St. Marys Cement Inc. (Canada)
Bowmanville Facility

Annual Compliance Report 2022
(ECA No. 0550-CEAHMA)

Site Location:

410 Bowmanville Avenue
Bowmanville, Ontario
L1C 7B5

April 2022

INTRODUCTION

This annual compliance report has been prepared by St. Marys Cement Inc. (Canada) (SMC) in accordance with Condition 16.1 of their Environmental Compliance Approval (ECA No.0550-CEAHMA, dated September 19, 2022) for their cement plant located at 410 Bowmanville Avenue in Bowmanville, Ontario (Bowmanville Facility) for the 2022 calendar year.

Condition 16.1 of the ECA states that:

Excerpt from the ECA

"The Company shall prepare and submit by June 30 of each year to the District Manager, an Annual Report summarizing the operation of the Facility, covering the previous calendar year. The Annual Report shall include, as a minimum, the following information:

- *a) a statement of whether the Facility was in compliance with this Approval, including compliance with the Performance Limits;*
- *b) the Emission Summary Table and Acoustic Assessment Summary Table for the Facility as of December 31 from the previous calendar year;*
- *c) clinker and cement production in tonnes per year;*
- *d) maximum daily feed rate and average daily feed rate of Alternative Low-Carbon Fuels and Conventional Fuels in the Cement Kiln for each month of the preceding calendar year, and the weight percentage of each category of Alternative Low-Carbon Fuels approved under Condition 7 of this Approval, of the total monthly Alternative Low-Carbon Fuel used.*
- *e) maximum and average percent thermal replacement of Conventional Fuels by combined Alternative Low-Carbon Fuels for each month;*
- *f) a summary of data from CEM System, CPM System, Source Testing and Carbon Dioxide Emission Intensity testing described under conditions 10.3(a) and (b), 11 and 12 of this Approval, and a description of the status of compliance with the Performance Limits, Alternative Low-Carbon Fuel definition under this Approval and Alternative Low-Carbon Fuels operational requirements described in Schedule E of this Approval;*
- *g) a summary of dates, duration and reasons for any operational events including but not limited to events described in condition 8.7 of this Approval that may have negatively impacted the quality of the environment and corrective measures taken to address these impacts;*
- *h) details of environmental complaints including a summary of complaints received, causes of complaints and action taken to avoid the recurrence of similar incidents, as described in condition 14 of this Approval."*

This report has been divided into eight separate sections (Sections A to H) to address Conditions 16.1 a) through h), respectively, as described above.

SECTION A

This Section addresses Condition 16.1a) of the ECA described as below:

"Statement of whether the Facility was in compliance with this Approval, including compliance with the Performance Limits."

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cement

St Marys Cement
410 Bowmanville Avenue, Bowmanville, Ontario L1C 7B5
Tel 905 623 3341, Fax 905 623 4695
votorantimcimentos.com
stmaryscement.com

April 5, 2023

Ministry of the Environment, Conservation and Parks
Director, Client Services and Permissions Branch
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

Re: Statement of Facility Operations within Performance Limits 2022
Environmental Compliance Approval with Limited Operational Flexibility
(ECA Number 0550-CEAHMA)

This is to confirm that St. Marys Cement Inc. (Canada)'s (St. Mary's) Bowmanville Cement Plant, located at 410 Bowmanville Avenue in Bowmanville, Ontario, during the 2022 Calendar Year, operated in material compliance with Section 9 of the Environmental Protection Act, and with the conditions of our Environmental Compliance Approval (ECA) with Limited Operational Flexibility (LOF), including the Performance Limits set forth in Condition 4 of the ECA.

Sincerely,

John Fahey
Environmental Manager,
Bowmanville Facility
St. Marys Cement / Votorantim Cimentos North America
905-623-3341 extension 248
John.Fahey@vcimentos.com

SECTION B

This Section addresses Condition 16.1b) of the ECA described as below:

"The Emission Summary Table and Acoustic Assessment Summary Table for the Facility as of December 31 from the previous calendar year".

St. Marys Cement Bowmanville Cement Plant

Table ES-1 Emission Summary Table
(as of December 31, 2022)

Contaminant Name	CAS #	Total Facility Emission Rate (g/s)	Air Dispersion Model(s) Used	Maximum POI Concentration ($\mu g/m^3$)	Averaging Period Emission Rate	Averaging Period POI Concentration	Ministry POI Limit ($\mu g/m^3$)	Limiting Effect	Regulation Schedule #	Percentage of Ministry POI Limit (%)
Particulate										
PM	PM	9.55E+00	CALPUFF/AERMOD	9.64E+01	24 hr	24 hr	120	Visibility	Standard	80.3%
RCS	14808-60-7	3.06E-01	AERMOD	4.11E+00	24 hr	24 hr	5	Health	Guideline	82.1%
Combustion Gases										
Nitrogen Oxides	10102-44-0	6.83E+01	CALPUFF/AERMOD	2.27E+02	1 hr	1 hr	400	Health	Standard	56.8%
Nitrogen Oxides	10102-44-0	5.73E+01	CALPUFF/AERMOD	1.68E+02	24 hr	24 hr	200	Health	Standard	83.9%
Sulphur Dioxide	7446-09-5	1.29E+01	CALPUFF/AERMOD	5.09E+01	1 hr	1 hr	100	Health	Standard (2023)	50.9%
Sulphur Dioxide	7446-09-5	-	CALPUFF/AERMOD	3.62E+00	Annual	Annual	10	Vegetation	Standard (2023)	36.2%
Sulphur Dioxide	7446-09-5	1.29E+01	CALPUFF/AERMOD	2.43E+01	24 hr	24 hr	275	Health & Vegetation	Standard	8.8%
Carbon Monoxide	630-08-0	1.70E+02	CALPUFF/AERMOD	3.74E+03	1 hr	0.5 hr	6000	Health	Standard	62.3%
Ammonia										
Ammonia	7664-41-7	6.94E+00	CALPUFF	9.63E+00	24 hr	24 hr	100	Health	Standard	9.6%
Hydrogen Chloride										
Hydrogen Chloride	7647-01-0	1.90E+00	CALPUFF	2.64E+00	24 hr	24 hr	20	Health	Standard	13.2%
Metals and Metal Oxides										
Aluminum Oxide	1344-28-1	1.47E-01	CALPUFF	2.03E-01	24 hr	24 hr	120	Particulate	Guideline	0.2%
Antimony	7440-36-0	8.58E-04	CALPUFF/AERMOD	1.55E-03	24 hr	24 hr	25	Health	Standard	<0.1%
Arsenic	7440-38-2	2.71E-04	CALPUFF/AERMOD	1.54E-03	24 hr	24 hr	0.3	Health	Guideline	0.5%
Barium	7440-39-3	4.84E-03	CALPUFF/AERMOD	4.49E-02	24 hr	24 hr	10	Health	Guideline	0.4%
Beryllium	7440-41-7	5.52E-05	CALPUFF/AERMOD	1.54E-04	24 hr	24 hr	0.01	Health	Standard	1.5%
Cadmium	7440-43-9	5.72E-05	CALPUFF/AERMOD	2.37E-04	24 hr	24 hr	0.025	Health	Standard	0.9%
Calcium Oxide	1305-78-8	9.69E-01	CALPUFF	1.34E+00	24 hr	24 hr	10	Corrosion	Standard	13.4%
Chromium	7440-47-3	3.60E-03	CALPUFF/AERMOD	1.19E-02	24 hr	24 hr	0.5	Health	Standard	2.4%
Cobalt	7440-48-4	3.74E-04	CALPUFF/AERMOD	3.25E-03	24 hr	24 hr	0.1	Health	Guideline	3.3%
Ferric Oxide	1309-37-1	7.49E-01	CALPUFF/AERMOD	5.85E+00	24 hr	24 hr	25	Soiling	Standard	23.4%
Lead	7439-92-1	1.89E-03	CALPUFF/AERMOD	3.03E-03	24 hr	30 day	0.2	Health	Standard	1.5%
Lead	7439-92-1	1.89E-03	CALPUFF/AERMOD	7.84E-03	24 hr	24 hr	0.5	Health	Standard	1.6%
Manganese	7439-96-5	3.31E-02	CALPUFF/AERMOD	1.65E-01	24 hr	24 hr	0.4	Health	Standard	41.2%
Mercury	7439-97-6	7.67E-04	CALPUFF/AERMOD	1.40E-03	24 hr	24 hr	2	Health	Standard	<0.1%
Nickel	7440-02-0	5.91E-03	CALPUFF/AERMOD	9.06E-03	Annual	Annual	0.04	Health	Standard	22.6%
Nickel	7440-02-0	5.91E-03	CALPUFF/AERMOD	9.06E-03	24 hr	Annual	0.4	Health	AAV	2.3%
Nickel	7440-02-0	5.91E-03	CALPUFF/AERMOD	7.05E-02	24 hr	24 hr	2	Health	URT/DAV	3.5%
Phosphorus	7723-14-0	2.56E-02	CALPUFF	3.55E-02	24 hr	24 hr	0.5	Health	SL-MD	7.1%
Potassium	7440-09-7	1.07E-01	CALPUFF	1.48E-01	24 hr	24 hr	1	Health	SL-JSL	14.8%
Selenium	7782-49-2	5.93E-04	CALPUFF/AERMOD	1.31E-03	24 hr	24 hr	10	Health	Guideline	<0.1%
Silver	7440-22-4	4.00E-04	CALPUFF/AERMOD	1.11E-03	24 hr	24 hr	1	Health	Standard	0.1%
Tin	7440-31-5	1.25E-02	CALPUFF/AERMOD	2.04E-02	24 hr	24 hr	10	Health	Standard	0.2%
Vanadium	7440-62-2	7.07E-04	CALPUFF/AERMOD	1.08E-02	24 hr	24 hr	2	Health	Standard	0.5%
Volatile Organic Matter										
Acrolein	107-02-8	1.90E-02	CALPUFF	2.64E-02	24 hr	24 hr	0.4	Health	Standard	6.6%
Acrolein	107-02-8	1.90E-02	CALPUFF	7.48E-02	1 hr	1 hr	4.5	Health	Standard	1.7%
Benzene	71-43-2	3.56E-01	CALPUFF	6.89E-02	Annual	Annual	0.45	Health	Standard	15.3%
Benzene	71-43-2	3.56E-01	CALPUFF	6.89E-02	24 hr	Annual	4.5	Health	AAV	1.5%
Benzene	71-43-2	3.56E-01	CALPUFF	4.94E-01	24 hr	24 hr	100	Health	URT/DAV	0.5%
1,3-Butadiene	106-99-0	6.73E-02	CALPUFF	1.30E-02	Annual	Annual	2	Health	Standard	0.7%
1,3-Butadiene	106-99-0	6.73E-02	AERMOD	1.30E-02	24 hr	Annual	20	Health	AAV	<0.1%
1,3-Butadiene	106-99-0	6.73E-02	AERMOD	9.34E-02	24 hr	24 hr	300	Health	URT/DAV	<0.1%
Dibromochloromethane	124-48-1	1.55E-02	CALPUFF	2.15E-02	24 hr	24 hr	0.2	Health	SL-JSL	10.7%
Ethylbenzene	100-41-4	5.37E-02	CALPUFF	3.49E-01	1 hr	10 min	1900	Odour	Guideline	<0.1%
Mesitylene	108-67-8	2.02E-01	CALPUFF	2.80E-01	24 hr	24 hr	220	Health	Standard	0.1%
1,1,2,2-Tetrachloroethane	79-34-5	2.41E-04	CALPUFF	3.34E-04	24 hr	24 hr	0.1	Health	SL-JSL	0.3%
1,1,2-Trichloroethane	79-00-5	2.77E-04	CALPUFF	3.84E-04	24 hr	24 hr	0.3	Health	SL-JSL	0.1%
Vinyl Chloride	75-01-4	1.64E-02	CALPUFF	2.27E-02	24 hr	24 hr	1	Health	Standard	2.3%
Xylene	1330-20-7	2.58E-01	CALPUFF	1.44E+00	24 hr	10 min	3000	Odour	Guideline	<0.1%
Dioxins, Furans and Dioxin-like PCBs										
Dioxins, Furans and Dioxin-like PCBs	CDD	3.80E-09	CALPUFF	5.27E-09	24 hr	24 hr	1E-07	Health	Standard	5.3%
Polycyclic Aromatic Hydrocarbons (PAHs)										
Benzo(a)pyrene	50-32-8	2.54E-05	CALPUFF	4.92E-06	Annual	Annual	0.00001	Health	Standard	49.2%
Benzo(a)pyrene	50-32-8	2.54E-05	CALPUFF	4.92E-06	24 hr	Annual	0.0001	Health	AAV	4.9%
Benzo(a)pyrene	50-32-8	2.54E-05	CALPUFF	3.52E-05	24 hr	24 hr	0.005	Health	URT/DAV	0.7%
Biphenyl	92-52-4	1.57E-02	CALPUFF	6.16E-02	1 hr	1 hr	60	Odour	Guideline	0.1%
2-Chloronaphthalene	91-58-7	1.19E-03	CALPUFF	1.64E-03	24 hr	24 hr	1	Health	SL-JSL	0.2%
1-Methylnaphthalene	90-12-0	4.64E-02	CALPUFF	6.44E-02	24 hr	24 hr	35.5	Health	SL-JSL	0.2%
Naphthalene	91-20-3	8.94E-02	CALPUFF	4.99E-01	24 hr	10 min	50	Odour	Guideline	1.0%
Naphthalene	91-20-3	8.94E-02	CALPUFF	1.24E-01	24 hr	24 hr	22.5	Health	Guideline	0.6%

