Metals Emissions Test Report

PCC Structurals, Inc.
Large Parts Campus
Baghouse 9203
5001 SE Johnson Creek Blvd.
Milwaukie, Oregon 97222
Project No. M232604B Rev.1
June 27 and 30, 2023

Metals Emissions Test Report

PCC Structurals, Inc.
Large Parts Campus
Baghouse 9203
5001 SE Johnson Creek Blvd.
Milwaukie, Oregon 97222
June 27 and 30, 2023

Report Submittal Date
September 29, 2023
Report Resubmittal Date
December 20, 2023

Project No. M232604B Rev.1

Corporate Headquarters
888 Industrial Drive
Elmhurst, Illinois 60126
630-993-2100

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

Mostardi Platt conducted an emissions test program for PCC Structurals, Inc. (PCC) at their Large Parts Campus (LPC) facility located at 5001 SE Johnson Creek Blvd. in Milwaukie, Oregon. Testing was performed to demonstrate removal efficiencies across each baghouse system as well as mass emission rates of several metals, including hexavalent chrome (Cr^{+6}), from the baghouse inlet and HEPA exhaust outlet.

Inlet samples were collected utilizing a flexible sampling line connection between the filter and impingers and Teflon coated stainless steel nozzles were utilized.

Any references in the field data sheets and lab results to “north” test locations correlate to “west” test locations, while references to “south” test locations correlate to “east” test locations.

The test locations, test dates, and test parameters are summarized below.

TEST INFORMATION		
Test Locations	**Test Dates**	**Test Parameters**
9203 Baghouse Inlet Ducts (3)	June 27 and 30, 2023	Aluminum (Al), Arsenic (As), Antimony (Sb), Barium (Ba), Beryllium (Be), Cadmium (Cd), Chromium (Cr), Cobalt (Co), Copper (Cu), Lead (Pb), Manganese (Mn), Mercury (Hg), Nickel (Ni), Phosphorus (P), Selenium (Se), Silver (Ag), Thallium (Tl), Vanadium (V), Zinc (Zn), and Hexavalent Chromium (Cr^{+6})
9203 Baghouse Outlet Ducts (6)		

2.0 PROCESS DESCRIPTION

Baghouse/HEPA 9203 (BH9203) controls emissions from cutting activities related to the cleaning process.

2.1 Project Contact Information

Location	Address	Contact
Test Consultant	Maul Foster & Alongi, Inc. 6 Centerpointe Drive, Suite 360 Lake Oswego, OR 97035	Mr. Brian Eagle Senior Consultant 971.713.3571 beagle@maulfoster.com
Test Facility	PCC Structurals, Inc. 5001 SE Johnson Creek Blvd. Milwaukie, OR 97222	Mr. Brandon Hadzinsky Division Environmental Affairs 503.724.3036 Brandon.hadzinsky@pccstructurals.com
Test Company Representative	Mostardi Platt 888 Industrial Drive Elmhurst, IL 60126	Mr. Eric Ehlers VP, Field Operations (630) 699-7690 eehlers@mp-mail.com

The test crew consisted of Messrs. C. Trezak, K. Addison, N. Colangelo, M. Sather, V. Vang, J. Meade, C. Rock, M. Dolatowski, P. Pradhan, J. Jiminez, F. Diaz, and E. Ehlers of Mostardi Platt.

Mr. Thomas Rhodes of the Oregon Department of Environmental Quality (ODEQ) observed a portion of the test program.

3.0 OVERVIEW OF TEST RESULTS

Selected results of the test program are summarized below. A complete summary of emission test results follows the narrative portion of this report. Operating data was provided by PCC and is found in Appendix E.

On Friday, June 30th, emissions tests on 9203 were stopped prior to the assumed end time as it was discovered that plant operations had ceased. Once this was discovered, sampling trains were shut off and post-test leak checks and recoveries were performed. Consequently, all the sample points were not sampled

ADL means both fractions of the sample analyses were above the detection limit. DLL means that one of the fractions of the sample analyses were below the detection limit. BDL means both fractions of the sample analyses were below the detection limit.

The filters that were used for the test program had Aluminum and Phosphorus contents exceeding levels specified in Section 7.2.1 of Method 29, and as a result, the Method 29 blank corrections likely overestimate calculated emissions of these constituents. This is particularly true for aluminum - in some instances the blank correction calculated using the methodology outlined in Section 12.6.3 of Method 29 was almost 20 times lower than the Aluminum content of the filter blank. Therefore, the reported emission rates should not be considered valid.

3.1 9203 Baghouse System Run 1

Measured Parameter	Emission Rate Inlet East lb/hr	Emission Rate Inlet West lb/hr	Emission Rate Inlet Center lb/hr	Emission Rate Total Inlet lb/hr	Emission Rate Total Outlet East, lb/hr	Emission Rate Total Outlet West, lb/hr	Emission Rate Total Outlet lb/hr	Removal Efficiency %
Al	7.62E-03	6.73E-03	7.45E-03	2.18E-02	4.15E-03	3.69E-03	7.84E-03	64.04%
Sb	ND	ND	ND	ND	ND	ND	ND	N/A
As	≤4.20E-05[a]	ND	ND	ND	ND	ND	ND	N/A
Ba	3.95E-04	1.89E-04	5.04E-04	1.088E-03	9.16E-05	3.57E-05	1.273E-04	88.33%
Be	ND	ND	ND	ND	ND	ND	ND	N/A
Cd	5.67E-05	1.50E-05	2.74E-05	9.91E-05	1.32E-05	8.07E-06	2.09E-05	78.46%
Cr	2.46E-02	8.08E-03	7.05E-03	3.98E-02	6.61E-05	1.04E-04	1.70E-04	99.57%
Co	4.08E-04	1.87E-03	1.30E-03	3.58E-03	≤4.96E-06[a]	≤3.73E-06[b]	≤8.69E-06[b]	N/A
Cu	2.74E-03	3.03E-03	3.89E-03	9.65E-03	3.57E-04	7.52E-05	4.28E-04	95.52%
Pb	≤1.55E-05[a]	≤2.78E-05[a]	3.27E-05	≤7.60E-05[a]	≤2.49E-05[a]	≤3.48E-05[a]	≤5.97E-05[a]	N/A
Mn	4.71E-04	2.48E-04	1.11E-03	1.83E-03	5.23E-05	1.02E-03	1.08E-03	41.12%
Hg	≤4.29E-06[a]	≤5.94E-06[a]	≤4.08E-06[a]	≤1.43E-05[a]	≤5.12E-06[a]	≤3.34E-05[a]	≤3.86E-05[a]	N/A
Ni	7.58E-02	5.85E-02	4.62E-02	1.80E-01	1.26E-04	6.70E-04	7.96E-04	99.56%
P	1.07E-03	1.04E-03	1.49E-03	3.60E-03	7.03E-04	6.32E-04	1.335E-03	62.92%
Se	ND	1.14E-04	ND	ND	≤9.42E-05[a]	ND	ND	N/A
Ag	3.77E-05	1.75E-05	5.96E-05	1.15E-04	≤1.85E-05[b]	≤1.49E-05[b]	≤3.34E-05[b]	N/A
Tl	ND	ND	ND	ND	ND	ND	ND	N/A
V	5.21E-05	2.52E-05	2.73E-05	1.05E-04	≤6.70E-06[a]	≤4.60E-06[a]	≤1.10E-05[a]	N/A
Zn	1.71E-03	1.32E-03	6.26E-03	9.29E-03	≤6.36E-04[a]	3.67E-04	≤1.00E-03[a]	N/A
Cr^{+6}	4.51E-04	7.00E-06	1.93E-03	2.39E-03	4.40E-05	2.20E-05	6.60E-05	97.24%

ND - Non detect. Analyte below detection limit at both the inlet and outlet
N/A – No control efficiency was calculated.
[a] – Value based on data qualified as DLL in the lab report
[b] – Analyte below detection at outlet, but measurable at inlet. Value shown is detection limit.

3.2 9203 Baghouse System Run 1

Measured Parameter	Emission Factor Total Inlet lb/ton metal processed	Emission Factor Total Outlet lb/ton metal processed
Al	1.97E-02	7.08E-03
Sb	ND	ND
As	ND	ND
Ba	9.84E-04	1.15E-04
Be	ND	ND
Cd	8.95E-05	1.93E-05
Cr	3.59E-02	1.54E-04
Co	5.57E-03	≤7.87E-06[b]
Cu	8.72E-03	3.91E-04
Pb	≤6.87E-05[a]	≤5.41E-05[a]
Mn	1.65E-03	9.72E-04
Hg	≤1.29E-05[a]	≤3.49E-05[a]
Ni	1.63E-01	7.22E-04
P	3.26E-03	1.207E-03
Se	ND	ND
Ag	1.04E-04	≤3.02E-05[b]
Tl	ND	ND
V	9.45E-05	≤1.02E-05[a]
Zn	8.40E-03	≤9.10E-04[a]
Cr^{+6}	2.13E-03	5.97E-05

ND – Non detect. Analyte below detection limit at both the inlet and outlet
N/A – No control efficiency was calculated.
[a] – Value based on data qualified as DLL in the lab report
[b] – Analyte below detection at outlet, but measurable at inlet. Value shown is detection limit.

3.3 9203 Baghouse System Run 2

Measured Parameter	Emission Rate Inlet East lb/hr	Emission Rate Inlet West lb/hr	Emission Rate Inlet Center lb/hr	Emission Rate Total Inlet lb/hr	Emission Rate Total Outlet East, lb/hr	Emission Rate Total Outlet West, lb/hr	Emission Rate Total Outlet lb/hr	Removal Efficiency %
Al	1.17E-02	7.17E-03	8.89E-03	2.769E-02	4.15E-03	3.45E-03	7.60E-03	72.55%
Sb	≤1.69E-05[a]	ND	ND	ND	≤3.62E-05[a]	ND	ND	N/A
As	ND	ND	ND	ND	ND	ND	ND	N/A
Ba	1.12E-04	5.80E-05	7.90E-05	2.49E-04	≤2.70E-05[a]	≤1.79E-05[a]	≤4.49E-05[a]	N/A
Be	ND	ND	ND	ND	ND	ND	ND	N/A
Cd	7.04E-05	5.55E-06	1.17E-05	8.76E-05	3.60E-06	4.56E-06	8.16E-06	90.69%
Cr	5.05E-02	1.21E-02	1.36E-02	7.62E-02	7.56E-04	2.68E-04	1.02E-03	98.66%
Co	5.66E-04	2.95E-03	4.44E-04	3.96E-03	3.00E-04	1.27E-04	4.27E-04	89.20%
Cu	7.04E-03	3.73E-03	7.79E-03	1.86E-02	2.18E-03	≤4.00E-05[a]	≤2.22E-03[a]	N/A
Pb	2.02E-05	1.76E-05	≤1.87E-05[a]	≤5.65E-05[a]	≤1.90E-05[a]	≤1.45E-05[a]	≤3.35E-05[a]	N/A
Mn	2.80E-03	4.32E-04	1.28E-03	4.51E-03	2.14E-03	3.81E-04	2.53E-03	44.03%
Hg	≤5.52E-06[a]	≤5.11E-06[a]	≤8.56E-06[a]	≤1.92E-05[a]	≤1.30E-05[a]	≤1.67E-05[a]	≤2.98E-05[a]	N/A
Ni	2.11E-01	9.47E-02	7.86E-02	3.84E-01	1.95E-03	8.87E-04	2.83E-03	99.26%
P	1.36E-03	1.08E-03	1.18E-03	3.62E-03	7.70E-04	6.05E-04	1.375E-03	70.16%
Se	ND	ND	ND	ND	≤7.29E-05[a]	ND	ND	N/A
Ag	≤3.01E-05[a]	1.16E-05	2.58E-05	≤6.75E-05[a]	≤1.77E-05[b]	≤1.41E-05[b]	≤3.18E-05[b]	N/A
Tl	ND	ND	ND	ND	ND	ND	ND	N/A
V	7.27E-05	2.09E-05	4.05E-05	1.34E-04	≤5.81E-06[a]	≤3.98E-06[a]	≤9.79E-06[a]	N/A
Zn	3.06E-03	1.52E-03	1.84E-03	6.42E-03	≤5.71E-04[a]	2.15E-04	≤7.86E-04[a]	N/A
Cr^{+6}	2.68E-04	3.20E-05	9.46E-04	1.24E-03	5.70E-05	9.80E-05	1.55E-04	87.50%

ND – Non detect. Analyte below detection limit at both the inlet and outlet
N/A – No control efficiency was calculated.
[a] – Value based on data qualified as DLL in the lab report
[b] – Analyte below detection at outlet, but measurable at inlet. Value shown is detection limit.

3.4 9203 Baghouse System Run 2

Measured Parameter	Emission Factor Total Inlet lb/ton metal processed	Emission Factor Total Outlet lb/ton metal processed
Al	2.195E-02	6.37E-03
Sb	ND	ND
As	ND	ND
Ba	1.968E-04	≤3.76E-05[b]
Be	ND	ND
Cd	6.89E-05	6.83E-06
Cr	5.93E-02	8.58E-04
Co	3.16E-03	3.58E-04
Cu	1.46E-02	≤1.86E-03[a]
Pb	≤4.47E-05[a]	≤2.81E-05[a]
Mn	3.55E-03	2.12E-03
Hg	≤1.52E-05[a]	≤2.49E-05[a]
Ni	3.03E-01	2.37E-03
P	2.869E-03	1.152E-03
Se	ND	ND
Ag	≤5.32E-05[a]	≤2.66E-05[b]
Tl	ND	ND
V	1.06E-04	≤8.20E-06[a]
Zn	5.07E-03	≤6.59E-04[a]
Cr^{+6}	1.04E-03	1.30E-04

ND – Non detect. Analyte below detection limit at both the inlet and outlet
N/A – No control efficiency was calculated.
[a] – Value based on data qualified as DLL in the lab report
[b] – Analyte below detection at outlet, but measurable at inlet. Value shown is detection limit.

4.0 TEST METHODOLOGY

Emission testing was conducted following the United States Environmental Protection Agency (USEPA) methods specified in 40CFR60 and 40CFR63, Appendix A in addition the Mostardi Platt Quality Manual. Schematics of the test section diagrams and sampling trains used are included in Appendix A and B respectively. Calculation nomenclature are included in Appendix C. Laboratory analysis for each test run are included in Appendix H. The computerized reference method test data is included in Appendix D.

The following methodologies were used during the test program:

4.1 Method 1 Sample and Velocity Traverse Determination

Test measurement points were selected in accordance with Method 1, 40 CFR, Part 60, Appendix A. The characteristics of each measurement location is summarized in the table below. A null-point pitot traverse was performed prior to testing to ensure the absence of cyclonic flow.

Sample Point Selection

Test Location	Stack Diameter	Upstream Distance	Downstream Distance	Test Parameters	Number of Sampling Points
BH9203 Inlets (3)	36”	>0.5	>2.0	Cr^{+6} and Metals	24
BH9203 Outlets (2)	34”	>0.5	>2.0	Cr^{+6} and Metals	24

4.2 Method 2 Volumetric Flow Rate Determination

Gas velocity was measured following Method 2, 40 CFR, Part 60, Appendix A, for purposes of calculating gas volumetric flow rate and emission rates on a lb/hr and lb/ton basis metal processed. An S-type pitot tube, as a component of the isokinetic sampling train, differential pressure gauge, thermocouple, and temperature readout were used to determine gas velocity at each sample point. Additionally, the four outlet stacks that were not sampled for metals or hexavalent chrome were continuously monitored utilizing pitot tubes placed at a representative sample point and recorded on a data logger. Flow data for these four stacks is appended to this test report. All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data is presented in Appendix G of this report.

4.3 Method 29 Metals Determination

Metals concentrations and emission rates were determined in accordance with Method 29.

Impingers one and two were loaded with 100 mL each of 5% HNO_3/10% H_2O_2. The third impinger remained empty. The fourth and fifth impinger were loaded with 100mL of 10% H_2SO_4/5% $KMnO_4$. The sixth impinger was filled with silica gel. The impingers were weighed prior to and after each test run in order to determine moisture content of the stack gas. Impingers were recovered as proscribed in the method, with 0.1N HNO_3 used on impingers 1 and 2, 0.1N HNO_3 also used on impinger three (in a separate sample container), and 10% H_2SO_4/5% $KMnO_4$, DI water, and 8N HCl for impingers four and five.

The filter media were Whatman quartz microfiber filters exhibiting a 99.97% efficiency on 0.3-micron DOP smoke particles in accordance with ASTM Standard Method D-2986-71.

Sample analysis was conducted by ChesterNet Labs for particle bound metals from the nozzle, probe, and filter catch, and analyzed for vapor phase metals from the impinger catch.

4.4 Method 0061 Cr^{+6} Determination

Hexavalent chromium (Cr^{+6}) concentrations were determined in accordance with SW-846 Method 0061. The sample was extracted isokinetically from the gas stream and passed through a 0.5N potassium hydroxide (KOH) solution, which was also recirculated through the first impinger to the sample nozzle. The sample train consisted of a glass nozzle, and five impingers. The first three impingers contained the KOH solution (150mL in impinger one, approximately 75mL each in impingers two and three, the fourth impinger remained empty, and the fifth impinger contained silica gel to absorb any remaining moisture). The pH of the first impinger was checked and verified to be greater than 8.5. A post-test nitrogen purge was performed on the impinger train for thirty minutes at 10 liters/minute. Once this purge was complete, samples were filtered and recovered utilizing deionized water and stored in Nalgene sample containers.

5.0 TEST RESULT SUMMARIES

5.1 Baghouse Inlet Method 29 Summaries

5.1.1 Inlet West Method 29 Summaries

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet West
Test Method: 29

Source Condition				**Batch Process**		
Date		**6/27/23**		**6/30/23**		
Start Time		**5:15**		**5:25**		
End Time		**13:42**		**13:40**		
		Run 1		**Run 2**		**Average**
Stack Conditions						
Average Gas Temperature, °F		69.2		72.7		71.0
Flue Gas Moisture, percent by volume		1.0%		1.3%		1.2%
Average Flue Pressure, in. Hg		29.71		29.78		29.75
Gas Sample Volume, dscf		409.320		409.619		409.470
Average Gas Velocity, ft/sec		66.522		70.225		68.374
Gas Volumetric Flow Rate, acfm		28,213		29,783		28,998
Gas Volumetric Flow Rate, dscfm		27,678		28,985		28,332
Gas Volumetric Flow Rate, scfm		27,949		29,382		28,666
Isokinetic Variance		99.9		99.6		99.8
Sample Duration, hours		8.00		7.67		
Tons of metal processed		8.853		9.550		9.202
Aluminum (Al) Emissions						
Detection Limit Qualifier		**ADL**		**ADL**		
ug of sample collected		752.21		765.89		759.05
ppb		57.81		58.82		58.32
ug/dscm		64.90		66.03		65.47
ug/dscf		1.84E+00		1.87E+00		1.85E+00
lb/hr		6.73E-03		7.17E-03		6.95E-03
lb/ton metal processed		6.08E-03		5.76E-03		5.92E-03
Antimony (Sb) Emissions						
Detection Limit Qualifier		**BDL**		**BDL**		
ug of sample collected	≤	1.63	≤	1.55	≤	1.59
ppb	≤	0.03	≤	0.03	≤	0.03
ug/dscm	≤	0.14	≤	0.13	≤	0.14
ug/dscf	≤	3.96E-03	≤	3.68E-03	≤	3.82E-03
lb/hr	≤	1.46E-05	≤	1.45E-05	≤	1.45E-05
lb/ton metal processed	≤	1.32E-05	≤	1.17E-05	≤	1.24E-05
Arsenic (As) Emissions						
Detection Limit Qualifier		**BDL**		**BDL**		
ug of sample collected	≤	3.60	≤	3.50	≤	3.55
ppb	≤	0.10	≤	0.10	≤	0.10
ug/dscm	≤	0.31	≤	0.30	≤	0.31
ug/dscf	≤	8.78E-03	≤	8.50E-03	≤	8.64E-03
lb/hr	≤	3.22E-05	≤	3.27E-05	≤	3.25E-05
lb/ton metal processed	≤	2.91E-05	≤	2.63E-05	≤	2.77E-05
Barium (Ba) Emissions						
Detection Limit Qualifier		**ADL**		**ADL**		
ug of sample collected		21.10		6.20		13.65
ppb		0.32		0.09		0.21
ug/dscm		1.82		0.53		1.18
ug/dscf		5.15E-02		1.50E-02		3.33E-02
lb/hr		1.89E-04		5.80E-05		1.23E-04
lb/ton metal processed		1.71E-04		4.66E-05		1.09E-04
Beryllium (Be) Emissions						
Detection Limit Qualifier		**BDL**		**BDL**		
ug of sample collected	≤	0.08	≤	0.08	≤	0.08
ppb	≤	0.02	≤	0.02	≤	0.02
ug/dscm	≤	0.01	≤	0.01	≤	0.01
ug/dscf	≤	2.83E-04	≤	2.83E-04	≤	2.83E-04
lb/hr	≤	7.25E-07	≤	7.30E-07	≤	7.27E-07
lb/ton metal processed	≤	6.55E-07	≤	5.86E-07	≤	6.21E-07
Cadmium (Cd) Emissions						
Detection Limit Qualifier		**ADL**		**ADL**		
ug of sample collected		1.67		0.59		1.13
ppb		0.03		0.01		0.02
ug/dscm		0.14		0.05		0.10
ug/dscf		3.96E-03		1.42E-03		2.69E-03
lb/hr		1.50E-05		5.55E-06		1.03E-05
lb/ton metal processed		1.35E-05		4.46E-06		8.99E-06

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet West
Test Method: 29

Source Condition	Batch Process		
Date	6/27/23	6/30/23	
Start Time	5:15	5:25	
End Time	13:42	13:40	
	Run 1	Run 2	Average
Stack Conditions			
Average Gas Temperature, °F	69.2	72.7	71.0
Flue Gas Moisture, percent by volume	1.0%	1.3%	1.2%
Average Flue Pressure, in. Hg	29.71	29.78	29.75
Gas Sample Volume, dscf	409.320	409.619	409.470
Average Gas Velocity, ft/sec	66.522	70.225	68.374
Gas Volumetric Flow Rate, acfm	28,213	29,783	28,998
Gas Volumetric Flow Rate, dscfm	27,678	28,985	28,332
Gas Volumetric Flow Rate, scfm	27,949	29,382	28,666
Isokinetic Variance	99.9	99.6	99.8
Sample Duration, hours	8.00	7.67	
Tons of metal processed	8.853	9.550	9.202
Chromium (Cr) Emissions			
Detection Limit Qualifier	ADL	ADL	
ug of sample collected	903.17	1,293.00	1,098.08
ppb	36.02	51.52	43.77
ug/dscm	77.92	111.47	94.70
ug/dscf	2.21E+00	3.16E+00	2.68E+00
lb/hr	8.08E-03	1.21E-02	1.01E-02
lb/ton metal processed	7.30E-03	9.72E-03	8.51E-03
Cobalt (Co) Emissions			
Detection Limit Qualifier	ADL	ADL	
ug of sample collected	208.57	314.66	261.61
ppb	7.34	11.06	9.20
ug/dscm	17.99	27.13	22.56
ug/dscf	5.09E-01	7.68E-01	6.39E-01
lb/hr	1.87E-03	2.95E-03	2.41E-03
lb/ton metal processed	1.69E-03	2.37E-03	2.03E-03
Copper (Cu) Emissions			
Detection Limit Qualifier	ADL	ADL	
ug of sample collected	338.20	398.99	368.60
ppb	11.04	13.01	12.02
ug/dscm	29.18	34.40	31.79
ug/dscf	8.26E-01	9.74E-01	9.00E-01
lb/hr	3.03E-03	3.73E-03	3.38E-03
lb/ton metal processed	2.73E-03	3.00E-03	2.87E-03
Lead (Pb) Emissions			
Detection Limit Qualifier	DLL	ADL	
ug of sample collected	≤ 3.11	1.88	≤ 2.49
ppb	≤ 0.03	0.02	≤ 0.03
ug/dscm	≤ 0.27	0.16	≤ 0.22
ug/dscf	≤ 7.65E-03	4.53E-03	≤ 6.09E-03
lb/hr	≤ 2.78E-05	1.76E-05	≤ 2.27E-05
lb/ton metal processed	≤ 2.51E-05	1.41E-05	≤ 1.96E-05
Manganese (Mn) Emissions			
Detection Limit Qualifier	ADL	ADL	
ug of sample collected	27.77	46.17	36.97
ppb	1.05	1.74	1.39
ug/dscm	2.40	3.98	3.19
ug/dscf	6.80E-02	1.13E-01	9.03E-02
lb/hr	2.48E-04	4.32E-04	3.40E-04
lb/ton metal processed	2.24E-04	3.47E-04	2.86E-04
Mercury (Hg) Emissions			
Detection Limit Qualifier	DLL	DLL	
ug of sample collected	≤ 0.66	≤ 0.55	≤ 0.60
ppb	≤ 0.01	≤ 0.01	≤ 0.01
ug/dscm	≤ 0.06	≤ 0.05	≤ 0.06
ug/dscf	≤ 1.70E-03	≤ 1.42E-03	≤ 1.56E-03
lb/hr	≤ 5.94E-06	≤ 5.11E-06	≤ 5.52E-06
lb/ton metal processed	≤ 5.37E-06	≤ 4.10E-06	≤ 4.73E-06

