

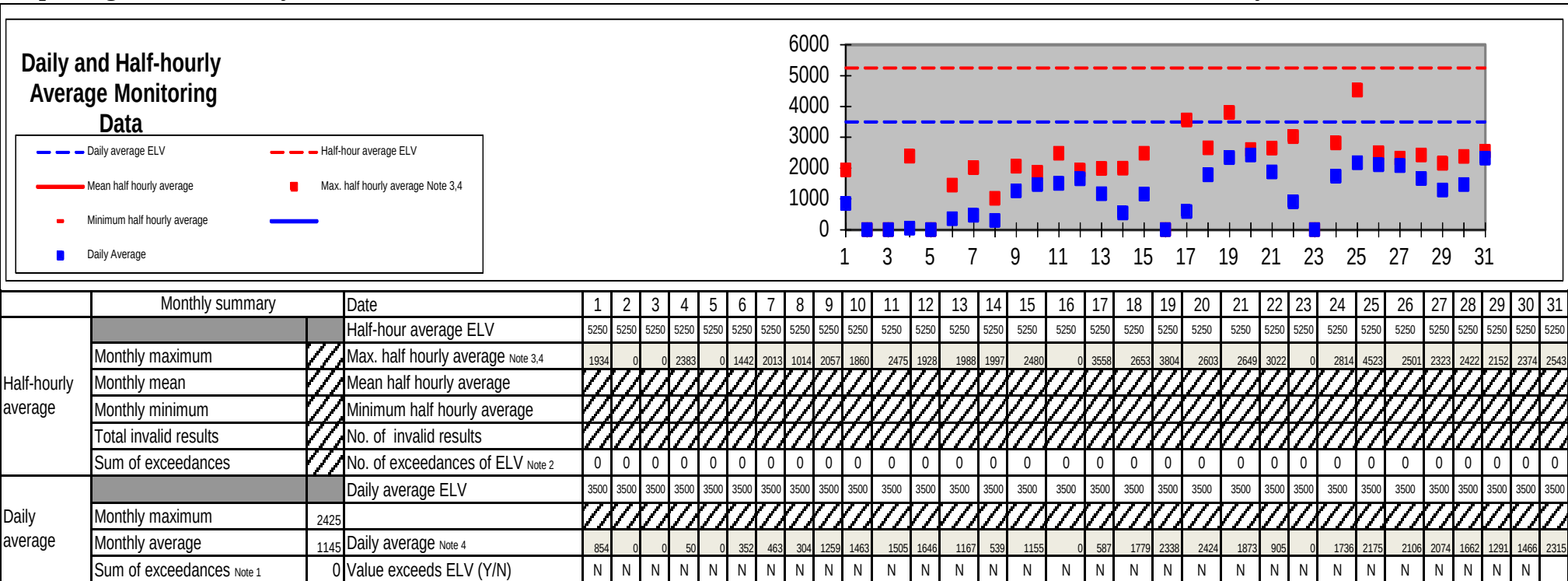
Reference Number: BU2110IS

Operator: Cabot Carbon Limited

Installation: Barry Silicon-Based Manufacturing Installation

Form Number: A1 / Form Dated 1st February 2006

Reporting of Continuously Monitored Emissions to Air for Carbon Monoxide Emission Point A1 for the month of July 2016



Note 1: Not more than one calendar monthly average during any rolling twelve month period shall exceed the limit value by more than 10%.
 Note 2: Not more than one half hour period (commencing on the hour or half hour) during any 24 hour period shall exceed the daily average limit value of 3500mg/m³ by more than 50%.
 Note 3: Max. half hourly averages to be reported in the event of an exceedance of 3500mg/m³.
 Note 4: All results corrected to 273K, 101.3kPa.
 Note 5: July 2nd-8th MUF Unit repairs, Plant SD. July 16th-17th Burner H2 loop control failure, 23rd DC Anh HCL line repair.