JSL - Jurisdictional Screening Level; URT - Upper Risk Threshold; AAV - Annual Assessment Values; DAV - Daily Assessment Values

St. Marys Cement Bowmanville Cement Plan Acoustic Assessment Summary Tables

As of December 31, 2022

Table 1: Acoustic Assessment Summary Table, Non-Emergency Equipment

Point of Reception	Point of Reception Description	Sound Level at Point of Reception, L_{EQ} [dBA]	Performance Limit, L_{EQ} [dBA]	Compliance with Performance Limit	Acoustical Classification Area	Verified by Acoustic Audit
R1	Two storey home approx. 1450 m southeast of cement plant	42	45	Yes	Class 2	No
R3	Non-conforming single storey home approx. 350 m north of cement plant	50	50	Yes	Class 1	No
VL1	Vacant residential lot approx. 1490 m southeast of cement plant	41	45	Yes	Class 2	No

Table 2: Acoustic Assessment Summary Table, Emergency Equipment

Point of Reception	Point of Reception Description	Sound Level at Point of Reception, L_{EQ} [dBA]	Performance Limit, L_{EQ} [dBA]	Compliance with Performance Limit	Acoustical Classification Area	Verified by Acoustic Audit
R1	Two storey home approx. 1450 m southeast of cement plant	16	50	Yes	Class 2	No
R3	Non-conforming single storey home approx. 350 m north of cement plant	31	55	Yes	Class 1	No
VL1	Vacant residential lot approx. 1490 m southeast of cement plant	21	50	Yes	Class 2	No

SECTION C

This Section addresses Condition 16.1c) of the ECA described as below:

“Clinker and cement production in tonnes per year”.

SECTION D

This Section addresses Condition 16.1d) of the ECA described as below:

"Maximum daily feed rate and average daily feed rate of Alternative Low-Carbon Fuels and Conventional Fuels in the Cement Kiln for each month of the preceding calendar year, and the weight percentage of each category of Alternative Low-Carbon Fuels approved under Condition 7 of this Approval, of the total monthly Alternative Low-Carbon Fuel used."

Annual Report Condition 16.1d

	Condition 7 ALCFs Weight Percentage of Total ALCF for Month							
					Conventional Fuel		ALCF	
2022 Month	a. Material that is biomass fuel derived from harvested plant and forest sources, end of life agricultural sources, Woodwaste or Agricultural Waste, and includes but is not limited to sawdust, wood chips, wood, miscanthus grass, millet, sorghum, hemp, switch grass, and maize	b. Material that is comprised of non-recyclable plastics, including but not limited to manufacturing rejects, material resource recovery facility rejects, plastics bags and packaging	c. Material that is comprised of construction, renovation & demolition waste, including but not limited to scrap wood, treated lumber, carpets, textiles, sawdust, floor laminates and asphalt shingles	d. Material that is comprised of non-recyclable paper fiber/wood/plastic composites, including but not limited to single-serve coffee pods, printed papers, paper towels, rejects and trimmings from paper recycling facilities such as Ragger Tails, end rolls and cores.	Maximum Daily Feed Rate (tonnes)	Average Daily Feed Rate (tonnes)	Maximum Daily Feed Rate (tonnes)	Average Daily Feed Rate (tonnes)
Jan	82%	18%	0%	0%	649	232	151	26
Feb	74%	26%	0%	0%	582	228	228	47
Mar	95%	5%	0%	0%	802	404	208	47
Apr	92%	8%	0%	0%	656	407	318	111
May	96%	4%	0%	0%	679	381	266	132
Jun	93%	7%	0%	0%	536	304	246	102
Jul	94%	6%	0%	0%	935	504	275	150
Aug	94%	6%	0%	0%	1353	408	304	153
Sep	88%	12%	0%	0%	1374	476	292	111
Oct	81%	19%	0%	0%	496	230	198	62
Nov	90%	10%	0%	0%	783	447	258	157
Dec	98%	2%	0%	0%	773	441	237	98

SECTION E

This Section addresses Condition 16.1e) of the ECA described as below:

“Maximum and average percent thermal replacement of Conventional Fuels by combined Alternative Low-Carbon Fuels for each month.”

Annual Report Condition 16.1e

Thermal Replacement of Conventional e. Fuels by Combined Alternative Low-Carbon Fuels (%)												
2022	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Avg. %	2.1%	5.6%	4.8%	10.8%	16.6%	11.5%	15.0%	17.3%	11.3%	7.5%	15.4%	9.3%
Max. %	13.5%	18.1%	20.8%	29.3%	40.2%	25.7%	25.7%	30.1%	27.2%	22.7%	25.8%	22.2%
Min. %	0%	0%	0%	0%	0%	0%	5.0%	0%	0%	0%	3.7%	0%

SECTION F

This Section addresses Condition 16.1f) of the ECA described as below:

"A summary of data from CEM System, CPM System, Source Testing and Carbon Dioxide Emission Intensity testing described under conditions 10.3(a) and (b), 11 and 12 of this Approval, and a description of the status of compliance with the Performance Limits, Alternative Low-Carbon Fuel definition under this Approval and Alternative Low-Carbon Fuels operational requirements described in Schedule E of this Approval."

St. Mary's Bowmanville Cement Plant, located at 410 Bowmanville Avenue in Bowmanville, Ontario (Facility), during the 2022 Calendar Year, operated in material compliance with the Performance Limits and complied with the Alternative Low-Carbon Fuel definitions under the Environmental Compliance Approval 0550-CEAHMA, dated September 19, 2022 (ECA) and ALCF operational requirements described in Schedule E of this ECA.

A summary of data from CEM System, CPM System, Source Testing and Carbon Dioxide Emission Intensity testing described under conditions 10.3(a) and (b), 11 and 12 of the ECA is enclosed.