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet West
Test Method: 29

Source Condition		Batch Process	
Date	6/27/23	6/30/23	
Start Time	5:15	5:25	
End Time	13:42	13:40	
	Run 1	Run 2	Average
Stack Conditions			
Average Gas Temperature, °F	69.2	72.7	71.0
Flue Gas Moisture, percent by volume	1.0%	1.3%	1.2%
Average Flue Pressure, in. Hg	29.71	29.78	29.75
Gas Sample Volume, dscf	409.320	409.619	409.470
Average Gas Velocity, ft/sec	66.522	70.225	68.374
Gas Volumetric Flow Rate, acfm	28,213	29,783	28,998
Gas Volumetric Flow Rate, dscfm	27,678	28,985	28,332
Gas Volumetric Flow Rate, scfm	27,949	29,382	28,666
Isokinetic Variance	99.9	99.6	99.8
Sample Duration, hours	8.00	7.67	
Tons of metal processed	8.853	9.550	9.202
Nickel (Ni) Emissions			
Detection Limit Qualifier	ADL	ADL	
ug of sample collected	6,536.42	10,113.20	8,324.81
ppb	230.94	357.06	294.00
ug/dscm	563.94	871.89	717.92
ug/dscf	1.60E+01	2.47E+01	2.03E+01
lb/hr	5.85E-02	9.47E-02	7.66E-02
lb/ton metal processed	5.28E-02	7.60E-02	6.44E-02
Phosphorus (P) Emissions			
Detection Limit Qualifier	ADL	ADL	
ug of sample collected	116.75	115.75	116.25
ppb	7.82	7.74	7.78
ug/dscm	10.07	9.98	10.03
ug/dscf	2.85E-01	2.83E-01	2.84E-01
lb/hr	1.04E-03	1.08E-03	1.06E-03
lb/ton metal processed	9.44E-04	8.70E-04	9.07E-04
Selenium (Se) Emissions			
Detection Limit Qualifier	ADL	BDL	
ug of sample collected	12.75	≤ 2.57	≤ 7.66
ppb	0.34	≤ 0.07	≤ 0.20
ug/dscm	1.10	≤ 0.22	≤ 0.66
ug/dscf	3.11E-02	≤ 6.23E-03	≤ 1.87E-02
lb/hr	1.14E-04	≤ 2.41E-05	≤ 6.90E-05
lb/ton metal processed	1.03E-04	≤ 1.93E-05	≤ 6.12E-05
Silver (Ag) Emissions			
Detection Limit Qualifier	ADL	ADL	
ug of sample collected	1.95	1.24	1.59
ppb	0.02	0.01	0.02
ug/dscm	0.17	0.11	0.14
ug/dscf	4.81E-03	3.11E-03	3.96E-03
lb/hr	1.75E-05	1.16E-05	1.45E-05
lb/ton metal processed	1.58E-05	9.29E-06	1.25E-05
Thallium (Tl) Emissions			
Detection Limit Qualifier	BDL	BDL	
ug of sample collected	≤ 1.67	≤ 1.48	≤ 1.58
ppb	≤ 0.02	≤ 0.02	≤ 0.02
ug/dscm	≤ 0.14	≤ 0.13	≤ 0.14
ug/dscf	≤ 3.96E-03	≤ 3.68E-03	≤ 3.82E-03
lb/hr	≤ 1.49E-05	≤ 1.39E-05	≤ 1.44E-05
lb/ton metal processed	≤ 1.35E-05	≤ 1.11E-05	≤ 1.23E-05
Vanadium (V) Emissions			
Detection Limit Qualifier	ADL	ADL	
ug of sample collected	2.81	2.23	2.52
ppb	0.11	0.09	0.10
ug/dscm	0.24	0.19	0.22
ug/dscf	6.80E-03	5.38E-03	6.09E-03
lb/hr	2.52E-05	2.09E-05	2.30E-05
lb/ton metal processed	2.27E-05	1.68E-05	1.97E-05
Zinc (Zn) Emissions			
Detection Limit Qualifier	ADL	ADL	
ug of sample collected	147.78	161.98	154.88
ppb	4.69	5.13	4.91
ug/dscm	12.75	13.96	13.36
ug/dscf	3.61E-01	3.95E-01	3.78E-01
lb/hr	1.32E-03	1.52E-03	1.42E-03
lb/ton metal processed	1.19E-03	1.22E-03	1.21E-03

5.1.2 Inlet Center Method 29 Summaries

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet Center
Test Method: 29

Source Condition		**Batch Process**	
Date	**6/27/23**	**6/30/23**	
Start Time	**5:15**	**5:25**	
End Time	**13:50**	**13:30**	
	Run 1	**Run 2**	**Average**
Stack Conditions			
Average Gas Temperature, °F	68.5	71.5	70.0
Flue Gas Moisture, percent by volume	0.7%	1.2%	1.0%
Average Flue Pressure, in. Hg	29.70	29.71	29.71
Gas Sample Volume, dscf	391.296	388.108	389.702
Average Gas Velocity, ft/sec	67.316	70.942	69.129
Gas Volumetric Flow Rate, acfm	28,550	30,088	29,319
Gas Volumetric Flow Rate, dscfm	28,113	29,333	28,723
Gas Volumetric Flow Rate, scfm	28,309	29,680	28,995
Isokinetic Variance	97.9	99.3	98.6
Sample Duration, hours	8.00	7.50	
Tons of metal processed	8.853	9.550	9.202
Aluminum (Al) Emissions			
Detection Limit Qualifier	**ADL**	**ADL**	
ug of sample collected	784.32	889.68	837.00
ppb	63.06	72.12	67.59
ug/dscm	70.79	80.95	75.87
ug/dscf	2.00E+00	2.29E+00	2.15E+00
lb/hr	7.45E-03	8.89E-03	8.17E-03
lb/ton metal processed	6.74E-03	6.99E-03	6.86E-03
Antimony (Sb) Emissions			
Detection Limit Qualifier	**BDL**	**BDL**	
ug of sample collected	≤ 1.45	≤ 1.58	≤ 1.51
ppb	≤ 0.03	≤ 0.03	≤ 0.03
ug/dscm	≤ 0.13	≤ 0.14	≤ 0.14
ug/dscf	≤ 3.68E-03	≤ 3.96E-03	≤ 3.82E-03
lb/hr	≤ 1.38E-05	≤ 1.58E-05	≤ 1.48E-05
lb/ton metal processed	≤ 1.25E-05	≤ 1.24E-05	≤ 1.24E-05
Arsenic (As) Emissions			
Detection Limit Qualifier	**BDL**	**BDL**	
ug of sample collected	≤ 3.29	≤ 3.51	≤ 3.40
ppb	≤ 0.10	≤ 0.10	≤ 0.10
ug/dscm	≤ 0.30	≤ 0.32	≤ 0.31
ug/dscf	≤ 8.50E-03	≤ 9.06E-03	≤ 8.78E-03
lb/hr	≤ 3.13E-05	≤ 3.51E-05	≤ 3.32E-05
lb/ton metal processed	≤ 2.83E-05	≤ 2.76E-05	≤ 2.79E-05
Barium (Ba) Emissions			
Detection Limit Qualifier	**ADL**	**ADL**	
ug of sample collected	53.06	7.90	30.48
ppb	0.84	0.13	0.48
ug/dscm	4.79	0.72	2.76
ug/dscf	1.36E-01	2.04E-02	7.80E-02
lb/hr	5.04E-04	7.90E-05	2.92E-04
lb/ton metal processed	4.56E-04	6.20E-05	2.59E-04
Beryllium (Be) Emissions			
Detection Limit Qualifier	**BDL**	**BDL**	
ug of sample collected	≤ 0.07	≤ 0.08	≤ 0.08
ppb	≤ 0.02	≤ 0.02	≤ 0.02
ug/dscm	≤ 0.01	≤ 0.01	≤ 0.01
ug/dscf	≤ 2.83E-04	≤ 2.83E-04	≤ 2.83E-04
lb/hr	≤ 6.94E-07	≤ 7.90E-07	≤ 7.42E-07
lb/ton metal processed	≤ 6.27E-07	≤ 6.20E-07	≤ 6.24E-07
Cadmium (Cd) Emissions			
Detection Limit Qualifier	**ADL**	**ADL**	
ug of sample collected	2.88	1.17	2.03
ppb	0.06	0.02	0.04
ug/dscm	0.26	0.11	0.19
ug/dscf	7.36E-03	3.11E-03	5.24E-03
lb/hr	2.74E-05	1.17E-05	1.95E-05
lb/ton metal processed	2.47E-05	9.19E-06	1.70E-05

Client: **PCC Structurals, Inc.**
Facility: **Large Parts Campus Facility - Milwaukie, OR**
Test Location: **BH9203 Inlet Center**
Test Method: **29**

Source Condition		Batch Process			
Date		6/27/23		6/30/23		
Start Time		5:15		5:25		
End Time		13:50		13:30		
		Run 1		Run 2		Average
Stack Conditions						
Average Gas Temperature, °F		68.5		71.5		70.0
Flue Gas Moisture, percent by volume		0.7%		1.2%		1.0%
Average Flue Pressure, in. Hg		29.70		29.71		29.71
Gas Sample Volume, dscf		391.296		388.108		389.702
Average Gas Velocity, ft/sec		67.316		70.942		69.129
Gas Volumetric Flow Rate, acfm		28,550		30,088		29,319
Gas Volumetric Flow Rate, dscfm		28,113		29,333		28,723
Gas Volumetric Flow Rate, scfm		28,309		29,680		28,995
Isokinetic Variance		97.9		99.3		98.6
Sample Duration, hours		8.00		7.50		
Tons of metal processed		8.853		9.550		9.202
Chromium (Cr) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		741.97		1,360.90		1,051.43
ppb		30.95		57.24		44.09
ug/dscm		66.96		123.83		95.40
ug/dscf		1.90E+00		3.51E+00		2.70E+00
lb/hr		7.05E-03		1.36E-02		1.03E-02
lb/ton metal processed		6.37E-03		1.07E-02		8.53E-03
Cobalt (Co) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		137.00		44.42		90.71
ppb		5.04		1.65		3.35
ug/dscm		12.36		4.04		8.20
ug/dscf		3.50E-01		1.14E-01		2.32E-01
lb/hr		1.30E-03		4.44E-04		8.73E-04
lb/ton metal processed		1.18E-03		3.49E-04		7.63E-04
Copper (Cu) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		409.10		779.37		594.24
ppb		13.96		26.82		20.39
ug/dscm		36.92		70.92		53.92
ug/dscf		1.05E+00		2.01E+00		1.53E+00
lb/hr		3.89E-03		7.79E-03		5.84E-03
lb/ton metal processed		3.51E-03		6.12E-03		4.82E-03
Lead (Pb) Emissions						
Detection Limit Qualifier		ADL		DLL		
ug of sample collected		3.44	≤	1.87	≤	2.66
ppb		0.04	≤	0.02	≤	0.03
ug/dscm		0.31	≤	0.17	≤	0.24
ug/dscf		8.78E-03	≤	4.81E-03	≤	6.80E-03
lb/hr		3.27E-05	≤	1.87E-05	≤	2.57E-05
lb/ton metal processed		2.95E-05	≤	1.47E-05	≤	2.21E-05
Manganese (Mn) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		116.57		128.17		122.37
ppb		4.60		5.10		4.85
ug/dscm		10.52		11.66		11.09
ug/dscf		2.98E-01		3.30E-01		3.14E-01
lb/hr		1.11E-03		1.28E-03		1.19E-03
lb/ton metal processed		1.00E-03		1.01E-03		1.00E-03
Mercury (Hg) Emissions						
Detection Limit Qualifier		DLL		DLL		
ug of sample collected	≤	0.43	≤	0.86	≤	0.64
ppb	≤	0.01	≤	0.01	≤	0.01
ug/dscm	≤	0.04	≤	0.08	≤	0.06
ug/dscf	≤	1.13E-03	≤	2.27E-03	≤	1.70E-03
lb/hr	≤	4.08E-06	≤	8.56E-06	≤	6.32E-06
lb/ton metal processed	≤	3.69E-06	≤	6.72E-06	≤	5.20E-06

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet Center
Test Method: 29

Source Condition		Batch Process			
Date		6/27/23		6/30/23		
Start Time		5:15		5:25		
End Time		13:50		13:30		
		Run 1		Run 2		Average
Stack Conditions						
Average Gas Temperature, °F		68.5		71.5		70.0
Flue Gas Moisture, percent by volume		0.7%		1.2%		1.0%
Average Flue Pressure, in. Hg		29.70		29.71		29.71
Gas Sample Volume, dscf		391.296		388.108		389.702
Average Gas Velocity, ft/sec		67.316		70.942		69.129
Gas Volumetric Flow Rate, acfm		28,550		30,088		29,319
Gas Volumetric Flow Rate, dscfm		28,113		29,333		28,723
Gas Volumetric Flow Rate, scfm		28,309		29,680		28,995
Isokinetic Variance		97.9		99.3		98.6
Sample Duration, hours		8.00		7.50		
Tons of metal processed		8.853		9.550		9.202
Nickel (Ni) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		4,859.42		7,859.52		6,359.47
ppb		179.60		292.87		236.23
ug/dscm		438.57		715.15		576.86
ug/dscf		1.24E+01		2.03E+01		1.63E+01
lb/hr		4.62E-02		7.86E-02		6.24E-02
lb/ton metal processed		4.17E-02		6.17E-02		5.17E-02
Phosphorus (P) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		156.82		118.35		137.59
ppb		10.98		8.36		9.67
ug/dscm		14.15		10.77		12.46
ug/dscf		4.01E-01		3.05E-01		3.53E-01
lb/hr		1.49E-03		1.18E-03		1.34E-03
lb/ton metal processed		1.35E-03		9.29E-04		1.14E-03
Selenium (Se) Emissions						
Detection Limit Qualifier		BDL		BDL		
ug of sample collected	≤	2.20	≤	2.66	≤	2.43
ppb	≤	0.06	≤	0.07	≤	0.07
ug/dscm	≤	0.20	≤	0.24	≤	0.22
ug/dscf	≤	5.66E-03	≤	6.80E-03	≤	6.23E-03
lb/hr	≤	2.09E-05	≤	2.66E-05	≤	2.38E-05
lb/ton metal processed	≤	1.89E-05	≤	2.09E-05	≤	1.99E-05
Silver (Ag) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		6.28		2.58		4.43
ppb		0.07		0.03		0.05
ug/dscm		0.57		0.23		0.40
ug/dscf		1.61E-02		6.51E-03		1.13E-02
lb/hr		5.96E-05		2.58E-05		4.27E-05
lb/ton metal processed		5.39E-05		2.03E-05		3.71E-05
Thallium (Tl) Emissions						
Detection Limit Qualifier		BDL		BDL		
ug of sample collected	≤	1.23	≤	1.54	≤	1.39
ppb	≤	0.01	≤	0.02	≤	0.01
ug/dscm	≤	0.11	≤	0.14	≤	0.13
ug/dscf	≤	3.11E-03	≤	3.96E-03	≤	3.54E-03
lb/hr	≤	1.17E-05	≤	1.54E-05	≤	1.35E-05
lb/ton metal processed	≤	1.06E-05	≤	1.21E-05	≤	1.13E-05
Vanadium (V) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		2.88		4.05		3.47
ppb		0.12		0.17		0.15
ug/dscm		0.26		0.37		0.32
ug/dscf		7.36E-03		1.05E-02		8.92E-03
lb/hr		2.73E-05		4.05E-05		3.39E-05
lb/ton metal processed		2.47E-05		3.18E-05		2.83E-05
Zinc (Zn) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		658.98		184.11		421.55
ppb		21.86		6.16		14.01
ug/dscm		59.47		16.75		38.11
ug/dscf		1.68E+00		4.74E-01		1.08E+00
lb/hr		6.26E-03		1.84E-03		4.05E-03
lb/ton metal processed		5.66E-03		1.45E-03		3.55E-03

5.1.3 Inlet East Method 29 Summaries

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet East
Test Method: 29

Source Condition				Batch Process		
Date		**6/27/23**		**6/30/23**		
Start Time		**5:15**		**5:25**		
End Time		**13:30**		**13:30**		
		Run 1		**Run 2**		**Average**
Stack Conditions						
Average Gas Temperature, °F		70.7		73.4		72.1
Flue Gas Moisture, percent by volume		0.9%		1.5%		1.2%
Average Flue Pressure, in. Hg		29.70		29.78		29.74
Gas Sample Volume, dscf		359.466		316.259		337.863
Average Gas Velocity, ft/sec		61.064		60.004		60.534
Gas Volumetric Flow Rate, acfm		25,898		25,449		25,674
Gas Volumetric Flow Rate, dscfm		25,354		24,691		25,023
Gas Volumetric Flow Rate, scfm		25,575		25,071		25,323
Isokinetic Variance		102.8		99.1		101.0
Sample Duration, hours		8.00		7.50		
Tons of metal processed		8.853		9.550		9.202
Aluminum (Al) Emissions						
Detection Limit Qualifier		**ADL**		**ADL**		
ug of sample collected		816.62		1134.49		975.56
ppb		71.47		112.85		92.16
ug/dscm		80.23		126.68		103.46
ug/dscf		2.27E+00		3.59E+00		2.93E+00
lb/hr		7.62E-03		1.17E-02		9.67E-03
lb/ton metal processed		6.88E-03		9.20E-03		8.04E-03
Antimony (Sb) Emissions						
Detection Limit Qualifier		**BDL**		**DLL**		
ug of sample collected	≤	1.51	≤	1.64	≤	1.57
ppb	≤	0.03	≤	0.04	≤	0.03
ug/dscm	≤	0.15	≤	0.18	≤	0.17
ug/dscf	≤	4.25E-03	≤	5.10E-03	≤	4.67E-03
lb/hr	≤	1.41E-05	≤	1.69E-05	≤	1.55E-05
lb/ton metal processed	≤	1.27E-05	≤	1.33E-05	≤	1.30E-05
Arsenic (As) Emissions						
Detection Limit Qualifier		**DLL**		**BDL**		
ug of sample collected	≤	4.50	≤	3.28	≤	3.89
ppb	≤	0.14	≤	0.12	≤	0.13
ug/dscm	≤	0.44	≤	0.37	≤	0.41
ug/dscf	≤	1.25E-02	≤	1.05E-02	≤	1.15E-02
lb/hr	≤	4.20E-05	≤	3.39E-05	≤	3.79E-05
lb/ton metal processed	≤	3.79E-05	≤	2.66E-05	≤	3.23E-05
Barium (Ba) Emissions						
Detection Limit Qualifier		**ADL**		**ADL**		
ug of sample collected		42.39		10.88		26.64
ppb		0.73		0.21		0.47
ug/dscm		4.16		1.21		2.69
ug/dscf		1.18E-01		3.43E-02		7.60E-02
lb/hr		3.95E-04		1.12E-04		2.54E-04
lb/ton metal processed		3.57E-04		8.82E-05		2.23E-04
Beryllium (Be) Emissions						
Detection Limit Qualifier		**BDL**		**BDL**		
ug of sample collected	≤	0.08	≤	0.07	≤	0.07
ppb	≤	0.02	≤	0.02	≤	0.02
ug/dscm	≤	0.01	≤	0.01	≤	0.01
ug/dscf	≤	2.83E-04	≤	2.83E-04	≤	2.83E-04
lb/hr	≤	7.00E-07	≤	7.44E-07	≤	7.22E-07
lb/ton metal processed	≤	6.32E-07	≤	5.84E-07	≤	6.08E-07
Cadmium (Cd) Emissions						
Detection Limit Qualifier		**ADL**		**ADL**		
ug of sample collected		6.08		6.81		6.45
ppb		0.13		0.16		0.15
ug/dscm		0.60		0.76		0.68
ug/dscf		1.70E-02		2.15E-02		1.93E-02
lb/hr		5.67E-05		7.04E-05		6.35E-05
lb/ton metal processed		5.13E-05		5.53E-05		5.33E-05

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet East
Test Method: 29

Source Condition	Batch Process		
Date	**6/27/23**	**6/30/23**	
Start Time	**5:15**	**5:25**	
End Time	**13:30**	**13:30**	
	Run 1	**Run 2**	**Average**
Stack Conditions			
Average Gas Temperature, °F	70.7	73.4	72.1
Flue Gas Moisture, percent by volume	0.9%	1.5%	1.2%
Average Flue Pressure, in. Hg	29.70	29.78	29.74
Gas Sample Volume, dscf	359.466	316.259	337.863
Average Gas Velocity, ft/sec	61.064	60.004	60.534
Gas Volumetric Flow Rate, acfm	25,898	25,449	25,674
Gas Volumetric Flow Rate, dscfm	25,354	24,691	25,023
Gas Volumetric Flow Rate, scfm	25,575	25,071	25,323
Isokinetic Variance	102.8	99.1	101.0
Sample Duration, hours	8.00	7.50	
Tons of metal processed	8.853	9.550	9.202
Chromium (Cr) Emissions			
Detection Limit Qualifier	**ADL**	**ADL**	
ug of sample collected	2,639.82	4,891.94	3,765.88
ppb	119.87	252.48	186.17
ug/dscm	259.34	546.25	402.80
ug/dscf	7.34E+00	1.55E+01	1.14E+01
lb/hr	2.46E-02	5.05E-02	3.76E-02
lb/ton metal processed	2.23E-02	3.97E-02	3.10E-02
Cobalt (Co) Emissions			
Detection Limit Qualifier	**ADL**	**ADL**	
ug of sample collected	43.78	54.84	49.31
ppb	1.75	2.50	2.13
ug/dscm	4.30	6.12	5.21
ug/dscf	1.22E-01	1.73E-01	1.48E-01
lb/hr	4.08E-04	5.66E-04	4.87E-04
lb/ton metal processed	3.69E-04	4.45E-04	4.07E-04
Copper (Cu) Emissions			
Detection Limit Qualifier	**ADL**	**ADL**	
ug of sample collected	293.23	681.99	487.61
ppb	10.90	28.80	19.85
ug/dscm	28.81	76.15	52.48
ug/dscf	8.16E-01	2.16E+00	1.49E+00
lb/hr	2.74E-03	7.04E-03	4.89E-03
lb/ton metal processed	2.47E-03	5.53E-03	4.00E-03
Lead (Pb) Emissions			
Detection Limit Qualifier	**DLL**	**ADL**	
ug of sample collected	≤ 1.67	1.96	≤ 1.81
ppb	≤ 0.02	0.03	≤ 0.02
ug/dscm	≤ 0.16	0.22	≤ 0.19
ug/dscf	≤ 4.53E-03	6.23E-03	≤ 5.38E-03
lb/hr	≤ 1.55E-05	2.02E-05	≤ 1.79E-05
lb/ton metal processed	≤ 1.40E-05	1.59E-05	≤ 1.50E-05
Manganese (Mn) Emissions			
Detection Limit Qualifier	**ADL**	**ADL**	
ug of sample collected	50.47	270.97	160.72
ppb	2.17	13.24	7.70
ug/dscm	4.96	30.26	17.61
ug/dscf	1.40E-01	8.57E-01	4.99E-01
lb/hr	4.71E-04	2.80E-03	1.63E-03
lb/ton metal processed	4.25E-04	2.20E-03	1.31E-03
Mercury (Hg) Emissions			
Detection Limit Qualifier	**DLL**	**DLL**	
ug of sample collected	≤ 0.46	≤ 0.53	≤ 0.50
ppb	≤ 0.01	≤ 0.01	≤ 0.01
ug/dscm	≤ 0.05	≤ 0.06	≤ 0.06
ug/dscf	≤ 1.42E-03	≤ 1.70E-03	≤ 1.56E-03
lb/hr	≤ 4.29E-06	≤ 5.52E-06	≤ 4.91E-06
lb/ton metal processed	≤ 3.88E-06	≤ 4.33E-06	≤ 4.11E-06

Client: **PCC Structurals, Inc.**
Facility: **Large Parts Campus Facility - Milwaukie, OR**
Test Location: **BH9203 Inlet East**
Test Method: **29**

Source Condition			Batch Process		
Date		6/27/23		6/30/23		
Start Time		5:15		5:25		
End Time		13:30		13:30		
		Run 1		Run 2		Average
Stack Conditions						
Average Gas Temperature, °F		70.7		73.4		72.1
Flue Gas Moisture, percent by volume		0.9%		1.5%		1.2%
Average Flue Pressure, in. Hg		29.70		29.78		29.74
Gas Sample Volume, dscf		359.466		316.259		337.863
Average Gas Velocity, ft/sec		61.064		60.004		60.534
Gas Volumetric Flow Rate, acfm		25,898		25,449		25,674
Gas Volumetric Flow Rate, dscfm		25,354		24,691		25,023
Gas Volumetric Flow Rate, scfm		25,575		25,071		25,323
Isokinetic Variance		102.8		99.1		101.0
Sample Duration, hours		8.00		7.50		
Tons of metal processed		8.853		9.550		9.202
Nickel (Ni) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		8,119.83		20,414.22		14,267.03
ppb		326.68		933.51		630.09
ug/dscm		797.71		2279.53		1538.62
ug/dscf		2.26E+01		6.45E+01		4.36E+01
lb/hr		7.58E-02		2.11E-01		1.43E-01
lb/ton metal processed		6.85E-02		1.66E-01		1.17E-01
Phosphorus (P) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		114.55		131.54		123.05
ppb		8.73		11.40		10.07
ug/dscm		11.25		14.69		12.97
ug/dscf		3.19E-01		4.16E-01		3.67E-01
lb/hr		1.07E-03		1.36E-03		1.21E-03
lb/ton metal processed		9.66E-04		1.07E-03		1.02E-03
Selenium (Se) Emissions						
Detection Limit Qualifier		BDL		BDL		
ug of sample collected	≤	2.40	≤	2.18	≤	2.29
ppb	≤	0.07	≤	0.07	≤	0.07
ug/dscm	≤	0.24	≤	0.24	≤	0.24
ug/dscf	≤	6.80E-03	≤	6.80E-03	≤	6.80E-03
lb/hr	≤	2.24E-05	≤	2.25E-05	≤	2.25E-05
lb/ton metal processed	≤	2.02E-05	≤	1.77E-05	≤	1.90E-05
Silver (Ag) Emissions						
Detection Limit Qualifier		ADL		DLL		
ug of sample collected		4.04	≤	2.91	≤	3.48
ppb		0.05	≤	0.04	≤	0.04
ug/dscm		0.40	≤	0.33	≤	0.37
ug/dscf		1.13E-02	≤	9.34E-03	≤	1.03E-02
lb/hr		3.77E-05	≤	3.01E-05	≤	3.39E-05
lb/ton metal processed		3.41E-05	≤	2.36E-05	≤	2.88E-05
Thallium (Tl) Emissions						
Detection Limit Qualifier		BDL		BDL		
ug of sample collected	≤	1.37	≤	1.22	≤	1.30
ppb	≤	0.02	≤	0.02	≤	0.02
ug/dscm	≤	0.13	≤	0.14	≤	0.14
ug/dscf	≤	3.68E-03	≤	3.96E-03	≤	3.82E-03
lb/hr	≤	1.28E-05	≤	1.26E-05	≤	1.27E-05
lb/ton metal processed	≤	1.16E-05	≤	9.89E-06	≤	1.07E-05
Vanadium (V) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		5.59		7.04		6.31
ppb		0.26		0.37		0.32
ug/dscm		0.55		0.79		0.67
ug/dscf		1.56E-02		2.24E-02		1.90E-02
lb/hr		5.21E-05		7.27E-05		6.24E-05
lb/ton metal processed		4.71E-05		5.71E-05		5.21E-05
Zinc (Zn) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		182.88		296.48		239.68
ppb		6.61		12.17		9.39
ug/dscm		17.97		33.11		25.54
ug/dscf		5.09E-01		9.38E-01		7.23E-01
lb/hr		1.71E-03		3.06E-03		2.38E-03
lb/ton metal processed		1.54E-03		2.40E-03		1.97E-03