Signed *PS Lloyd*

Date: 29th October 2016

(authorised to sign as representative of Operator)

Reference Number: BU2110IS

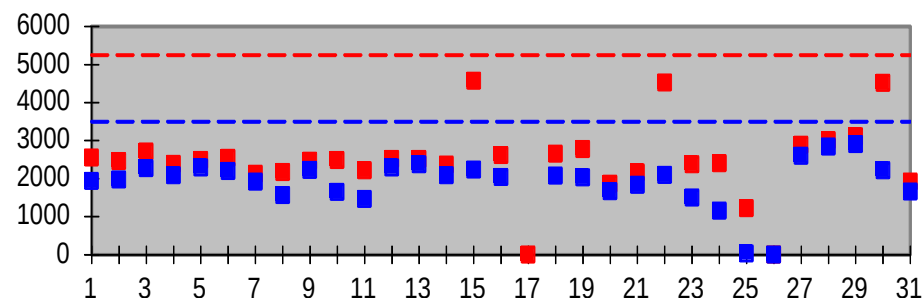
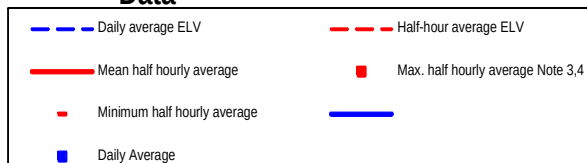
Operator: Cabot Carbon Limited

Installation: Barry Silicon-Based Manufacturing Installation

Form Number: A1 / Form Dated 1st February 2006

Reporting of Continuously Monitored Emissions to Air for Carbon Monoxide Emission Point A1 for the month of August 2016

Daily and Half-hourly Average Monitoring Data



	Monthly summary		Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Half-hourly average			Half-hour average ELV	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250
	Monthly maximum		Max. half hourly average Note 3,4	2552	2459	2709	2388	2491	2543	2122	2171	2466	2490	2219	2518	2518	2371	4575	2619	0	2651	2777	1860	2165	4523	2374	2404	1219	0	2888	3011	3110	4512	1923
	Monthly mean		Mean half hourly average																															
	Monthly minimum		Minimum half hourly average																															
	Total invalid results		No. of invalid results																															
	Sum of exceedances		No. of exceedances of ELV Note 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Daily average			Daily average ELV	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500
	Monthly maximum	2911																																
	Monthly average	1846	Daily average Note 4	1943	1980	2275	2091	2288	2200	1915	1567	2223	1653	1459	2291	2372	2090	2240	2038	0	2076	2030	1669	1834	2095	1499	1153	28	0	2600	2837	2911	2215	1663
	Sum of exceedances Note 1	0	Value exceeds ELV (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Note 1: Not more than one calendar monthly average during any rolling twelve month period shall exceed the limit value by more than 10%.

Note 2: Not more than one half hour period (commencing on the hour or half hour) during any 24 hour period shall exceed the daily average limit value of 3500mg/m³ by more than 50%.

Note 3: Max. half hourly averages to be reported in the event of an exceedance of 3500mg/m³.

Note 4: All results corrected to 273K, 101.3kPa.

Note 5: A&B units down 17th Aug A Muf filter bag replacement, 25th -26th Aug GB20 impeller repair

Signed *PS Lloyd*
(authorised to sign as representative of Operator)