CEM Data Summary

Annual Report Condition 16.1F - Summary of CEM Data

2022	TPM @ 11% O_2, Daily				NOx, Daily				SO_2, Daily			
	Average	Minimum	Maximum	Availabilty	Average	Minimum	Maximum	Availabilty	Average	Minimum	Maximum	Availabilty
	mg/Nm³			%	ppmv			%	ppmv			%
January	24	12	48	100	124	0	245	100	142	0	334	100
February	21	18	25	100	221	149	310	100	148	13	302	100
March	29	15	43	100	178	1	251	100	289	0	570	100
April	29	15	46	100	227	2	436	100	269	0	528	100
May	22	14	33	100	191	1	399	100	375	0	547	100
June	26	17	35	100	184	3	371	100	384	1	587	100
July	27	20	35	100	169	103	246	100	471	299	596	100
August	31	17	81	100	189	18	358	100	389	23	579	100
September	26	18	35	100	181	46	274	100	476	118	590	100
October	30	16	43	100	158	14	302	100	350	25	541	100
November	30	23	37	100	194	139	310	100	412	204	566	100
Decemeber	43	25	78	100	137	38	213	100	326	124	450	100

CPM Data Summary

Annual Report Condition 16.1F - Summary of CPM Data

2022	Residual O2, Backend of Kiln				Residual O2, Calciner Downcomer Duct				CO, Backend of Kiln				CO, Calciner Downcomer Duct			
	Average	Minimum	Maximum	Availabilty	Average	Minimum	Maximum	Availabilty	Average	Minimum	Maximum	Availabilty	Average	Minimum	Maximum	Availabilty
	ppm			%	ppm			%	ppm			%	ppm			%
January	13	3	22	100	4	3	4	100	2.80E-05	2.00E-05	2.90E-05	100	739	535	1007	100
February	13	6	21	100	4	3	5	100	2.90E-05	2.90E-05	2.90E-05	100	597	542	737	100
March	10	5	20	100	5	4	9	100	5.25E-03	2.00E-05	4.14E-02	100	696	357	1116	100
April	10	5	22	100	3	3	5	100	8.01E-03	8.89E-04	4.05E-02	100	766	481	1594	100
May	9	4	21	100	4	3	6	100	1.41E-02	2.25E-03	6.36E-02	100	672	506	1090	100
June	7	2	17	100	4	3	6	100	2.00E-02	3.53E-03	1.25E-01	100	556	468	860	100
July	7	1	12	100	4	3	6	100	2.68E-02	4.90E-05	2.30E-01	100	619	455	937	100
August	10	0	22	100	4	3	8	100	4.80E-05	2.90E-05	4.90E-05	100	625	448	838	100
September	7	2	17	100	4	3	6	100	2.90E-05	2.90E-05	2.90E-05	100	659	529	1058	100
October	10	4	21	100	5	2	7	100	2.90E-05	2.90E-05	2.90E-05	100	551	1	743	100
November	7	3	12	100	4	3	6	100	2.90E-05	2.90E-05	2.90E-05	100	738	549	1125	100
Decemeber	8	3	21	100	6	3	19	100	2.90E-05	2.90E-05	2.90E-05	100	701	45	1330	100

2022	Temperature, K5				Temperature, C5				THC			
	Average	Minimum	Maximum	Availabilty	Average	Minimum	Maximum	Availabilty	Average	Minimum	Maximum	Availabilty
	◦C			%	◦C			%	ppm			%
January	692	151	823	100	894	890	895	100	73	0	138	100
February	799	693	825	100	894	892	895	100	92	31	130	100
March	775	180	833	100	895	891	895	100	108	8	171	100
April	768	144	823	100	895	895	896	100	107	3	149	100
May	766	175	831	100	895	892	896	100	110	1	168	100
June	763	242	828	100	895	888	896	100	99	7	149	100
July	811	771	822	100	894	891	896	100	121	56	146	100
August	780	520	821	100	894	887	896	100	97	3	132	100
September	812	741	827	100	892	887	895	100	127	10	174	100
October	754	381	831	100	893	885	896	100	104	4	150	100
November	820	800	831	100	895	893	896	100	129	40	151	100
Decemeber	814	707	832	100	894	892	895	100	112	30	144	100

Annual Report Condition 16.1F - Raw Mill, Fuel Mill and Kiln Operating Status

Date	Raw mill status	Coal mill status	Kiln process
2022-01-01	Operating	Operating	Operating
2022-01-02	Operating	Operating	Down
2022-01-03	Down	Down	Down
2022-01-04	Down	Down	Down
2022-01-05	Down	Down	Down
2022-01-06	Down	Down	Down
2022-01-07	Operating	Operating	Operating
2022-01-08	Operating	Operating	Operating
2022-01-09	Operating	Operating	Operating
2022-01-10	Operating	Operating	Operating
2022-01-11	Operating	Operating	Operating
2022-01-12	Operating	Operating	Operating
2022-01-13	Operating	Operating	Operating
2022-01-14	Operating	Operating	Operating
2022-01-15	Operating	Operating	Operating
2022-01-16	Operating	Operating	Down
2022-01-17	Down	Down	Down
2022-01-18	Down	Down	Down
2022-01-19	Down	Down	Down
2022-01-20	Down	Down	Down
2022-01-21	Down	Down	Down
2022-01-22	Down	Down	Down
2022-01-23	Down	Down	Down
2022-01-24	Down	Down	Down
2022-01-25	Down	Down	Down
2022-01-26	Down	Down	Operating
2022-01-27	Operating	Operating	Operating
2022-01-28	Operating	Operating	Operating
2022-01-29	Operating	Operating	Operating
2022-01-30	Operating	Operating	Operating
2022-01-31	Operating	Operating	Operating

Annual Report Condition 16.1F - Raw Mill, Fuel Mill and Kiln Operating Status

Date	Raw mill status	Coal mill status	Kiln process
2022-02-01	Operating	Operating	Operating
2022-02-02	Operating	Operating	Operating
2022-02-03	Operating	Operating	Operating
2022-02-04	Operating	Operating	Operating
2022-02-05	Operating	Operating	Operating
2022-02-06	Operating	Operating	Operating
2022-02-07	Operating	Operating	Operating
2022-02-08	Operating	Operating	Operating
2022-02-09	Operating	Operating	Down
2022-02-10	Operating	Operating	Operating
2022-02-11	Operating	Operating	Operating
2022-02-12	Operating	Operating	Operating
2022-02-13	Operating	Operating	Down
2022-02-14	Operating	Operating	Down
2022-02-15	Operating	Operating	Down
2022-02-16	Down	Down	Down
2022-02-17	Down	Down	Down
2022-02-18	Down	Down	Down
2022-02-19	Down	Down	Down
2022-02-20	Down	Down	Down
2022-02-21	Down	Down	Down
2022-02-22	Down	Down	Down
2022-02-23	Down	Down	Down
2022-02-24	Down	Down	Down
2022-02-25	Down	Down	Down
2022-02-26	Down	Down	Down
2022-02-27	Down	Down	Down
2022-02-28	Down	Down	Down

Annual Report Condition 16.1F - Raw Mill, Fuel Mill and Kiln Operating Status

Date	Raw mill status	Coal mill status	Kiln process
2022-03-01	Down	Down	Down
2022-03-02	Operating	Operating	Down
2022-03-03	Operating	Operating	Operating
2022-03-04	Operating	Operating	Operating
2022-03-05	Operating	Operating	Down
2022-03-06	Operating	Operating	Down
2022-03-07	Operating	Operating	Operating
2022-03-08	Down	Operating	Operating
2022-03-09	Operating	Operating	Operating
2022-03-10	Operating	Operating	Operating
2022-03-11	Operating	Operating	Operating
2022-03-12	Operating	Operating	Operating
2022-03-13	Operating	Operating	Operating
2022-03-14	Operating	Operating	Operating
2022-03-15	Operating	Operating	Operating
2022-03-16	Operating	Operating	Operating
2022-03-17	Operating	Operating	Operating
2022-03-18	Operating	Operating	Operating
2022-03-19	Operating	Operating	Operating
2022-03-20	Operating	Operating	Operating
2022-03-21	Operating	Operating	Operating
2022-03-22	Down	Operating	Operating
2022-03-23	Operating	Operating	Operating
2022-03-24	Operating	Operating	Operating
2022-03-25	Operating	Operating	Operating
2022-03-26	Operating	Operating	Operating
2022-03-27	Operating	Operating	Operating
2022-03-28	Operating	Operating	Operating
2022-03-29	Operating	Operating	Operating
2022-03-30	Operating	Operating	Operating
2022-03-31	Operating	Operating	Operating

Annual Report Condition 16.1F - Raw Mill, Fuel Mill and Kiln Operating Status

Date	Raw mill status	Coal mill status	Kiln process
2022-04-01	Operating	Operating	Operating
2022-04-02	Operating	Operating	Operating
2022-04-03	Operating	Operating	Operating
2022-04-04	Operating	Operating	Operating
2022-04-05	Operating	Operating	Down
2022-04-06	Operating	Down	Down
2022-04-07	Down	Down	Down
2022-04-08	Down	Down	Down
2022-04-09	Down	Operating	Down
2022-04-10	Operating	Operating	Operating
2022-04-11	Operating	Operating	Operating
2022-04-12	Operating	Operating	Operating
2022-04-13	Operating	Operating	Operating
2022-04-14	Operating	Operating	Operating
2022-04-15	Operating	Operating	Operating
2022-04-16	Operating	Operating	Operating
2022-04-17	Operating	Operating	Operating
2022-04-18	Operating	Operating	Operating
2022-04-19	Down	Operating	Operating
2022-04-20	Down	Operating	Operating
2022-04-21	Operating	Operating	Operating
2022-04-22	Operating	Operating	Operating
2022-04-23	Operating	Operating	Operating
2022-04-24	Operating	Operating	Operating
2022-04-25	Operating	Operating	Operating
2022-04-26	Operating	Operating	Operating
2022-04-27	Operating	Operating	Operating
2022-04-28	Operating	Operating	Operating
2022-04-29	Operating	Operating	Operating
2022-04-30	Operating	Operating	Operating

Annual Report Condition 16.1F - Raw Mill, Fuel Mill and Kiln Operating Status

Date	Raw mill status	Coal mill status	Kiln process
2022-05-01	Operating	Operating	Operating
2022-05-02	Operating	Operating	Operating
2022-05-03	Operating	Operating	Operating
2022-05-04	Operating	Operating	Operating
2022-05-05	Operating	Operating	Operating
2022-05-06	Operating	Operating	Operating
2022-05-07	Operating	Operating	Operating
2022-05-08	Operating	Operating	Operating
2022-05-09	Operating	Operating	Operating
2022-05-10	Operating	Operating	Operating
2022-05-11	Operating	Operating	Operating
2022-05-12	Down	Operating	Operating
2022-05-13	Operating	Operating	Operating
2022-05-14	Operating	Operating	Operating
2022-05-15	Operating	Operating	Operating
2022-05-16	Operating	Operating	Operating
2022-05-17	Operating	Operating	Operating
2022-05-18	Operating	Operating	Operating
2022-05-19	Operating	Operating	Operating
2022-05-20	Operating	Operating	Operating
2022-05-21	Operating	Operating	Down
2022-05-22	Down	Down	Down
2022-05-23	Down	Down	Down
2022-05-24	Operating	Operating	Operating
2022-05-25	Operating	Operating	Operating
2022-05-26	Operating	Operating	Operating
2022-05-27	Operating	Operating	Operating
2022-05-28	Operating	Operating	Down
2022-05-29	Down	Down	Down
2022-05-30	Down	Down	Down
2022-05-31	Down	Down	Down

