Appendix H: Source Testing CEM And CPM Data

ST MARYS CEMENT INC. (CANADA), ST. MARYS PLANT

ST. MARYS, ONTARIO

Prepared By:

Kara Pelissero

Environmental Manager, St Marys Cement Plant

Date: October 9, 2025

SCHEDULE G.5.4. RECORDS OF OPERATING CONDITIONS DURING SOURCE TESTING

Schedule G.5.4 of the ECA 6394-D78P42 Requires the following:

A summary of all records of the CEM System and CPM System for the parameters specified in Condition 10 of this Approval at the time of Source Testing.

ECA 6394-D78PR2 Condition 10: Continuous Monitoring

10.1. Continuous Emissions Monitoring in the Kiln Stack

10.1.a. The Company shall ensure that the CEM System continuously monitors the following parameters in the exhaust gas stream from the Cement Kiln stack:

i. Nitrogen Oxides
ii. Sulphur Dioxide, and
iii. Opacity

- During Source Testing the following data was recorded on the CEM System

Day	Time	NOx (F) (ppmv)	Opacity (%)	SO2 (F) (ppmv)
8	0:00	234	10.99	275
8	1:00	194	8.65	268.1
8	2:00	233	9.59	288.5
8	3:00	190	9.21	305.6
8	4:00	259	7.19	253.5
8	5:00	115	7.46	335.1
8	6:00	94	2.88	94.7
8	7:00	270	3.47	248.3
8	8:00	162	3.78	253.7
8	9:00	281	3.6	263.4
8	10:00	306	3.15	273.1
8	11:00	235	2.8	257.6
8	12:00	269	3.56	219.1
8	13:00	209	3.1	165.4
8	14:00	213	3.99	175.9
8	15:00	255	4.37	107.9
8	16:00	321	5.13	125.6
8	17:00	388	4.43	203.6
8	18:00	332	3.81	218.3
8	19:00	172	4.14	236.5

8	20:00	57	3.81	324.5
8	21:00	31	4.02	323
8	22:00	7	2.26	17.9
8	23:00	254	6.5	266.9
9	0:00	255	3.74	330.5
9	1:00	97	3.23	113.3
9	2:00	277	4.04	135.7
9	3:00	200	3.79	139.5
9	4:00	258	3.98	139.9
9	5:00	114	4.52	169.1
9	6:00	236	4.2	126.8
9	7:00	117	4.48	129.8
9	8:00	328	4.86	107.6
9	9:00	348	4.59	136.6
9	10:00	317	4.25	165.4
9	11:00	176	3.77	230.4
9	12:00	179	3.68	256.4
9	13:00	232	3.34	327.3
9	14:00	130	3.18	301.8
9	15:00	256	3.35	240.6
9	16:00	411	3.85	197.1
9	17:00	350	3.94	197.8
9	18:00	226	4.64	228.7
9	19:00	196	5.1	231.1
9	20:00	212	5.17	316.2
9	21:00	215	4.34	314.6
9	22:00	83	3.13	326
9	23:00	135	3.1	292.8
10	0:00	156	3.42	305.7
10	1:00	164	3.17	231.2
10	2:00	197	3.01	334
10	3:00	92	3.15	295.8
10	4:00	159	3.06	333.9
10	5:00	138	4.11	317.7
10	6:00	125	5.26	215.9
10	7:00	296	5.18	226.2
10	8:00	208	5.34	239.1
10	9:00	164	5.44	240.2
10	10:00	198	5.45	243.9
10	11:00	280	5.86	212.4

10	12:00	289	5.31	218.4
10	13:00	275	5.6	140
10	14:00	319	5.15	170.1
10	15:00	535	4.93	167.6
10	16:00	699	4.24	167.2
10	17:00	634	4.12	156.9
10	18:00	590	4.31	156.1
10	19:00	378	3.67	227.4
10	20:00	315	3.4	266.1
10	21:00	197	3.29	327.3
10	22:00	172	3.29	302.9
10	23:00	150	3.38	328.2
11	0:00	160	4.14	314.3
11	1:00	204	4.05	315.9
11	2:00	99	4.27	308.9
11	3:00	102	3.72	318.9
11	4:00	268	3.96	250.4
11	5:00	272	3.25	327.8
11	6:00	312	3.32	290.9
11	7:00	351	3.23	304.5
11	8:00	111	3.04	314.2
11	9:00	211	3.06	350
11	10:00	261	2.9	264.2
11	11:00	234	2.91	337
11	12:00	261	2.76	314.3
11	13:00	341	2.79	270.3
11	14:00	359	3.08	302.7
11	15:00	342	3.09	233.1
11	16:00	180	3.39	243.6
11	17:00	278	3.26	194.7
11	18:00	350	3.3	158.1
11	19:00	365	3.36	143.8
11	20:00	382	3.56	119.3
11	21:00	372	3.4	151.2
11	22:00	460	3.26	187.1
11	23:00	319	3.4	208.4