Date: 29th October 2016

Reference Number: BU2110IS

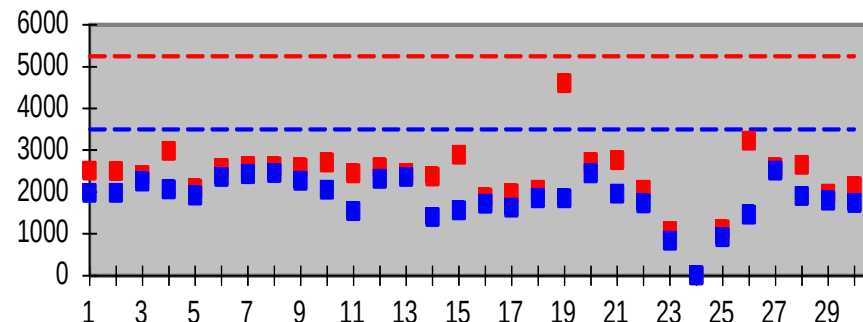
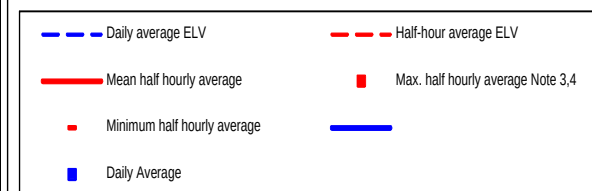
Operator: Cabot Carbon Limited

Installation: Barry Silicon-Based Manufacturing Installation

Form Number: A1 / Form Dated 1st February 2006

Reporting of Continuously Monitored Emissions to Air for Carbon Monoxide Emission Point A1 for the month of September 2016

Daily and Half-hourly Average Monitoring Data



	Monthly summary		Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Half-hourly average			Half-hour average ELV	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250		
	Monthly maximum		Max. half hourly average Note 3,4	2510	2499	2407	2980	2075	2570	2617	2612	2578	2705	2443	2576	2453	2371	2885	1867	1964	2051	4598	2712	2758	2046	1065	0	1103	3219	2582	2642	1958	2138		
	Monthly mean		Mean half hourly average																																
	Monthly minimum		Minimum half hourly average																																
	Total invalid results		No. of invalid results																																
	Sum of exceedances		No. of exceedances of ELV Note 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Daily average			Daily average ELV	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500		
	Monthly maximum	2507																																	
	Monthly average	1838	Daily average Note 4	1977	1980	2244	2063	1909	2361	2420	2447	2267	2049	1541	2308	2361	1397	1556	1712	1618	1842	1843	2441	1953	1720	832	0	910	1450	2507	1904	1791	1734		
	Sum of exceedances Note 1	0	Value exceeds ELV (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

Note 1: Not more than one calendar monthly average during any rolling twelve month period shall exceed the limit value by more than 10%.

Note 2: Not more than one half hour period (commencing on the hour or half hour) during any 24 hour period shall exceed the daily average limit value of 3500mg/m³ by more than 50%.

Note 3: Max. half hourly averages to be reported in the event of an exceedance of 3500mg/m³.

Note 4: All results corrected to 273K, 101.3kPa.

Note 5: Sept 24th GB20 Impeller repair

Signed *PS Lord*
(authorised to sign as representative of Operator)

Date: 29th October 2016

Reference Number: BU2110IS

Operator: Cabot Carbon Limited

Installation: Barry Silicon-Based Manufacturing Installation

Form Number: A3 / Form Dated 1st February 2006

Reporting of Emissions to Air for the period 1 July 2016 to 30 September 2016

Emission Point	Substance / Parameter	Emission Limit Value ^[6]	Result ^[1] [Note A]	Test Method ^[2]	Sample Date and Times ^[3] [7]	Accreditation/Certification ^[4]	Uncertainty +/- ^[5]
A1	Chlorine	10mg/m ³ ^[8]	8.9 mg/m ³	US EPA Method 26A	13/09/2016 1110-1140, 1148-1218,1224-1254,1300- 1330, 1336-1406hrs	MCERTS / UKAS	+/- 1.1 mg/m3
A1	Chloromethanes (as methyl chloride)	50mg/m ³	13.7 mg/m ³	BS EN 13649	13/09/2016 1110-1115, 1224-1229,1336-1341hrs	MCERTS / UKAS	+/- 3.3 mg/m3
A1	Hydrogen chloride	10mg/m ³	4.5 mg/m ³	TGN M22	13/09/2016 1230-1330. 1331-1431.1432-1532hrs	MCERTS / UKAS	+/- 1.6 mg/m3

[1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value.