5.2 Baghouse Inlet Method 0061 Summaries

5.2.1 Inlet West Method 0061 Summary

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet West
Test Method: 0061

Source Condition		Batch Process	
Date	6/27/23	6/30/23	
Start Time	5:15	5:25	
End Time	13:42	13:30	
	Run 1	Run 2	Average
Stack Conditions			
Average Gas Temperature, °F	65.6	68.8	67.2
Flue Gas Moisture, percent by volume	1.0%	1.3%	1.2%
Average Flue Pressure, in. Hg	29.70	29.78	29.74
Gas Sample Volume, dscf	378.716	388.962	383.839
Average Gas Velocity, ft/sec	64.690	71.185	67.938
Gas Volumetric Flow Rate, acfm	27,436	30,191	28,814
Gas Volumetric Flow Rate, dscfm	27,084	29,613	28,349
Gas Volumetric Flow Rate, scfm	27,358	30,003	28,681
Isokinetic Variance	99.3	101.8	100.6
Tons of metal processed	8.853	9.550	9.227
Hexavalent Chromium (Cr+6) Emissions			
Detection Limit Qualifier	ADL	ADL	
ug of sample collected	82.30	99.20	90.75
ppb	3.55	4.16	3.86
ug/dscm	7.67E+00	9.01E+00	8.34E+00
ug/dscf	2.17E-01	2.55E-01	2.36E-01
lb/hr	7.79E-04	9.99E-04	8.89E-04
lb/ton metal processed	7.04E-04	8.37E-04	0.00077

5.2.2 Inlet Center Method 0061 Summary

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet Center
Test Method: 0061

Source Condition		Batch Process	
Date	6/27/23	6/27/23	
Start Time	5:15	5:25	
End Time	13:50	13:30	
	Run 1	Run 2	Average
Stack Conditions			
Average Gas Temperature, °F	68.8	71.5	70.2
Flue Gas Moisture, percent by volume	0.7%	1.2%	1.0%
Average Flue Pressure, in. Hg	29.70	29.71	29.71
Gas Sample Volume, dscf	406.203	352.050	379.127
Average Gas Velocity, ft/sec	69.435	64.794	67.115
Gas Volumetric Flow Rate, acfm	29,448	27,480	28,464
Gas Volumetric Flow Rate, dscfm	28,980	26,785	27,883
Gas Volumetric Flow Rate, scfm	29,185	27,110	28,148
Isokinetic Variance	95.6	97.8	96.7
Tons of metal processed	8.853	9.550	9.202
Hexavalent Chromium (Cr+6) Emissions			
Detection Limit Qualifier	ADL	ADL	
ug of sample collected	204.00	94.00	149.00
ppb	8.20	4.36	6.28
ug/dscm	1.77E+01	9.43E+00	1.36E+01
ug/dscf	5.02E-01	2.67E-01	3.85E-01
lb/hr	1.93E-03	9.46E-04	1.44E-03
lb/ton metal processed	1.74E-03	7.92E-04	1.27E-03

5.2.3 Inlet East Method 0061 Summary

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet East
Test Method: 0061

Source Condition		**Batch Process**	
Date	**6/27/23**	**6/30/23**	
Start Time	**5:15**	**5:25**	
End Time	**13:20**	**14:00**	
	Run 1	**Run 2**	**Average**
Stack Conditions			
Average Gas Temperature, °F	70.1	72.2	71.2
Flue Gas Moisture, percent by volume	0.9%	1.5%	1.2%
Average Flue Pressure, in. Hg	29.70	29.78	29.74
Gas Sample Volume, dscf	360.840	325.578	343.209
Average Gas Velocity, ft/sec	60.266	59.985	60.126
Gas Volumetric Flow Rate, acfm	25,560	25,441	25,501
Gas Volumetric Flow Rate, dscfm	25,042	24,743	24,893
Gas Volumetric Flow Rate, scfm	25,269	25,120	25,195
Isokinetic Variance	102.4	93.5	98.0
Tons of metal processed	8.853	9.550	9.227
Hexavalent Chromium (Cr+6) Emissions			
Detection Limit Qualifier	**ADL**	**ADL**	
ug of sample collected	49.10	26.70	37.90
ppb	2.22	1.34	1.78
ug/dscm	4.81E+00	2.90E+00	3.86E+00
ug/dscf	1.36E-01	8.21E-02	1.09E-01
lb/hr	4.51E-04	2.68E-04	3.60E-04
lb/ton metal processed	4.08E-04	2.25E-04	3.16E-04

5.3 Baghouse Outlet Method 29 Summaries[1]

5.3.1 Outlet West Method 29 Summaries

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Outlet West
Test Method: 29

Source Condition			**Batch Process**			
Date		**6/27/23**		**6/30/23**		
Start Time		**5:15**		**5:25**		
End Time		**13:33**		**13:35**		
		Run 1		**Run 2**		**Average**
Stack Conditions						
Average Gas Temperature, °F		73.7		77.2		75.5
Flue Gas Moisture, percent by volume		0.7%		1.0%		0.9%
Average Flue Pressure, in. Hg		30.01		30.01		30.01
Gas Sample Volume, dscf		412.857		423.437		418.147
Average Gas Velocity, ft/sec		57.331		59.234		58.283
Gas Volumetric Flow Rate, acfm		21,683		22,403		22,043
Gas Volumetric Flow Rate, dscfm		21,374		21,855		21,615
Gas Volumetric Flow Rate, scfm		21,514		22,084		21,799
Isokinetic Variance		100.7		101.0		100.9
Sample Duration, hours		8.00		8.00		
Tons of metal processed		8.853		9.550		9.202
Aluminum (Al) Emissions						
Detection Limit Qualifier		**ADL**		**ADL**		
ug of sample collected		538.75		505.59		522.17
ppb		41.05		37.56		39.31
ug/dscm		46.08		42.17		44.13
ug/dscf		1.30E+00		1.19E+00		1.25E+00
lb/hr		3.69E-03		3.45E-03		3.57E-03
lb/ton metal processed		3.33E-03		2.89E-03		3.11E-03
Antimony (Sb) Emissions						
Detection Limit Qualifier		**BDL**		**BDL**		
ug of sample collected	≤	1.46	≤	1.47	≤	1.47
ppb	≤	0.03	≤	0.02	≤	0.02
ug/dscm	≤	0.13	≤	0.12	≤	0.13
ug/dscf	≤	3.68E-03	≤	3.40E-03	≤	3.54E-03
lb/hr	≤	1.00E-05	≤	1.00E-05	≤	1.00E-05
lb/ton metal processed	≤	9.06E-06	≤	8.42E-06	≤	8.74E-06
Arsenic (As) Emissions						
Detection Limit Qualifier		**BDL**		**BDL**		
ug of sample collected	≤	3.31	≤	3.33	≤	3.32
ppb	≤	0.09	≤	0.09	≤	0.09
ug/dscm	≤	0.28	≤	0.28	≤	0.28
ug/dscf	≤	7.93E-03	≤	7.93E-03	≤	7.93E-03
lb/hr	≤	2.27E-05	≤	2.27E-05	≤	2.27E-05
lb/ton metal processed	≤	2.05E-05	≤	1.90E-05	≤	1.98E-05
Barium (Ba) Emissions						
Detection Limit Qualifier		**ADL**		**DLL**		
ug of sample collected		5.22	≤	2.62	≤	3.92
ppb		0.08	≤	0.04	≤	0.06
ug/dscm		0.45	≤	0.22	≤	0.34
ug/dscf		1.27E-02	≤	6.23E-03	≤	9.49E-03
lb/hr		3.57E-05	≤	1.79E-05	≤	2.68E-05
lb/ton metal processed		3.23E-05	≤	1.50E-05	≤	2.36E-05
Beryllium (Be) Emissions						
Detection Limit Qualifier		**BDL**		**BDL**		
ug of sample collected	≤	0.07	≤	0.07	≤	0.07
ppb	≤	0.02	≤	0.02	≤	0.02
ug/dscm	≤	0.01	≤	0.01	≤	0.01
ug/dscf	≤	2.83E-04	≤	2.83E-04	≤	2.83E-04
lb/hr	≤	5.00E-07	≤	5.05E-07	≤	5.03E-07
lb/ton metal processed	≤	4.52E-07	≤	4.23E-07	≤	4.37E-07
Cadmium (Cd) Emissions						
Detection Limit Qualifier		**ADL**		**ADL**		
ug of sample collected		0.40		0.24		0.32
ppb		0.01		0.00		0.01
ug/dscm		0.03		0.02		0.03
ug/dscf		8.50E-04		5.66E-04		7.08E-04
lb/hr		2.71E-06		1.62E-06		2.17E-06
lb/ton metal processed		2.45E-06		1.36E-06		1.91E-06

[1] Includes actual emissions from the sources tested, does not include total lb/hr as summed in Section 3.8

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Outlet West
Test Method: 29

Source Condition	Batch Process		
Date	6/27/23	6/30/23	
Start Time	5:15	5:25	
End Time	13:33	13:35	
	Run 1	Run 2	Average
Stack Conditions			
Average Gas Temperature, °F	73.7	77.2	75.5
Flue Gas Moisture, percent by volume	0.7%	1.0%	0.9%
Average Flue Pressure, in. Hg	30.01	30.01	30.01
Gas Sample Volume, dscf	412.857	423.437	418.147
Average Gas Velocity, ft/sec	57.331	59.234	58.283
Gas Volumetric Flow Rate, acfm	21,683	22,403	22,043
Gas Volumetric Flow Rate, dscfm	21,374	21,855	21,615
Gas Volumetric Flow Rate, scfm	21,514	22,084	21,799
Isokinetic Variance	100.7	101.0	100.9
Sample Duration, hours	8.00	8.00	
Tons of metal processed	8.853	9.550	9.202
Chromium (Cr) Emissions			
Detection Limit Qualifier	ADL	ADL	
ug of sample collected	5.08	13.99	9.53
ppb	0.20	0.54	0.37
ug/dscm	0.43	1.17	0.80
ug/dscf	1.22E-02	3.31E-02	2.27E-02
lb/hr	3.48E-05	9.55E-05	6.51E-05
lb/ton metal processed	3.14E-05	8.00E-05	5.57E-05
Cobalt (Co) Emissions			
Detection Limit Qualifier	BDL	ADL	
ug of sample collected	≤ 0.18	6.62	≤ 3.40
ppb	≤ 0.01	0.23	≤ 0.12
ug/dscm	≤ 0.02	0.55	≤ 0.29
ug/dscf	≤ 5.66E-04	1.56E-02	≤ 8.07E-03
lb/hr	≤ 1.25E-06	4.52E-05	≤ 2.32E-05
lb/ton metal processed	≤ 1.13E-06	3.79E-05	≤ 1.95E-05
Copper (Cu) Emissions			
Detection Limit Qualifier	ADL	DLL	
ug of sample collected	3.69	≤ 2.09	≤ 2.89
ppb	0.12	≤ 0.07	≤ 0.09
ug/dscm	0.32	≤ 0.17	≤ 0.25
ug/dscf	9.06E-03	≤ 4.81E-03	≤ 6.94E-03
lb/hr	2.53E-05	≤ 1.43E-05	≤ 1.98E-05
lb/ton metal processed	2.28E-05	≤ 1.20E-05	≤ 1.74E-05
Lead (Pb) Emissions			
Detection Limit Qualifier	DLL	DLL	
ug of sample collected	≤ 1.71	≤ 0.76	≤ 1.23
ppb	≤ 0.02	≤ 0.01	≤ 0.01
ug/dscm	≤ 0.15	≤ 0.06	≤ 0.11
ug/dscf	≤ 4.25E-03	≤ 1.70E-03	≤ 2.97E-03
lb/hr	≤ 1.17E-05	≤ 5.18E-06	≤ 8.44E-06
lb/ton metal processed	≤ 1.06E-05	≤ 4.34E-06	≤ 7.45E-06
Manganese (Mn) Emissions			
Detection Limit Qualifier	ADL	ADL	
ug of sample collected	49.97	19.91	34.94
ppb	1.87	0.73	1.30
ug/dscm	4.27	1.66	2.97
ug/dscf	1.21E-01	4.70E-02	8.40E-02
lb/hr	3.42E-04	1.36E-04	2.39E-04
lb/ton metal processed	3.09E-04	1.14E-04	2.12E-04
Mercury (Hg) Emissions			
Detection Limit Qualifier	DLL	DLL	
ug of sample collected	≤ 1.64	≤ 0.87	≤ 1.26
ppb	≤ 0.02	≤ 0.01	≤ 0.01
ug/dscm	≤ 0.14	≤ 0.07	≤ 0.11
ug/dscf	≤ 3.96E-03	≤ 1.98E-03	≤ 2.97E-03
lb/hr	≤ 1.12E-05	≤ 5.97E-06	≤ 8.59E-06
lb/ton metal processed	≤ 1.01E-05	≤ 5.00E-06	≤ 7.57E-06

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Outlet West
Test Method: 29

Source Condition		Batch Process			
Date		6/27/23		6/30/23		
Start Time		5:15		5:25		
End Time		13:33		13:35		
		Run 1		Run 2		Average
Stack Conditions						
Average Gas Temperature, °F		73.7		77.2		75.5
Flue Gas Moisture, percent by volume		0.7%		1.0%		0.9%
Average Flue Pressure, in. Hg		30.01		30.01		30.01
Gas Sample Volume, dscf		412.857		423.437		418.147
Average Gas Velocity, ft/sec		57.331		59.234		58.283
Gas Volumetric Flow Rate, acfm		21,683		22,403		22,043
Gas Volumetric Flow Rate, dscfm		21,374		21,855		21,615
Gas Volumetric Flow Rate, scfm		21,514		22,084		21,799
Isokinetic Variance		100.7		101.0		100.9
Sample Duration, hours		8.00		8.00		
Tons of metal processed		8.853		9.550		9.202
Nickel (Ni) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		32.86		46.31		39.59
ppb		1.15		1.58		1.37
ug/dscm		2.81		3.86		3.34
ug/dscf		7.96E-02		1.09E-01		9.44E-02
lb/hr		2.25E-04		3.16E-04		2.71E-04
lb/ton metal processed		2.03E-04		2.65E-04		2.34E-04
Phosphorus (P) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		92.35		88.68		90.52
ppb		6.13		5.74		5.94
ug/dscm		7.90		7.40		7.65
ug/dscf		2.24E-01		2.10E-01		2.17E-01
lb/hr		6.32E-04		6.05E-04		6.19E-04
lb/ton metal processed		5.71E-04		5.07E-04		5.39E-04
Selenium (Se) Emissions						
Detection Limit Qualifier		BDL		BDL		
ug of sample collected	≤	2.24	≤	2.27	≤	2.26
ppb	≤	0.06	≤	0.06	≤	0.06
ug/dscm	≤	0.19	≤	0.19	≤	0.19
ug/dscf	≤	5.38E-03	≤	5.38E-03	≤	5.38E-03
lb/hr	≤	1.53E-05	≤	1.55E-05	≤	1.54E-05
lb/ton metal processed	≤	1.39E-05	≤	1.30E-05	≤	1.34E-05
Silver (Ag) Emissions						
Detection Limit Qualifier		BDL		BDL		
ug of sample collected	≤	0.73	≤	0.74	≤	0.73
ppb	≤	0.01	≤	0.01	≤	0.01
ug/dscm	≤	0.06	≤	0.06	≤	0.06
ug/dscf	≤	1.70E-03	≤	1.70E-03	≤	1.70E-03
lb/hr	≤	5.01E-06	≤	5.02E-06	≤	5.02E-06
lb/ton metal processed	≤	4.53E-06	≤	4.21E-06	≤	4.37E-06
Thallium (Tl) Emissions						
Detection Limit Qualifier		BDL		BDL		
ug of sample collected	≤	1.26	≤	1.28	≤	1.27
ppb	≤	0.01	≤	0.01	≤	0.01
ug/dscm	≤	0.11	≤	0.11	≤	0.11
ug/dscf	≤	3.11E-03	≤	3.11E-03	≤	3.11E-03
lb/hr	≤	8.63E-06	≤	8.74E-06	≤	8.68E-06
lb/ton metal processed	≤	7.80E-06	≤	7.32E-06	≤	7.56E-06
Vanadium (V) Emissions						
Detection Limit Qualifier		DLL		DLL		
ug of sample collected	≤	0.23	≤	0.21	≤	0.22
ppb	≤	0.01	≤	0.01	≤	0.01
ug/dscm	≤	0.02	≤	0.02	≤	0.02
ug/dscf	≤	5.66E-04	≤	5.66E-04	≤	5.66E-04
lb/hr	≤	1.55E-06	≤	1.42E-06	≤	1.48E-06
lb/ton metal processed	≤	1.40E-06	≤	1.19E-06	≤	1.29E-06
Zinc (Zn) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		18.08		11.24		14.66
ppb		0.57		0.35		0.46
ug/dscm		1.55		0.94		1.25
ug/dscf		4.39E-02		2.66E-02		3.53E-02
lb/hr		1.24E-04		7.67E-05		1.00E-04
lb/ton metal processed		1.12E-04		6.43E-05		8.81E-05

5.3.2 Outlet East Method 29 Summaries

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Outlet East
Test Method: 29

Source Condition		Batch Process	
Date	6/27/23	6/30/23	
Start Time	5:15	5:25	
End Time	18:05	13:35	
	Run 1	Run 2	Average
Stack Conditions			
Average Gas Temperature, °F	76.3	77.6	77.0
Flue Gas Moisture, percent by volume	0.9%	0.9%	0.9%
Average Flue Pressure, in. Hg	30.01	30.01	30.01
Gas Sample Volume, dscf	360.728	355.670	358.199
Average Gas Velocity, ft/sec	58.266	57.947	58.107
Gas Volumetric Flow Rate, acfm	22,037	21,916	21,977
Gas Volumetric Flow Rate, dscfm	21,565	21,401	21,483
Gas Volumetric Flow Rate, scfm	21,757	21,586	21,672
Isokinetic Variance	100.8	100.1	100.5
Sample Duration, hours	8.00	8.00	
Tons of metal processed	8.853	9.550	9.202
Aluminum Emissions			
Detection Limit Qualifier	ADL	ADL	
ug of sample collected	524.65	521.27	522.96
ppb	45.76	46.11	45.93
ug/dscm	51.36	51.76	51.56
ug/dscf	1.45E+00	1.47E+00	1.46E+00
lb/hr	4.15E-03	4.15E-03	4.15E-03
lb/ton metal processed	3.75E-03	3.48E-03	3.61E-03
Antimony (Sb) Emissions			
Detection Limit Qualifier	BDL	DLL	
ug of sample collected	≤ 1.57	≤ 1.54	≤ 1.56
ppb	≤ 0.03	≤ 0.03	≤ 0.03
ug/dscm	≤ 0.15	≤ 0.15	≤ 0.15
ug/dscf	≤ 4.25E-03	≤ 4.25E-03	≤ 4.25E-03
lb/hr	≤ 1.24E-05	≤ 1.23E-05	≤ 1.23E-05
lb/ton metal processed	≤ 1.12E-05	≤ 1.03E-05	≤ 1.08E-05
Arsenic (As) Emissions			
Detection Limit Qualifier	BDL	BDL	
ug of sample collected	≤ 3.50	≤ 3.38	≤ 3.44
ppb	≤ 0.11	≤ 0.11	≤ 0.11
ug/dscm	≤ 0.34	≤ 0.34	≤ 0.34
ug/dscf	≤ 9.63E-03	≤ 9.63E-03	≤ 9.63E-03
lb/hr	≤ 2.77E-05	≤ 2.69E-05	≤ 2.73E-05
lb/ton metal processed	≤ 2.50E-05	≤ 2.25E-05	≤ 2.38E-05
Barium (Ba) Emissions			
Detection Limit Qualifier	ADL	DLL	
ug of sample collected	11.58	≤ 3.39	≤ 7.49
ppb	0.20	≤ 0.06	≤ 0.13
ug/dscm	1.13	≤ 0.34	≤ 0.74
ug/dscf	3.20E-02	≤ 9.63E-03	≤ 2.08E-02
lb/hr	9.16E-05	≤ 2.70E-05	≤ 5.93E-05
lb/ton metal processed	8.27E-05	≤ 2.26E-05	≤ 5.27E-05
Beryllium (Be) Emissions			
Detection Limit Qualifier	BDL	BDL	
ug of sample collected	≤ 0.08	≤ 0.08	≤ 0.08
ppb	≤ 0.02	≤ 0.02	≤ 0.02
ug/dscm	≤ 0.01	≤ 0.01	≤ 0.01
ug/dscf	≤ 2.83E-04	≤ 2.83E-04	≤ 2.83E-04
lb/hr	≤ 6.25E-07	≤ 5.97E-07	≤ 6.11E-07
lb/ton metal processed	≤ 5.65E-07	≤ 5.00E-07	≤ 5.32E-07
Cadmium (Cd) Emissions			
Detection Limit Qualifier	ADL	ADL	
ug of sample collected	0.56	0.15	0.36
ppb	0.01	0.00	0.01
ug/dscm	0.06	0.02	0.04
ug/dscf	1.70E-03	5.66E-04	1.13E-03
lb/hr	4.45E-06	1.22E-06	2.83E-06
lb/ton metal processed	4.02E-06	1.02E-06	2.52E-06

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Outlet East
Test Method: 29

Source Condition				**Batch Process**		
Date		**6/27/23**		**6/30/23**		
Start Time		**5:15**		**5:25**		
End Time		**18:05**		**13:35**		
		Run 1		**Run 2**		**Average**
Stack Conditions						
Average Gas Temperature, °F		76.3		77.6		77.0
Flue Gas Moisture, percent by volume		0.9%		0.9%		0.9%
Average Flue Pressure, in. Hg		30.01		30.01		30.01
Gas Sample Volume, dscf		360.728		355.670		358.199
Average Gas Velocity, ft/sec		58.266		57.947		58.107
Gas Volumetric Flow Rate, acfm		22,037		21,916		21,977
Gas Volumetric Flow Rate, dscfm		21,565		21,401		21,483
Gas Volumetric Flow Rate, scfm		21,757		21,586		21,672
Isokinetic Variance		100.8		100.1		100.5
Sample Duration, hours		8.00		8.00		
Tons of metal processed		8.853		9.550		9.202
Chromium (Cr) Emissions						
Detection Limit Qualifier		**ADL**		**ADL**		
ug of sample collected		2.82		32.17		17.49
ppb		0.13		1.48		0.80
ug/dscm		0.28		3.19		1.74
ug/dscf		7.93E-03		9.03E-02		4.91E-02
lb/hr		2.23E-05		2.56E-04		1.39E-04
lb/ton metal processed		2.01E-05		2.14E-04		1.17E-04
Cobalt (Co) Emissions						
Detection Limit Qualifier		**DLL**		**ADL**		
ug of sample collected	≤	0.21		12.77	≤	6.49
ppb	≤	0.01		0.52	≤	0.26
ug/dscm	≤	0.02		1.27	≤	0.65
ug/dscf	≤	5.66E-04		3.60E-02	≤	1.83E-02
lb/hr	≤	1.67E-06		1.02E-04	≤	5.17E-05
lb/ton metal processed	≤	1.51E-06		8.52E-05	≤	4.33E-05
Copper (Cu) Emissions						
Detection Limit Qualifier		**ADL**		**ADL**		
ug of sample collected		15.18		92.50		53.84
ppb		0.56		3.47		2.02
ug/dscm		1.49		9.18		5.34
ug/dscf		4.22E-02		2.60E-01		1.51E-01
lb/hr		1.20E-04		7.36E-04		4.28E-04
lb/ton metal processed		1.08E-04		6.17E-04		3.63E-04
Lead (Pb) Emissions						
Detection Limit Qualifier		**DLL**		**DLL**		
ug of sample collected	≤	1.06	≤	0.81	≤	0.93
ppb	≤	0.01	≤	0.01	≤	0.01
ug/dscm	≤	0.10	≤	0.08	≤	0.09
ug/dscf	≤	2.83E-03	≤	2.27E-03	≤	2.55E-03
lb/hr	≤	8.37E-06	≤	6.43E-06	≤	7.40E-06
lb/ton metal processed	≤	7.57E-06	≤	5.39E-06	≤	6.48E-06
Manganese (Mn) Emissions						
Detection Limit Qualifier		**ADL**		**ADL**		
ug of sample collected		2.23		91.16		46.69
ppb		0.10		3.96		2.03
ug/dscm		0.22		9.05		4.64
ug/dscf		6.23E-03		2.56E-01		1.31E-01
lb/hr		1.76E-05		7.26E-04		3.72E-04
lb/ton metal processed		1.59E-05		6.08E-04		3.12E-04
Mercury (Hg) Emissions						
Detection Limit Qualifier		**DLL**		**DLL**		
ug of sample collected	≤	0.22	≤	0.55	≤	0.39
ppb	≤	0.00	≤	0.01	≤	0.01
ug/dscm	≤	0.02	≤	0.05	≤	0.04
ug/dscf	≤	5.66E-04	≤	1.42E-03	≤	9.91E-04
lb/hr	≤	1.72E-06	≤	4.40E-06	≤	3.06E-06
lb/ton metal processed	≤	1.56E-06	≤	3.69E-06	≤	2.62E-06

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Outlet East
Test Method: 29

Source Condition		Batch Process			
Date		6/27/23		6/30/23		
Start Time		5:15		5:25		
End Time		18:05		13:35		
		Run 1		Run 2		Average
Stack Conditions						
Average Gas Temperature, °F		76.3		77.6		77.0
Flue Gas Moisture, percent by volume		0.9%		0.9%		0.9%
Average Flue Pressure, in. Hg		30.01		30.01		30.01
Gas Sample Volume, dscf		360.728		355.670		358.199
Average Gas Velocity, ft/sec		58.266		57.947		58.107
Gas Volumetric Flow Rate, acfm		22,037		21,916		21,977
Gas Volumetric Flow Rate, dscfm		21,565		21,401		21,483
Gas Volumetric Flow Rate, scfm		21,757		21,586		21,672
Isokinetic Variance		100.8		100.1		100.5
Sample Duration, hours		8.00		8.00		
Tons of metal processed		8.853		9.550		9.202
Nickel (Ni) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		5.36		82.83		44.10
ppb		0.22		3.37		1.79
ug/dscm		0.53		8.22		4.38
ug/dscf		1.50E-02		2.33E-01		1.24E-01
lb/hr		4.24E-05		6.59E-04		3.51E-04
lb/ton metal processed		3.83E-05		5.52E-04		2.95E-04
Phosphorus (P) Emissions						
Detection Limit Qualifier		ADL		ADL		
ug of sample collected		88.95		96.72		92.84
ppb		6.76		7.45		7.11
ug/dscm		8.71		9.60		9.16
ug/dscf		2.47E-01		2.72E-01		2.59E-01
lb/hr		7.03E-04		7.70E-04		7.37E-04
lb/ton metal processed		6.36E-04		6.45E-04		6.40E-04
Selenium (Se) Emissions						
Detection Limit Qualifier		DLL		DLL		
ug of sample collected	≤	4.01	≤	3.10	≤	3.56
ppb	≤	0.12	≤	0.09	≤	0.11
ug/dscm	≤	0.39	≤	0.31	≤	0.35
ug/dscf	≤	1.10E-02	≤	8.78E-03	≤	9.91E-03
lb/hr	≤	3.17E-05	≤	2.47E-05	≤	2.82E-05
lb/ton metal processed	≤	2.87E-05	≤	2.07E-05	≤	2.47E-05
Silver (Ag) Emissions						
Detection Limit Qualifier		BDL		BDL		
ug of sample collected	≤	0.79	≤	0.75	≤	0.77
ppb	≤	0.01	≤	0.01	≤	0.01
ug/dscm	≤	0.08	≤	0.07	≤	0.08
ug/dscf	≤	2.27E-03	≤	1.98E-03	≤	2.12E-03
lb/hr	≤	6.22E-06	≤	5.99E-06	≤	6.10E-06
lb/ton metal processed	≤	5.62E-06	≤	5.01E-06	≤	5.32E-06
Thallium (Tl) Emissions						
Detection Limit Qualifier		BDL		BDL		
ug of sample collected	≤	1.53	≤	1.36	≤	1.45
ppb	≤	0.02	≤	0.02	≤	0.02
ug/dscm	≤	0.15	≤	0.14	≤	0.15
ug/dscf	≤	4.25E-03	≤	3.96E-03	≤	4.11E-03
lb/hr	≤	1.21E-05	≤	1.08E-05	≤	1.15E-05
lb/ton metal processed	≤	1.09E-05	≤	9.07E-06	≤	1.00E-05
Vanadium (V) Emissions						
Detection Limit Qualifier		DLL		DLL		
ug of sample collected	≤	0.29	≤	0.25	≤	0.27
ppb	≤	0.01	≤	0.01	≤	0.01
ug/dscm	≤	0.03	≤	0.02	≤	0.03
ug/dscf	≤	8.50E-04	≤	5.66E-04	≤	7.08E-04
lb/hr	≤	2.25E-06	≤	1.97E-06	≤	2.11E-06
lb/ton metal processed	≤	2.04E-06	≤	1.65E-06	≤	1.84E-06
Zinc (Zn) Emissions						
Detection Limit Qualifier		DLL		DLL		
ug of sample collected	≤	27.08	≤	24.28	≤	25.68
ppb	≤	0.98	≤	0.89	≤	0.93
ug/dscm	≤	2.65	≤	2.41	≤	2.53
ug/dscf	≤	7.50E-02	≤	6.82E-02	≤	7.16E-02
lb/hr	≤	2.14E-04	≤	1.93E-04	≤	2.04E-04
lb/ton metal processed	≤	1.94E-04	≤	1.62E-04	≤	1.78E-04