Annual Report Condition 16.1F - Raw Mill, Fuel Mill and Kiln Operating Status

Date	Raw mill status	Coal mill status	Kiln process
2022-06-01	Down	Down	Down
2022-06-02	Down	Down	Down
2022-06-03	Down	Down	Down
2022-06-04	Down	Down	Down
2022-06-05	Down	Operating	Operating
2022-06-06	Operating	Operating	Operating
2022-06-07	Operating	Operating	Operating
2022-06-08	Operating	Operating	Operating
2022-06-09	Operating	Operating	Operating
2022-06-10	Operating	Operating	Operating
2022-06-11	Operating	Operating	Operating
2022-06-12	Operating	Operating	Operating
2022-06-13	Operating	Operating	Operating
2022-06-14	Operating	Operating	Operating
2022-06-15	Operating	Operating	Operating
2022-06-16	Operating	Operating	Down
2022-06-17	Down	Down	Down
2022-06-18	Operating	Operating	Operating
2022-06-19	Operating	Operating	Operating
2022-06-20	Operating	Operating	Operating
2022-06-21	Operating	Operating	Operating
2022-06-22	Operating	Operating	Operating
2022-06-23	Operating	Operating	Operating
2022-06-24	Operating	Operating	Operating
2022-06-25	Operating	Operating	Operating
2022-06-26	Operating	Operating	Operating
2022-06-27	Operating	Operating	Operating
2022-06-28	Operating	Operating	Operating
2022-06-29	Operating	Operating	Operating
2022-06-30	Operating	Operating	Operating

Annual Report Condition 16.1F - Raw Mill, Fuel Mill and Kiln Operating Status

Date	Raw mill status	Coal mill status	Kiln process
2022-07-01	Operating	Operating	Operating
2022-07-02	Operating	Operating	Operating
2022-07-03	Operating	Operating	Operating
2022-07-04	Operating	Operating	Operating
2022-07-05	Operating	Operating	Operating
2022-07-06	Operating	Operating	Operating
2022-07-07	Operating	Operating	Operating
2022-07-08	Operating	Operating	Operating
2022-07-09	Operating	Operating	Operating
2022-07-10	Operating	Operating	Operating
2022-07-11	Operating	Operating	Operating
2022-07-12	Operating	Operating	Operating
2022-07-13	Operating	Operating	Operating
2022-07-14	Operating	Operating	Operating
2022-07-15	Operating	Operating	Operating
2022-07-16	Operating	Operating	Operating
2022-07-17	Operating	Operating	Operating
2022-07-18	Operating	Operating	Operating
2022-07-19	Operating	Operating	Operating
2022-07-20	Operating	Operating	Operating
2022-07-21	Operating	Operating	Operating
2022-07-22	Operating	Operating	Operating
2022-07-23	Operating	Operating	Operating
2022-07-24	Operating	Operating	Operating
2022-07-25	Operating	Operating	Down
2022-07-26	Operating	Operating	Operating
2022-07-27	Operating	Operating	Operating
2022-07-28	Operating	Operating	Operating
2022-07-29	Operating	Operating	Operating
2022-07-30	Operating	Operating	Operating
2022-07-31	Operating	Operating	Operating

Annual Report Condition 16.1F - Raw Mill, Fuel Mill and Kiln Operating Status

Date	Raw mill status	Coal mill status	Kiln process
2022-08-01	Operating	Operating	Operating
2022-08-02	Operating	Operating	Operating
2022-08-03	Operating	Operating	Down
2022-08-04	Operating	Operating	Operating
2022-08-05	Operating	Operating	Operating
2022-08-06	Operating	Operating	Operating
2022-08-07	Operating	Operating	Operating
2022-08-08	Operating	Operating	Operating
2022-08-09	Operating	Operating	Operating
2022-08-10	Operating	Operating	Operating
2022-08-11	Down	Down	Operating
2022-08-12	Operating	Operating	Operating
2022-08-13	Operating	Operating	Operating
2022-08-14	Operating	Operating	Operating
2022-08-15	Operating	Operating	Operating
2022-08-16	Operating	Operating	Operating
2022-08-17	Operating	Operating	Operating
2022-08-18	Operating	Operating	Operating
2022-08-19	Operating	Operating	Operating
2022-08-20	Operating	Operating	Operating
2022-08-21	Operating	Operating	Operating
2022-08-22	Operating	Operating	Operating
2022-08-23	Operating	Operating	Down
2022-08-24	Operating	Operating	Operating
2022-08-25	Operating	Operating	Operating
2022-08-26	Operating	Operating	Operating
2022-08-27	Operating	Operating	Operating
2022-08-28	Operating	Operating	Operating
2022-08-29	Operating	Operating	Operating
2022-08-30	Operating	Operating	Down
2022-08-31	Operating	Operating	Operating

Annual Report Condition 16.1F - Raw Mill, Fuel Mill and Kiln Operating Status

Date	Raw mill status	Coal mill status	Kiln process
2022-09-01	Operating	Operating	Operating
2022-09-02	Operating	Operating	Operating
2022-09-03	Operating	Operating	Operating
2022-09-04	Operating	Operating	Operating
2022-09-05	Operating	Operating	Operating
2022-09-06	Operating	Operating	Operating
2022-09-07	Operating	Operating	Operating
2022-09-08	Operating	Operating	Operating
2022-09-09	Operating	Operating	Operating
2022-09-10	Operating	Operating	Operating
2022-09-11	Operating	Operating	Operating
2022-09-12	Operating	Operating	Operating
2022-09-13	Operating	Operating	Operating
2022-09-14	Operating	Operating	Operating
2022-09-15	Operating	Operating	Operating
2022-09-16	Operating	Operating	Operating
2022-09-17	Operating	Operating	Operating
2022-09-18	Operating	Operating	Operating
2022-09-19	Operating	Operating	Operating
2022-09-20	Operating	Operating	Operating
2022-09-21	Operating	Operating	Operating
2022-09-22	Down	Operating	Operating
2022-09-23	Operating	Operating	Operating
2022-09-24	Operating	Operating	Operating
2022-09-25	Operating	Operating	Operating
2022-09-26	Operating	Operating	Operating
2022-09-27	Operating	Operating	Operating
2022-09-28	Operating	Operating	Operating
2022-09-29	Operating	Operating	Operating
2022-09-30	Operating	Operating	Operating

Annual Report Condition 16.1F - Raw Mill, Fuel Mill and Kiln Operating Status

Date	Raw mill status	Coal mill status	Kiln process
2022-10-01	Operating	Operating	Operating
2022-10-02	Operating	Operating	Operating
2022-10-03	Operating	Operating	Operating
2022-10-04	Operating	Operating	Operating
2022-10-05	Operating	Operating	Operating
2022-10-06	Operating	Operating	Operating
2022-10-07	Operating	Operating	Operating
2022-10-08	Operating	Operating	Operating
2022-10-09	Operating	Operating	Operating
2022-10-10	Operating	Operating	Operating
2022-10-11	Operating	Operating	Operating
2022-10-12	Operating	Operating	Operating
2022-10-13	Operating	Operating	Down
2022-10-14	Down	Down	Down
2022-10-15	Down	Down	Down
2022-10-16	Down	Down	Down
2022-10-17	Down	Down	Down
2022-10-18	Down	Down	Down
2022-10-19	Down	Down	Down
2022-10-20	Down	Down	Down
2022-10-21	Down	Operating	Down
2022-10-22	Down	Down	Down
2022-10-23	Down	Down	Down
2022-10-24	Operating	Operating	Operating
2022-10-25	Operating	Operating	Operating
2022-10-26	Down	Operating	Down
2022-10-27	Down	Down	Operating
2022-10-28	Operating	Operating	Operating
2022-10-29	Operating	Operating	Operating
2022-10-30	Operating	Operating	Operating
2022-10-31	Operating	Operating	Operating

Annual Report Condition 16.1F - Raw Mill, Fuel Mill and Kiln Operating Status

Date	Raw mill status	Coal mill status	Kiln process
2022-11-01	Operating	Operating	Operating
2022-11-02	Operating	Operating	Operating
2022-11-03	Operating	Operating	Operating
2022-11-04	Operating	Operating	Operating
2022-11-05	Operating	Operating	Operating
2022-11-06	Operating	Operating	Operating
2022-11-07	Operating	Operating	Operating
2022-11-08	Operating	Operating	Operating
2022-11-09	Operating	Operating	Operating
2022-11-10	Operating	Operating	Operating
2022-11-11	Operating	Operating	Operating
2022-11-12	Operating	Operating	Operating
2022-11-13	Operating	Operating	Operating
2022-11-14	Operating	Operating	Operating
2022-11-15	Operating	Operating	Operating
2022-11-16	Operating	Operating	Down
2022-11-17	Operating	Operating	Operating
2022-11-18	Operating	Operating	Operating
2022-11-19	Operating	Operating	Operating
2022-11-20	Operating	Operating	Operating
2022-11-21	Operating	Operating	Operating
2022-11-22	Operating	Operating	Operating
2022-11-23	Operating	Operating	Operating
2022-11-24	Operating	Operating	Operating
2022-11-25	Operating	Operating	Operating
2022-11-26	Operating	Operating	Operating
2022-11-27	Operating	Operating	Operating
2022-11-28	Operating	Operating	Operating
2022-11-29	Operating	Operating	Operating
2022-11-30	Operating	Operating	Operating

Annual Report Condition 16.1F - Raw Mill, Fuel Mill and Kiln Operating Status

Date	Raw mill status	Coal mill status	Kiln process
2022-12-01	Operating	Operating	Operating
2022-12-02	Operating	Operating	Operating
2022-12-03	Operating	Operating	Operating
2022-12-04	Operating	Operating	Operating
2022-12-05	Operating	Operating	Operating
2022-12-06	Operating	Operating	Operating
2022-12-07	Operating	Operating	Operating
2022-12-08	Operating	Operating	Operating
2022-12-09	Operating	Operating	Operating
2022-12-10	Operating	Operating	Operating
2022-12-11	Operating	Operating	Down
2022-12-12	Operating	Operating	Operating
2022-12-13	Operating	Operating	Operating
2022-12-14	Operating	Operating	Operating
2022-12-15	Operating	Operating	Operating
2022-12-16	Operating	Operating	Operating
2022-12-17	Operating	Operating	Operating
2022-12-18	Operating	Operating	Operating
2022-12-19	Operating	Operating	Operating
2022-12-20	Operating	Operating	Operating
2022-12-21	Operating	Operating	Down
2022-12-22	Operating	Operating	Operating
2022-12-23	Operating	Operating	Operating
2022-12-24	Operating	Operating	Operating
2022-12-25	Operating	Operating	Operating
2022-12-26	Operating	Operating	Operating
2022-12-27	Operating	Operating	Operating
2022-12-28	Operating	Operating	Operating
2022-12-29	Operating	Operating	Operating
2022-12-30	Operating	Operating	Operating
2022-12-31	Operating	Operating	Operating

