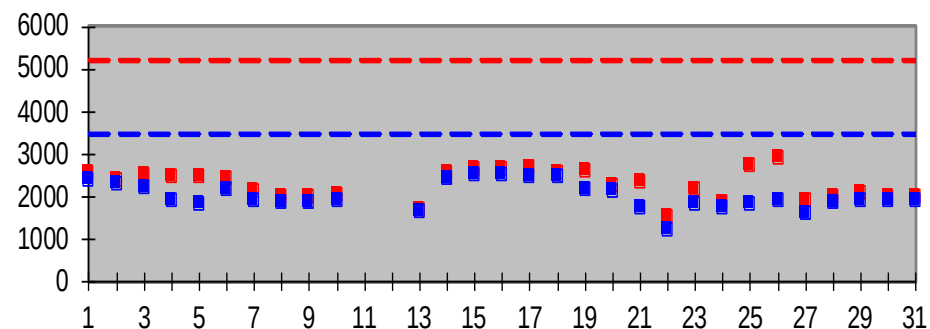
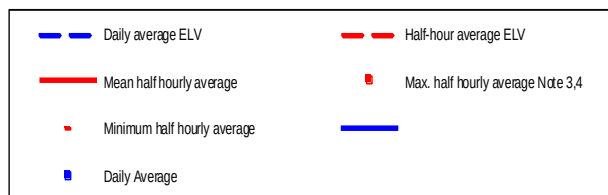


Reference Number: BU2110IS

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 2018****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	
	Monthly maximum		Max. half hourly average Note 3,4	2547	2415	2527	2468	2478	2439	2129	1992	2017	2033			1706	2579	2656	2673	2714	2563	2612	2253	2351	1520	2196	1874	2755	2904	1904	2021	2072	2019	1994
	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	2512																																
	Monthly average	2009	Daily average Note 4	2380	2293	2215	1912	1822	2177	1898	1875	1878	1925			1663	2458	2504	2512	2475	2473	2157	2133	1746	1229	1827	1749	1845	1916	1623	1864	1906	1902	1906
	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: July 10th -13th A unit plant down: repair to Mantle H2 header

Signed

PS Lord

(authorised to sign as representative of Operator)

Date: 28th October 2018

Reference Number: BU2110IS

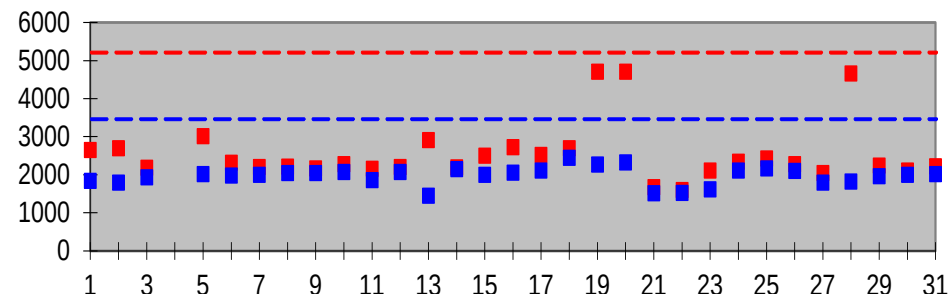
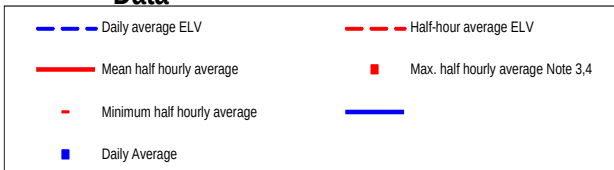
Operator: Cabot Carbon Limited

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 2018

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	2648	2700	2190		3013	2311	2206	2216	2166	2278	2156	2200	2910	2197	2499	2721	2516	2697	4707	4707	1675	1603	2108	2347	2427	2281	2041	4661	2238	2113	2219
	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	2449		///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///
	Monthly average	1970	Daily average Note 4	1840	1794	1933		2018	1984	1995	2045	2043	2072	1862	2075	1447	2143	1996	2055	2112	2449	2272	2327	1515	1521	1618	2112	2163	2100	1794	1825	1964	2001	2019
	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: 4th Aug A unit shut down DC feed supply limitation