10.1.b. The CEM System for nitrogen oxides and sulphur dioxide shall be installed, operated, maintained and quality assurance conducted and reported in accordance with the requirements set out in Report EPS1/PG/7. The annual Relative Accuracy Test Audit (RATA) report, including the required production data during the testing shall be submitted to the Manager and District Manager by June 30 of each year, for the previous calendar year. The quarterly cylinder gas audit reports shall be made available to the Ministry upon request.

- The CEM System complies with the requirements set out in EPS 1/PG/7, renamed ECS 32102. The system was audited in February 2025 and determined to meet the standard.

10.1.c. The CEM System for monitoring opacity shall comply with the requirements outlined in Schedule E.

- The CEM System complies with the requirements set out in EPS 1/PG/7, renamed ECS 32102. The system was audited in February 2025 and determined to meet the standard.

10.2. Continuous Monitoring of Process Conditions

a. The Company shall install, operate and maintain a CPM System to continuously monitor:

i. residual oxygen at locations specified in Schedule F;

- Schedule F notes Residual oxygen at Stage 1 of the preheat tower where the residual oxygen meets a minimum of 1%.

ii. carbon monoxide in the preheater tower;

iii. temperature of gases in the preheater tower, as specified in Schedule iii. F and correspond with a retention time of not less than 10 seconds;

- Schedule F Notes: Primary- temperature of gas leaving the kiln reaching a minimum of 1000 Deg C or Secondary - the temperature of the gases at Stage 4 of the preheater tower where the gas temperature reaches a minimum of 750 Deg C.

iv. pressure at locations specified in Schedule F; and,

- Schedule F notes pressure in the Kiln, Preheater tower, and Raw Mill must be operated under negative pressure at all times.

v. Total Hydrocarbon (as methane) in the gases leaving the Cement Kiln stack.

Date	Stage 1 O2 – East (%)	Stage 1 O2 – West (%)	CO Stage 1 East (ppm)	CO Stage 1 West (ppm)	Riser Temp (°c)	Burner Temp (°c)	Pressure – Riser (WC)	Pressure - Kiln Hood (WC)	Pressure - Raw Mill (WC)
08-Apr-25 00:00:00	6.7	4.2	2204.8	5095.1	833.4	1251.5	-15.7	-3.2	-4.6
08-Apr-25 01:00:00	6.4	4.1	2800.1	5488.2	834.7	1246.4	-18.3	-3.0	-3.7