5.4 Baghouse Outlet Method 0061 Summaries

5.4.1 Outlet West Method 0061 Summary

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Outlet West
Test Method: 0061

Source Condition		Batch Process	
Date	6/27/23	6/30/23	
Start Time	5:15	5:25	
End Time	13:33	13:25	
	Run 1	Run 2	Average
Stack Conditions			
Average Gas Temperature, °F	73.6	80.2	76.9
Flue Gas Moisture, percent by volume	0.7%	1.0%	0.9%
Average Flue Pressure, in. Hg	30.01	30.01	30.01
Gas Sample Volume, dscf	357.472	379.700	368.586
Average Gas Velocity, ft/sec	54.703	55.084	54.894
Gas Volumetric Flow Rate, acfm	20,689	20,833	20,761
Gas Volumetric Flow Rate, dscfm	20,387	20,218	20,303
Gas Volumetric Flow Rate, scfm	20,531	20,422	20,477
Isokinetic Variance	98.6	98.8	98.7
Tons of metal processed	8.853	9.550	9.202
Hexavalent Chromium (Cr+6) Emissions			
Detection Limit Qualifier	ADL	ADL	
ug of sample collected	0.94	4.61	2.78
ppb	0.04	0.20	0.12
ug/dscm	9.00E-02	4.30E-01	2.60E-01
ug/dscf	2.55E-03	1.22E-02	7.36E-03
lb/hr	7.00E-06	3.20E-05	1.95E-05
lb/ton metal processed	6.33E-06	2.68E-05	1.66E-05

5.4.2 Outlet East Method 0061 Summary

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Outlet East
Test Method: 0061

Source Condition		Batch Process	
Date	6/27/23	6/30/23	
Start Time	5:15	5:25	
End Time	13:33	13:25	
	Run 1	Run 2	Average
Stack Conditions			
Average Gas Temperature, °F	76.4	77.9	77.2
Flue Gas Moisture, percent by volume	0.9%	0.9%	0.9%
Average Flue Pressure, in. Hg	30.01	30.01	30.01
Gas Sample Volume, dscf	382.895	334.654	358.775
Average Gas Velocity, ft/sec	56.087	55.972	56.030
Gas Volumetric Flow Rate, acfm	21,213	21,169	21,191
Gas Volumetric Flow Rate, dscfm	20,753	20,652	20,703
Gas Volumetric Flow Rate, scfm	20,941	20,839	20,890
Isokinetic Variance	100.8	98.6	99.7
Tons of metal processed	8.853	9.550	9.202
Hexavalent Chromium (Cr+6) Emissions			
Detection Limit Qualifier	ADL	ADL	
ug of sample collected	1.97	2.29	2.13
ppb	0.08	0.11	0.10
ug/dscm	1.80E-01	2.40E-01	2.10E-01
ug/dscf	5.10E-03	6.80E-03	5.95E-03
lb/hr	1.40E-05	1.90E-05	1.65E-05
lb/ton metals processed	1.27E-05	1.59E-05	1.43E-05

5.5 Baghouse Outlet Volumetric Flow Rate Summaries

PCC Structurals, Inc.
Large Parts Campus Facility
9203 Volumetric Flow Rate Summary

Test Location	Test Method	Date	Start Time	End Time	Square Root Dp	ACFM	DSCFM
Southwest Outlet Stack	2	6/27/2023	5:15:00	13:33:00	1.006	21,424	21,027
Central (west) Outlet Stack	29				1.018	21,683	21,374
Northwest Outlet Stack	2				1.005	21,192	21,192
Average - West Stacks					1.010	21,433	21,198
Summation - West Stacks						64,299	63,593
Test Location	**Test Method**	**Date**	**Start Time**	**End Time**	**Square Root Dp**	**ACFM**	**DSCFM**
Southeast Outlet Stack	2	6/27/2023	5:15:00	13:33:00	1.000	21,202	20,985
Central (east) Outlet Stack	29				1.032	22,664	22,178
Northeast Outlet Stack	2				0.994	21,033	20,920
Average - East Stacks					1.009	21,633	21,361
Summation - East Stacks						64,899	64,083

Test Location	Test Method	Date	Start Time	End Time	Square Root Dp	ACFM	DSCFM
Southwest Outlet Stack	2	6/30/2023	5:36:00	13:35:00	1.080	22,958	22,588
Central (west) Outlet Stack	29				1.048	22,403	21,855
Northwest Outlet Stack	2				0.808	17,222	16,874
Average - West Stacks					0.979	20,861	20,439
Summation - West Stacks						62,583	61,317
Test Location	**Test Method**	**Date**	**Start Time**	**End Time**	**Square Root Dp**	**ACFM**	**DSCFM**
Southeast Outlet Stack	2	6/30/2023	5:36:00	13:35:00	0.936	20,043	19,462
Central (east) Outlet Stack	29				1.025	22,539	22,009
Northeast Outlet Stack	2				1.036	21,962	21,762
Average - East Stacks					0.999	21,515	21,078
Summation - East Stacks						64,544	63,233

6.0 CERTIFICATION

Mostardi Platt is pleased to have been of service to PCC Structurals, Inc. If you have any questions regarding this test report, please do not hesitate to contact us at 630-993-2100.

As the program 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. The test program was performed in accordance with the test methods and the Mostardi Platt Quality Manual, as applicable.

MOSTARDI PLATT

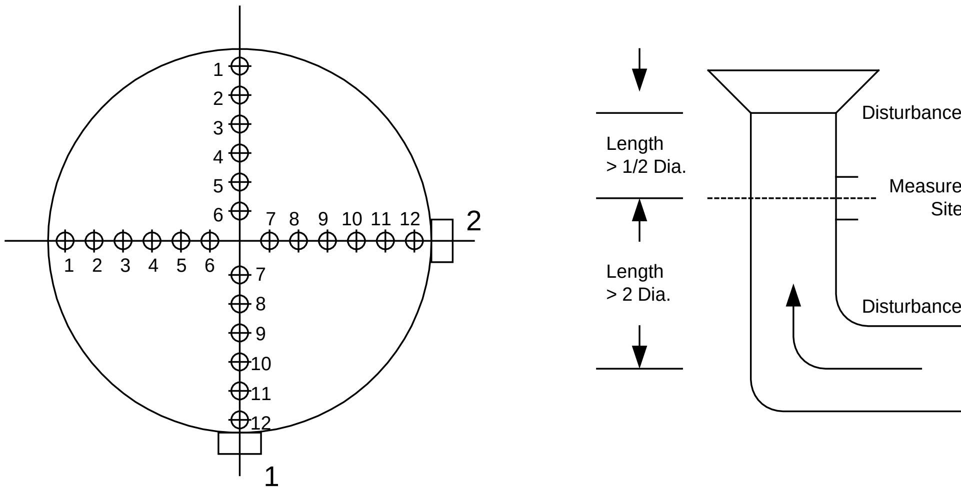
Eric L. Ehlers — Program Manager

Jeffrey M. Crivlare — Quality Assurance

APPENDICES

Appendix A - Test Section Diagrams

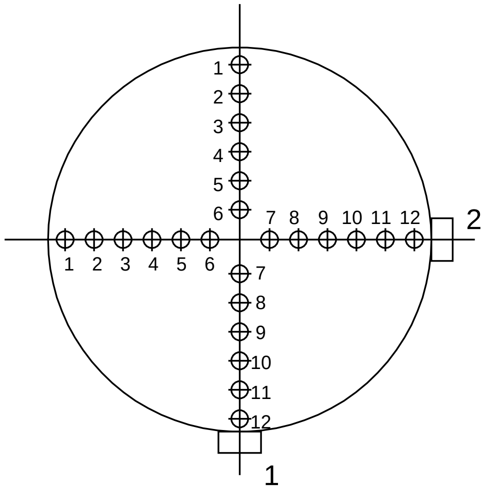
EQUAL AREA TRAVERSE FOR ROUND DUCTS

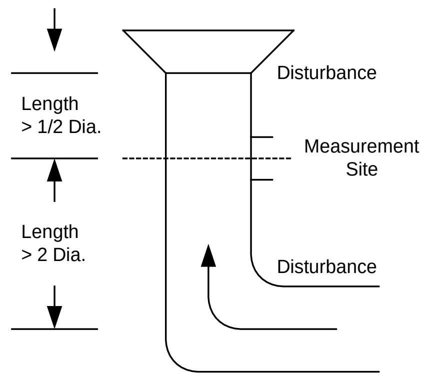


Project:	PCC Structurals, Inc. Large Parts Campus Milwaukie, Oregon
Unit:	BH9203 Inlets (3 total, identical dimensions)
Stack Diameter:	3.0 Feet
Stack Area:	7.069 Square Feet
No. Points Across Diameter:	12
No. of Ports:	2
Port Length:	4.0 inches

EQUAL AREA TRAVERSE FOR ROUND DUCTS

(PM and preliminary flows)

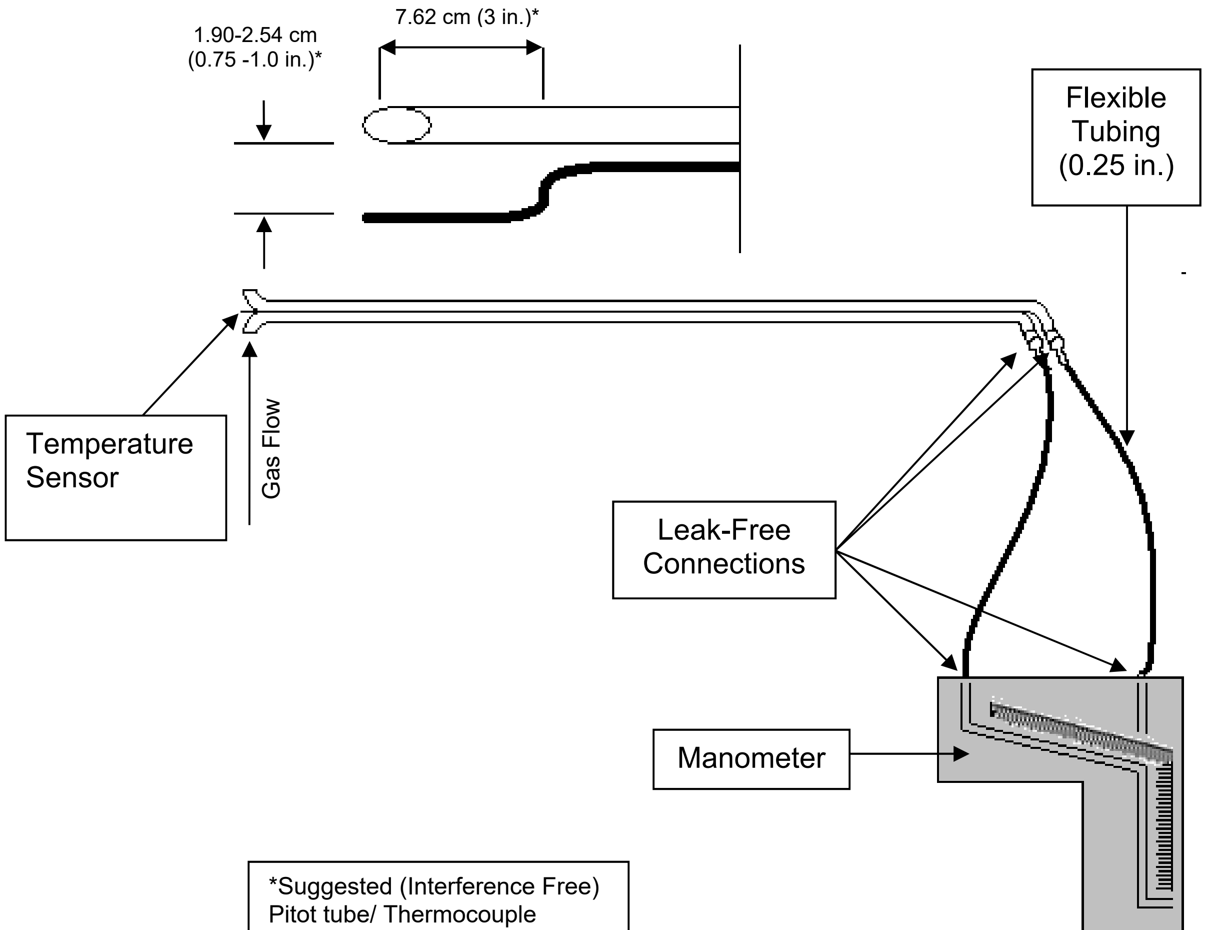




Project:	PCC Structurals, Inc.
	Large Parts Campus
	Milwaukie, Oregon
Unit:	BH9203 Outlets (6 total, identical dimensions)
Stack Diameter:	2.833 Feet
Stack Area:	6.305 Square Feet
No. Points Across Diameter:	12
No. of Ports:	2
Port Length:	4.0 inches

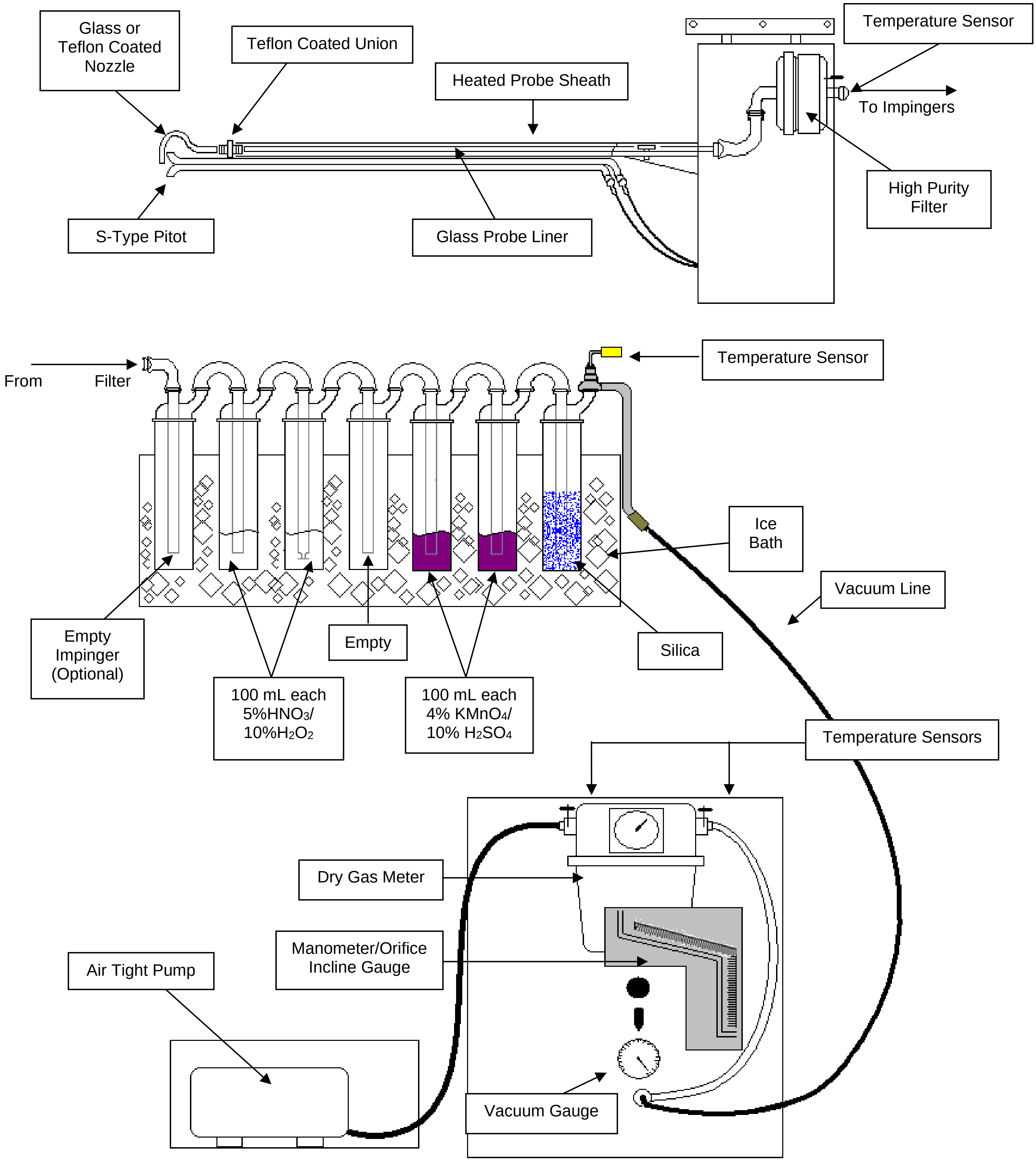
Appendix B - Sample Train Diagrams

USEPA Method 2 – Type S Pitot Tube Manometer Assembly

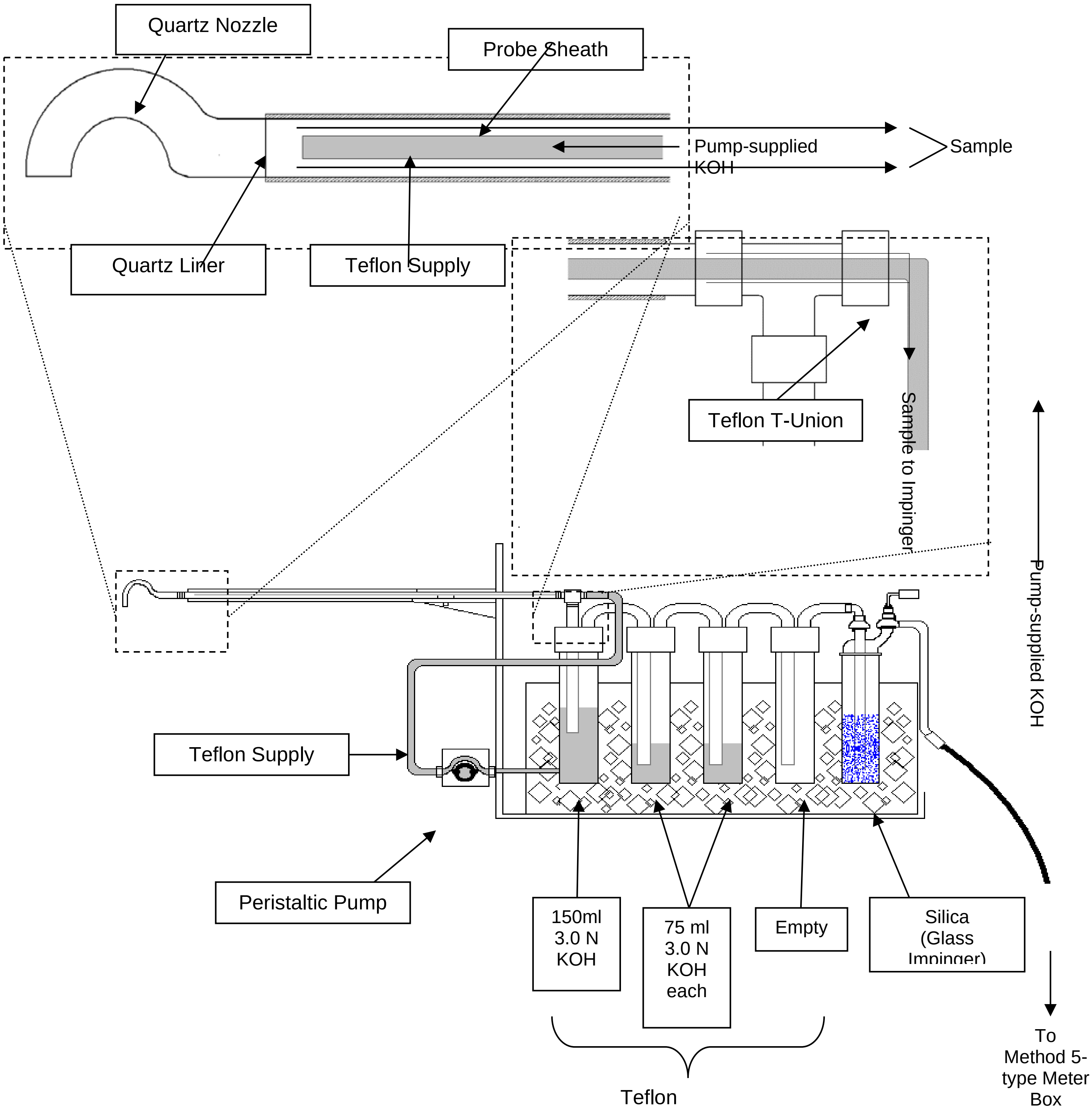


*Suggested (Interference Free)
Pitot tube/ Thermocouple
Spacing

USEPA Method 29- Metals Sample Train Diagram



Method 0061- Hexavalent Chromium Sampling Train



Appendix C - Calculation Nomenclature and Formulas

Client:	**PCC Structurals, Inc.**
Plant:	**Large Parts Campus Facility - Milwaukie, OR**
Test Location:	**BH9203 Inlet Center**
Run:	**1**
Date:	**6/27/2023**

Moisture Calculations

$$Vwc(std) = \frac{(Vf - Vi)*Pw*R*Tstd}{Pstd*Mw} = 0.04707\ (Vf - Vi)$$

$$Vwsg(std) = \frac{(Wf - Wi)*Pw*R*Tstd}{Pstd*Mw} = 0.04715\ (Vf - Vi)$$

$$Vm(std) = 17.64*Vm*Y*\frac{Pbar + \frac{\Delta H}{13.6}}{Tm}$$

$$Bws = \frac{Vwc(std) + Vwsg(std)}{Vwc(std) + Vwsg(std) + Vm(std)}$$

Vf =	**100.0**	**Wf =**	**30**
Vi =	**0.0**	**Wi =**	**0.0**
Vwc(std) =	**4.71**	**Vwsg(std) =**	**1.41**
Vm =	**407.912**	**Y =**	**0.994**
Pbar =	**29.97**	**ΔH =**	**1.833**
Tm =	**531**		
Vm(std) =	**406.203**		
Bws =	**0.007**		

MOSTARDI PLATT

Volumetric Flow Nomenclature

A =	Cross-sectional area of stack or duct, ft^2
B_{ws} =	Water vapor in gas stream, proportion by volume
C_p =	Pitot tube coefficient, dimensionless
M_d =	Dry molecular weight of gas, lb/lb-mole
M_s =	Molecular weight of gas, wet basis, lb/lb-mole
M_w =	Molecular weight of water, 18.0 lb/lb-mole
P_{bar} =	Barometric pressure at testing site, in. Hg
P_g =	Static pressure of gas, in. Hg (in. H_2O/13.6)
P_s =	Absolute pressure of gas, in. Hg = $P_{bar} + P_g$
P_{std} =	Standard absolute pressure, 29.92 in. Hg
Q_{acfm} =	Actual volumetric gas flow rate, acfm
Q_{sd} =	Dry volumetric gas flow rate corrected to standard conditions, dscf/hr
R =	Ideal gas constant, 21.85 in. Hg-ft^3/°R-lb-mole
T_s =	Absolute gas temperature, °R
T_{std} =	Standard absolute temperature, 528°R
v_s =	Gas velocity, ft/sec
$V_{w(std)}$ =	Volume of water vapor in gas sample, corrected to standard conditions, scf
Y =	Dry gas meter calibration factor
Δp =	Velocity head of gas, in. H_2O
K_1 =	17.647 °R/in. Hg
%EA =	Percent excess air
$\%CO_2$ =	Percent carbon dioxide by volume, dry basis
$\%O_2$ =	Percent oxygen by volume, dry basis
$\%N_2$ =	Percent nitrogen by volume, dry basis
0.264 =	Ratio of O_2 to N_2 in air, v/v
0.28 =	Molecular weight of N_2 or CO, divided by 100
0.32 =	Molecular weight of O_2 divided by 100
0.44 =	Molecular weight of CO_2 divided by 100
13.6 =	Specific gravity of mercury (Hg)

