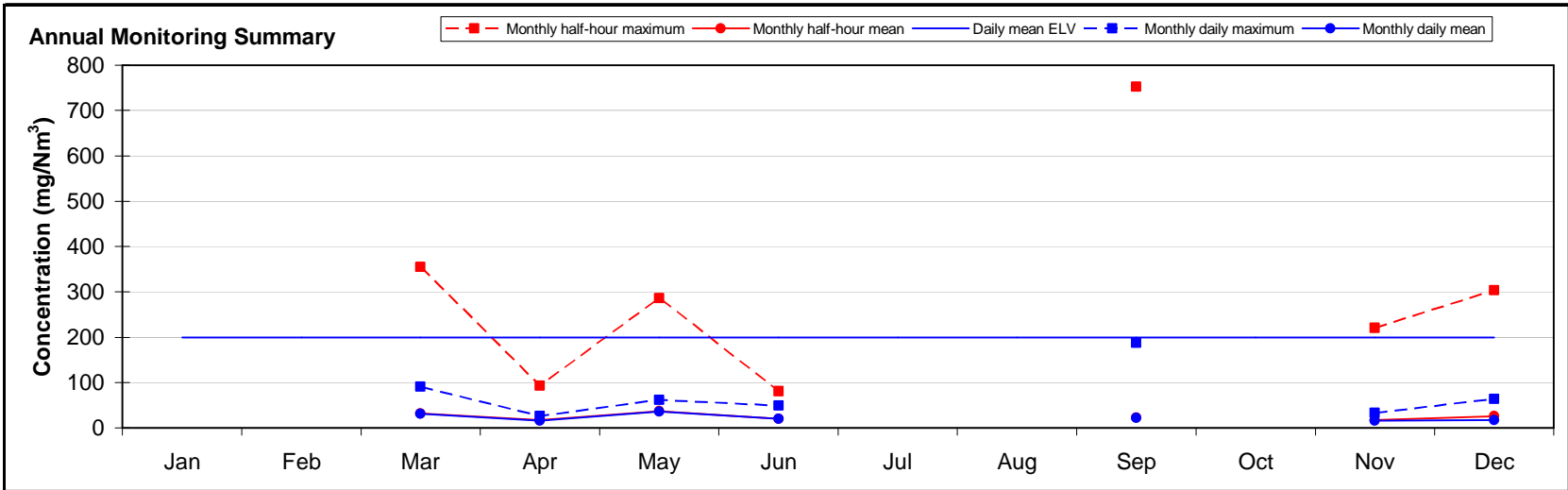
Annual Summary		Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Half-hourly mean	Half-hour mean ELV		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Annual half-hour maximum	2796			1373	981	1245	1559			1868		2796	2441
	Annual half-hour mean	550			683	597	782	621			413		535	476
Daily mean	Daily mean ELV		1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
	Annual daily maximum	1099			1099	759	896	892			631		575	607
	Annual daily mean	554			674	593	764	638			409		535	265

Exceedences

Daily Limit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	0	0	0	0	0	0	0	0	0	0	0	0

A5 Sulphur Dioxide.

Pollutant: Sulfur dioxide

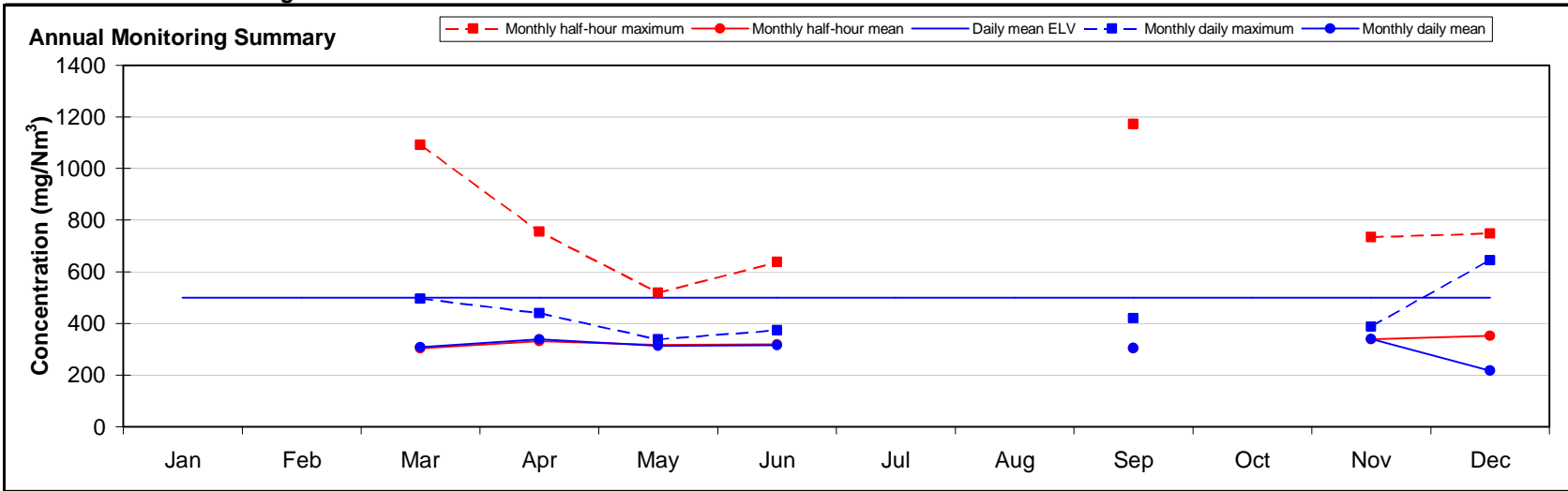


Annual Summary		Month											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Half-hourly mean	Half-hour mean ELV	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Annual half-hour maximum	752		355	93	286	81			752		220	303
	Annual half-hour mean	25		32	17	37	20			23		17	26
Daily mean	Daily mean ELV	200	200	200	200	200	200	200	200	200	200	200	200
	Annual daily maximum	188		91	26	62	49			188		33	64
	Annual daily mean	23		31	16	36	20			22		16	17

Exceedences

Daily Limit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	0	0	0	0	0	0	0	0	0	0	0	0

Pollutant: Oxides of nitrogen



Annual Summary		Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Half-hourly mean	Half-hour mean ELV		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	Annual half-hour maximum	1172			1092	756	518	638				1172		735	749
	Annual half-hour mean	317			303	331	317	319				304		339	352
Daily mean	Daily mean ELV		500	500	500	500	500	500	500	500	500	500	500	500	
	Annual daily maximum	644			496	440	338	373				420		388	644
	Annual daily mean	305			308	339	314	316				305		340	217

Exceedences

Daily Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
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