08-Apr-25 02:00:00	6.5	4.2	2903.0	5281.1	833.9	1198.2	-24.0	-3.1	4.8
08-Apr-25 03:00:00	6.4	4.7	2662.5	5118.6	832.9	1205.9	-24.1	-3.2	16.8
08-Apr-25 04:00:00	6.4	4.3	2130.2	4401.4	831.2	1226.4	-21.9	-2.9	-12.4
08-Apr-25 05:00:00	5.8	4.2	4108.2	6078.3	838.7	1238.6	-21.0	-3.0	-5.4
08-Apr-25 06:00:00	6.2	4.8	5539.8	5834.8	834.7	1051.3	-10.8	-3.2	-40.7
08-Apr-25 07:00:00	7.2	4.7	1780.3	3636.4	827.2	1196.1	-2.8	-2.9	-30.2
08-Apr-25 08:00:00	7.9	4.9	1724.3	3800.0	826.8	1148.1	-4.1	-3.1	-18.5
08-Apr-25 09:00:00	7.7	4.8	1564.7	3311.5	829.0	1120.5	-5.1	-3.0	-24.3
08-Apr-25 10:00:00	7.3	4.2	1600.6	3769.2	831.0	1082.4	-5.7	-3.0	-13.6
08-Apr-25 11:00:00	7.9	4.4	1461.6	3612.6	830.0	1267.7	-6.4	-3.1	-19.4
08-Apr-25 12:00:00	8.4	4.6	1330.8	3096.1	823.2	1255.5	-7.2	-3.0	-42.7
08-Apr-25 13:00:00	8.7	5.0	1536.2	3255.4	824.4	1228.5	-19.9	-2.9	-56.3
08-Apr-25 14:00:00	8.4	5.2	1528.5	3010.6	826.0	1175.8	-32.0	-3.2	-16.1
08-Apr-25 15:00:00	8.7	6.1	1651.8	2912.9	819.3	1204.8	-34.9	-3.1	-3.0
08-Apr-25 16:00:00	8.3	5.9	1582.1	2867.9	821.8	1212.5	-32.6	-3.1	-3.7
08-Apr-25 17:00:00	7.2	4.6	1680.1	3209.5	825.9	1219.5	-34.1	-3.0	-6.1
08-Apr-25 18:00:00	7.1	4.8	1827.4	3695.3	829.3	1275.2	-37.1	-3.0	-8.8
08-Apr-25 19:00:00	7.0	4.9	2206.1	4574.2	830.0	1226.8	-41.3	-3.0	-7.5
08-Apr-25 20:00:00	5.7	4.4	4690.4	6743.3	838.5	1249.3	-37.1	-3.0	-15.9
08-Apr-25 21:00:00	4.8	3.8	5352.1	7375.7	843.9	1249.2	-29.6	-3.2	-26.0
08-Apr-25 22:00:00	4.4	3.8	6770.7	7993.9	842.7	1313.4	-17.4	-3.0	-38.8
08-Apr-25 23:00:00	5.7	4.1	2658.8	4159.0	832.5	1313.5	-7.5	-3.3	-15.6
09-Apr-25 00:00:00	5.5	3.9	2288.9	4528.4	835.5	1280.2	-1.2	-2.8	-9.5
09-Apr-25 01:00:00	5.4	4.5	3931.4	5749.0	840.7	1061.3	-15.5	-2.6	-34.2
09-Apr-25 02:00:00	7.0	5.1	1520.4	2962.4	828.0	938.6	-19.7	-3.0	-40.1
09-Apr-25 03:00:00	7.3	5.0	1510.1	3495.2	828.1	996.6	-20.9	-3.1	-39.0
09-Apr-25 04:00:00	7.8	5.0	1466.7	2952.4	827.2	1145.5	-21.6	-3.0	-42.8
09-Apr-25 05:00:00	7.7	5.0	1576.8	4192.3	829.2	1165.4	-24.1	-3.1	-38.5
09-Apr-25 06:00:00	7.9	5.7	1514.5	2889.6	826.0	1158.1	-23.5	-3.1	-45.6
09-Apr-25 07:00:00	8.0	5.9	1540.7	3597.0	823.3	1119.6	-26.3	-3.0	-42.8
09-Apr-25 08:00:00	8.1	5.7	1366.2	2573.5	820.8	1085.6	-25.4	-3.1	-42.5
09-Apr-25 09:00:00	7.9	5.6	1405.4	2578.6	825.0	1210.4	-25.5	-3.0	-42.1
09-Apr-25 10:00:00	7.6	5.6	1518.6	2696.9	825.1	1233.4	-13.7	-3.0	-37.4
09-Apr-25 11:00:00	6.7	4.9	2008.5	4210.4	826.8	1212.8	-4.1	-3.1	-37.6
09-Apr-25 12:00:00	6.1	4.4	2188.2	4788.4	828.2	1196.2	-4.4	-3.0	-39.1
09-Apr-25 13:00:00	5.6	4.1	2173.7	4911.6	831.5	1264.6	-14.7	-3.0	-35.9
09-Apr-25 14:00:00	5.3	4.0	2339.9	5105.6	835.5	1253.1	-19.9	-3.3	-23.8
09-Apr-25 15:00:00	6.1	4.9	1751.1	3833.5	829.8	1195.5	-21.1	-3.0	-35.0
09-Apr-25 16:00:00	7.1	5.8	1456.9	2832.2	822.9	1227.6	-24.4	-3.0	-24.2
09-Apr-25 17:00:00	7.3	5.7	1483.5	3190.5	824.7	1225.5	-25.0	-3.0	-15.9