MOSTARDI PLATT

Volumetric Air Flow Calculations

$$Vm\ (std) = 17.647 \times Vm \times \left[\frac{\left(P_{bar} + \left[\frac{DH}{13.6}\right]\right)}{(460 + Tm)}\right] \times Y$$

$$Vw\ (std) = 0.0471 \times Vlc$$

$$Bws = \left[\frac{Vw\ (std)}{Vw\ (std) + Vm\ (std)}\right]$$

$$Md = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + [0.28 \times (100 - \%CO_2 - \%O_2)]$$

$$Ms = Md \times (1 - Bws) + (18 \times Bws)$$

$$Vs = \sqrt{\frac{(Ts + 460)}{Ms \times Ps}} \times \sqrt{DP} \times Cp \times 85.49$$

$$Acfm = Vs \times Area\ (of\ stack\ or\ duct) \times 60$$

$$Scfm = Acfm \times 17.647 \times \left[\frac{Ps}{(460 + Ts)}\right]$$

$$Scfh = Scfm \times 60\frac{min}{hr}$$

$$Dscfm = Scfm \times (1 - Bws)$$

Isokinetic Nomenclature

A = Cross-sectional area of stack or duct, square feet
A_n = Cross-sectional area of nozzle, square feet
B_{ws} = Water vapor in gas stream, by volume
C_a = Acetone blank residue concentration, g/g
C_{acf} = Concentration of particulate matter in gas stream at actual conditions, gr/acf
C_p = Pitot tube coefficient
C_s = Concentration of particulate matter in gas stream, dry basis, corrected to standard conditions, gr/dscf
IKV = Isokinetic sampling variance, must be $90.0\ \% \leq \text{IKV} \leq 110.0\%$
M_d = Dry molecular weight of gas, lb/lb-mole
M_s = Molecular weight of gas, wet basis, lb/lb-mole
M_w = Molecular weight of water, 18.0 lb/lb-mole
m_a = Mass of residue of acetone after evaporation, grams
P_{bar} = Barometric pressure at testing site, inches mercury
P_g = Static pressure of gas, inches mercury (inches water/13.6)
P_s = Absolute pressure of gas, inches mercury = $P_{bar} + P_g$
P_{std} = Standard absolute pressure, 29.92 inches mercury
Q_{acfm} = Actual volumetric gas flow rate, acfm
Q_{sd} = Dry volumetric gas flow rate corrected to standard conditions, dscfh
R = Ideal gas constant, 21.85 inches mercury cubic foot/°R-lb-mole
T_m = Dry gas meter temperature, °R
T_s = Gas temperature, °R
T_{std} = Absolute temperature, 528°R
V_a = Volume of acetone blank, ml
V_{aw} = Volume of acetone used in wash, ml
W_a = Weight of residue in acetone wash, grams
m_n = Total amount of particulate matter collected, grams
V_{1c} = Total volume of liquid collected in impingers and silica gel, ml
V_m = Volume of gas sample as measured by dry gas meter, dcf
$V_{m(std)}$ = Volume of gas sample measured by dry gas meter, corrected to standard conditions, dscf
v_s = Gas velocity, ft/sec
$V_{w(std)}$ = Volume of water vapor in gas sample, corrected to standard conditions, scf
Y = Dry gas meter calibration factor
ΔH = Average pressure differential across the orifice meter, inches water
Δp = Velocity head of gas, inches water
ρ_a = Density of acetone, 0.7855 g/ml (average)
ρ_w = Density of water, 0.002201 lb/ml
θ = Total sampling time, minutes
K_1 = 17.647 °R/in. Hg
K_2 = 0.04707 ft^3/ml
K_4 = 0.09450/100 = 0.000945
K_p = Pitot tube constant, $$85.49\frac{\text{ft}}{\text{sec}}\left[\frac{(\text{lb/lb} - \text{mole})(\text{in. Hg})}{(°\text{R})(\text{in. } H_2O)}\right]^{1/2}$$
%EA = Percent excess air
$\%CO_2$ = Percent carbon dioxide by volume, dry basis

$\%O_2$ = Percent oxygen by volume, dry basis
%CO = Percent carbon monoxide by volume, dry basis
$\%N_2$ = Percent nitrogen by volume, dry basis
0.264 = Ratio of O_2 to N_2 in air, v/v
28 = Molecular weight of N_2 or CO
32 = Molecular weight of O_2
44 = Molecular weight of CO_2
13.6 = Specific gravity of mercury (Hg)

MOSTARDI PLATT

Isokinetic Calculation Formulas

1. $$V_{w(std)} = V_{lc}\left(\frac{\rho_w}{M_w}\right)\left(\frac{RT_{std}}{P_{std}}\right) = K_2 V_{lc}$$

2. $$V_{m(std)} = V_m Y \left(\frac{T_{std}}{T_m}\right)\left(\frac{(P_{bar} + (\frac{\Delta H}{13.6}))}{P_{std}}\right) = K_1\ V_m\ Y \frac{(P_{bar} + (\frac{\Delta H}{13.6}))}{T_m}$$

3. $$B_{ws} = \frac{V_{w(std)}}{(V_{m(std)} + V_{w(std)})}$$

4. $$M_d = 0.44(\%CO_2) + 0.32(\%O_2) + 0.28(\%N_2)$$

5. $$M_s = M_d(1 - B_{ws}) + 18.0(B_{ws})$$

6. $$C_a = \frac{m_a}{V_a \rho_a}$$

7. $$W_a = C_a V_{aw} \rho_a$$

8. $$C_{acf} = 15.43 K_i \left(\frac{m_n P_s}{V_{w(std)} + V_{m(std)}\ T_s}\right)$$

9. $$C_S = (15.43\ \text{grains/gram})\ (m_n / V_{m(std)})$$

10. $$v_s = K_p C_p \sqrt{\frac{\Delta P\ T_s}{P_s M_s}}$$

11. $$Q_{acfm} = v_s A (60_{sec/min})$$

12. $$Q_{sd} = (3600_{sec/hr})(1 - B_{ws})\ v_s\ \left(\frac{T_{std} P_s}{T_s P_{std}}\right)\ A$$

13. $$E\ (\text{emission rate, lbs/hr}) = Q_{std}\left(C_s / 7000\ \text{grains/lb}\right)$$

14. $$IKV = \frac{T_s V_{m(std)} P_{std}}{T_{std} v_s \theta A_n P_s 60\left(1 - B_{ws}\right)} = K_4 \frac{T_s V_{m(std)}}{P_s v_s A_n \theta\left(1 - B_{ws}\right)}$$

15. $$\%EA = \left(\frac{\%O_2 - (0.5\,\%CO)}{0.264\,\%N_2 - (\%O_2 - 0.5\,\%CO)}\right) \times 100$$

Moisture Calculations

$$V_{wc(std)} = \frac{(V_f - V_i)\rho_w R T_{std}}{P_{std} M_w} = 0.04707(V_f - V_i)$$

$$V_{wsg(std)} = \frac{(W_f - W_i)\rho_w R T_{std}}{P_{std} M_w} = 0.04715(W_f - W_i)$$

$$V_{m(std)} = 17.64\, V_m Y \frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m}$$

$$B_{ws} = \frac{V_{wc(std)} + V_{wsg(std)}}{V_{wc(std)} + V_{wsg(std)} + V_{m(std)}}$$

Where:

- B_{ws} = Water vapor in gas stream, proportion by volume
- M_w = Molecular weight of water, 18.015 lb/lb-mole
- P_{bar} = Barometric pressure at the testing site, in. Hg
- P_{std} = Standard absolute pressure, 29.92 in. Hg
- R = Ideal gas constant, 0.048137 (in. Hg)(ft^3)/(g-mole)(°R) = [21.8348(in. Hg)(ft^3)/(lb-mole)(°R)]/453.592 g-mole/lb-mole
- T_m = Absolute average dry gas meter temperature, °R
- T_{std} = Standard absolute temperature, 528 °R
- V_f = Final volume of condenser water, ml
- V_i = Initial volume of condenser water, ml
- V_m = Dry gas volume measured by dry gas meter, dcf
- $V_{m(std)}$ = Dry gas volume measured by dry gas meter, corrected to standard conditions, scf
- $V_{wc(std)}$ = Volume of condensed water vapor, corrected to standard conditions, scf
- $V_{wsg(std)}$ = Volume of water vapor collected in silica gel, corrected to standard conditions, scf
- W_f = Final weight of silica gel, g
- W_i = Initial weight of silica gel, g
- Y = Dry gas meter calibration factor
- ΔH = Average pressure exerted on dry gas meter outlet by gas sample bag, in. H_2O
- ρ_w = Density of water, 0.9982 g/ml
- 13.6 = Specific gravity of mercury (Hg)
- 17.64 = T_{std}/P_{std}
- 0.04707 = ft^3/ml   0.04715 = ft^3/g

MOSTARDI PLATT

Trace Metal (Including Mercury) Sample Calculations

Concentration

$$\frac{\mu g}{m^3} = \frac{\mu g\ of\ trace\ metal}{dscf\ volume\ sampled \times 0.02832 \frac{m^3}{ft^3}}$$

Emission Rate

$$\frac{\mu g\ of\ sample \times \frac{1 \times 10^{-6} grams}{\mu g}}{453.6\ gr/lb} = lbs\ of\ trace\ metal$$

$$\frac{lbs\ of\ trace\ metal}{V_m(std) sample} \times dscfm \times 60 \frac{min}{hr} = lbs\ of\ trace\ metal/hr$$

Appendix D - Reference Method Test Data

Client:	PCC Structurals, Inc.	
Facility:	Large Parts Campus Facility - Milwaukie, OR	
Test Location:	BH9203 Inlet West	
Project #:	M232604	
Test Method:	29	
Test Engineer:	JXJ	
Test Technician:	PPP	
	Run 1	**Run 2**
Temp ID:	CM43	CM43
Meter ID:	CM43	CM43
Pitot ID:	312	312
Nozzle Diameter (Inches):	0.200	0.200
Meter Calibration Date:	6/21/2023	6/21/2023
Meter Calibration Factor (Y):	0.992	0.992
Meter Orifice Setting (Delta H):	1.810	1.810
Pitot Tube Coefficient:	0.840	
Probe Length (Feet):	4.0	
Probe Liner Material:	Glass	
Sample Plane:	Horizontal	
Port Length (Inches):	4.00	
Port Size (Diameter, Inches):	4.00	
Port Type:	Nipple	
Duct Shape:	Circular	
Diameter (Feet):	3	
Duct Area (Square Feet):	7.069	
Upstream Distance (Feet):	22.0	
Downstream Distance (Feet):	28.0	
Number of Ports Sampled:	2	
Number of Points per Port:	12	
Minutes per Point:	20.0	
Minutes per Reading:	10.0	
Total Number of Traverse Points:	24	
Test Length (Minutes):	480	
Train Type:	Hot Box	
Source Condition:	Batch Process	
Moisture Balance ID:	S10-35	
# of Runs	2	

Run 1 - Method 29

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet West
Source Condition: Batch Process

Date: 6/27/23
Start Time: 5:15
End Time: 13:42

DRY GAS METER CONDITIONS

ΔH:	2.38	in. H_2O
Meter Temperature, Tm:	78.5	°F
Sqrt ΔP:	1.180	in. H_2O
Stack Temperature, Ts:	69.2	°F
Meter Volume, Vm:	417.289	ft^3
Meter Volume, Vmstd:	409.320	dscf
Meter Volume, Vwstd:	4.008	wscf
Isokinetic Variance:	99.9	%I
Test Length:	480.00	in mins.
Nozzle Diameter:	0.200	in inches
Barometric Pressure:	30.00	in Hg

STACK CONDITIONS

Static Pressure	-4.00	in. H_2O
Flue Pressure (Ps):	29.71	in. Hg. abs.
Gas Weight dry, Md:	29.000	lb/lb mole
Gas Weight wet, Ms:	28.893	lb/lb mole
Excess Air:		%
Gas Velocity, Vs:	66.522	fps
Volumetric Flow:	28,213	acfm
Volumetric Flow:	27,678	dscfm
Volumetric Flow:	27,949	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3414.2	ml	Silica Initial Wt.	810.9	grams
Final Impinger Content:	3448.6	ml	Silica Final Wt.	861.6	grams
Impinger Difference:	34.4	ml	Silica Difference:	50.7	grams

Total Water Gain: 85.1 Moisture, Bws: 0.010 **Supersaturation Value, Bws: 0.024**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	5:15:00	0.51	0.84	7.983	65	57	57	251	260	50
1-1	5:25:00	0.52	0.85	13.047	65	58	58	255	259	48
1-2	5:35:00	1.50	2.50	18.170	64	60	60	248	260	50
1-2	5:45:00	1.70	2.80	26.913	64	62	62	255	248	50
1-3	5:55:00	1.40	2.30	36.257	64	62	62	250	251	48
1-3	6:05:00	1.30	2.20	44.736	64	63	63	249	251	49
1-4	6:15:00	1.20	2.00	52.923	63	64	64	249	257	51
1-4	6:25:00	1.20	2.00	60.811	64	65	65	246	252	51
1-5	6:35:00	1.10	1.80	68.706	64	66	66	250	249	52
1-5	6:45:00	1.20	2.00	76.280	65	67	67	251	247	52
1-6	6:55:00	1.20	2.00	84.198	66	67	67	250	260	52
1-6	7:05:00	1.20	2.00	92.108	65	68	68	244	248	53
1-7	7:15:00	1.20	2.00	100.041	66	69	69	254	258	54
1-7	7:25:00	1.30	2.20	107.981	66	69	69	248	255	55
1-8	7:35:00	1.10	1.80	116.246	66	70	70	247	258	55
1-8	7:45:00	1.20	2.00	123.863	66	71	71	247	257	55
1-9	7:55:00	1.10	1.85	131.833	65	71	71	261	255	55
1-9	8:05:00	1.10	1.85	139.471	65	72	72	256	257	54
1-10	8:15:00	1.10	1.86	147.124	65	73	73	251	260	55
1-10	8:25:00	1.10	1.86	154.791	65	73	73	250	250	55
1-11	8:35:00	1.10	1.86	162.458	67	74	74	245	260	55
1-11	8:45:00	1.10	1.86	170.125	67	74	74	241	261	56
1-12	8:55:00	1.20	2.00	177.792	67	75	75	249	253	57
1-12	9:05:00	1.10	1.86	185.815	68	77	77	255	247	57
	9:15:00			193.518						
2-1	9:42:00	1.30	2.20	194.815	70	82	82	253	251	59
2-1	9:52:00	1.30	2.20	203.251	70	82	82	248	257	60
2-2	10:02:00	1.70	2.90	211.686	69	82	82	249	259	59
2-2	10:12:00	1.80	3.00	221.342	69	82	82	251	247	58
2-3	10:22:00	1.70	2.90	231.278	71	83	83	255	258	57
2-3	10:32:00	1.80	3.00	240.933	71	84	84	252	247	58
2-4	10:42:00	1.70	2.90	250.887	71	85	85	249	247	57
2-4	10:52:00	1.60	2.70	260.577	71	87	87	263	255	58
2-5	11:02:00	1.70	2.90	270.013	72	87	87	258	259	61
2-5	11:12:00	1.70	2.90	279.731	73	87	87	247	246	62
2-6	11:22:00	1.80	3.00	289.439	73	88	88	243	255	63
2-6	11:32:00	1.70	2.90	299.447	72	89	89	253	259	58
2-7	11:42:00	1.70	2.90	309.200	72	90	90	256	259	49
2-7	11:52:00	1.70	2.90	318.970	73	91	91	251	247	49
2-8	12:02:00	1.70	2.90	328.749	74	91	91	249	251	50
2-8	12:12:00	1.60	2.70	338.228	76	92	92	249	259	50
2-9	12:22:00	1.70	2.90	347.997	76	92	92	250	247	50
2-9	12:32:00	1.70	2.90	357.767	76	93	93	255	256	51
2-10	12:42:00	1.80	3.00	367.554	75	95	95	257	258	53
2-10	12:52:00	1.80	3.00	377.670	76	95	95	255	250	54
2-11	13:02:00	1.70	2.90	387.778	76	96	96	248	248	49
2-11	13:12:00	1.60	2.70	397.324	76	96	96	255	258	49
2-12	13:22:00	1.60	2.70	406.871	76	96	96	250	250	53
2-12	13:32:00	1.70	2.90	416.711	76	97	97	256	260	54
	13:42:00			426.569						
Total	8:00:00			417.289		78.5	78.5			
Average			2.38		69.2	78.5				
Min			0.84		63.0	57.0				
Max			3.00		76.0	97.0				

Impinger Weight Sheet - Run 1

Client:	**PCC Structurals, Inc.**	**Scale Calibration Check Date:**	**6/27/2023**
Facility:	**Large Parts Campus Facility - Milwaukie, OR**	**Scale Calibration Check (see QS-6.05C for procedure)**	
Test Location:	**BH9203 Inlet West**	**must be within ± 0.5g of certified mass**	
Project #:	**M232604**	**Certified Weight, grams**	**Result, grams**
Date:	**6/27/2023**	**250**	**250.0**
Test Method:	**29**		
Weighed/Measured By:	**CST**	**500**	**500.1**
Balance ID:	**S10-35**		
		750	**750.1**

IMPINGER CONTENTS	FINAL MLS / GRAMS	INITIAL MLS / GRAMS	GAIN MLS / GRAMS
HNO3/H2O2	608.3	603.6	4.7
HNO3/H2O2	780.9	777.6	3.3
Empty	658.6	657.0	1.6
KMnO4/H2SO4	620.6	625.7	-5.1
KMnO4/H2SO4	780.2	750.3	29.9
Silica Gel	861.6	810.9	50.7

3,448.6	3,414.2	34.4
Liquid Final	**Liquid Initial**	**Liquid Gain**
861.6	810.9	50.7
Silica Final	**Silica Initial**	**Silica Gain**

Run 2 - Method 29

Client:	**PCC Structurals, Inc.**	**Date:**	**6/30/23**
Facility:	**Large Parts Campus Facility - Milwaukie, OR**	**Start Time:**	**5:25**
Test Location:	**BH9203 Inlet West**	**End Time:**	**13:40**
Source Condition:	**Batch Process**		

DRY GAS METER CONDITIONS			STACK CONDITIONS		
ΔH:	2.58	In. H_2O	Static Pressure	-3.70	in. H_2O
Meter Temperature, Tm:	78.5	°F	Flue Pressure (Ps):	29.78	in. Hg. abs.
Sqrt ΔP:	1.242	In. H_2O			
Stack Temperature, Ts:	72.7	°F			
Meter Volume, Vm:	416.647	ft^3			
Meter Volume, Vmstd:	409.619	dscf	Gas Weight dry, Md:	29.000	lb/lb mole
Meter Volume, Vwstd:	5.605	wscf	Gas Weight wet, Ms:	28.852	lb/lb mole
Isokinetic Variance:	99.6	%I	Excess Air:		%
			Gas Velocity, Vs:	70.225	fps
Test Length:	460.00	in mins.	Volumetric Flow:	29,783	acfm
Nozzle Diameter:	0.200	in inches	Volumetric Flow:	28,985	dscfm
Barometric Pressure:	30.05	in Hg	Volumetric Flow:	29,382	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3632.5	ml	Silica Initial Wt.	807.3	grams
Final Impinger Content:	3687.2	ml	Silica Final Wt.	871.6	grams
Impinger Difference:	54.7	ml	Silica Difference:	64.3	grams

Total Water Gain: 119.0 Moisture, Bws: 0.013 **Supersaturation Value, Bws: 0.027**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	5:25:00	1.60	2.60	36.474	68	59	59	245	247	54
1-1	5:35:00	1.60	2.60	45.405	68	60	60	250	252	56
1-2	5:45:00	1.40	2.30	54.355	66	61	61	258	250	56
1-2	5:55:00	1.50	2.50	62.755	67	64	64	252	246	56
1-3	6:05:00	1.50	2.50	71.495	67	64	64	252	245	54
1-3	6:15:00	1.50	2.50	80.236	67	66	66	245	257	53
1-4	6:25:00	1.40	2.30	89.010	67	67	67	244	246	53
1-4	6:35:00	1.40	2.30	97.495	67	67	67	243	247	53
1-5	6:45:00	1.50	2.50	105.982	68	69	69	254	254	54
1-5	6:55:00	1.60	2.70	114.800	67	70	70	253	248	54
1-6	7:05:00	1.50	2.50	123.925	67	70	70	257	255	54
1-6	7:15:00	1.40	2.30	132.762	68	71	71	248	252	55
1-7	7:25:00	1.50	2.50	141.310	68	71	71	242	253	55
1-7	7:35:00	1.60	2.70	150.160	68	72	72	251	254	56
1-8	7:45:00	1.60	2.70	159.310	68	72	72	256	246	56
1-8	7:55:00	1.60	2.70	168.465	68	73	73	249	247	56
1-9	8:05:00	1.60	2.70	177.635	68	73	73	261	258	57
1-9	8:15:00	1.50	2.50	186.805	68	73	73	260	246	57
1-10	8:25:00	1.60	2.70	195.690	68	74	74	259	249	56
1-10	8:35:00	1.50	2.50	204.875	68	74	74	254	252	56
1-11	8:45:00	1.50	2.50	213.777	69	75	75	263	256	56
1-11	8:55:00	1.50	2.50	222.675	69	76	76	249	247	56
1-12	9:05:00	1.40	2.30	231.601	70	76	76	252	251	56
1-12	9:15:00	1.50	2.50	240.210	72	77	77	250	258	57
	9:25:00			249.120						
2-1	10:00:00	1.50	2.50	249.120	73	80	80	250	252	58
2-1	10:10:00	1.60	2.70	258.075	73	81	81	245	248	59
2-2	10:20:00	1.60	2.70	267.340	74	84	84	261	249	56
2-2	10:30:00	1.50	2.50	276.650	74	85	85	246	248	55
2-3	10:40:00	1.60	2.70	285.680	74	86	86	254	250	54
2-3	10:50:00	1.50	2.50	295.020	75	87	87	247	254	57
2-4	11:00:00	1.50	2.50	304.075	77	88	88	250	247	57
2-4	11:10:00	1.60	2.70	313.125	76	87	87	257	247	56
2-5	11:20:00	1.70	2.90	322.465	77	87	87	250	257	57
2-5	11:30:00	1.50	2.50	332.100	77	88	88	245	248	53
2-6	11:40:00	1.60	2.70	341.145	77	89	89	249	249	53
2-6	11:50:00	1.50	2.50	350.505	79	88	88	245	247	54
2-7	12:00:00	1.50	2.50	359.545	80	89	89	246	248	55
2-7	12:10:00	1.70	2.90	368.586	79	89	89	264	255	55
2-8	12:20:00	1.50	2.50	378.225	80	89	89	257	249	55
2-8	12:30:00	1.50	2.50	387.270	81	89	89	253	257	55
2-9	12:40:00	1.50	2.50	396.305	82	90	90	255	249	57
2-9	12:50:00	1.60	2.70	405.347	80	91	91	257	249	58
2-10	13:00:00	1.70	2.90	414.725	81	92	92	261	250	57
2-10	13:10:00	1.60	2.70	424.395	81	92	92	262	255	57
2-11	13:20:00	1.70	2.90	433.777	81	92	92	260	253	58
2-11	13:30:00	1.70	2.90	443.450	81	92	92	250	250	59
	13:40:00			453.121						
Total	7:40:00			416.647		78.5	78.5			
Average			2.58		72.7	78.5				
Min			2.30		66.0	59.0				
Max			2.90		82.0	92.0				

Impinger Weight Sheet - Run 2

Client:	**PCC Structurals, Inc.**	**Scale Calibration Check Date:**	**6/30/2023**
Facility:	**Large Parts Campus Facility - Milwaukie, OR**		
Test Location:	**BH9203 Inlet West**		
Project #:	**M232604**		
Date:	**6/30/2023**		
Test Method:	**29**		
Weighed/Measured By:	**CST**		
Balance ID:	**S10-35**		

Scale Calibration Check (see QS-6.05C for procedure)
must be within ± 0.5g of certified mass

Certified Weight, grams	Result, grams
250	250.0
500	500.1
750	750.1

IMPINGER CONTENTS	FINAL MLS / GRAMS	INITIAL MLS / GRAMS	GAIN MLS / GRAMS
HNO3/H2O2	780.6	735.2	45.4
HNO3/H2O2	765.8	764.2	1.6
Empty	661.2	655.5	5.7
KMnO4/H2SO4	741.3	739.3	2.0
KMnO4/H2SO4	738.3	738.3	0.0
Silica Gel	871.6	807.3	64.3

3,687.2	3,632.5	54.7
Liquid Final	**Liquid Initial**	**Liquid Gain**
871.6	807.3	64.3
Silica Final	**Silica Initial**	**Silica Gain**

Client:	PCC Structurals, Inc.	
Facility:	Large Parts Campus Facility - Milwaukie, OR	
Test Location:	BH9203 Inlet Center	
Project #:	M232604	
Test Method:	29	
Test Engineer:	EE	
Test Technician:	MTD	
	Run 1	**Run 2**
Temp ID:	CM7	CM7
Meter ID:	CM7	CM7
Pitot ID:	288	288
Nozzle Diameter (Inches):	0.196	0.196
Meter Calibration Date:	6/16/2023	6/16/2023
Meter Calibration Factor (Y):	0.988	0.988
Meter Orifice Setting (Delta H):	1.533	1.533
Pitot Tube Coefficient:	0.840	
Probe Length (Feet):	4.0	
Probe Liner Material:	Glass	
Sample Plane:	Other	
Port Length (Inches):	4.00	
Port Size (Diameter, Inches):	4.00	
Port Type:	Nipple	
Duct Shape:	Circular	
Diameter (Feet):	3	
Duct Area (Square Feet):	7.069	
Upstream Distance (Feet):	18.0	
Downstream Distance (Feet):	32.0	
Number of Ports Sampled:	2	
Number of Points per Port:	12	
Minutes per Point:	20.0	
Minutes per Reading:	10.0	
Total Number of Traverse Points:	24	
Test Length (Minutes):	480	
Train Type:	Hot Box	
Source Condition:	Batch Process	
Moisture Balance ID:	S10-35	
# of Runs	2	

Run 1 - Method 29

Client:	**PCC Structurals, Inc.**	**Date:**	**6/27/23**
Facility:	**Large Parts Campus Facility - Milwaukie, OR**	**Start Time:**	**5:15**
Test Location:	**BH9203 Inlet Center**	**End Time:**	**13:50**
Source Condition:	**Batch Process**		