Compliance Source Testing Data Summary

REPORT

ST MARYS CEMENT INC. (CANADA)

BOWMANVILLE, ONTARIO

COMPLIANCE SOURCE TESTING PROGRAM ECA #6729-BYRJEP

RWDI #2102462

June 28, 2022

SUBMITTED TO

Ministry of the Environment, and Climate Change
Technology Standards Section
6th Floor
40 St. Claire Ave W.
Toronto, Ontario M4V 1M2
source.testing@ontario.ca

CC:

St. Marys Cement Inc.
John Fahey
Environmental Manager
John.Fahey@vcimentos.com

SUBMITTED BY

Kirk East, d.E.T., QSTI.
Senior Project Manager | Principal
Kirk.Easto@rwdi.com

RWDI AIR Inc.
Consulting Engineers & Scientists
600 Southgate Drive
Guelph, Ontario N1G 4P6

T: 519.823.1311
F: 519.823.1316

CANADA'S BEST MANAGED COMPANIES Platinum member

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Table 3: Sampling Summary - Flow Characteristics

Main Stack

Stack Gas Parameter		Test No. 1			Test No. 2			Test No. 3			TOTAL AVERAGE
		Metals	D and F [1]	Average	Metals	D and F [1]	Average	Metals	D and F [1]	Average	Average
Testing Date		30-Nov-21/1-Dec-21			2-Dec-21			9-Dec-21			-
Stack Temperature	°F	117	115	116	118	116	117	113	112	113	**115**
	°C	47	46	47	48	47	47	45	44	45	**46**
Moisture	%	11.6	11.3	11.5	10.8	11.8	11.3	10.6	10.3	10.4	**11.1**
Velocity	ft/s	52.5	58.7	55.6	53.7	57.7	55.7	52.1	59.0	55.6	**55.6**
	m/s	16.0	17.9	16.9	16.4	17.6	17.0	15.9	18.0	16.9	**16.9**
Actual Flow Rate	CFM	800,986	896,046	848,516	819,313	881,107	850,210	795,982	900,721	848,351	**849,026**
Referenced Flow Rate[2]	CFM	649,596	726,834	688,215	655,831	698,726	677,278	659,958	751,277	705,617	**690,370**
	m^3/s	307	343	325	309	330	320	311	354	333	**326**
Sampling Isokinetic Rate	%	101	101	101	100	102	101	100	101	101	**101**

Notes *:*

[1] D and F = Dioxins, Furans, and Dioxin-like PCBs

[2] Referenced flow rate expressed as dry at 101.3 kPa, 25°C, and Actual Oxygen

Detailed sampling results including individual test results can be found in Appendix A and B

Table 4: PM, Metals and Mercury[1] - Averaged Results

Main Stack

Parameter	Concentration [2]	Concentration @ 11% O_2 [3]	Emission Rate
Particulate	**(mg/m^3)**	**(mg/m^3)**	**(mg/s)**
Particulate Matter	9.89	15.1	3050
Metals	**($\mu g/m^3$)**	**($\mu g/m^3$)**	**(mg/s)**
Combined Train Aluminum (Al)	251	383	77.6
Combined Train Antimony (Sb)	< 0.566	< 0.864	< 0.175
Combined Train Arsenic (As)	< 0.214	< 0.327	< 0.0661
Combined Train Barium (Ba)	4.9	7.48	1.51
Combined Train Beryllium (Be)	< 0.034	< 0.0519	< 0.0105
Combined Train Boron (B)	< 6.17	< 9.41	< 1.91
Combined Train Cadmium (Cd)	0.104	0.158	0.0321
Combined Train Calcium (Ca)	2140	3270	661
Combined Train Chromium (Cr)	9.93	15.2	3.07
Combined Train Cobalt (Co)	0.37	0.564	0.114
Combined Train Copper (Cu)	2.73	4.16	0.841
Combined Train Iron (Fe)	365	557	113
Combined Train Lead (Pb)	1.68	2.57	0.52
Combined Train Magnesium (Mg)	205	313	63.4
Combined Train Manganese (Mn)	79.2	121	24.4
Combined Train Molybdenum (Mo)	3.44	5.24	1.06
Combined Train Nickel (Ni)	7.99	12.2	2.48
Combined Train Phosphorus (P)	22.9	34.9	7.06
Combined Train Potassium (K)	217	331	67.1
Combined Train Selenium (Se)	< 0.378	< 0.576	< 0.117
Combined Train Silver (Ag)	0.161	0.245	0.0495
Combined Train Strontium (Sr)	5.45	8.32	1.68
Combined Train Thallium (Tl)	0.205	0.313	0.0635
Combined Train Tin (Sn)	36.3	55.3	11.2
Combined Train Titanium (Ti)	12.1	18.4	3.73
Combined Train Vanadium (V)	0.484	0.739	0.15
Combined Train Zinc (Zn)	< 9.82	< 15	< 3.03
Mercury	**($\mu g/m^3$)**	**($\mu g/m^3$)**	**(mg/s)**
Total Mercury	< 0.241	< 0.368	< 0.0745

Notes:

[1] Sampling followed OSTC Method 5 and U.S. EPA Method 29 (Mercury)

[2] Referenced concentration values are expressed at 101.3kPa, 25 ^{o} C,

[3] Referenced concentration values are expressed at 101.3kPa, 25 ^{o} C, at 11% O_2

- Average of three tests

- When laboratory analysis was below the detection limit, half the Reportable Detection Limit (RDL) was used to calculate the concentration and emission rate

Detailed sampling results including individual test results can be found in Appendix A

Table 5: Dioxins and Furans - Averaged Results[1]

Main Stack

	Average Concentration [2]	Average Concentration @25°C and 11% O_2 [3]	Reg 419 Toxic Equivalency Factors		
			TEF	TEF Concentration @ 25°C and 11% O_2	TEF Emission Rate
Parameter	**(pg/m^3)**	**(pg/m^3)**		**(pg TEQ/m^3)**	**(pg/s)**
2,3,7,8-Tetra CDD *	< 0.854	< 1.3	1	< 1.3	< 292
1,2,3,7,8-Penta CDD *	< 0.894	< 1.36	1	< 1.36	< 306
1,2,3,4,7,8-Hexa CDD *	< 0.988	< 1.51	0.1	< 0.151	< 33.8
1,2,3,6,7,8-Hexa CDD *	< 0.858	< 1.31	0.1	< 0.131	< 29.4
1,2,3,7,8,9-Hexa CDD *	< 0.841	< 1.28	0.1	< 0.128	< 28.8
1,2,3,4,6,7,8-Hepta CDD *	< 1.13	< 1.72	0.01	< 0.0172	< 3.86
1,2,3,4,6,7,8,9-Octa CDD *	2.22	3.38	0.0003	0.00101	0.228
2,3,7,8-Tetra CDF **	< 4.56	< 6.96	0.1	< 0.696	< 156
1,2,3,7,8-Penta CDF **	< 0.87	< 1.33	0.03	< 0.0398	< 8.94
2,3,4,7,8-Penta CDF **	< 0.882	< 1.35	0.3	< 0.404	< 90.6
1,2,3,4,7,8-Hexa CDF **	< 0.909	< 1.39	0.1	< 0.139	< 31.1
1,2,3,6,7,8-Hexa CDF **	< 0.746	< 1.14	0.1	< 0.114	< 25.5
2,3,4,6,7,8-Hexa CDF **	< 0.938	< 1.43	0.1	< 0.143	< 32.1
1,2,3,7,8,9-Hexa CDF **	< 0.887	< 1.35	0.1	< 0.135	< 30.4
1,2,3,4,6,7,8-Hepta CDF **	< 1.04	< 1.59	0.01	< 0.0159	< 3.57
1,2,3,4,7,8,9-Hepta CDF **	< 0.955	< 1.46	0.01	< 0.0146	< 3.27
1,2,3,4,6,7,8,9-Octa CDF **	< 1.13	< 1.73	0.0003	< 0.000519	< 0.116
33'44'-TetraCB-(77)	< 256	< 391	0.0001	< 0.0391	< 8.77
344'5-TetraCB-(81)	< 78.6	< 120	0.0003	< 0.036	< 8.07
233'44'-PentaCB-(105)	813	1240	0.00003	0.0372	8.35
2344'5-PentaCB-(114)	< 80.8	< 123	0.00003	< 0.0037	< 0.83
23'44'5-PentaCB-(118)	2330	3550	0.00003	0.106	23.9
23'44'5'-PentaCB-(123)	< 75	< 114	0.00003	< 0.00343	< 0.771
33'44'5-PentaCB-(126)	< 62.2	< 94.8	0.1	< 9.48	< 2130
HexaCB-(156)+(157)	< 188	< 287	0.00003	< 0.00862	< 1.94
23'44'55'-HexaCB-(167)	< 88.7	< 135	0.00003	< 0.00406	< 0.911
33'44'55'-HexaCB-(169)	< 52.9	< 80.6	0.03	< 2.42	< 543
233'44'55'-HeptaCB-(189)	< 61.6	< 93.9	0.00003	< 0.00282	< 0.632
			Total Toxic Equivalency	**< 16.9**	**< 3800**

Notes:

[1] Sampling followed Environment Canada Method RM/2 (Dioxin and Furans)

[2] Referenced concentration values are expressed at 101.3kPa, 25 ^{o} C

[3] Referenced concentration values are expressed at 101.3kPa, 25 ^{o} C, at 11% O_2

Average of three tests

- When laboratory analysis was below the detection limit, half the detection limit was used to calculate the concentration and emission rate.