09-Apr-25 18:00:00	7.1	5.7	1595.1	3753.3	826.6	1189.2	-25.9	-3.0	-7.0
09-Apr-25 19:00:00	6.3	5.0	1821.8	4396.8	826.5	1135.6	-26.4	-3.0	-6.7
09-Apr-25 20:00:00	6.1	4.1	2032.6	4941.0	832.3	1186.1	-23.1	-3.0	2.2
09-Apr-25 21:00:00	6.4	4.2	2226.7	5269.0	831.5	1217.3	-20.5	-3.1	8.9
09-Apr-25 22:00:00	5.9	4.3	3689.2	6507.1	836.5	1201.9	-11.6	-3.1	-23.1
09-Apr-25 23:00:00	6.1	4.5	2312.2	5389.4	833.7	1211.0	-0.6	-3.0	-21.0
10-Apr-25 00:00:00	6.6	5.2	2386.4	4649.8	831.2	1213.9	0.0	-3.2	-19.5
10-Apr-25 01:00:00	5.6	4.0	3455.7	5325.7	832.2	1222.0	-0.3	-3.1	-22.5
10-Apr-25 02:00:00	6.3	4.3	2250.8	4672.3	833.0	1236.2	-3.9	-2.9	-15.9
10-Apr-25 03:00:00	6.4	4.6	2937.0	5639.0	838.2	1138.8	-17.0	-3.0	-12.1
10-Apr-25 04:00:00	7.2	4.7	2164.3	4960.1	834.5	1179.3	-16.7	-2.9	-10.5
10-Apr-25 05:00:00	8.0	5.2	2063.7	4885.6	833.1	1176.5	-19.1	-3.1	-43.3
10-Apr-25 06:00:00	7.0	5.1	2041.1	4881.9	830.0	1098.2	-17.8	-3.1	-0.1
10-Apr-25 07:00:00	6.7	5.0	1802.6	3809.8	826.1	1163.8	-16.3	-3.0	-11.3
10-Apr-25 08:00:00	6.5	4.9	1924.4	4155.5	828.4	1193.6	-21.0	-3.1	-8.9
10-Apr-25 09:00:00	6.0	4.7	2144.8	4765.9	830.5	1158.4	-22.4	-3.1	-6.9
10-Apr-25 10:00:00	6.2	4.9	2208.3	4671.3	829.5	1147.8	-22.3	-3.0	-0.6
10-Apr-25 11:00:00	6.2	5.0	1897.4	4042.0	827.7	1161.1	-22.0	-3.0	-17.0
10-Apr-25 12:00:00	6.3	5.1	1893.8	4143.9	830.0	1179.9	-20.7	-3.1	-24.3
10-Apr-25 13:00:00	6.9	5.7	1977.5	4062.8	829.1	1236.2	-14.7	-3.0	-37.2
10-Apr-25 14:00:00	6.2	4.7	1812.3	3715.8	824.4	1040.4	-16.8	-3.2	-30.3
10-Apr-25 15:00:00	7.0	5.0	1455.1	2970.4	823.8	1248.7	-10.1	-3.0	-6.4
10-Apr-25 16:00:00	6.8	5.0	1415.1	3191.1	823.6	1297.8	-0.9	-2.9	-12.2
10-Apr-25 17:00:00	6.8	5.1	1521.7	3459.7	821.3	1317.1	0.0	-2.9	-9.5
10-Apr-25 18:00:00	7.0	5.6	1560.8	3174.2	819.1	1278.7	0.0	-3.1	-8.9
10-Apr-25 19:00:00	6.4	4.9	1862.9	4236.0	820.3	1279.3	0.0	-3.0	-30.3
10-Apr-25 20:00:00	5.9	4.7	1951.5	4665.6	822.4	1284.1	0.0	-3.0	-37.1
10-Apr-25 21:00:00	5.5	4.5	2453.5	5267.1	824.9	1251.5	0.0	-2.9	-35.2
10-Apr-25 22:00:00	5.8	5.3	2538.3	5095.3	820.6	1219.6	0.0	-3.2	-40.4
10-Apr-25 23:00:00	5.3	4.4	2731.8	5530.1	817.6	1200.7	0.0	-3.0	-39.0
11-Apr-25 00:00:00	5.3	4.6	2865.5	5190.5	812.5	1211.5	0.0	-2.9	-36.8
11-Apr-25 01:00:00	5.6	4.6	2396.5	5199.7	816.2	1228.7	-0.3	-3.0	-42.3
11-Apr-25 02:00:00	5.3	4.6	2507.6	5742.0	816.3	1188.0	-9.3	-3.1	-28.5
11-Apr-25 03:00:00	5.3	4.7	2762.9	5899.3	816.6	1161.3	-6.9	-3.0	-39.6
11-Apr-25 04:00:00	5.5	4.1	1932.8	4836.5	794.6	1034.2	-3.2	-3.2	-43.5
11-Apr-25 05:00:00	5.4	4.0	2073.7	5041.6	806.0	1232.5	-0.3	-3.0	-35.6
11-Apr-25 06:00:00	5.7	4.6	1964.2	4502.9	816.8	1233.7	-0.4	-3.1	-30.6
11-Apr-25 07:00:00	6.2	5.2	1750.2	3859.0	812.2	1229.9	-4.4	-2.9	-40.9
11-Apr-25 08:00:00	5.5	4.9	2407.0	5058.1	819.1	1109.4	-12.9	-3.1	-32.0
11-Apr-25 09:00:00	5.7	4.5	2042.4	4552.2	805.8	1105.0	-3.6	-3.0	-38.5

