1.0 EXECUTIVE SUMMARY

Mostardi Platt conducted a filterable particulate Matter (FPM) and visible emissions test program for Holcim (US) Inc. d/b/a Lafarge Alpena at the Alpena Cement Plant at the Secondary Crusher (11-002) in Alpena, Michigan, on March 3, 2022. This report summarizes the results of the test program and test methods used.

The test location, test date, test parameters, Emission Limit, and Emission Rate are summarized below.

The purpose of this test program was to determine emission rates of the below test parameters during normal operating conditions. A complete summary of emission test results follows the narrative portion of this report.

Test Location	Test Date	Test Parameters	Emission Limit	Emission Rate
Secondary Crusher (11-002)	3/3/2022	VE	7%	0%
		FPM	≤ 0.014 gr/dscf	0.0014 gr/dscf

The throughput for the system averaged 458.68 tons per hour on March 3, 2022. Operating data is found in Appendix A.

The identifications of the individuals associated with the test program are summarized below.

TEST PERSONNEL INFORMATION		
Location	**Address**	**Contact**
Test Facility	Holcim (US) Inc. Alpena Plant 1435 Ford Avenue Alpena, Michigan 49707	Ms. Mallory Miller Area Environmental Engineer 224-517-6896 Mallory.Miller@lafargeholcim.com
Testing Company Representative	Mostardi Platt 888 Industrial Drive Elmhurst, Illinois 60126	Mr. Chris Trezak Senior Project Manager (630) 993-2100 (phone) ctrezak@mp-mail.com

The test crew consisted C. Buglio, R. Spoolstra and C. Trezak of Mostardi Platt.

2.0 TEST METHODOLOGY

Emissions testing was conducted following the methods specified in 40 CFR, Part 60. The plant operation data is included in Appendix A. Schematics of the test section diagram and sampling trains used are included in Appendix B and C, respectively. Calculation nomenclature and example calculations are included in Appendix D. Sample analysis data are included in Appendix E. Copies of reference method data and field data sheets for each test run are also included in Appendix F and G, respectively.

The following methodologies were used during the test program:

Method 1 Sample and Velocity Traverse Determination

Test measurement points were selected in accordance with Method 1. The characteristics of the measurement location are summarized below.

TEST POINT INFORMATION						
Location	**Stack Dimensions (Feet)**	**Stack Area (Square Feet)**	**Upstream Diameters**	**Downstream Diameters**	**Test Parameter**	**Number of Sampling Points**
Secondary Crusher (11-002)	2.125	3.547	2.5	4.4	FPM	24

Method 2 Volumetric Flow Rate Determination

Gas velocity is measured following Method 2, 40 CFR, Part 60, Appendix A, for purposes of calculating stack gas volumetric flow rate and emission rates. An S-type pitot tube, as a component of the isokinetic sampling trains, differential pressure gauge, thermocouple, and temperature readout are used to determine gas velocity at each sample point. All of the equipment used is calibrated in accordance with the specifications of the Method. Calibration data is presented in Appendix H.

Oxygen and carbon dioxide concentrations were determined per section 8.6 of USEPA Method 2, for processes emitting essentially air an analysis was not conducted. A dry molecular weight of 29.0 was used.

Method 5 Filterable Particulate Matter Determination

Stack gas FPM concentrations and emission rates were determined in accordance with Method 5. An Environmental Supply Company, Inc. sampling train was used to sample stack gas at an isokinetic rate, as specified in the Method. Particulate matter in the sample probe was recovered using an acetone wash. The probe wash and filter catch were analyzed by Mostardi Platt personnel. Laboratory analysis data are found in Appendix E. Calibration data are presented in Appendix H.

Method 9 Visual Emission Determination

Visible emissions are determined in accordance with Method 9. The observer stood at a distance providing a clear view of the emissions with the sun oriented in the 140° sector to their back. As much as possible, the line of vision was approximately perpendicular to the plume direction.

Opacity observations were made at the point of greatest opacity in the portion of the plume where condensed water vapor was not present. Observations were made at 15-second intervals for the duration of the test run.

Visible emissions observations were conducted and recorded by Mr. Chris Trezak, who is a certified visual emissions observer. Visible emissions data and the reader's certification are found in Appendix I.

3.0 TEST RESULT SUMMARIES

Client: LaFarge Holcim US
Facility: Alpena Cement Plant
Test Location: Secondary Crusher Baghouse Stack
Test Method: 5