**CCD = Chloro Dibenzo-p-Dioxin,*

***CDF = chlorodibenzo-p-furan*

****CB = chlorobenzene*

Detailed sampling results including individual test results can be found in Appendix B

Table 6 - Polycyclic Aromatic Hydrocarbons (PAH's)

Main Stack

Parameter	Concentration [1]	Concentration @ 11% O_2 [2]	Emission Rate
PAH	**(µg/m^3)**	**(µg/m^3)**	**(µg/s)**
1-Methylnaphthalene	99.2	151	33800
1-Methylphenanthrene	2.14	3.27	736
2-Chloronaphthalene	0.767	1.17	262
2-Methylanthracene	< 0.0424	< 0.0647	< 14.5
2-Methylnaphthalene	122	186	41700
3-Methylcholanthrene	< 0.0424	< 0.0647	< 14.5
7,12-Dimethylbenzo(a)anthracene	< 0.17	< 0.259	< 58
9,10-Dimethylanthracene	< 0.0594	< 0.0906	< 20.3
9-Methylphenanthrene	4.11	6.28	1410
Acenaphthene	1.67	2.55	571
Acenaphthylene	1.69	2.58	576
Anthracene	< 0.0424	< 0.0647	< 14.5
Benzo(a)anthracene	< 0.0424	< 0.0647	< 14.5
Benzo(a)fluorene	< 0.0424	< 0.0647	< 14.5
Benzo(a)pyrene	< 0.0424	< 0.0647	< 14.5
Benzo(b)fluoranthene	< 0.0424	< 0.0647	< 14.5
Benzo(b)fluorene	< 0.0424	< 0.0647	< 14.5
Benzo(e)pyrene	< 0.0424	< 0.0647	< 14.5
Benzo(g,h,i)perylene	< 0.0424	< 0.0647	< 14.5
Benzo(k)fluoranthene	< 0.0424	< 0.0647	< 14.5
Chrysene	< 0.0424	< 0.0647	< 14.5
Coronene	< 0.0424	< 0.0647	< 14.5
Dibenzo(a,c)anthracene	< 0.0424	< 0.0647	< 14.5
Fluoranthene	0.197	0.301	67.7
Fluorene	1.43	2.18	488
Indeno(1,2,3-cd)pyrene	< 0.0424	< 0.0647	< 14.5
Naphthalene	129	196	44000
Perylene	< 0.0424	< 0.0647	< 14.5
Phenanthrene	16.6	25.4	5670
Picene	< 0.0424	< 0.0647	< 14.5
Pyrene	0.102	0.155	34.8
Tetralin	74.1	113	25300
Triphenylene	< 0.0424	< 0.0647	< 14.5

Notes:

[1] Referenced concentration values are expressed at 101.3kPa, 25 ^{o} C

[2] Referenced concentration values are expressed at 101.3kPa, 25 ^{o} C, at 11% O_2

Average of three tests

- When laboratory analysis was below the detection limit, half the detection limit was used to calculate th concentration and emission rate.

Detailed sampling results including individual test results can be found in Appendix B

Table 7: HCl, Ammonia and Chlorine - Averaged Results

Main Stack

Parameter	Concentration [1]	Concentration @ 11% O_2 [2]	Concentration @ 0 °C, 10% O_2 [3]	Emission Rate
	(mg/m^3)	(mg/m^3)	(mg/m^3)	(mg/s)
Hydrochloric Acid	4.30	5.7	5.73	1240
Ammonia (NH_3)	24.3	32.1	32.4	6940
Chlorine (Cl)	1.3	1.72	1.73	372

Notes:

[1] Referenced concentration values are expressed at 101.3kPa, 25 ^{o} C

[2] Referenced concentration values are expressed at 101.3kPa, 25 ^{o} C, at 11% O_2

Average of three tests (May 2022 Results)

Lab results for Ammonium converted to ammonia used molecular wts (17/18)

Flow rate from isokinetic tests were used to calculate the emission rate

Detailed sampling results including individual test results can be found in Appendix C

Table 8 - Volatile Organic Compounds

Main Stack

Parameter	Concentration [1]	Concentration @ 11% O_2 [2]	Emission Rate
	($\mu g/m^3$)	($\mu g/m^3$)	(mg/s)
Dichlorodifluoromethane (FREON 12)	< 47.5	< 72.5	< 15.5
Vinyl Chloride	< 50.3	< 76.8	< 16.4
Bromomethane	< 65.5	< 100	< 21.3
Trichlorofluoromethane (FREON 11)	< 47.5	< 72.5	< 15.5
Acetone (2-Propanone)	134	205	43.7
1,1-Dichloroethylene	< 47.5	< 72.5	< 15.5
Methylene Chloride(Dichloromethane)	< 47.5	< 72.5	< 15.5
trans-1,2-Dichloroethylene	< 47.5	< 72.5	< 15.5
Chloroform	< 47.5	< 72.5	< 15.5
1,2-Dichloroethane	< 47.5	< 72.5	< 15.5
Methyl Ethyl Ketone (2-Butanone)	< 95.8	< 146	< 31.2
1,1,1-Trichloroethane	< 47.5	< 72.5	< 15.5
Carbon Tetrachloride	< 47.5	< 72.5	< 15.5
Benzene	1090	1660	354
1,2-Dichloropropane	< 47.5	< 72.5	< 15.5
Trichloroethylene	< 47.5	< 72.5	< 15.5
Bromodichloromethane	< 47.5	< 72.5	< 15.5
Dibromochloromethane	< 47.5	< 72.5	< 15.5
Toluene	703	1070	229
Ethylene Dibromide	< 47.5	< 72.5	< 15.5
Tetrachloroethylene	< 47.5	< 72.5	< 15.5
Ethylbenzene	140	214	45.6
m / p-Xylene	446	681	145
Styrene	< 98.3	< 150	< 32
o-Xylene	182	278	59.3
Bromoform	< 47.5	< 72.5	< 15.5

Notes:

[1] Referenced concentration values are expressed at 101.3kPa, 25 ^{o} C

[2] Referenced concentration values are expressed at 101.3kPa, 25 ^{o} C, at 11% O_2

Average of three tests

'<' indicates that the laboratory results were less than the Reportable Detection Limit (RDL). Half the RDL

Flow rate from isokinetic tests were used to calculate the emission rate

Detailed sampling results including individual test results can be found in Appendix D

Table 9: Aldehydes - Averaged Results

Main Stack

Parameter	Concentration [1]	Concentration @ 11% O_2 [2]	Emission Rate
	(mg/m^3)	(mg/m^3)	(mg/s)
Acetaldehyde (Ethanal)	1.06	1.62	346
Acrolein	< 0.12	< 0.184	< 39.2
Propionaldehyde (Propanal)	< 0.264	< 0.402	< 85.9

Notes:

[1] Referenced concentration values are expressed at 101.3kPa, 25 ^{o} C

[2] Referenced concentration values are expressed at 101.3kPa, 25 ^{o} C, at 11% O_2

Average of three tests

When laboratory analysis was below the detection limit, half the Reportable Detection Limit (RDL) was used to calculate the concentration and emission rate

Flow rate from isokinetic tests were used to calculate the emission rate

Detailed sampling results including individual test results can be found in Appendix E

Table 10: Phenol and Methanol - Averaged Results

Main Stack

Parameter	Concentration [1]	Concentration @ 11% O_2 [2]	Emission Rate
	(mg/m^3)	(mg/m^3)	(mg/s)
Phenol	< 1.22	< 1.87	< 398
Methanol	< 1.22	< 1.87	< 398

Notes:

[1] Referenced concentration values are expressed at 101.3kPa, 25 ^{o} C

[2] Referenced concentration values are expressed at 101.3kPa, 25 ^{o} C, at 11% O_2

Average of three tests

Flow rate from isokinetic tests were used to calculate the emission rate

Detailed sampling results including individual test results can be found in Appendix F

Table 11: O_2 , CO_2 , and CO[1] - Averaged Results

Main Stack

Parameter	Concentration									Average		
	Test 1			Test 2			Test 3					
	(ppm)	mg/m^3	@ 11%O_2 (mg/m^3)[2]	(ppm)	mg/m^3	@ 11%O_2 (mg/m^3)[2]	(ppm)	mg/m^3	@ 11%O_2 (mg/m^3)[2]	(ppm)	Actual O_2 (mg/m^3)	@ 11%O_2 (mg/m^3)[2]
Nitrogen Oxides, expressed as NO_2 (NO_X)	31.7	59.7	89.5	112	210	326	128	241	368	90.5	170	261
Sulphur Dioxide (SO_2)	25.4	66.4	100	7.64	20.0	31.0	12.3	32.1	49.0	15.1	39.5	59.9
Carbon Monoxide (CO)	266	304	456	209	239	371	247	283	432	240	275	420
	(%)			(%)			(%)			(%)		
Oxygen (O_2)	14.3	-	-	14.5	-	-	14.4	-	-	14.4	-	-
Carbon Dioxide (CO_2)	9.67	-	-	10.3	-	-	10.2	-	-	10.1	-	-

Notes:

[1] Sampling followed Method 3A (O_2 and CO_2) and Method 10 (CO)

[2] Mass concentration values are expressed at 101.3 kPa, 25°C, and at 11% oxygen. The ppm values are expressed as ppm at actual oxygen.

Detailed sampling results including individual test results can be found in Appendix G

Table 12: Results Comparison

Main Stack

Parameter	Stack Testing Results @11% O^2 [1]	ECA Limit [2]
Limits in Schedule B of the C of A (6729-BYRJEP)		
Particulate Matter	15.1 mg/Rm^3	50 mg/Rm^3
Cadmium	0.158 $\mu g/Rm^3$	7 $\mu g/Rm^3$
Lead	2.57 $\mu g/Rm^3$	60 $\mu g/Rm^3$
Mercury	< 0.368 $\mu g/Rm^3$	20 $\mu g/Rm^3$
Dioxins and Furans	< 16.9 pg/Rm^3	80 pg/Rm^3 ITEQ
Hydrochloric Acid	5.70 mg/Rm^3	27 mg/Rm^3

Notes:

