

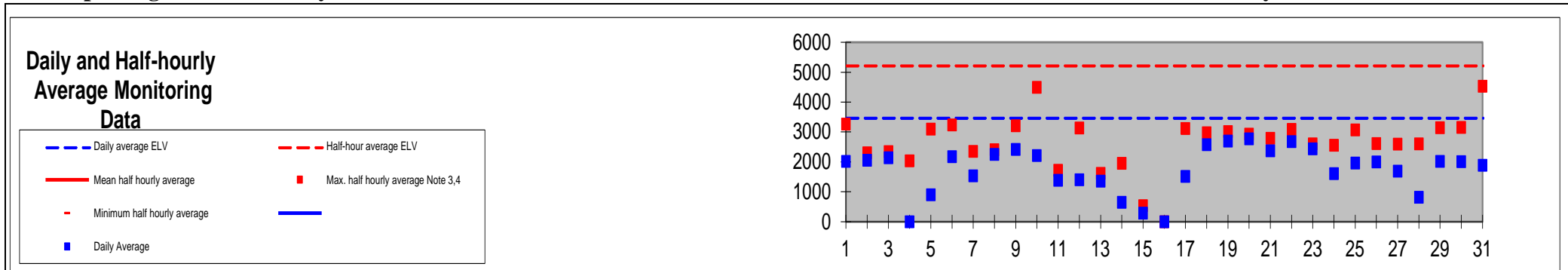
Reference Number: BU2110IS

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 2017



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	3262	2307	2339	2039	3093	3237	2348	2406	3209	4489	1715	3135	1613	1951	534	0	3112	2980	3011	2934	2786	3089	2608	2555	3069	2614	2592	2606	3147	3156	4531	
	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	2773	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
	Monthly average	1736	Daily average Note 4	2014	2057	2140	0	897	2171	1529	2251	2413	2210	1383	1401	1356	650	288	0	1513	2578	2700	2773	2367	2676	2439	1606	1964	2002	1694	819	2021	2004	1887
	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: July 4th A&B down 24hrs exchanger replacement, 5th July B unit down 14hr DC ANHCL limitation, 16th Inverter trip, 28th feed supply DC.

Signed *PS Lord*

Date: 23rd October 2017

(authorised to sign as representative of Operator)

Reference Number: BU2110IS

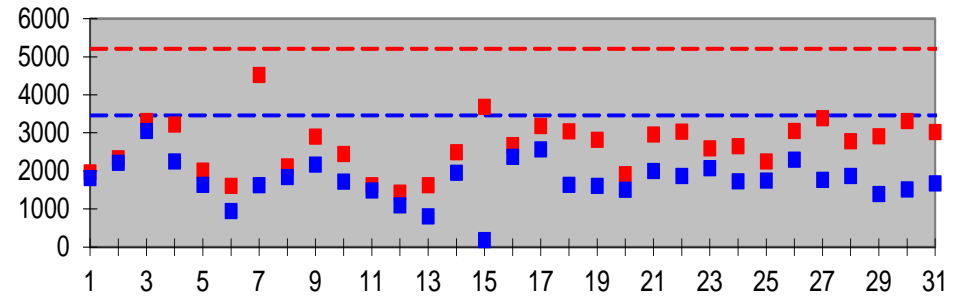
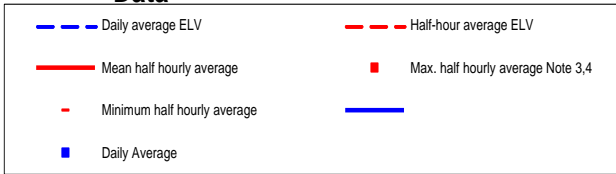
Operator: Cabot Carbon Limited

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 2017

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	1958	2335	3311	3216	2004	1611	4519	2117	2906	2441	1629	1427	1627	2496	3688	2677	3179	3041	2816	1920	2957	3029	2598	2652	2251	3054	3384	2779	2909	3307	3026	
	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	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	3046	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
	Monthly average	1755	Daily average Note 4	1811	2209	3046	2249	1639	943	1628	1844	2170	1720	1484	1097	808	1951	180	2370	2563	1640	1608	1510	1998	1866	2069	1725	1745	2299	1769	1869	1398	1517	1677
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	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: 5th-6th Aug 15th-16th, 28th-29th A unit running only due to lack of feed from DC