11-Apr-25 10:00:00	5.7	4.7	2027.9	4374.6	798.9	1211.0	-14.6	-3.1	-38.1
11-Apr-25 11:00:00	5.8	4.2	2259.8	4811.4	799.4	1205.8	-14.2	-3.0	-33.8
11-Apr-25 12:00:00	6.1	4.1	2240.1	4866.5	799.1	1238.3	-9.2	-3.1	-11.0
11-Apr-25 13:00:00	6.4	4.7	1990.1	4341.2	800.6	1255.1	-8.3	-3.1	-22.0
11-Apr-25 14:00:00	6.6	5.3	1620.6	3819.3	801.2	1112.2	-18.3	-3.1	-24.3
11-Apr-25 15:00:00	7.0	5.9	1588.4	3270.9	796.9	1223.6	-5.6	-3.1	-54.6
11-Apr-25 16:00:00	6.3	5.5	1712.2	4499.4	795.2	1200.5	-11.0	-3.1	-55.0
11-Apr-25 17:00:00	6.4	5.6	1666.8	3705.6	793.6	1236.3	-23.8	-3.1	-52.4
11-Apr-25 18:00:00	5.0	5.6	1573.1	2419.0	790.8	1237.4	-6.1	-3.1	-50.6
11-Apr-25 19:00:00	7.1	5.9	1527.2	2972.6	787.6	1254.2	-23.5	-3.1	-57.4
11-Apr-25 20:00:00	7.1	6.1	1480.2	2628.6	773.7	1203.0	-25.0	-3.1	-39.6
11-Apr-25 21:00:00	6.3	5.4	1569.7	3034.1	763.9	1264.8	-24.3	-3.0	-41.7
11-Apr-25 22:00:00	6.8	5.5	1597.8	3109.3	765.3	1321.2	-17.0	-2.8	-44.9
11-Apr-25 23:00:00	5.8	4.8	1916.3	3844.0	770.2	1133.7	-14.2	-3.2	-53.5

The facility's THC monitor was not working during the Source Testing however the Source Testing Report from RWDI Contained THC Data during the source testing period.

b. The CPM System specified in condition 10.2.a shall be designed, operated and maintained in accordance with an approved continuous monitoring plan, complete with specifications based on manufacturer's specifications and manuals. In this regard, the continuous monitoring plan shall be revised to assure proper calibration, maintenance and operation of the CPM System, in order to establish its performance on a continuous basis. The revised continuous monitoring plan shall be provided to the Manager for approval three (3) months prior to the implementation of the Alternative Low-Carbon Fuels operation at the Facility.

- The Facility submitted the CPM to the MECP on December 13, 2023.