DRY GAS METER CONDITIONS			STACK CONDITIONS		
ΔH:	1.87	in. H_2O	Static Pressure	-3.70	in. H_2O
Meter Temperature, Tm:	75.5	°F	Flue Pressure (Ps):	29.70	in. Hg. abs.
Sqrt ΔP:	1.195	in. H_2O			
Stack Temperature, Ts:	68.5	°F			
Meter Volume, Vm:	399.167	ft^3			
Meter Volume, Vmstd:	391.296	dscf	Gas Weight dry, Md:	29.000	lb/lb mole
Meter Volume, Vwstd:	2.718	wscf	Gas Weight wet, Ms:	28.924	lb/lb mole
Isokinetic Variance:	97.9	%I			
			Gas Velocity, Vs:	67.316	fps
Test Length:	480.00	in mins.	Volumetric Flow:	28,550	acfm
Nozzle Diameter:	0.196	in inches	Volumetric Flow:	28,113	dscfm
Barometric Pressure:	29.97	in Hg	Volumetric Flow:	28,309	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3640.5	ml	Silica Initial Wt.	816.1	grams
Final Impinger Content:	3642.8	ml	Silica Final Wt.	871.5	grams
Impinger Difference:	2.3	ml	Silica Difference:	55.4	grams
Total Water Gain:	57.7		Moisture, Bws:	0.007	**Supersaturation Value, Bws: 0.024**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	5:15:00	1.60	3.00	460.34	63	58	55	257	250	54
1-1	5:25:00	1.60	2.10	470.60	65	58	54	241	250	61
1-2	5:35:00	1.40	1.80	479.97	61	63	57	253	250	62
1-2	5:45:00	1.40	1.80	488.00	61	65	57	236	250	49
1-3	5:55:00	1.50	1.90	496.51	63	66	58	231	250	49
1-3	6:05:00	1.50	1.90	504.510	63	66	59	251	250	50
1-4	6:15:00	1.50	1.90	511.910	63	66	59	240	250	47
1-4	6:25:00	1.50	1.90	521.000	63	67	60	241	250	47
1-5	6:35:00	1.50	1.90	529.220	63	67	61	255	250	54
1-5	6:45:00	1.50	1.90	536.054	64	67	60	264	250	46
1-6	6:55:00	1.50	1.90	545.345	63	67	61	250	250	45
1-6	7:05:00	1.50	1.90	555.420	64	69	62	243	251	47
1-7	7:15:00	1.60	2.10	565.098	64	70	62	262	250	47
1-7	7:25:00	1.50	1.90	571.640	64	72	64	241	250	49
1-8	7:35:00	1.50	1.90	579.900	64	72	64	247	250	49
1-8	7:45:00	1.40	1.80	587.620	64	77	64	260	250	48
1-9	7:55:00	1.50	1.90	596.900	64	71	65	259	250	47
1-9	8:05:00	1.50	1.90	604.220	64	75	65	235	250	47
1-10	8:15:00	1.60	2.06	614.090	65	75	66	248	250	46
1-10	8:25:00	1.60	2.06	621.240	65	74	67	238	250	47
1-11	8:35:00	1.50	1.90	630.460	65	74	67	260	250	47
1-11	8:45:00	1.40	1.80	637.790	66	76	68	244	250	48
1-12	8:55:00	1.50	1.90	646.410	67	75	69	259	250	50
1-12	9:05:00	1.50	1.90	655.230	67	76	70	255	249	53
	9:15:00			663.220						
2-1	9:50:00	1.30	1.70	663.375	68	78	73	247	248	59
2-1	10:00:00	1.30	1.70	670.750	67	78	72	241	252	51
2-2	10:10:00	1.20	1.60	678.420	67	78	72	251	251	51
2-2	10:20:00	1.20	1.60	686.340	69	80	74	258	248	47
2-3	10:30:00	1.80	2.40	695.360	70	81	76	230	251	46
2-3	10:40:00	1.80	2.40	703.630	71	84	78	253	250	47
2-4	10:50:00	1.40	1.80	712.280	72	83	78	249	250	45
2-4	11:00:00	1.40	1.80	721.780	73	84	79	239	251	49
2-5	11:10:00	1.50	2.00	730.190	72	85	80	238	251	47
2-5	11:20:00	1.40	1.80	739.040	73	85	80	243	250	48
2-6	11:30:00	1.30	1.70	747.980	74	94	81	247	250	49
2-6	11:40:00	1.30	1.70	755.440	72	85	82	249	249	50
2-7	11:50:00	1.30	1.70	763.050	72	87	82	245	250	48
2-7	12:00:00	1.30	1.70	771.020	73	88	87	236	250	47
2-8	12:10:00	1.40	1.80	778.440	74	88	83	251	250	50
2-8	12:20:00	1.30	1.70	786.180	75	89	85	260	251	51
2-9	12:30:00	1.30	1.70	794.350	76	90	86	260	251	50
2-9	12:40:00	1.30	1.70	802.310	76	89	86	253	251	55
2-10	12:50:00	1.30	1.70	810.980	76	94	98	271	250	54
2-10	13:00:00	1.30	1.70	819.160	76	97	89	235	250	54
2-11	13:10:00	1.30	1.70	827.640	76	97	90	268	251	54
2-11	13:20:00	1.40	1.80	835.660	76	96	91	263	250	53
2-12	13:30:00	1.30	1.70	843.550	80	96	91	248	249	53
2-12	13:40:00	1.20	1.60	851.740	77	97	91	246	252	54
	13:50:00			859.665						
Total	8:00:00			399.167		78.5	72.5			
Average			1.87		68.5	75.5				
Min			1.60		61.0	54.0				
Max			3.00		80.0	98.0				

Impinger Weight Sheet - Run 1

Client:	**PCC Structurals, Inc.**	**Scale Calibration Check Date:**	**6/27/2023**
Facility:	**Large Parts Campus Facility - Milwaukie, OR**	**Scale Calibration Check (see QS-6.05C for procedure)**	
Test Location:	**BH9203 Inlet Center**	**must be within ± 0.5g of certified mass**	
Project #:	**M232604**	**Certified Weight, grams**	**Result, grams**
Date:	**6/27/2023**	**250**	**250.0**
Test Method:	**29**		
Weighed/Measured By:	**CST**	**500**	**500.1**
Balance ID:	**S10-35**		
		750	**750.1**

IMPINGER CONTENTS	FINAL MLS / GRAMS	INITIAL MLS / GRAMS	GAIN MLS / GRAMS
HNO3/H2O2	770.0	752.2	17.8
HNO3/H2O2	744.5	741.2	3.3
Empty	653.2	653.5	-0.3
KMnO4/H2SO4	746.4	756.6	-10.2
KMnO4/H2SO4	728.7	737.0	-8.3
Silica Gel	871.5	816.1	55.4

3,642.8	3,640.5	2.3
Liquid Final	**Liquid Initial**	**Liquid Gain**
871.5	816.1	55.4
Silica Final	**Silica Initial**	**Silica Gain**

Run 2 - Method 29

Client:	**PCC Structurals, Inc.**	**Date:**	**6/30/23**
Facility:	**Large Parts Campus Facility - Milwaukie, OR**	**Start Time:**	**5:25**
Test Location:	**BH9203 Inlet Center**	**End Time:**	**13:30**
Source Condition:	**Batch Process**		

DRY GAS METER CONDITIONS			STACK CONDITIONS		
ΔH:	2.18	In. H_2O	Static Pressure	-3.50	in. H_2O
Meter Temperature, Tm:	76.1	°F	Flue Pressure (Ps):	29.71	in. Hg. abs.
Sqrt ΔP:	1.255	In. H_2O			
Stack Temperature, Ts:	71.5	°F			
Meter Volume, Vm:	396.055	ft^3			
Meter Volume, Vmstd:	388.108	dscf	Gas Weight dry, Md:	29.000	lb/lb mole
Meter Volume, Vwstd:	4.602	wscf	Gas Weight wet, Ms:	28.871	lb/lb mole
Isokinetic Variance:	101.5	%I			
			Gas Velocity, Vs:	70.942	fps
Test Length:	440.00	in mins.	Volumetric Flow:	30,088	acfm
Nozzle Diameter:	0.196	in inches	Volumetric Flow:	29,333	dscfm
Barometric Pressure:	29.97	in Hg	Volumetric Flow:	29,680	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3635.5	ml	Silica Initial Wt.	839.1	grams
Final Impinger Content:	3671.9	ml	Silica Final Wt.	900.4	grams
Impinger Difference:	36.4	ml	Silica Difference:	61.3	grams
Total Water Gain:	97.7		Moisture, Bws:	0.012	**Supersaturation Value, Bws: 0.026**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	5:25:00	1.50	2.10	62.145	66	57	57	254	249	45
1-1	5:35:00	1.70	2.40	69.000	65	60	56	253	251	53
1-2	5:45:00	1.60	2.20	77.630	64	64	57	250	250	54
1-2	5:55:00	1.60	2.20	86.730	64	67	58	245	250	55
1-3	6:05:00	1.60	2.20	96.330	65	69	59	258	250	55
1-3	6:15:00	1.60	2.20	106.550	65	67	60	249	250	56
1-4	6:25:00	1.60	2.20	116.340	64	68	60	262	251	56
1-4	6:35:00	1.60	2.20	125.960	65	70	62	255	250	57
1-5	6:45:00	1.50	2.10	134.990	67	70	62	260	251	56
1-5	6:55:00	1.60	2.20	144.340	66	70	63	256	249	56
1-6	7:05:00	1.60	2.20	152.360	66	71	64	249	251	57
1-6	7:15:00	1.60	2.20	160.350	67	71	65	250	251	57
1-7	7:25:00	1.60	2.20	168.680	67	72	66	242	251	58
1-7	7:35:00	1.50	2.10	177.550	66	72	71	258	251	59
1-8	7:45:00	1.50	2.10	186.340	68	73	67	249	250	60
1-8	7:55:00	1.50	2.10	194.120	67	74	67	249	250	61
1-9	8:05:00	1.60	2.20	202.720	67	74	67	262	251	62
1-9	8:15:00	1.60	2.20	214.520	67	74	68	252	250	59
1-10	8:25:00	1.60	2.20	220.330	67	75	68	245	249	59
1-10	8:35:00	1.60	2.20	229.540	67	74	68	256	250	52
1-11	8:45:00	1.50	2.10	238.780	69	76	70	245	250	54
1-11	8:55:00	1.60	2.20	247.730	68	77	70	245	249	53
1-12	9:05:00	1.60	2.20	255.890	70	77	71	244	252	54
1-12	9:15:00	1.60	2.20	265.240	71	77	71	250	250	54
	9:25:00			275.660						
2-1	10:00:00	1.50	2.10	275.660	73	72	69	241	250	56
2-1	10:10:00	1.50	2.10	284.600	73	77	71	249	250	53
2-2	10:20:00	1.50	2.10	293.200	75	79	73	248	249	52
2-2	10:30:00	1.50	2.10	302.900	75	81	74	263	252	49
2-3	10:40:00	1.50	2.10	310.300	75	82	76	239	251	51
2-3	10:50:00	1.60	2.20	319.100	74	84	78	254	249	50
2-4	11:00:00	1.60	2.20	327.600	75	86	79	252	250	51
2-4	11:10:00	1.60	2.20	336.600	75	86	81	244	250	52
2-5	11:20:00	1.60	2.20	345.000	77	87	82	245	250	50
2-5	11:30:00	1.70	2.40	353.700	77	88	84	235	252	46
2-6	11:40:00	1.70	2.40	362.300	78	89	85	250	249	47
2-6	11:50:00	1.60	2.20	371.200	78	91	86	263	250	47
2-7	12:00:00	1.60	2.20	380.400	77	92	87	249	249	48
2-7	12:10:00	1.60	2.20	390.700	78	91	88	238	249	48
2-8	12:20:00	1.60	2.20	401.400	78	91	89	248	252	47
2-8	12:30:00	1.60	2.20	412.300	80	92	90	246	248	50
2-9	12:40:00	1.60	2.20	421.500	80	93	90	250	250	50
2-9	12:50:00	1.60	2.20	430.600	80	96	91	227	250	51
2-10	13:00:00	1.50	2.10	438.300	81	97	92	251	252	51
2-10	13:10:00	1.50	2.10	445.900	81	98	93	246	251	52
2-11	13:20:00	1.50	2.10	451.200	81	98	94	255	248	54
	13:30:00			458.200						
Total	7:30:00			396.055		78.9	73.3			
Average			2.18		71.5	76.1				
Min			2.10		64.0	56.0				
Max			2.40		81.0	98.0				

Impinger Weight Sheet - Run 2

Client:	**PCC Structurals, Inc.**	**Scale Calibration Check Date:**	**6/30/2023**
Facility:	**Large Parts Campus Facility - Milwaukie, OR**	**Scale Calibration Check (see QS-6.05C for procedure)**	
Test Location:	**BH9203 Inlet Center**	**must be within ± 0.5g of certified mass**	
Project #:	**M232604**	**Certified Weight, grams**	**Result, grams**
Date:	**6/30/2023**	**250**	**250.0**
Test Method:	**29**		
Weighed/Measured By:	**CST**	**500**	**500.1**
Balance ID:	**S10-35**		
		750	**750.1**

IMPINGER CONTENTS	FINAL MLS / GRAMS	INITIAL MLS / GRAMS	GAIN MLS / GRAMS
HNO3/H2O2	776.1	754.7	21.4
HNO3/H2O2	760.0	746.3	13.7
Empty	630.0	624.4	5.6
KMnO4/H2SO4	763.7	769.2	-5.5
KMnO4/H2SO4	742.1	740.9	1.2
Silica Gel	900.4	839.1	61.3

Liquid Final	**Liquid Initial**	**Liquid Gain**
3,671.9	3,635.5	36.4

Silica Final	**Silica Initial**	**Silica Gain**
900.4	839.1	61.3

Client:	PCC Structurals, Inc.	
Facility:	Large Parts Campus Facility - Milwaukie, OR	
Test Location:	BH9203 Inlet East	
Project #:	M232604	
Test Method:	29	
Test Engineer:	NCC	
Test Technician:	PPP	
	Run 1	**Run 2**
Temp ID:	CM8	CM8
Meter ID:	CM8	CM8
Pitot ID:	290	290
Nozzle Diameter (Inches):	0.193	0.193
Meter Calibration Date:	6/6/2023	6/6/2023
Meter Calibration Factor (Y):	0.984	0.984
Meter Orifice Setting (Delta H):	1.860	1.860
Pitot Tube Coefficient:	0.840	
Probe Length (Feet):	4.0	
Probe Liner Material:	Glass	
Sample Plane:	Vertical	
Port Length (Inches):	4.00	
Port Size (Diameter, Inches):	4.00	
Port Type:	Nipple	
Duct Shape:	Circular	
Diameter (Feet):	3	
Duct Area (Square Feet):	7.069	
Upstream Distance (Feet):	14.0	
Downstream Distance (Feet):	36.0	
Number of Ports Sampled:	2	
Number of Points per Port:	12	
Minutes per Point:	20.0	
Minutes per Reading:	10.0	
Total Number of Traverse Points:	24	
Test Length (Minutes):	480	
Train Type:	Hot Box	
Source Condition:	Batch Process	
Moisture Balance ID:	S10-35	
# of Runs	2	

Run 1 - Method 29

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet East
Source Condition: Batch Process

Date: 6/27/23
Start Time: 5:15
End Time: 13:20

DRY GAS METER CONDITIONS

ΔH:	1.78	in. H_2O
Meter Temperature, Tm:	69.4	°F
Sqrt ΔP:	1.081	in. H_2O
Stack Temperature, Ts:	70.7	°F
Meter Volume, Vm:	364.061	ft^3
Meter Volume, Vmstd:	359.466	dscf
Meter Volume, Vwstd:	3.127	wscf
Isokinetic Variance:	102.8	%I
Test Length:	480.00	in mins.
Nozzle Diameter:	0.193	in inches
Barometric Pressure:	29.97	in Hg

STACK CONDITIONS

Static Pressure	-3.70	in. H_2O
Flue Pressure (Ps):	29.70	in. Hg. abs.
Gas Weight dry, Md:	29.000	lb/lb mole
Gas Weight wet, Ms:	28.905	lb/lb mole
Excess Air:		%
Gas Velocity, Vs:	61.064	fps
Volumetric Flow:	25,898	acfm
Volumetric Flow:	25,354	dscfm
Volumetric Flow:	25,575	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3639.4	ml	Silica Initial Wt.	837.2	grams
Final Impinger Content:	3654.3	ml	Silica Final Wt.	888.7	grams
Impinger Difference:	14.9	ml	Silica Difference:	51.5	grams

Total Water Gain: 66.4 Moisture, Bws: 0.009 **Supersaturation Value, Bws: 0.026**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F	
1-1	5:15:00	1.30	2.00	74.482	65	57	57	251	254	57	
1-1	5:25:00	1.30	2.00	82.300	65	57	57	251	254	54	
1-2	5:35:00	1.30	2.00	90.050	65	58	58	250	254	52	
1-2	5:45:00	1.30	2.00	97.840	64	58	58	251	254	51	
1-3	5:55:00	1.10	1.70	105.540	65	59	59	251	254	52	
1-3	6:05:00	1.10	1.70	112.700	65	60	60	251	254	51	
1-4	6:15:00	1.10	1.70	119.820	66	61	61	251	254	52	
1-4	6:25:00	1.10	1.70	126.930	65	61	61	251	254	52	
1-5	6:35:00	1.10	1.70	134.090	65	62	62	251	254	53	
1-5	6:45:00	1.10	1.70	141.230	65	63	63	250	254	53	
1-6	6:55:00	1.00	1.50	148.350	66	63	63	251	254	54	
1-6	7:05:00	1.00	1.50	155.160	66	64	64	251	254	53	
1-7	7:15:00	1.10	1.70	161.950	66	64	64	251	254	53	
1-7	7:25:00	1.10	1.70	169.090	66	64	64	251	254	53	
1-8	7:35:00	1.10	1.70	176.230	67	65	65	251	254	54	
1-8	7:45:00	1.10	1.70	183.370	67	65	65	251	254	55	
1-9	7:55:00	1.20	1.80	190.510	66	66	66	251	254	53	
1-9	8:05:00	1.10	1.70	197.940	66	67	67	252	254	52	
1-10	8:15:00	1.10	1.70	205.460	66	67	67	251	254	53	
1-10	8:25:00	1.20	1.80	213.670	67	68	68	252	254	54	
1-11	8:35:00	1.20	1.80	220.740	67	68	68	251	254	53	
1-11	8:45:00	1.20	1.80	226.470	68	69	69	251	254	55	
1-12	8:55:00	1.10	1.70	233.100	69	69	69	251	254	56	
1-12	9:05:00	1.10	1.70	240.320	70	71	71	251	254	58	
	9:15:00			249.037							
2-1	9:30:00	1.20	1.80	249.644	70	70	70	231	254	61	
2-1	9:40:00	1.20	1.80	258.520	71	70	70	231	254	61	
2-2	9:50:00	1.20	1.80	262.170	71	70	70	231	254	61	
2-2	10:00:00	1.20	1.80	269.310	71	71	71	250	254	62	
2-3	10:10:00	1.20	1.80	275.520	71	71	71	251	254	57	
2-3	10:20:00	1.20	1.80	286.220	73	71	71	245	254	57	
2-4	10:30:00	1.20	1.80	293.620	74	71	71	251	254	56	
2-4	10:40:00	1.20	1.80	303.390	74	71	71	250	254	58	
2-5	10:50:00	1.20	1.80	310.630	74	71	71	251	254	59	
2-5	11:00:00	1.30	2.00	319.250	74	71	71	250	254	57	
2-6	11:10:00	1.30	2.00	328.140	75	71	71	251	254	57	
2-6	11:20:00	1.30	2.00	333.710	76	71	71	250	254	58	
2-7	11:30:00	1.10	1.70	342.340	76	71	71	251	254	55	
2-7	11:40:00	1.20	1.80	350.370	74	71	71	251	254	55	
2-8	11:50:00	1.10	1.70	358.980	75	72	72	250	254	53	
2-8	12:00:00	1.10	1.70	368.130	76	74	74	251	254	54	
2-9	12:10:00	1.20	1.80	377.420	78	75	75	250	254	50	
2-9	12:20:00	1.20	1.80	386.640	77	78	78	251	254	50	
2-10	12:30:00	1.20	1.80	395.760	79	80	80	252	254	50	
2-10	12:40:00	1.20	1.80	405.150	79	82	82	251	254	50	
2-11	12:50:00	1.20	1.80	412.740	79	85	85	252	254	50	
2-11	13:00:00	1.20	1.80	420.660	80	87	87	251	254	50	
2-12	13:10:00	1.20	1.80	427.270	80	89	89	252	254	52	
2-12	13:20:00	1.20	1.80	434.280	80	91	91	251	254	51	
				439.150							
Total	############			364.061		69.4	69.4				
Average			1.78		70.7	69.4					
Min			1.50		64.0	57.0					
Max			2.00		80.0	91.0					

AET-014 ISO Template V26 1-16-23.xls

Project No. M232604B Rev. 1
Baghouse 9203

Impinger Weight Sheet - Run 1

Client:	**PCC Structurals, Inc.**	**Scale Calibration Check Date:**	**6/27/2023**
Facility:	**Large Parts Campus Facility - Milwaukie, OR**	**Scale Calibration Check (see QS-6.05C for procedure)**	
Test Location:	**BH9203 Inlet East**	**must be within ± 0.5g of certified mass**	
Project #:	**M232604**	**Certified Weight, grams**	**Result, grams**
Date:	**6/27/2023**	**250**	**250.0**
Test Method:	**29**		
Weighed/Measured By:	**CST**	**500**	**500.1**
Balance ID:	**S10-35**		
		750	**750.1**

IMPINGER CONTENTS	FINAL MLS / GRAMS	INITIAL MLS / GRAMS	GAIN MLS / GRAMS
HNO3/H2O2	732.7	720.3	12.4
HNO3/H2O2	794.0	779.6	14.4
Empty	625.5	623.2	2.3
KMnO4/H2SO4	768.0	779.1	-11.1
KMnO4/H2SO4	734.1	737.2	-3.1
Silica Gel	888.7	837.2	51.5

3,654.3	3,639.4	14.9
Liquid Final	**Liquid Initial**	**Liquid Gain**
888.7	837.2	51.5
Silica Final	**Silica Initial**	**Silica Gain**

Run 2 - Method 29

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet East
Source Condition: Batch Process

Date: 6/30/23
Start Time: 5:25
End Time: 13:30

DRY GAS METER CONDITIONS			STACK CONDITIONS		
ΔH:	1.66	In. H_2O	Static Pressure	-3.70	in. H_2O
Meter Temperature, Tm:	73.8	°F	Flue Pressure (Ps):	29.78	in. Hg. abs.
Sqrt ΔP:	1.060	In. H_2O			
Stack Temperature, Ts:	73.4	°F			
Meter Volume, Vm:	322.247	ft^3			
Meter Volume, Vmstd:	316.259	dscf	Gas Weight dry, Md:	29.000	lb/lb mole
Meter Volume, Vwstd:	4.870	wscf	Gas Weight wet, Ms:	28.833	lb/lb mole
Isokinetic Variance:	101.3	%I	Excess Air:		%
			Gas Velocity, Vs:	60.004	fps
Test Length:	440.00	in mins.	Volumetric Flow:	25,449	acfm
Nozzle Diameter:	0.193	in inches	Volumetric Flow:	24,691	dscfm
Barometric Pressure:	30.05	in Hg	Volumetric Flow:	25,071	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3705.5	ml	Silica Initial Wt.	802.1	grams
Final Impinger Content:	3742.2	ml	Silica Final Wt.	868.8	grams
Impinger Difference:	36.7	ml	Silica Difference:	66.7	grams

Total Water Gain: 103.4 Moisture, Bws: 0.015 **Supersaturation Value, Bws: 0.028**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	5:25:00	1.50	2.20	40.542	67	60	60	251	254	54
1-1	5:35:00	1.50	2.20	48.120	68	61	61	250	254	55
1-2	5:45:00	1.30	1.90	56.580	68	62	62	251	254	60
1-2	5:55:00	1.20	1.80	65.580	67	62	62	250	254	66
1-3	6:05:00	1.20	1.80	72.730	66	63	63	250	254	58
1-3	6:15:00	1.20	1.80	80.220	67	64	64	251	254	58
1-4	6:25:00	1.10	1.60	87.590	67	64	64	251	254	56
1-4	6:35:00	1.10	1.60	94.020	68	65	65	251	254	59
1-5	6:45:00	1.10	1.60	101.220	67	64	64	251	254	58
1-5	6:55:00	1.10	1.60	108.780	69	67	67	249	254	61
1-6	7:05:00	1.10	1.60	115.830	67	67	67	251	254	59
1-6	7:15:00	1.10	1.60	123.750	67	68	68	251	254	60
1-7	7:25:00	1.00	1.50	130.610	68	69	69	251	254	62
1-7	7:35:00	1.10	1.60	136.490	68	69	69	250	254	60
1-8	7:45:00	1.10	1.60	144.830	68	70	70	250	254	61
1-8	7:55:00	1.20	1.80	151.610	69	70	70	251	254	59
1-9	8:05:00	1.10	1.60	159.340	69	70	70	249	254	59
1-9	8:15:00	0.95	1.40	166.220	71	71	71	251	254	60
1-10	8:25:00	1.00	1.50	172.640	70	71	71	251	254	58
1-10	8:35:00	1.00	1.50	179.850	70	72	72	251	254	59
1-11	8:45:00	1.10	1.60	186.220	71	72	72	251	254	57
1-11	8:55:00	1.00	1.50	193.040	71	73	73	251	254	59
1-12	9:05:00	0.95	1.40	200.070	71	73	73	249	254	58
1-12	9:15:00	1.00	1.50	206.870	72	74	74	250	254	61
	9:25:00			213.521						
2-1	10:00:00	1.20	1.80	213.522	74	72	72	250	254	61
2-1	10:10:00	1.10	1.60	220.450	74	72	72	250	254	61
2-2	10:20:00	1.10	1.60	228.910	74	73	73	251	254	57
2-2	10:30:00	1.10	1.60	236.010	75	73	73	249	254	57
2-3	10:40:00	1.00	1.50	242.750	75	74	74	252	254	55
2-3	10:50:00	1.10	1.60	249.690	75	75	75	251	254	58
2-4	11:00:00	1.20	1.80	256.990	77	75	75	250	254	58
2-4	11:10:00	1.10	1.60	264.560	78	76	76	250	254	60
2-5	11:20:00	1.30	1.90	271.520	80	77	77	252	254	56
2-5	11:30:00	1.20	1.80	277.750	79	77	77	250	254	53
2-6	11:40:00	1.10	1.60	285.630	81	78	78	251	254	51
2-6	11:50:00	1.10	1.60	292.540	80	79	79	251	254	51
2-7	12:00:00	1.00	1.50	299.790	80	81	81	247	254	52
2-7	12:10:00	1.10	1.60	307.540	81	83	83	251	254	54
2-8	12:20:00	1.20	1.80	315.720	81	85	85	251	254	53
2-8	12:30:00	1.10	1.60	322.410	81	88	88	249	254	56
2-9	12:40:00	1.10	1.60	329.310	82	89	89	251	254	55
2-9	12:50:00	1.10	1.60	336.510	82	91	91	251	254	57
2-10	13:00:00	1.10	1.60	343.780	82	93	93	252	254	56
2-10	13:10:00	1.10	1.60	350.490	83	95	95	252	254	59
2-11	13:20:00	1.30	1.90	356.520	83	96	96	250	254	57
2-11	13:30:00			362.790						
Total	############			322.247		73.8	73.8			
Average			1.66		73.4	73.8				
Min			1.40		66.0	60.0				
Max			2.20		83.0	96.0				

Impinger Weight Sheet - Run 2

Client:	**PCC Structurals, Inc.**	**Scale Calibration Check Date:**	**6/30/2023**
Facility:	**Large Parts Campus Facility - Milwaukie, OR**	**Scale Calibration Check (see QS-6.05C for procedure)**	
Test Location:	**BH9203 Inlet East**	**must be within ± 0.5g of certified mass**	
Project #:	**M232604**	**Certified Weight, grams**	**Result, grams**
Date:	**6/30/2023**	**250**	**250.0**
Test Method:	**29**		
Weighed/Measured By:	**CST**	**500**	**500.1**
Balance ID:	**S10-35**		
		750	**750.1**