[1] - Concentration referenced to 25°C, 101.3kPa, and 11% oxygen

[2] – Schedule B of ECA referenced to 25°C, 101.3kPa, and 11% oxygen

Table 13: Summary of Operating Conditions

Main Stack

Source and Test #	Sampling Date	Start Time	End Time	Clinker Production (tonnes/hr)	Hourly Combined Raw Feed (tonnes/hr)	Conventional Fuel Rate Kiln (tonnes/hr)	Conventional Fuel Rate Calciner (tonnes/hr)	Alt Fuel Rate to Kiln (tonnes/hr)	Alt Fuel Rate to Calciner (tonnes/hr)	Industrial By-Product Materials (tonnes/day)	Oxygen at back of Kiln (%)	Oxygen at Calciner Down Comer (%)	Carbon Monoxide at Calciner Down Comer (ppm)	Temperature of gas leaving Kiln (°C)	Temperature of gas leaving Calciner (°C)	CEM NO_x (ppm)	CEM SO_2 (ppm)	CEM THC (ppm)	CEM TPM (mg/m^3) at 11% O_2
Test #1	30-Nov-21	2:37 PM	4:39 PM	210.41	346.59	6.56	13.0	12.0	12.00	193.4	4.78	3.31	729	802	895	106	34.5	144	16.5
	1-Dec-21	11:30 AM	4:54 PM	209.89	345.53	6.98	13.5	10.3	10.33	189.7	19.30	4.76	609	818	896	127	43.3	163	11.8
Test #2	2-Dec-21	8:36 AM	2:57 PM	213.62	352.22	6.68	13.9	12.6	12.65	150.8	8.25	3.22	851	809	893	115	75.2	154	14.2
Test #3	9-Dec-21	10:09 AM	3:05 PM	211.13	347.80	7.60	12.1	11.5	11.45	309.3	2.26	4.20	546	817	893	129	107	129	14.9
HCl/Ammonia	19-May-22	10:21 AM	4:00 PM	203.08	394.13	6.36	9.5	12	12.02	163.8	5.80	3.64	662	816	895	139	503	142	18.1

Carbon Dioxide Intensity Testing Data Summary

REPORT

Carbon Dioxide Emission Intensity Report

Votorantim Cimentos North America - Bowmanville Cement

Submitted to:

St Marys Cement, a Company of Votorantim Cimentos North America

410 Bowmanville Avenue
Bowmanville, Ontario
L1C 7B5

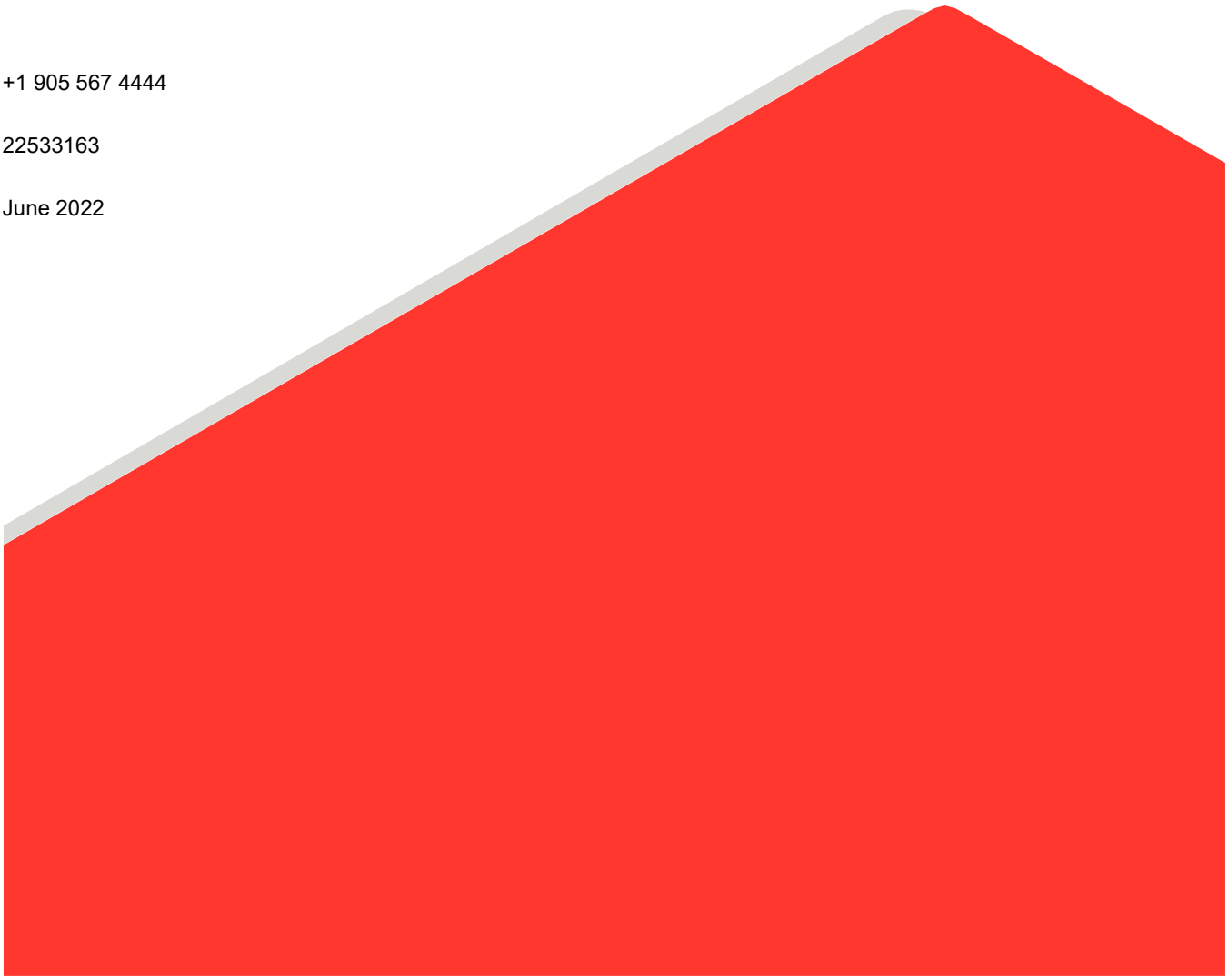
Submitted by:

Golder Associates Ltd.
6925 Century Avenue, Suite #100, Mississauga, Ontario, L5N 7K2, Canada

+1 905 567 4444

22533163

June 2022



Carbon dioxide emission intensity $\left[\frac{\mathbf{kg\ CO_2}}{\mathbf{MJ}}\right]$

$= \text{Non} - \text{biological carbon content}\ [\%] \times \text{C to } CO_2 \text{ conversion}\ \left[\frac{\text{kg } CO_2}{\text{kg C}}\right] \div \text{High heat value}\ \left[\frac{\text{MJ}}{\text{kg fuel}}\right]$

Where:

Non − biological carbon content $[\%] = \text{Total carbon content}\ [\%] \times (100\% - \text{Biological carbon content}\ [\%])$

Total carbon content $= 56.45\%$ (value from chemical analysis result for sample EFSPL − 01)

Biological carbon content $= 10\%$ (value from chemical analysis result for sample EFSPL– 01)

C to CO_2 conversion $= 3.67$

High heat value $= 28.281\ \frac{\text{MJ}}{\text{kg}}$ value from chemical analysis result for sample EFSPL − 01)

Therefore:

$\text{Non} - \text{biological carbon content} = 56.45\% \times (100\% - 10\%)$

$\text{Non} - \text{biological carbon content} = 51\%$

And,

$$\text{Carbon dioxide emission intensity} = 51\% \times 3.67\ \frac{\text{kg } CO_2}{\text{kg C}} \times \frac{1}{28.281}\ \frac{\text{kg fuel}}{\text{MJ}}$$

$$\text{Carbon dioxide emission intensity} = 0.0659\ \frac{\text{kg } CO_2}{\text{MJ}}$$

5.3 Carbon Dioxide Emission Intensity Summary

CO_2 emission intensity values were calculated for each set of conventional fuel and ALCF sampling results, as presented in Table 3. Detailed sample calculations are provided in Appendix B.

Table 3: CO_2 Emission Intensity

Parameter	Coal	Petcoke	Fluidcoke	Wood	Plastic
Sample ID	**17085-1**	**17085-2**	**17085-3**	**GFL-01**	**EFSPL-01**
Fuel HHV [MJ/kg]	27.11	33.72	32.45	17.57	28.28
CO_2 Intensity [kg CO2/MJ]	0.0946	0.0906	0.0951	0.0000	0.0659

The calculated CO_2 emission intensity values in Table 3 show that the ALCF materials had a lower CO_2 emission intensity than the conventional fuels used during the Source Testing event.

5.4 Carbon Dioxide Emissions During Source Testing

To better demonstrate the reduction in CO_2 emissions that occur when ALCF materials are part of the fuel mix at SMCB, CO_2 emissions were calculated for several scenarios, including each Source Testing Event and also for a day where only conventional fuels were used, as summarized in Table 4 below.

Table 4: Daily CO_2 Emissions

Scenario	Parameter	Coal	Petcoke	Fluidcoke	Wood	Plastic	Daily CO_2 Emissions
November 30 Source Testing	Fuel Usage [tonne/day]	365	93	120	189	50	—
	CO_2 Emissions [tonne/day]	936	284	370	0	93	1684
December 1 Source Testing	Fuel Usage [tonne/day]	339	29	157	98	66	—
	CO_2 Emissions [tonne/day]	870	89	484	0	123	1566
December 2 Source Testing	Fuel Usage [tonne/day]	360	38	164	164	29	—
	CO_2 Emissions [tonne/day]	924	116	506	0	54	1600
December 9 Source Testing	Fuel Usage [tonne/day]	300	33	164	187	26	—
	CO_2 Emissions [tonne/day]	770	101	506	0	48	1425
December 27 Conventional Fuel Only	Fuel Usage [tonne/day]	487	81	135	0	0	—
	CO_2 Emissions [tonne/day]	1249	248	417	0	0	1913

The calculated daily CO_2 emissions for each Source Testing event where ALCF materials are part of the fuel mix are shown to be lower than the daily CO_2 emissions when only conventional fuels are used.

6.0 CONCLUSION

This report was prepared in accordance with the requirements outlined in Section 11 of O. Reg. 79/15.

As per Condition 12.1 of the ECA, fuel samples taken on November 30, 2021, are representative of the conventional fuels and ALCF used during Source Testing events completed on November 30, November 30, December 1-2 and December 9, 2021.

Fuel sample analysis and calculation of CO_2 emission intensity values for the conventional fuels and ALCF used during Source Testing events were completed using the methodologies described in Sections 9 and 10 of O. Reg. 79/15. It should be noted that the only fuels tested were those used during the Source Testing events.

The results of the CO_2 emission intensity calculations summarized in Section 5.3 demonstrate that the CO_2 emission intensity of the ALCFs are less than the CO_2 emission intensity of the conventional fuels in the place of which the ALCFs were combusted.