[2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Agency is used, then the appropriate identifier is given. Please note TGN M22 method replacing ASTM D6348-03 in accordance with EA (NRW) Monitoring Standard.

[3] For non-continuous measurements the date and time of the sample that produced the result is given.

[4] The accreditation status of the equipment and/or the monitoring organisation, as appropriate, for the methods used for both sampling and analysis.

[5] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated. The basis of any other uncertainty figure needs to be stated. Where no figure is available the Agency will need to agree an appropriate uncertainty value.

[6] Corrected to 273K, 101.3Kpa.

[7] The tests were carried out at scrubber pH (pH 8.8) to assist in maintaining the improvement in caustic scrubber efficiency to reduce chlorine emissions at A1 stack outlet.

[8] Reversion to 10mg/m3 chlorine emission limit as documented in EPR/BU2110IS/V007. Calculated as the average of 5 consecutive, 30 minute samples taken every quarter. Results above 14.6mg/m3 shall be removed from these calculations.

[Note A]: Results are given as averages being more representative, as agreed with NRW.



Signed
(authorised to sign as representative of the Operator)

Date: 29th October 2016

Permit Reference Number: BU2110IS

Operator: Cabot Carbon Limited

Installation: Barry Silicon-Based Manufacturing Installation

Form Number: W1 / Form Dated 1st February 2006

Reporting of Emissions to Water (other than to Sewer) for the period from 1 July 2016 to 30 September 2016

Emission Point	Substance / Parameter	Emission Limit Value	Result ^[1]	Test Method ^[2]	Sample Date and Times ^[3]	Accreditation/ Certification ^[4]	Uncertainty ^[5]
W1	Oil and grease	5mg/l ^[6]	<0.20 ^[9]	IR Spectrometry - EA Test 362 ISBN 0117517283	26/09/16 @1050hrs	UKAS	±2.44%
	BOD ₅	20mg/l ^[6]	1.71 ^[9]	ISBN 011 7522120	26/09/16 @1050hrs	UKAS	±12.44%
	pH	>5, <9 ^[7]	7.68 ^[9]	BS 6068-2.50:1995	26/09/16 @1050hrs	UKAS	±1.24%
W2	Oil and grease	5mg/l ^[6]	<0.20 ^[9]	IR Spectrometry - EA Test 362 ISBN 0117517283	26/09/16 @1050hrs	UKAS	±2.44%
	BOD ₅	20mg/l ^[6]	<1.00 ^[9]	ISBN 011 7522120	26/09/16 @1050hrs	UKAS	±12.44%
	pH	>5, <9 ^[7]	7.80 ^[9]	BS 6068-2.50:1995	26/09/16 @1050hrs	UKAS	±1.24%
W3	Oil and grease	5mg/l ^[6]	0.22 ^[9]	IR Spectrometry - EA Test 362 ISBN 0117517283	26/09/16 @1050hrs	UKAS	±2.44%
	BOD ₅	20mg/l ^[6]	1.71 ^[9]	ISBN 011 7522120	26/09/16 @1050hrs	UKAS	±12.44%
	pH	>5, <9 ^[7]	7.88 ^[9]	BS 6068-2.50:1995	26/09/16 @1050hrs	UKAS	±1.24%

[1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.

[2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Agency is used, then the appropriate identifier is given.

[3] For non-continuous measurements the date and time of the sample that produced the result is given.

[4] The accreditation status of the equipment and/or the monitoring organisation, as appropriate, for the methods used for both sampling and analysis.

[5] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated. The basis of any other uncertainty figure needs to be stated. Where no figure is available the Agency will need to agree an appropriate uncertainty value.

[6] The emission limit value for Oil and grease, and BOD₅, is expressed as a maximum individual value.

[7] The emission limit values for pH are expressed as minimum and maximum individual values.

[8] The Environment Agency National Testing Laboratory at Shawcross in Exeter has obtained UKAS accreditation for the oil and grease test method.

Signed 
(authorised to sign as representative of the Operator)

Date: 29th October 2016