Source Condition	Normal	Normal	Normal	
Date	3/3/22	3/3/22	3/3/22	
Start Time	9:45	11:26	13:44	
End Time	10:50	12:31	14:47	
	Run 1	Run 2	Run 3	Average
Stack Conditions				
Average Gas Temperature, °F	21.0	23.9	26.1	23.7
Flue Gas Moisture, percent by volume	0.4%	0.4%	0.5%	0.4%
Average Flue Pressure, in. Hg	30.25	30.25	30.25	30.25
Gas Sample Volume, dscf	36.158	32.368	34.449	34.325
Average Gas Velocity, ft/sec	22.184	19.959	21.325	21.156
Gas Volumetric Flow Rate, acfm	4,721	4,247	4,538	4,502
Gas Volumetric Flow Rate, dscfm	5,217	4,667	4,958	4,947
Gas Volumetric Flow Rate, scfm	5,238	4,686	4,983	4,969
Isokinetic Variance	100.8	100.9	101.1	100.9
Filterable Particulate Matter (Method 5)				
grams collected	0.00475	0.00258	0.00208	0.00314
grains/acf	0.0022	0.0014	0.0010	0.0015
grains/dscf	0.0020	0.0012	0.0009	0.0014
lb/hr	0.091	0.049	0.040	0.060

4.0 CERTIFICATION

Mostardi Platt is pleased to have been of service to Prairie State Generating Company, LLC. If you have any questions regarding this test report, please do not hesitate to contact us at 630-993-2100.

As project manager, I hereby certify that this test report represents a true and accurate summary of emissions test results and the methodologies employed to obtain those results, and the test program was performed in accordance with the methods specified in this test report.