SECTION G

This Section addresses Condition 16.1g) of the ECA described as below:

"A summary of dates, duration and reasons for any operational events including but not limited to events described in condition 8.7 of this Approval that may have negatively impacted the quality of the environment and corrective measures taken to address these impacts,"

St. Marys Cement - Bowmanville Plant
ECA Condition 16.1g: Reportable Operational Events - 2022
(ECA #0550-CEAHMA)

Date of Reportable Event	MECP Event ID	Report Filed to	Details of Event	Investigation	Final Response Given
16-Jan-22	6640-CAQQ4G	Spill Action Centre	Kiln process upset occurred at 11:55am due to an elevated temperature in the process. Inter-locks were triggered to immediately stop the process. This shutdown sequence resulted in dust emissions to come out of some buildings. The event was reported at 11:59am.The dust emissions stopped as soon as the shutdown sequence concluded (11:59am).	Our process operated under a negative air pressure. Thus when stopped, the process areas can turn neutral, or positive, air pressure during the shut down sequence. The dust emissions stopped as soon as the shutdown sequence concluded (11:59am). The dust did not leave the site. The dust was a cloud around the buildings. The buildings involved were on the north part of the site. The situation was resolved within minutes.	MECP closed the file
31-Jan-22	ML2YW1-1ML367	MECP District	The SMC1 detector (also referred to as the OPG monitor-approx. 800m NW of plant beside the 401 highway) registered a 24 hour rolling average exceedance. MECP was notified on 31 January 2022.	The elevated reading was not caused by the plant, rather from road salt. The salt had coated the device with spray and dried.	MECP closed the file
11-May-22		MECP District	Exceedance of 24-hour dust reading detected at SMC1 on May 11, 2022 followed by additional spikes on May 12. A total of 5 exceedances were detected at SMC1 monitor. MECP was notified of investigation updates continuously through May 26, 2022.	The elevated readings were not caused by the plant, rather by the surrounding farm activities under extreme dry conditions.	MECP closed the file
14-Jun-22	1-1UDKIC	Spill Action Centre, MECP District and the Municipality	Dust cloud from raw mill was observed during start up. MECP was notified at 8pm on June 14, 2022 after the cloud was observed and the source identified. The MECP was updated with investigation updates.	Walked area north of site to Energy drive to evaluate impacts. No dust found on plants, cars or roofs north of site (i.e. dust did not leave the property).	MECP closed the file
27-Oct-22	1-128FFV0	Spill Action Centre, MECP District and the Municipality	Dust cloud from preheater tower was observed during start up. MECP and Clarington were notified after the investigation.	The incident was caused by the unsteady condition (positive pressure) during the start up. The feed was stopped to mitigate the situation. Investigation was carried out which determined that no dust left the site.	MECP closed the file
24-Dec-22		MECP District	Exceedance of 24-hour dust reading detected at SMC2. MECP was notified at 12:00pm on December 24, 2022. Follow up emails were sent to MECP on December 25 and December 27, 2022.	The incident was caused by the strong winds experienced blowing towards SMC2 on this day. Environment Canada issued extreme wind warnings for December 23 2022. Wind speeds in area exceeded 85km/hr. Roads were vacuumed and cleaned on December 24, 2022.	MECP closed the file

SECTION H

This Section addresses Condition 16.1h) of the ECA described as below:

"Details of environmental complaints including a summary of complaints received, causes of complaints and action taken to avoid the recurrence of similar incidents, as described in condition 14 of this Approval."

ECA Condition 16. 1h: Community Concerns Log - 2022

(ECA #0550-CEAHMA)

Date of Complaint	Nature of Complaint	Summary of Complaint	Response Actions Taken and Conclusions
04-Jan-22	Blast	Resident sent an email to the head office general email inquiring about mitigation measures in place to minimize the impact of weekly blasting on residential dwellings. The resident stated that they experience shaking in the house after a blast and would like to know if there is any damages to the house from blasting.	Notification made to MECP on Jan 4, 2022. Followed up with complainant via email offering to discuss questions by phone, email or in-person. No Further Action.
27-Jan-22	Dust	Complaint by phone and via email regarding "black suet" observed on the snow. The complainant described that strong winds blew from the southwest (in general direction of plant) and suspected that the dust could come from the plant piles by the lake.	The MECP was notified on January 27, 2022. Reviewed and discussed the concern with the complainant in the community area of concern. Investigation was completed by reviewing the weather, status of the plant and dock area as well as the dust monitor reading (SMC1). Winds were blowing towards the community from the plant but no extreme high wind conditions were experienced. The plant and the dock were not operating and the ground surfaces were covered in snow or ice. Visual inspections of the dock coal and salt piles and surrounding area were completed as well as in the community on the morning of on January 28, 2022. The surfaces of the stockpiles were covered in snow and frozen. No excavation activities took place on January 27, 2022. Particulate was observed on snow surfaces on lands owned by SMC within the community area east of the facility fence line but not elsewhere.
02-Feb-22	Blast	A resident phoned to generally inquire about blasting. The resident expressed their concern about the blast and would like to understand the long term effects of blasting on their century home and surroundings.	Followed up with the resident with an in-person visit to discuss experience and exchanged contact information to stay in touch for potential future experiences.
05-Apr-22	Blast	Complaint received by phone message regarding blasting	MECP was notified on April 6 on 2022 by phone. Attempt to follow up with the complainant by phone but the wrong number was provided. MECP was notified of the follow up attempt on April 7, 2022. No Further Action.
03-May-22	Dust	A dust complaint was received by the Municipality of Clarington. SMC was notified by Clarington and visited the neighbourhood of the dust concern immediately. Fine sand like dust was observed on the exterior areas (including sheds and outdoor mats) of houses close to the lake. The resident suspected the dust could be from Port Darlington development but would like to confirm if it is from SMC	Dust sample was collected and analyzed. The laboratory result showed high silica and aluminum which confirmed that SMC was not the source. Followed up with the resident to discuss options to identified the actual source of dust (May 4, 2022). No Further Action.
12-May-22	Noise	A noise complaint was received by general plant voicemail regarding the quarry noise. The environmental manager was notified on May 17, 2022.	MECP was notified on May 17, 2022. The cause of noise was investigated and the source was identified as temporary loading on Level 1 in the quarry. Followed up with the complainant immediately. No Further Action.
26-May-22	Blast	A complaint was received by phone regarding blasting impact on their century home. The resident observed cracking plasters at joints of structural walls of their home and was concerned. The resident also commented Bowmanville Facebook group discussed blasting impact from the quarry on residential homes in the community.	The MECP was notified on May 27. Followed up with the complainant by offering a visit to home and a offered a visit to the facility to observe a blast. No further requests or concerns were received.
13-Jun-22	Odour	MECP received an odour complaint from a resident on Peachtree Crescent (MECP File No. 1-1UCTUT). The complainant experienced ongoing "coal burning odours" from St. Marys Cement at their home which forbid them from enjoying the outdoors. The complainant also observed visible plume from the stack over the past hour and requested that the MECP to find out if the plant has any air pollution controls and if so are using them.	The Peachtree area is approximately 3km north east of site. Coal burning does not occur at the site. It is consumed as a fuel inside vessels. An investigation was conducted by car from Bowmanville Avenue across to East of Means, North of the community and to Hwy 401 on June 14, 2022. Only vinyl and roofing tar odours (near Liberty King Street) were detected. Updated MECP after the investigation on June 14, 2022. No further action requested by MECP.
03-Aug-22	Dust	A complaint regarding ash on cars was received. The complainant has given permission to the MECP to conduct monitoring and sampling on their property if required.	Location of concern is over 2.7km north east of the site. SMC has been maintaining constant communication with MECP and Clarington and updating them on observations and findings. The size and composition of ash material, distance from site, wind speed and direction were reviewed. The investigation concluded that the plant was not the source of this ash. SMC continued to work with MECP to identify the source.
03-Aug-22	Plume Appearance	A complaint was received via email from a person who was driving along Highway 401. The complainant sent a photo of the plume from the kiln stack to MECP at 8pm and MECP inquired information on emission condition	Reviewed the process and emission data. Responded to the MECP on August 3, 2022 that the plant was experiencing power shortage between 6 and 9pm and the more visible plume was a result of the restart. No further action requested by MECP.
09-Aug-22	Dust	A complaint regarding ash on cars between August 6 and 8, 2022 was received by the MECP and by Clarington on August 9.	Followed up with the complainant in person and an ash sample was taken for laboratory analysis. See August 3, 2022 concern. Visited the complaint location and surrounding area within 4km radius as a continued effort to address complaint on August 3. No Further Action.
29-Aug-22	Dust	A complaint was received by the Spill Action Centre and the MECP district regarding a dust cloud from the raw mill.	Reviewed the process conditions. The balance between the damper and fans was not maintained and a cloud of dust was released as the Calciner tower went under upset conditions. The issue was resolved within 20 minutes of the upset. An update was provided to MECP and a report was filed to MECP (MECP Event 1-24KR6J) on August 29, 2022. No Further Action.
24-Oct-22	Plume Appearance	MECP forwarded a complaint from a resident in Bowmanville who is concerned about the size and colour of the plume.	Reviewed the process condition and particulate readings during the period of the complaint. The plant was off-line on Oct 13 and was going through start up from Oct 23 to Oct 25. Based on the particulate reading during the complaint periods, no exceedance of the POI limit was expected and no exceedance of the in-stack PM limit occurred during the use of the ALCF. The "thickness" plume can be influenced by atmospheric conditions and observer's position to the sun. Emailed the complainant to provide the summary of the investigation and to offer answering further questions. No Further Action.
24-Oct-22	Blast	A complaint was received by the Mayor's office regarding blasting which was forward to SMC on October 25, 2022.	Followed up with the complainant via email and notified MECP on October 26, 2022. No response from the complainant was received. No Further Action.
November 15 2022	Blast	A complaint regarding blasting was received via email at 2pm regarding the severe shaking from the blast. The complainant expressed concerns of potential impact including cracking mortar on the house and inquired about installing a monitor sensor on their property.	MECP was notified on November 15, 2022. Followed up with the complainant discussing blasting activities and sound/vibration waves. No further action required.
December 22 2022	Blast	A complaint regarding blasting was received via email by phone. The complainant claimed that SMC caused their cracked foundation, filthy gazebo, etc. The complainant inquired about house cleaning services or compensation for damages and requested a call back.	Left a voicemail message for the complainant and notified the MECP on Dec 23. Followed up with the complainant on Dec 28 and left voicemail message. No return calls. No Further Action.
December 22 2022	Blast/dust	A called was received from a resident regarding the blast on December 21, 2022 and her concerns about long term wear and tear on building element as a result of blasting. The complainant also expressed concerns about dust landing on their property and commented on the appearance of the plume being thick, dark and yellow recently.	Offered the complainant to tour the site. The complainant appreciated the discussion. No Further Action. MECP was notified.