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

Date: 28th October 2018

Reference Number: BU2110IS

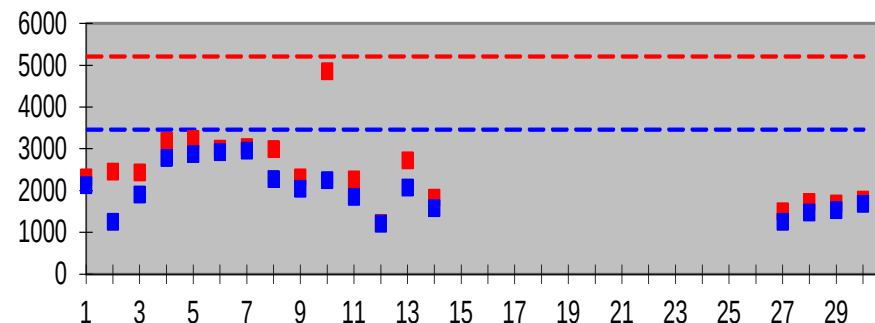
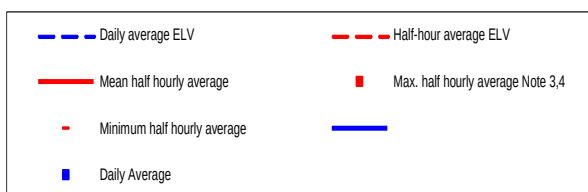
Operator: Cabot Carbon Limited

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 2018

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	2315	2451	2438	3192	3239	3001	3046	2997	2315	4856	2268	1230	2728	1835														1502	1725	1690	1789				
	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	2954		///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///	///			
	Monthly average	2002	Daily average Note 4	2132	1256	1902	2780	2873	2918	2954	2273	2046	2249	1848	1206	2077	1578																1250	1479	1533	1680	1712	
	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 12th Plant down, MUF diaphragm failure. Feeds off for annual 14th -27th September 18

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

Date: 28th October 2018

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 2018 to 30 September 2018

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]	3.52 mg/m ³	US EPA Method 26A	06/09/2018 0919-0942, 0951-1021,1031-1101, 1110-1140,1153-1223 hrs	MCERTS / UKAS	+/- 0.39 mg/m3
A1	Chloromethanes (as methyl chloride)	50mg/m ³	<1.72 mg/m ³	BS EN 13649	06/09/2018 1000-1100, 1103-1203,1205-1305hrs	MCERTS / UKAS	+/- 0.34 mg/m3
A1	Hydrogen chloride	10mg/m ³	0.25 mg/m ³	TGN M22	06/09/2018 0914-1014, 1015-1115,1116-1216hrs	MCERTS / UKAS	+/- 0.09 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)

Permit Reference Number: BU2110IS

Date: 28th October 2018

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 2018 to 30 September 2018

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	21/09/18 @1150hrs	UKAS	±8.38%
	BOD ₅	20mg/l ^[6]	1.30	ISBN 011 7522120	21/09/18 @1150hrs	UKAS	±16.85%
	pH	>5, <9 ^[7]	7.68	BS 6068-2.50:1995	21/09/18 @1150hrs	UKAS	±0.93%
W2	Oil and grease	5mg/l ^[6]	<0.20	IR Spectrometry - EA Test 362 ISBN 0117517283	21/09/18 @1150hrs	UKAS	±8.38%
	BOD ₅	20mg/l ^[6]	1.14	ISBN 011 7522120	21/09/18 @1150hrs	UKAS	±16.85%
	pH	>5, <9 ^[7]	7.663	BS 6068-2.50:1995	21/09/18 @1150hrs	UKAS	±0.93%
W3	Oil and grease	5mg/l ^[6]	<0.20	IR Spectrometry - EA Test 362 ISBN 0117517283	21/09/18 @1150hrs	UKAS	±8.38%
	BOD ₅	20mg/l ^[6]	1.24	ISBN 011 7522120	21/09/18 @1150hrs	UKAS	±16.85%
	pH	>5, <9 ^[7]	7.63	BS 6068-2.50:1995	21/09/18 @1150hrs	UKAS	±0.93%

[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: 28th October 2018