IMPINGER CONTENTS	FINAL MLS / GRAMS	INITIAL MLS / GRAMS	GAIN MLS / GRAMS
HNO3/H2O2	779.2	752.7	26.5
HNO3/H2O2	764.3	752.1	12.2
Empty	657.7	657.2	0.5
KMnO4/H2SO4	776.9	782.1	-5.2
KMnO4/H2SO4	764.1	761.4	2.7
Silica Gel	868.8	802.1	66.7

3,742.2	3,705.5	36.7
Liquid Final	**Liquid Initial**	**Liquid Gain**
868.8	802.1	66.7
Silica Final	**Silica Initial**	**Silica Gain**

Client:	PCC Structurals, Inc.	
Facility:	Large Parts Campus Facility - Milwaukie, OR	
Test Location:	BH9203 Inlet West	
Project #:	M232604	
Test Method:	0061	
Test Engineer:	JXJ	
Test Technician:	PPP	
	Run 1	**Run 2**
Temp ID:	CM39	CM39
Meter ID:	CM39	CM39
Pitot ID:	316	316
Nozzle Diameter (Inches):	0.195	0.195
Meter Calibration Date:	6/20/2023	6/20/2023
Meter Calibration Factor (Y):	1.010	1.010
Meter Orifice Setting (Delta H):	1.924	1.924
Pitot Tube Coefficient:	0.840	
Probe Length (Feet):	4.0	
Probe Liner Material:	Glass	
Sample Plane:	Horizontal	
Port Length (Inches):	4.00	
Port Size (Diameter, Inches):	4.00	
Port Type:	Nipple	
Duct Shape:	Circular	
Diameter (Feet):	3	
Duct Area (Square Feet):	7.069	
Upstream Distance (Feet):	22.0	
Downstream Distance (Feet):	28.0	
Number of Ports Sampled:	2	
Number of Points per Port:	12	
Minutes per Point:	20.0	
Minutes per Reading:	10.0	
Total Number of Traverse Points:	24	
Test Length (Minutes):	480	
Train Type:	Hot Box	
Source Condition:	Batch Process	
# of Runs	2	

Run 1 - Method 0061

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet West
Source Condition: Batch Process

Date: 6/27/23
Start Time: 5:15
End Time: 13:42

DRY GAS METER CONDITIONS

ΔH:	2.13	in. H_2O
Meter Temperature, Tm:	74.0	°F
Sqrt ΔP:	1.151	in. H_2O
Stack Temperature, Ts:	65.6	°F
Meter Volume, Vm:	376.631	ft^3
Meter Volume, Vmstd:	378.716	dscf
Meter Volume, Vwstd:	0.000	wscf
Isokinetic Variance:	99.3	%I
Test Length:	480.00	in mins.
Nozzle Diameter:	0.195	in inches
Barometric Pressure:	29.97	in Hg

STACK CONDITIONS

Static Pressure	-3.70	in. H_2O
Flue Pressure (Ps):	29.70	in. Hg. abs.
Gas Weight dry, Md:	29.000	lb/lb mole
Gas Weight wet, Ms:	28.890	lb/lb mole
Gas Velocity, Vs:	64.690	fps
Volumetric Flow:	27,436	acfm
Volumetric Flow:	27,084	dscfm
Volumetric Flow:	27,358	scfm

Moisture, Bws: 0.010 **Supersaturation Value, Bws: 0.021**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Impinger Exit Temp °F
1-1	5:15:00	1.50	2.35	8.005	60	52	52	50
1-1	5:25:00	1.60	2.50	16.058	60	53	53	50
1-2	5:35:00	1.30	2.05	24.391	59	54	54	52
1-2	5:45:00	1.30	2.05	31.924	60	55	55	51
1-3	5:55:00	1.60	2.50	39.465	59	56	56	53
1-3	6:05:00	1.50	2.37	47.855	59	56	56	52
1-4	6:15:00	1.40	2.22	55.979	59	57	57	54
1-4	6:25:00	1.40	2.22	63.842	60	57	57	50
1-5	6:35:00	1.50	2.40	71.698	61	59	59	52
1-5	6:45:00	1.50	2.40	79.853	61	59	59	53
1-6	6:55:00	1.30	2.10	88.008	61	60	60	54
1-6	7:05:00	1.30	2.10	95.615	60	61	61	51
1-7	7:15:00	1.40	2.20	103.244	62	61	61	53
1-7	7:25:00	1.30	2.10	111.145	62	63	63	52
1-8	7:35:00	1.20	1.90	118.788	62	64	64	52
1-8	7:45:00	1.40	2.20	126.146	62	65	65	57
1-9	7:55:00	1.30	2.10	134.108	61	65	65	55
1-9	8:05:00	1.30	2.10	141.787	60	65	65	55
1-10	8:15:00	1.20	1.90	149.475	61	67	67	56
1-10	8:25:00	1.30	2.10	156.881	61	67	67	55
1-11	8:35:00	1.40	2.20	164.590	63	69	69	54
1-11	8:45:00	1.30	2.10	172.605	63	70	70	56
1-12	8:55:00	1.40	2.30	180.343	64	71	71	55
1-12	9:05:00	1.30	2.10	188.381	65	74	74	56
	9:15:00			196.163				
2-1	9:42:00	1.40	2.30	197.361	65	81	81	54
2-1	9:52:00	1.40	2.30	205.542	64	81	81	55
2-2	10:02:00	1.40	2.30	213.731	63	81	81	54
2-2	10:12:00	1.30	2.10	221.928	66	81	81	55
2-3	10:22:00	1.40	2.30	229.804	67	81	81	56
2-3	10:32:00	1.20	1.90	237.970	68	82	82	55
2-4	10:42:00	1.30	2.10	245.537	69	83	83	57
2-4	10:52:00	1.20	1.90	253.420	68	84	84	57
2-5	11:02:00	1.20	1.90	261.014	69	85	85	56
2-5	11:12:00	1.10	1.80	268.616	70	85	85	56
2-6	11:22:00	1.50	2.50	275.887	70	86	86	56
2-6	11:32:00	1.40	2.30	284.393	70	86	86	56
2-7	11:42:00	1.20	1.90	292.611	70	87	87	56
2-7	11:52:00	1.20	1.90	300.233	70	87	87	56
2-8	12:02:00	1.30	2.10	307.855	72	88	88	57
2-8	12:12:00	1.30	2.10	315.788	73	88	88	54
2-9	12:22:00	1.30	2.10	323.713	73	88	88	54
2-9	12:32:00	1.20	1.90	331.639	73	88	88	53
2-10	12:42:00	1.30	2.10	339.253	73	88	88	53
2-10	12:52:00	1.30	2.10	347.179	74	92	92	39
2-11	13:02:00	1.20	1.90	355.155	75	92	92	63
2-11	13:12:00	1.20	1.90	362.811	75	92	92	63
2-12	13:22:00	1.20	1.90	370.466	73	92	92	63
2-12	13:32:00	1.20	1.90	378.137	73	94	94	64
	13:42:00			385.834				
Total	8:00:00			376.631		74.0	74.0	
Average			2.13		65.6	74.0		
Min			1.80		59.0	52.0		
Max			2.50		75.0	94.0		

Run 2 - Method 0061

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet West
Source Condition: Batch Process

Date: 6/30/23
Start Time: 5:25
End Time: 13:40

DRY GAS METER CONDITIONS			STACK CONDITIONS		
ΔH:	2.55	In. H_2O	Static Pressure	-3.70	in. H_2O
Meter Temperature, Tm:	72.7	°F	Flue Pressure (Ps):	29.78	in. Hg. abs.
Sqrt ΔP:	1.264	In. H_2O			
Stack Temperature, Ts:	69.0	°F			
Meter Volume, Vm:	392.915	ft^3			
Meter Volume, Vmstd:	397.537	dscf	Gas Weight dry, Md:	29.000	lb/lb mole
Meter Volume, Vwstd:	0.000	wscf	Gas Weight wet, Ms:	28.857	lb/lb mole
Isokinetic Variance:	99.5	%I			
			Gas Velocity, Vs:	71.200	fps
Test Length:	460.00	in mins.	Volumetric Flow:	30,197	acfm
Nozzle Diameter:	0.195	in inches	Volumetric Flow:	29,608	dscfm
Barometric Pressure:	30.05	in Hg	Volumetric Flow:	29,998	scfm

Moisture, Bws: 0.013 **Supersaturation Value, Bws: 0.024**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Impinger Exit Temp °F
1-1	5:25:00	1.70	2.70	59.025	62	57	57	52
1-1	5:35:00	1.70	2.70	67.640	62	61	61	61
1-2	5:45:00	1.60	2.60	76.315	61	64	64	66
1-2	5:55:00	1.60	2.60	84.790	61	64	64	64
1-3	6:05:00	1.50	2.40	93.262	61	64	64	61
1-3	6:15:00	1.60	2.50	101.468	62	64	64	60
1-4	6:25:00	1.50	2.40	109.935	62	65	65	59
1-4	6:35:00	1.50	2.40	118.150	63	67	67	61
1-5	6:45:00	1.70	2.70	126.390	63	66	66	59
1-5	6:55:00	1.60	2.60	135.140	63	66	66	59
1-6	7:05:00	1.50	2.40	143.627	62	66	66	59
1-6	7:15:00	1.50	2.40	151.856	63	65	65	59
1-7	7:25:00	1.50	2.40	160.065	63	65	65	60
1-7	7:35:00	1.60	2.60	168.267	64	65	65	59
1-8	7:45:00	1.60	2.50	176.735	64	65	65	59
1-8	7:55:00	1.60	2.50	185.200	64	65	65	59
1-9	8:05:00	1.70	2.70	193.670	64	66	66	59
1-9	8:15:00	1.60	2.50	202.415	64	66	66	58
1-10	8:25:00	1.60	2.50	210.895	64	67	67	59
1-10	8:35:00	1.50	2.40	219.395	65	67	67	59
1-11	8:45:00	1.50	2.40	227.615	65	67	67	60
1-11	8:55:00	1.60	2.50	235.835	65	67	67	60
1-12	9:05:00	1.50	2.40	244.325	66	67	67	60
1-12	9:15:00	1.50	2.40	252.540	68	68	68	58
	9:25:00			260.755				
2-1	10:00:00	1.70	2.70	260.755	69	76	76	58
2-1	10:10:00	1.70	2.70	269.625	70	75	75	58
2-2	10:20:00	1.70	2.70	278.470	70	75	75	59
2-2	10:30:00	1.70	2.70	287.310	71	75	75	59
2-3	10:40:00	1.60	2.60	296.145	72	76	76	59
2-3	10:50:00	1.50	2.40	304.725	72	76	76	60
2-4	11:00:00	1.60	2.60	313.030	74	77	77	60
2-4	11:10:00	1.70	2.70	321.610	74	77	77	57
2-5	11:20:00	1.60	2.50	330.450	75	77	77	56
2-5	11:30:00	1.60	2.60	339.025	75	80	80	51
2-6	11:40:00	1.60	2.60	347.645	75	80	80	50
2-6	11:50:00	1.50	2.40	356.260	76	81	81	50
2-7	12:00:00	1.60	2.60	364.610	76	82	82	51
2-7	12:10:00	1.70	2.70	373.251	77	83	83	50
2-8	12:20:00	1.60	2.60	382.170	77	83	83	50
2-8	12:30:00	1.50	2.40	390.818	79	84	84	48
2-9	12:40:00	1.50	2.40	399.195	79	85	85	48
2-9	12:50:00	1.70	2.70	407.588	78	86	86	48
2-10	13:00:00	1.70	2.70	416.545	79	87	87	48
2-10	13:10:00	1.70	2.70	425.510	78	88	88	49
2-11	13:20:00	1.60	2.60	434.501	78	88	88	49
2-11	13:30:00	1.60	2.60	443.220	78	88	88	50
	13:40:00			451.940				
Total	7:40:00			392.915		72.7	72.7	
Average			2.55		69.0	72.7		
Min			2.40		61.0	57.0		
Max			2.70		79.0	88.0		

AET-014 ISO Template V26 1-16-23.xls

Project No. M232604B Rev. 1
Baghouse 9203

Client:	PCC Structurals, Inc.	
Facility:	Large Parts Campus Facility - Milwaukie, OR	
Test Location:	BH9203 Inlet Center	
Project #:	M232604	
Test Method:	0061	
Test Engineer:	EE	
Test Technician:	PPP	
	Run 1	**Run 2**
Temp ID:	CM11	CM11
Meter ID:	CM11	CM11
Pitot ID:	289	289
Nozzle Diameter (Inches):	0.199	0.199
Meter Calibration Date:	6/20/2023	6/20/2023
Meter Calibration Factor (Y):	0.994	0.994
Meter Orifice Setting (Delta H):	1.833	1.833
Pitot Tube Coefficient:	0.840	
Probe Length (Feet):	4.0	
Probe Liner Material:	Glass	
Sample Plane:	Other	
Port Length (Inches):	4.00	
Port Size (Diameter, Inches):	4.00	
Port Type:	Nipple	
Duct Shape:	Circular	
Diameter (Feet):	3	
Duct Area (Square Feet):	7.069	
Upstream Diameters:	1.0	
Downstream Diameters:	8.0	
Number of Ports Sampled:	2	
Number of Points per Port:	12	
Minutes per Point:	20.0	
Minutes per Reading:	10.0	
Total Number of Traverse Points:	24	
Test Length (Minutes):	480	
Train Type:	Hot Box	
Source Condition:	Batch Process	
# of Runs	2	

Run 1 - Method 0061

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet Center
Source Condition: Batch Process

Date: 6/27/23
Start Time: 5:15
End Time: 13:50

DRY GAS METER CONDITIONS		
ΔH:	2.47	in. H_2O
Meter Temperature, Tm:	71.1	°F
Sqrt ΔP:	1.232	in. H_2O
Stack Temperature, Ts:	68.8	°F
Meter Volume, Vm:	407.912	ft^3
Meter Volume, Vmstd:	406.203	dscf
Meter Volume, Vwstd:	0.000	wscf
Isokinetic Variance:	95.6	%I
Test Length:	480.00	in mins.
Nozzle Diameter:	0.199	in inches
Barometric Pressure:	29.97	in Hg

STACK CONDITIONS		
Static Pressure	-3.70	in. H_2O
Flue Pressure (Ps):	29.70	in. Hg. abs.
Gas Weight dry, Md:	29.000	lb/lb mole
Gas Weight wet, Ms:	28.923	lb/lb mole
Gas Velocity, Vs:	69.435	fps
Volumetric Flow:	29,448	acfm
Volumetric Flow:	28,980	dscfm
Volumetric Flow:	29,185	scfm

Moisture, Bws: 0.007 **Supersaturation Value, Bws: 0.024**

Port- Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Impinger Exit Temp °F
1-1	5:15:00	1.60	2.50	621.033	63	56	54	58
1-1	5:25:00	1.40	2.30	629.300	65	63	56	58
1-2	5:35:00	1.20	2.00	638.100	62	59	56	58
1-2	5:45:00	1.20	2.00	646.100	61	65	57	55
1-3	5:55:00	1.30	2.10	654.200	63	66	58	54
1-3	6:05:00	1.30	2.10	661.600	63	66	58	51
1-4	6:15:00	1.30	2.10	669.500	64	61	67	51
1-4	6:25:00	1.40	2.30	677.310	64	61	58	51
1-5	6:35:00	1.40	2.30	685.530	65	61	58	52
1-5	6:45:00	1.40	2.30	693.032	65	61	58	51
1-6	6:55:00	1.40	2.30	701.555	64	61	58	52
1-6	7:05:00	1.50	2.50	710.539	64	62	59	52
1-7	7:15:00	1.50	2.50	720.135	65	62	60	53
1-7	7:25:00	1.40	2.30	727.860	65	63	60	52
1-8	7:35:00	1.40	2.30	735.000	64	64	61	53
1-8	7:45:00	1.40	2.30	743.550	64	64	62	52
1-9	7:55:00	1.30	2.10	751.980	64	64	62	53
1-9	8:05:00	1.40	2.30	760.370	65	64	62	53
1-10	8:15:00	1.50	2.50	769.240	66	63	63	53
1-10	8:25:00	1.50	2.50	776.860	65	66	64	52
1-11	8:35:00	1.50	2.50	782.560	66	66	64	52
1-11	8:45:00	1.50	2.50	793.830	67	67	64	53
1-12	8:55:00	1.40	2.30	802.160	67	68	65	52
1-12	9:05:00	1.50	2.50	810.330	67	68	66	53
	9:15:00			817.880				
2-1	9:50:00	1.60	2.60	818.025	68	70	69	57
2-1	10:00:00	1.50	2.40	826.520	61	70	69	59
2-2	10:10:00	1.60	2.60	836.230	69	70	69	61
2-2	10:20:00	1.50	2.40	845.000	69	70	69	59
2-3	10:30:00	1.70	2.70	854.100	70	71	69	60
2-3	10:40:00	2.00	3.20	862.670	72	72	70	62
2-4	10:50:00	1.60	2.60	870.990	72	72	70	63
2-4	11:00:00	1.40	1.80	879.290	73	84	79	64
2-5	11:10:00	1.60	2.60	887.950	73	73	73	60
2-5	11:20:00	1.60	2.60	896.230	73	75	74	55
2-6	11:30:00	1.60	2.70	905.160	73	76	75	55
2-6	11:40:00	1.70	2.70	913.650	73	78	76	55
2-7	11:50:00	1.70	2.70	922.370	72	80	78	54
2-7	12:00:00	1.70	2.70	931.550	74	83	80	55
2-8	12:10:00	1.60	2.60	940.090	74	84	82	56
2-8	12:20:00	1.60	2.60	948.900	75	85	83	56
2-9	12:30:00	1.70	2.70	968.540	76	90	87	56
2-9	12:40:00	1.70	2.70	977.950	77	90	87	56
2-10	12:50:00	1.80	2.90	985.000	77	92	89	55
2-10	13:00:00	1.80	2.90	985.000	77	92	89	56
2-11	13:10:00	1.80	2.90	994.180	76	93	90	56
2-11	13:20:00	1.50	2.40	1003.190	77	94	91	56
2-12	13:30:00	1.60	2.60	1011.560	77	94	92	56
2-12	13:40:00	1.50	2.40	1020.740	77	95	93	56
	13:50:00			1029.090				
Total	8:00:00			407.912		72.4	69.9	
Average			2.47		68.8	71.1		
Min			1.80		61.0	54.0		
Max			3.20		77.0	95.0		

Run 2 - Method 0061

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet Center
Source Condition: Batch Process

Date: 6/30/23
Start Time: 5:25
End Time: 13:30

DRY GAS METER CONDITIONS			STACK CONDITIONS		
ΔH:	2.25	In. H_2O	Static Pressure	-3.50	in. H_2O
Meter Temperature, Tm:	74.9	°F	Flue Pressure (Ps):	29.71	in. Hg. abs.
Sqrt ΔP:	1.146	In. H_2O			
Stack Temperature, Ts:	71.5	°F			
Meter Volume, Vm:	356.224	ft^3			
Meter Volume, Vmstd:	352.050	dscf	Gas Weight dry, Md:	29.000	lb/lb mole
Meter Volume, Vwstd:	0.000	wscf	Gas Weight wet, Ms:	28.868	lb/lb mole
Isokinetic Variance:	97.8	%I			
			Gas Velocity, Vs:	64.794	fps
Test Length:	440.00	in mins.	Volumetric Flow:	27,480	acfm
Nozzle Diameter:	0.199	in inches	Volumetric Flow:	26,785	dscfm
Barometric Pressure:	29.97	in Hg	Volumetric Flow:	27,110	scfm

Moisture, Bws: 0.012 **Supersaturation Value, Bws: 0.026**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Impinger Exit Temp °F
1-1	5:25:00	1.30	2.20	31.956	68	60	58	58
1-1	5:35:00	1.20	2.00	40.230	68	62	58	58
1-2	5:45:00	1.00	1.70	48.410	67	65	60	58
1-2	5:55:00	1.10	1.90	55.440	66	65	60	55
1-3	6:05:00	1.10	1.90	62.970	67	66	61	54
1-3	6:15:00	1.10	1.90	70.580	67	67	60	51
1-4	6:25:00	1.10	1.90	77.670	67	67	61	51
1-4	6:35:00	1.10	1.90	85.430	68	68	62	51
1-5	6:45:00	1.10	1.90	92.570	69	69	62	52
1-5	6:55:00	1.10	1.90	99.750	68	69	64	51
1-6	7:05:00	1.10	1.90	107.460	68	70	64	52
1-6	7:15:00	1.10	1.90	115.480	69	70	65	52
1-7	7:25:00	1.10	1.90	122.820	67	70	65	53
1-7	7:35:00	1.10	1.90	130.830	68	70	66	52
1-8	7:45:00	1.10	1.90	138.140	68	72	66	53
1-8	7:55:00	1.10	1.90	145.530	68	71	67	52
1-9	8:05:00	1.10	1.90	153.540	68	72	67	53
1-9	8:15:00	1.10	1.90	160.410	68	72	68	53
1-10	8:25:00	1.10	1.90	168.130	68	73	68	53
1-10	8:35:00	1.10	1.90	175.640	69	73	69	52
1-11	8:45:00	1.10	1.90	181.970	70	74	70	52
1-11	8:55:00	1.10	1.90	189.580	69	74	70	53
1-12	9:05:00	1.10	1.90	196.820	71	72	71	52
1-12	9:15:00	1.10	1.90	204.130	71	70	71	53
	9:25:00			212.090				
2-1	10:00:00	1.60	2.70	216.010	71	70	68	57
2-1	10:10:00	1.50	2.50	220.400	71	73	69	59
2-2	10:20:00	1.50	2.50	231.900	72	74	70	61
2-2	10:30:00	1.50	2.50	235.840	72	75	70	59
2-3	10:40:00	1.50	2.50	244.900	72	77	71	60
2-3	10:50:00	1.50	2.50	253.400	72	78	72	62
2-4	11:00:00	1.60	2.70	262.000	73	80	74	63
2-4	11:10:00	1.60	2.70	270.700	73	81	76	64
2-5	11:20:00	1.60	2.70	279.500	75	83	78	60
2-5	11:30:00	1.70	2.90	288.000	76	85	81	55
2-6	11:40:00	1.70	2.90	296.600	75	87	83	55
2-6	11:50:00	1.60	2.70	305.200	75	90	85	55
2-7	12:00:00	1.60	2.70	313.800	77	91	86	54
2-7	12:10:00	1.60	2.70	322.000	78	93	88	55
2-8	12:20:00	1.60	2.70	333.100	77	94	89	56
2-8	12:30:00	1.60	2.70	343.400	78	95	90	56
2-9	12:40:00	1.60	2.70	352.600	78	96	91	56
2-9	12:50:00	1.60	2.70	361.700	79	97	92	56
2-10	13:00:00	1.50	2.50	369.700	78	97	93	55
2-10	13:10:00	1.50	2.50	378.200	79	98	94	56
2-11	13:20:00	1.50	2.50	384.400	79	97	94	56
	13:30:00			392.100				
Total	7:30:00			356.224		77.2	72.6	
Average			2.25		71.5	74.9		
Min			1.70		66.0	58.0		
Max			2.90		79.0	98.0		

AET-014 ISO Template V26 1-16-23.xls

Client:	PCC Structurals, Inc.	
Facility:	Large Parts Campus Facility - Milwaukie, OR	
Test Location:	BH9203 Inlet East	
Project #:	M232604	
Test Method:	0061	
Test Engineer:	NCC	
Test Technician:	PPP	
	Run 1	**Run 2**
Temp ID:	CM10	CM10
Meter ID:	CM10	CM10
Pitot ID:	291	291
Nozzle Diameter (Inches):	0.195	0.195
Meter Calibration Date:	6/19/2023	6/19/2023
Meter Calibration Factor (Y):	0.990	0.990
Meter Orifice Setting (Delta H):	1.849	1.849
Pitot Tube Coefficient:	0.840	
Probe Length (Feet):	4.0	
Probe Liner Material:	Glass	
Sample Plane:	Vertical	
Port Length (Inches):	4.00	
Port Size (Diameter, Inches):	4.00	
Port Type:	Nipple	
Duct Shape:	Circular	
Diameter (Feet):	3	
Duct Area (Square Feet):	7.069	
Upstream Diameters:	2.0	
Downstream Diameters:	>8	
Number of Ports Sampled:	2	
Number of Points per Port:	12	
Minutes per Point:	20.0	
Minutes per Reading:	10.0	
Total Number of Traverse Points:	24	
Test Length (Minutes):	480	
Train Type:	Hot Box	
Source Condition:	Batch Process	
# of Runs	2	

Run 1 - Method 0061

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet East
Source Condition: Batch Process

Date: 6/27/23
Start Time: 5:15
End Time: 13:20

DRY GAS METER CONDITIONS

ΔH:	1.74	in. H_2O
Meter Temperature, Tm:	68.6	°F
Sqrt ΔP:	1.068	in. H_2O
Stack Temperature, Ts:	70.1	°F
Meter Volume, Vm:	362.725	ft^3
Meter Volume, Vmstd:	360.840	dscf
Meter Volume, Vwstd:	0.000	wscf
Isokinetic Variance:	102.4	%I
Test Length:	480.00	in mins.
Nozzle Diameter:	0.195	in inches
Barometric Pressure:	29.97	in Hg

STACK CONDITIONS

Static Pressure	-3.70	in. H_2O
Flue Pressure (Ps):	29.70	in. Hg. abs.
Gas Weight dry, Md:	29.000	lb/lb mole
Gas Weight wet, Ms:	28.901	lb/lb mole
Gas Velocity, Vs:	60.266	fps
Volumetric Flow:	25,560	acfm
Volumetric Flow:	25,042	dscfm
Volumetric Flow:	25,269	scfm