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

Date: 23rd October 2017

Reference Number: BU2110IS

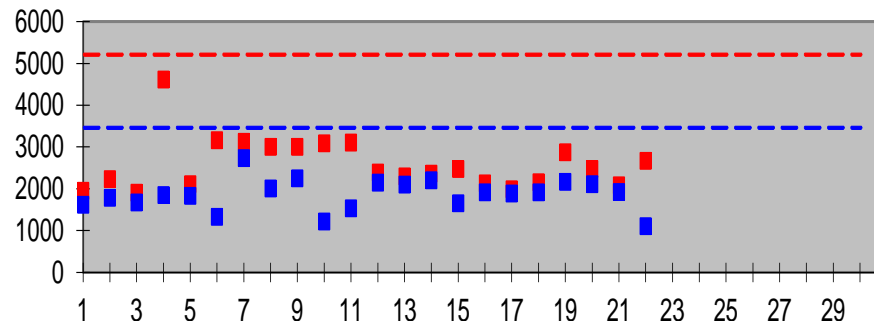
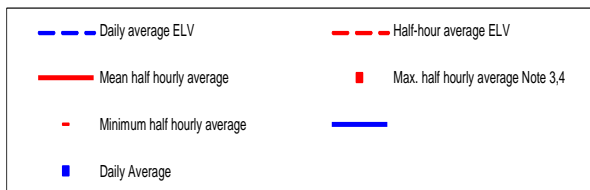
Operator: Cabot Carbon Limited

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 2017

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	1955	2234	1906	4611	2106	3165	3121	3003	3003	3089	3107	2392	2296	2365	2474	2126	1987	2159	2874	2476	2078	2668									
	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	2733	/																														
	Monthly average	Daily average Note 4	1614	1789	1671	1852	1833	1330	2733	2008	2252	1216	1534	2148	2102	2200	1659	1919	1886	1917	2164	2106	1920	1105									
	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	

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 10th A unit down, packed tower maint, Feeds off for annual 3-week outage from 22nd September

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

Date: 23rd October 2017

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 2017 to 30 September 2017

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]	7.9 mg/m ³	US EPA Method 26A	14/09/2017 0848-0918, 0929-0959,1009-1039, 1044-1114,1121-1151 hrs	MCERTS / UKAS	+/- 1.0 mg/m ³
A1	Chloromethanes (as methyl chloride)	50mg/m ³	12.7 mg/m ³	BS EN 13649	14/09/2017 0848- 0853, 1009-1014,1121-1126 hrs	MCERTS / UKAS	+/- 3.1 mg/m ³
A1	Hydrogen chloride	10mg/m ³	1.1 mg/m ³	TGN M22	14/09/2017 0855-0955, 0957-1057, 1059-1159 hrs	MCERTS / UKAS	+/- 1.6 mg/m ³

[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: 23rd October 2017

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 2017 to 30 September 2017

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	IR Spectrometry - EA Test 362 ISBN 0117517283	05/09/17 @0900hrs	UKAS	±8.23%
	BOD ₅	20mg/l ^[6]	1.55	ISBN 011 7522120	05/09/17 @0900hrs	UKAS	±15.91%
	pH	>5, <9 ^[7]	7.27	BS 6068-2.50:1995	05/09/17 @0900hrs	UKAS	±0.94%
W2	Oil and grease	5mg/l ^[6]	<0.20	IR Spectrometry - EA Test 362 ISBN 0117517283	05/09/17 @0900hrs	UKAS	±8.23%
	BOD ₅	20mg/l ^[6]	<1.00	ISBN 011 7522120	05/09/17 @0900hrs	UKAS	±15.91%
	pH	>5, <9 ^[7]	7.43	BS 6068-2.50:1995	05/09/17 @0900hrs	UKAS	±0.94%
W3	Oil and grease	5mg/l ^[6]	<0.20	IR Spectrometry - EA Test 362 ISBN 0117517283	05/09/17 @0900hrs	UKAS	±8.23%
	BOD ₅	20mg/l ^[6]	<1.00	ISBN 011 7522120	05/09/17 @0900hrs	UKAS	±15.91%
	pH	>5, <9 ^[7]	7.57	BS 6068-2.50:1995	05/09/17 @0900hrs	UKAS	±0.94%

[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.



Signed
(authorised to sign as representative of the Operator)

Date: 23rd October 2017