MOSTARDI PLATT

Christopher S. Trezak — Program Manager

Jeffrey M. Crivlare — Quality Assurance

APPENDICES

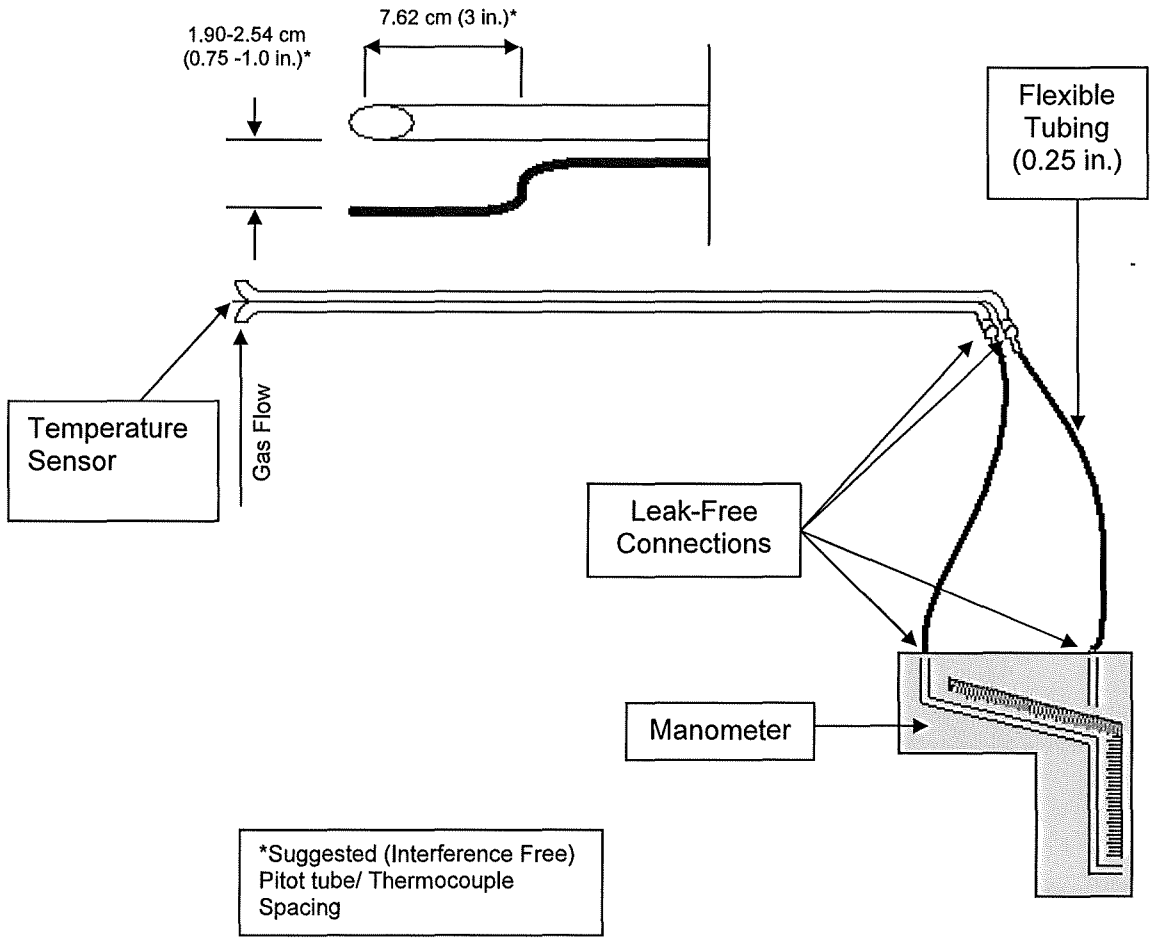
Appendix A - Plant Operating Data

	ALP.241-BC03.F01: PV_AVG
Average	**496.94**
3/3/2022 09:45	514.05
3/3/2022 09:46	517.90
3/3/2022 09:47	521.65
3/3/2022 09:48	525.17
3/3/2022 09:49	526.15
3/3/2022 09:50	526.96
3/3/2022 09:51	526.26
3/3/2022 09:52	541.18
3/3/2022 09:53	532.88
3/3/2022 09:54	535.37
3/3/2022 09:55	540.80
3/3/2022 09:56	532.88
3/3/2022 09:57	532.61
3/3/2022 09:58	541.83
3/3/2022 09:59	535.37
3/3/2022 10:00	532.66
3/3/2022 10:01	545.79
3/3/2022 10:02	550.56
3/3/2022 10:03	559.08
3/3/2022 10:04	554.25
3/3/2022 10:05	551.38
3/3/2022 10:06	557.67
3/3/2022 10:07	556.15
3/3/2022 10:08	556.15
3/3/2022 10:09	542.70
3/3/2022 10:10	560.93
3/3/2022 10:11	548.01
3/3/2022 10:12	557.24
3/3/2022 10:13	539.88
3/3/2022 10:14	546.06
3/3/2022 10:15	542.81
3/3/2022 10:16	548.94
3/3/2022 10:17	549.15
3/3/2022 10:18	540.53
3/3/2022 10:19	542.86
3/3/2022 10:20	552.35
3/3/2022 10:21	545.36
3/3/2022 10:22	561.36
3/3/2022 10:23	555.28
3/3/2022 10:24	551.76
3/3/2022 10:25	548.34
3/3/2022 10:26	555.45
3/3/2022 10:27	552.68
3/3/2022 10:28	543.78
3/3/2022 10:29	551.92
3/3/2022 10:30	557.29
3/3/2022 10:31	556.04
3/3/2022 10:32	546.93
3/3/2022 10:33	537.71
3/3/2022 10:34	553.93
3/3/2022 10:35	554.09
3/3/2022 10:36	552.08
3/3/2022 10:37	549.59
3/3/2022 10:38	542.59
3/3/2022 10:39	546.17
3/3/2022 10:40	544.16
3/3/2022 10:41	542.81
3/3/2022 10:42	551.54
3/3/2022 10:43	547.53
3/3/2022 10:44	498.05
3/3/2022 10:45	137.42
3/3/2022 10:46	28.27
3/3/2022 10:47	0.00
3/3/2022 10:48	0.00
3/4/2022 10:49	0.00
3/5/2022 10:50	0.00

	ALP.241-BC03.F01: PV_AVG
Average	**497.91**
3/3/2022 13:44	480.58
3/3/2022 13:45	491.59
3/3/2022 13:46	494.68
3/3/2022 13:47	499.19
3/3/2022 13:48	490.56
3/3/2022 13:49	501.95
3/3/2022 13:50	501.57
3/3/2022 13:51	502.39
3/3/2022 13:52	490.89
3/3/2022 13:53	494.25
3/3/2022 13:54	491.92
3/3/2022 13:55	489.69
3/3/2022 13:56	492.89
3/3/2022 13:57	510.58
3/3/2022 13:58	494.03
3/3/2022 13:59	494.85
3/3/2022 14:00	502.50
3/3/2022 14:01	502.66
3/3/2022 14:02	501.14
3/3/2022 14:03	500.27
3/3/2022 14:04	496.26
3/3/2022 14:05	503.26
3/3/2022 14:06	498.43
3/3/2022 14:07	486.71
3/3/2022 14:08	506.56
3/3/2022 14:09	503.85
3/3/2022 14:10	492.89
3/3/2022 14:11	502.77
3/3/2022 14:12	490.78
3/3/2022 14:13	502.22
3/3/2022 14:14	498.48
3/3/2022 14:15	509.33
3/3/2022 14:16	500.76
3/3/2022 14:17	501.30
3/3/2022 14:18	489.80
3/3/2022 14:19	494.36
3/3/2022 14:20	502.66
3/3/2022 14:21	491.64
3/3/2022 14:22	494.68
3/3/2022 14:23	502.22
3/3/2022 14:24	493.44
3/3/2022 14:25	498.70
3/3/2022 14:26	495.44
3/3/2022 14:27	502.01
3/3/2022 14:28	483.29
3/3/2022 14:29	510.31
3/3/2022 14:30	494.41
3/3/2022 14:31	509.44
3/3/2022 14:32	504.94
3/3/2022 14:33	496.80
3/3/2022 14:34	494.52
3/3/2022 14:35	509.49
3/3/2022 14:36	494.68
3/3/2022 14:37	486.71
3/3/2022 14:38	504.99
3/3/2022 14:39	498.37
3/3/2022 14:40	502.39
3/3/2022 14:41	507.05
3/3/2022 14:42	494.09
3/3/2022 14:43	503.47
3/3/2022 14:44	488.28
3/3/2022 14:45	504.18
3/3/2022 14:46	491.37
3/3/2022 14:47	500.81

Appendix C - Sample Train Diagrams

USEPA Method 2 – Type S Pitot Tube Manometer Assembly



USEPA Method 5- Particulate Matter Sample Train Diagram