Moisture, Bws: 0.009 **Supersaturation Value, Bws: 0.025**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Impinger Exit Temp °F
1-1	5:15:00	1.30	2.00	35.151	65	59	59	61
1-1	5:25:00	1.30	2.00	43.040	65	60	59	60
1-2	5:35:00	1.30	2.00	50.840	65	61	59	60
1-2	5:45:00	1.20	1.80	58.660	66	63	59	58
1-3	5:55:00	1.20	1.80	66.150	66	63	60	57
1-3	6:05:00	1.00	1.50	73.650	66	63	60	57
1-4	6:15:00	1.00	1.50	80.510	66	64	60	57
1-4	6:25:00	1.00	1.50	87.350	66	64	60	56
1-5	6:35:00	1.20	1.80	94.220	66	65	61	56
1-5	6:45:00	1.20	1.80	101.710	65	66	61	57
1-6	6:55:00	1.00	1.50	109.230	65	66	62	58
1-6	7:05:00	1.00	1.50	116.060	66	67	62	58
1-7	7:15:00	1.00	1.50	122.920	66	67	63	57
1-7	7:25:00	1.00	1.50	129.770	66	68	63	57
1-8	7:35:00	1.00	1.50	136.630	66	68	63	58
1-8	7:45:00	1.00	1.50	143.440	66	69	63	59
1-9	7:55:00	1.10	1.70	150.320	66	69	64	57
1-9	8:05:00	1.00	1.50	157.510	66	69	64	55
1-10	8:15:00	1.00	1.50	166.312	66	69	64	61
1-10	8:25:00	1.00	1.50	172.820	66	70	64	57
1-11	8:35:00	1.10	1.70	179.230	67	71	65	57
1-11	8:45:00	1.10	1.70	185.880	67	70	65	59
1-12	8:55:00	1.10	1.70	192.120	69	71	66	62
1-12	9:05:00	1.10	1.70	198.550	71	72	66	62
	9:15:00			206.777				
2-1	9:30:00	1.10	1.70	207.551	69	73	68	56
2-1	9:40:00	1.10	1.70	215.270	70	73	68	57
2-2	9:50:00	1.10	1.70	219.150	70	74	68	56
2-2	10:00:00	1.20	1.80	225.620	69	73	68	58
2-3	10:10:00	1.10	1.70	233.050	70	73	69	58
2-3	10:20:00	0.97	1.50	243.520	74	72	68	59
2-4	10:30:00	1.10	1.70	251.020	73	73	68	60
2-4	10:40:00	1.10	1.70	259.640	73	72	68	60
2-5	10:50:00	1.10	1.70	266.250	73	76	69	64
2-5	11:00:00	1.20	1.80	273.760	72	74	68	59
2-6	11:10:00	1.30	2.00	282.090	73	75	68	57
2-6	11:20:00	1.20	1.80	288.970	74	74	70	59
2-7	11:30:00	1.20	1.80	295.980	74	75	70	59
2-7	11:40:00	1.20	1.80	303.660	74	75	70	60
2-8	11:50:00	1.30	2.00	311.540	73	75	72	60
2-8	12:00:00	1.30	2.00	319.120	75	76	70	61
2-9	12:10:00	1.20	1.80	327.120	76	76	71	61
2-9	12:20:00	1.30	2.00	336.350	77	77	73	61
2-10	12:30:00	1.20	1.80	345.320	77	78	72	60
2-10	12:40:00	1.20	1.80	355.360	77	77	73	61
2-11	12:50:00	1.30	2.00	364.560	79	79	72	60
2-11	13:00:00	1.30	2.00	373.870	78	78	73	59
2-12	13:10:00	1.30	2.00	381.230	78	81	74	59
2-12	13:20:00	1.30	2.00	389.130	78	82	76	59
				398.650				
Total	###########			362.725		70.9	66.2	
Average			1.74		70.1	68.6		
Min			1.50		65.0	59.0		
Max			2.00		79.0	82.0		

Run 2 - Method 0061

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet East
Source Condition: Batch Process

Date: 6/30/23
Start Time: 5:25
End Time: 14:00

DRY GAS METER CONDITIONS

ΔH:	1.72	In. H_2O
Meter Temperature, Tm:	74.0	°F
Sqrt ΔP:	1.061	In. H_2O
Stack Temperature, Ts:	72.2	°F
Meter Volume, Vm:	329.806	ft^3
Meter Volume, Vmstd:	325.578	dscf
Meter Volume, Vwstd:	0.000	wscf
Isokinetic Variance:	93.5	%I
Test Length:	480.00	in mins.
Nozzle Diameter:	0.195	in inches
Barometric Pressure:	30.05	in Hg

STACK CONDITIONS

Static Pressure	-3.70	in. H_2O
Flue Pressure (Ps):	29.78	in. Hg. abs.
Gas Weight dry, Md:	29.000	lb/lb mole
Gas Weight wet, Ms:	28.835	lb/lb mole
Gas Velocity, Vs:	59.985	fps
Volumetric Flow:	25,441	acfm
Volumetric Flow:	24,743	dscfm
Volumetric Flow:	25,120	scfm

Moisture, Bws: 0.015 **Supersaturation Value, Bws: 0.027**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Impinger Exit Temp °F
1-1	5:25:00	1.20	1.80	5.634	67	59	60	54
1-1	5:35:00	1.20	1.80	12.253	67	63	60	57
1-2	5:45:00	1.20	1.80	20.170	67	67	61	64
1-2	5:55:00	1.20	1.80	27.920	66	70	62	65
1-3	6:05:00	1.20	1.80	36.180	71	63	63	60
1-3	6:15:00	1.10	1.70	43.910	66	74	65	62
1-4	6:25:00	1.10	1.70	51.020	66	72	65	62
1-4	6:35:00	1.10	1.70	58.370	66	72	65	59
1-5	6:45:00	1.10	1.70	65.550	66	74	66	59
1-5	6:55:00	1.10	1.70	72.340	66	75	67	59
1-6	7:05:00	1.00	1.50	79.850	66	75	67	59
1-6	7:15:00	1.10	1.70	87.010	66	73	67	59
1-7	7:25:00	1.10	1.70	93.420	66	74	68	60
1-7	7:35:00	1.10	1.70	100.020	66	74	68	63
1-8	7:45:00	1.10	1.70	107.080	67	74	69	61
1-8	7:55:00	1.10	1.70	114.520	67	75	69	61
1-9	8:05:00	1.20	1.80	122.610	69	76	70	61
1-9	8:15:00	1.20	1.80	129.470	70	76	70	61
1-10	8:25:00	1.10	1.70	137.810	69	77	70	60
1-10	8:35:00	1.00	1.50	145.140	69	77	70	61
1-11	8:45:00	1.10	1.70	152.360	69	77	71	61
1-11	8:55:00	1.20	1.80	159.120	69	79	71	61
1-12	9:05:00	1.10	1.70	166.950	69	78	71	62
1-12	9:15:00	1.20	1.80	174.220	69	77	72	64
	9:25:00			181.261				
2-1	10:00:00	1.00	1.50	181.381	72	78	72	66
2-1	10:10:00	1.20	1.80	188.930	72	78	72	66
2-2	10:20:00	1.10	1.70	196.390	73	80	75	67
2-2	10:30:00	1.10	1.70	203.820	73	80	75	67
2-3	10:40:00	1.10	1.70	210.510	74	81	74	66
2-3	10:50:00	1.20	1.80	218.720	75	81	75	65
2-4	11:00:00	1.10	1.70	225.860	76	82	78	64
2-4	11:10:00	1.10	1.70	231.790	76	81	76	64
2-5	11:20:00	1.20	1.80	238.950	76	82	77	60
2-5	11:30:00	1.10	1.70	247.520	77	83	78	58
2-6	11:40:00	1.20	1.80	254.870	78	82	80	58
2-6	11:50:00	1.10	1.70	262.620	78	81	80	57
2-7	12:00:00	1.10	1.70	270.240	79	79	79	57
2-7	12:10:00	1.10	1.70	277.870	81	79	78	58
2-8	12:20:00	1.20	1.80	284.810	82	79	76	58
2-8	12:30:00	1.10	1.70	292.520	80	78	75	59
2-9	12:40:00	1.10	1.70	299.770	81	79	76	59
2-9	12:50:00	1.10	1.70	306.220	82	81	78	60
2-10	13:00:00	1.00	1.50	314.010	81	82	78	62
2-10	13:10:00	1.10	1.70	321.870	82	83	80	67
2-11	13:20:00	1.30	2.00	328.550	82	84	81	67
2-11	13:30:00			335.560				
2-12	13:40:00							
2-12	13:50:00							
	14:00:00							
Total	8:00:00			329.806		76.5	71.6	
Average			1.72		72.2	74.0		
Min			1.50		66.0	59.0		
Max			2.00		82.0	84.0		

Client:	PCC Structurals, Inc.	
Facility:	Large Parts Campus Facility - Milwaukie, OR	
Test Location:	BH9203 Outlet West	
Project #:	M232604	
Test Method:	29	
Test Engineer:	VTV	
Test Technician:	CIR1	
	Run 1	**Run 2**
Temp ID:	CM1	CM1
Meter ID:	CM1	CM1
Pitot ID:	931	931
Nozzle Diameter (Inches):	0.215	0.215
Meter Calibration Date:	6/13/2023	6/13/2023
Meter Calibration Factor (Y):	1.003	1.003
Meter Orifice Setting (Delta H):	1.570	1.570
Nozzle Kit ID Number and Material:	glass	glass
Pitot Tube Coefficient:	0.840	
Probe Length (Feet):	4.0	
Probe Liner Material:	Glass	
Sample Plane:	Horizontal	
Port Length (Inches):	4.00	
Port Size (Diameter, Inches):	4.00	
Port Type:	flange	
Duct Shape:	Circular	
Diameter (Feet):	2.833	
Duct Area (Square Feet):	6.304	
Upstream Diameters:	7.5	
Downstream Diameters:	72.0	
Number of Ports Sampled:	2	
Number of Points per Port:	12	
Minutes per Point:	20.0	
Minutes per Reading:	10.0	
Total Number of Traverse Points:	24	
Test Length (Minutes):	480	
Train Type:	Anderson Box	
Source Condition:	Batch Process	
Moisture Balance ID:	S10-35	
# of Runs	2	

Run 1 - Method 29

Client:	**PCC Structurals, Inc.**	**Date:**	**6/27/23**
Facility:	**Large Parts Campus Facility - Milwaukie, OR**	**Start Time:**	**5:15**
Test Location:	**BH9203 Outlet West**	**End Time:**	**13:33**
Source Condition:	**Batch Process**		

DRY GAS METER CONDITIONS			STACK CONDITIONS		
ΔH:	2.13	in. H_2O	Static Pressure	0.50	in. H_2O
Meter Temperature, Tm:	85.7	°F	Flue Pressure (Ps):	30.01	in. Hg. abs.
Sqrt ΔP:	1.018	in. H_2O			
Stack Temperature, Ts:	73.7	°F			
Meter Volume, Vm:	422.532	ft^3			
Meter Volume, Vmstd:	412.857	dscf	Gas Weight dry, Md:	29.000	lb/lb mole
Meter Volume, Vwstd:	2.704	wscf	Gas Weight wet, Ms:	28.928	lb/lb mole
Isokinetic Variance:	100.7	%I			
			Gas Velocity, Vs:	57.331	fps
Test Length:	480.00	in mins.	Volumetric Flow:	21,683	acfm
Nozzle Diameter:	0.215	in inches	Volumetric Flow:	21,374	dscfm
Barometric Pressure:	29.97	in Hg	Volumetric Flow:	21,514	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3637.0	ml	Silica Initial Wt.	814.4	grams
Final Impinger Content:	3649.2	ml	Silica Final Wt.	859.6	grams
Impinger Difference:	12.2	ml	Silica Difference:	45.2	grams

Total Water Gain: 57.4 Moisture, Bws: 0.007 **Supersaturation Value, Bws: 0.028**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F	
1-1	5:15:00	0.83	1.70	46.468	65	58	58	260	250	45	
1-1	5:25:00	0.85	1.70	54.250	67	62	58	250	259	48	
1-2	5:35:00	0.87	1.80	62.130	66	65	59	260	260	41	
1-2	5:45:00	1.00	2.00	70.160	67	68	60	260	262	48	
1-3	5:55:00	1.10	2.00	78.150	66	70	61	260	260	49	
1-3	6:05:00	1.10	2.00	86.910	67	72	63	258	260	50	
1-4	6:15:00	1.10	2.20	95.710	67	73	64	260	260	51	
1-4	6:25:00	1.30	2.60	104.240	67	74	65	252	260	51	
1-5	6:35:00	1.20	2.40	113.530	67	75	66	260	260	52	
1-5	6:45:00	1.20	2.40	122.850	67	76	67	260	260	54	
1-6	6:55:00	1.20	2.40	132.330	68	77	68	260	260	57	
1-6	7:05:00	1.20	2.40	141.870	69	78	69	250	260	59	
1-7	7:15:00	1.20	2.40	151.420	69	80	72	260	260	61	
1-7	7:25:00	1.20	2.40	160.470	70	83	74	250	260	62	
1-8	7:35:00	1.20	2.50	169.790	70	84	77	260	260	59	
1-8	7:45:00	1.20	2.50	179.560	69	84	78	260	260	52	
1-9	7:55:00	1.10	2.20	188.830	69	83	77	260	260	51	
1-9	8:05:00	1.10	2.30	197.790	67	82	77	250	260	53	
1-10	8:15:00	1.00	2.00	206.750	69	82	76	260	260	53	
1-10	8:25:00	1.00	2.00	215.530	69	81	76	260	260	50	
1-11	8:35:00	0.88	1.80	223.680	69	82	76	260	260	53	
1-11	8:45:00	0.88	1.80	232.330	71	83	77	250	260	56	
1-12	8:55:00	0.87	1.80	240.470	71	85	79	260	260	58	
1-12	9:05:00	0.88	1.80	248.220	74	88	81	250	260	61	
	9:15:00			255.951							
2-1	9:33:00	0.78	1.60	256.281	76	91	89	260	260	65	
2-1	9:43:00	0.76	1.60	264.150	75	95	91	260	260	55	
2-2	9:53:00	0.82	1.70	271.420	75	95	91	262	262	55	
2-2	10:03:00	0.83	1.70	279.380	75	95	92	260	260	55	
2-3	10:13:00	0.90	1.90	287.210	75	95	91	260	260	53	
2-3	10:23:00	0.90	1.90	303.050	76	94	91	260	260	57	
2-4	10:33:00	1.00	2.00	308.540	77	97	92	260	260	58	
2-4	10:43:00	1.00	2.00	320.190	78	99	95	260	260	59	
2-5	10:53:00	1.10	2.30	329.905	78	100	96	260	260	58	
2-5	11:03:00	1.10	2.30	338.640	79	100	97	260	260	60	
2-6	11:13:00	1.10	2.30	347.940	79	101	98	260	260	61	
2-6	11:23:00	1.10	2.20	357.120	79	100	98	260	260	61	
2-7	11:33:00	1.20	2.50	366.410	79	100	98	260	260	61	
2-7	11:43:00	1.20	2.50	376.020	79	100	98	260	260	61	
2-8	11:53:00	1.20	2.50	385.670	80	100	98	260	260	61	
2-8	12:03:00	1.20	2.50	394.620	80	100	99	260	260	64	
2-9	12:13:00	1.10	2.30	397.950	80	100	99	260	260	67	
2-9	12:23:00	1.20	2.50	406.410	81	101	100	260	260	66	
2-10	12:33:00	1.10	2.30	416.790	82	100	101	260	260	67	
2-10	12:43:00	1.10	2.30	425.360	82	103	101	260	260	61	
2-11	12:53:00	1.00	2.00	434.350	83	104	102	260	260	60	
2-11	13:03:00	0.95	2.00	443.920	83	104	102	260	260	61	
2-12	13:13:00	0.96	2.00	452.120	83	104	103	260	260	61	
2-12	13:23:00	0.94	2.00	465.970	83	104	103	260	260	62	
	13:33:00			469.330							
Total	8:00:00			422.532		88.1	83.4				
Average			2.13		73.7	85.7					
Min			1.60		65.0	58.0					
Max			2.60		83.0	104.0					

AET-014 ISO Template V26 1-16-23.xls

Project No. M232604B Rev. 1
Baghouse 9203

Impinger Weight Sheet - Run 1

Client:	**PCC Structurals, Inc.**	**Scale Calibration Check Date:**	**6/27/2023**
Facility:	**Large Parts Campus Facility - Milwaukie, OR**	**Scale Calibration Check (see QS-6.05C for procedure)**	
Test Location:	**BH9203 Outlet West**	**must be within ± 0.5g of certified mass**	
Project #:	**M232604**	**Certified Weight, grams**	**Result, grams**
Date:	**6/27/2023**	**250**	**250.0**
Test Method:	**29**		
Weighed/Measured By:	**CST**	**500**	**500.1**
Balance ID:	**S10-35**		
		750	**750.1**

IMPINGER CONTENTS	FINAL MLS / GRAMS	INITIAL MLS / GRAMS	GAIN MLS / GRAMS
HNO3/H2O2	700.6	752.6	-52.0
HNO3/H2O2	819.5	767.4	52.1
Empty	659.7	648.5	11.2
KMnO4/H2SO4	761.5	762.3	-0.8
KMnO4/H2SO4	707.9	706.2	1.7
Silica Gel	859.6	814.4	45.2

3,649.2	3,637.0	12.2
Liquid Final	**Liquid Initial**	**Liquid Gain**
859.6	814.4	45.2
Silica Final	**Silica Initial**	**Silica Gain**

Run 2 - Method 29

Client:	**PCC Structurals, Inc.**	**Date:**	**6/30/23**
Facility:	**Large Parts Campus Facility - Milwaukie, OR**	**Start Time:**	**5:25**
Test Location:	**BH9203 Outlet West**	**End Time:**	**13:35**
Source Condition:	**Batch Process**		

DRY GAS METER CONDITIONS			STACK CONDITIONS		
ΔH:	2.20	In. H_2O	Static Pressure	0.50	in. H_2O
Meter Temperature, Tm:	81.7	°F	Flue Pressure (Ps):	30.01	in. Hg. abs.
Sqrt ΔP:	1.048	In. H_2O			
Stack Temperature, Ts:	77.2	°F			
Meter Volume, Vm:	430.052	ft^3			
Meter Volume, Vmstd:	423.437	dscf	Gas Weight dry, Md:	29.000	lb/lb mole
Meter Volume, Vwstd:	4.437	wscf	Gas Weight wet, Ms:	28.886	lb/lb mole
Isokinetic Variance:	101.0	%I			
			Gas Velocity, Vs:	59.234	fps
Test Length:	480.00	in mins.	Volumetric Flow:	22,403	acfm
Nozzle Diameter:	0.215	in inches	Volumetric Flow:	21,855	dscfm
Barometric Pressure:	29.97	in Hg	Volumetric Flow:	22,084	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3666.1	ml	Silica Initial Wt.	842.7	grams
Final Impinger Content:	3736.8	ml	Silica Final Wt.	866.2	grams
Impinger Difference:	70.7	ml	Silica Difference:	23.5	grams

Total Water Gain:	94.2	Moisture, Bws:	0.010	**Supersaturation Value, Bws:**	**0.031**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	5:25:00	1.00	2.00	28.873	70	64	64	248	249	55
1-1	5:35:00	1.10	2.10	37.450	70	71	65	250	250	52
1-2	5:45:00	1.10	2.20	46.510	70	75	67	250	255	54
1-2	5:55:00	1.10	2.20	55.170	70	75	68	250	250	54
1-3	6:05:00	1.10	2.20	64.370	70	75	68	247	250	54
1-3	6:15:00	1.10	2.20	72.380	70	76	69	245	250	53
1-4	6:25:00	1.10	2.20	81.560	69	78	71	254	251	52
1-4	6:35:00	1.10	2.20	90.420	70	80	71	250	250	51
1-5	6:45:00	1.10	2.20	98.830	70	79	72	253	248	51
1-5	6:55:00	1.10	2.20	108.550	71	78	71	250	250	50
1-6	7:05:00	1.10	2.20	117.250	71	78	71	250	250	50
1-6	7:15:00	1.10	2.20	126.070	70	79	72	250	250	49
1-7	7:25:00	1.10	2.20	135.210	72	78	72	250	249	48
1-7	7:35:00	1.10	2.20	143.660	71	80	73	250	250	49
1-8	7:45:00	1.10	2.20	152.980	71	79	74	250	250	50
1-8	7:55:00	1.10	2.20	161.720	72	80	74	252	249	47
1-9	8:05:00	1.10	2.20	171.070	71	81	73	249	245	45
1-9	8:15:00	1.10	2.20	180.230	72	82	74	252	249	45
1-10	8:25:00	1.10	2.20	188.740	72	81	74	251	250	45
1-10	8:35:00	1.10	2.20	197.520	73	82	74	250	248	46
1-11	8:45:00	1.10	2.20	206.319	73	82	75	252	250	46
1-11	8:55:00	1.10	2.20	215.790	73	82	75	250	251	47
1-12	9:05:00	1.10	2.20	224.450	75	81	75	246	252	47
1-12	9:15:00	1.10	2.20	233.360	75	83	77	252	250	48
	9:25:00			242.049						
2-1	9:35:00	1.10	2.30	242.049	76	83	80	250	250	47
2-1	9:45:00	1.10	2.20	251.320	77	87	81	251	251	48
2-2	9:55:00	1.10	2.20	260.710	77	89	83	249	249	52
2-2	10:05:00	1.10	2.20	269.850	78	90	83	250	250	49
2-3	10:15:00	1.10	2.20	278.460	78	89	83	246	250	47
2-3	10:25:00	1.10	2.20	287.570	79	88	84	247	250	47
2-4	10:35:00	1.10	2.20	296.220	80	89	84	252	251	47
2-4	10:45:00	1.10	2.20	305.540	80	89	85	253	252	49
2-5	10:55:00	1.10	2.20	314.310	81	90	85	249	249	49
2-5	11:05:00	1.10	2.20	323.930	80	90	85	250	250	50
2-6	11:15:00	1.10	2.20	332.750	81	90	85	255	252	50
2-6	11:25:00	1.10	2.20	341.340	83	91	85	252	256	51
2-7	11:35:00	1.10	2.20	350.780	83	91	85	251	252	52
2-7	11:45:00	1.10	2.20	360.120	84	93	86	257	252	53
2-8	11:55:00	1.10	2.20	368.670	86	93	87	250	250	55
2-8	12:05:00	1.10	2.20	377.260	85	93	87	250	248	56
2-9	12:15:00	1.10	2.20	386.750	87	93	88	250	250	59
2-9	12:25:00	1.10	2.20	395.510	86	93	88	251	256	51
2-10	12:35:00	1.10	2.20	404.770	87	94	88	250	250	51
2-10	12:45:00	1.10	2.20	414.220	89	94	88	244	251	53
2-11	12:55:00	1.10	2.20	422.560	88	94	88	250	250	52
2-11	13:05:00	1.10	2.20	431.980	89	94	88	250	250	52
2-12	13:15:00	1.10	2.20	440.130	89	95	89	250	247	53
2-12	13:25:00	1.10	2.20	450.110	90	95	89	250	250	56
	13:35:00			458.925						
Total	8:00:00			430.052		84.7	78.6			
Average			2.20		77.2	81.7				
Min			2.00		69.0	64.0				
Max			2.30		90.0	95.0				

Impinger Weight Sheet - Run 2

Client:	**PCC Structurals, Inc.**	**Scale Calibration Check Date:**	**6/30/2023**
Facility:	**Large Parts Campus Facility - Milwaukie, OR**	**Scale Calibration Check (see QS-6.05C for procedure)**	
Test Location:	**BH9203 Outlet West**	**must be within ± 0.5g of certified mass**	
Project #:	**M232604**	**Certified Weight, grams**	**Result, grams**
Date:	**6/30/2023**	**250**	**250.0**
Test Method:	**29**		
Weighed/Measured By:	**CST**	**500**	**500.1**
Balance ID:	**S10-35**		
		750	**750.1**

IMPINGER CONTENTS	FINAL MLS / GRAMS	INITIAL MLS / GRAMS	GAIN MLS / GRAMS
HNO3/H2O2	756.3	766.1	-9.8
HNO3/H2O2	806.0	765.6	40.4
Empty	675.0	651.5	23.5
KMnO4/H2SO4	706.8	702.1	4.7
KMnO4/H2SO4	792.7	780.8	11.9
Silica Gel	866.2	842.7	23.5

3,736.8	3,666.1	70.7
Liquid Final	**Liquid Initial**	**Liquid Gain**
866.2	842.7	23.5
Silica Final	**Silica Initial**	**Silica Gain**

Client:	PCC Structurals, Inc.	
Facility:	Large Parts Campus Facility - Milwaukie, OR	
Test Location:	BH9203 Outlet East	
Project #:	M232604	
Test Method:	29	
Test Engineer:	VTV	
Test Technician:	CIR1	
	Run 1	**Run 2**
Temp ID:	cm34	cm34
Meter ID:	cm34	cm34
Pitot ID:	4037	4037
Nozzle Diameter (Inches):	0.200	0.200
Meter Calibration Date:	6/21/2023	6/21/2023
Meter Calibration Factor (Y):	1.003	1.003
Meter Orifice Setting (Delta H):	1.758	1.758
Nozzle Kit ID Number and Material:	Glass 6	Glass 6
Pitot Tube Coefficient:	0.840	
Probe Length (Feet):	3.0	
Probe Liner Material:	Glass	
Sample Plane:	Horizontal	
Port Length (Inches):	4.00	
Port Size (Diameter, Inches):	4.00	
Port Type:	Flange	
Duct Shape:	Circular	
Diameter (Feet):	2.833	
Duct Area (Square Feet):	6.304	
Upstream Diameters:	7.5	
Downstream Diameters:	72.0	
Number of Ports Sampled:	2	
Number of Points per Port:	12	
Minutes per Point:	20.0	
Minutes per Reading:	10.0	
Total Number of Traverse Points:	24	
Test Length (Minutes):	480	
Train Type:	Anderson Box	
Source Condition:	Batch Process	
Moisture Balance ID:	S10-35	
# of Runs	2	

Run 1 - Method 29

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Outlet East
Source Condition: Batch Process

Date: 6/27/23
Start Time: 5:15
End Time: 18:05

DRY GAS METER CONDITIONS		
ΔH:	1.82	in. H_2O
Meter Temperature, Tm:	80.9	°F
Sqrt ΔP:	1.032	in. H_2O
Stack Temperature, Ts:	76.3	°F
Meter Volume, Vm:	366.177	ft^3
Meter Volume, Vmstd:	360.728	dscf
Meter Volume, Vwstd:	3.222	wscf
Isokinetic Variance:	100.8	%I
Test Length:	480.00	in mins.
Nozzle Diameter:	0.200	in inches
Barometric Pressure:	29.97	in Hg

STACK CONDITIONS		
Static Pressure	0.50	in. H_2O
Flue Pressure (Ps):	30.01	in. Hg. abs.
Carbon Dioxide:		%
Oxygen:		%
Nitrogen:	#VALUE!	%
Gas Weight dry, Md:	29.000	lb/lb mole
Gas Weight wet, Ms:	28.903	lb/lb mole
Excess Air:	#VALUE!	%
Gas Velocity, Vs:	58.266	fps
Volumetric Flow:	22,037	acfm
Volumetric Flow:	21,565	dscfm
Volumetric Flow:	21,757	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3543.4	ml	Silica Initial Wt.	867.8	grams
Final Impinger Content:	3566.3	ml	Silica Final Wt.	913.3	grams
Impinger Difference:	22.9	ml	Silica Difference:	45.5	grams

Total Water Gain: 68.4 | Moisture, Bws: 0.009 | **Supersaturation Value, Bws: 0.030**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	5:15:00	1.70	2.70	70.013	68	59	59	250	250	45
1-1	5:25:00	1.20	1.90	78.740	69	62	59	250	250	49
1-2	5:35:00	1.30	2.10	87.350	69	66	60	250	250	54
1-2	5:45:00	1.20	2.00	95.520	68	69	61	250	250	56
1-3	5:55:00	1.30	2.20	103.430	68	71	62	250	250	55
1-3	6:05:00	1.30	2.20	112.270	69	73	64	250	250	56
1-4	6:15:00	1.30	2.20	120.420	69	73	65	250	250	56
1-4	6:25:00	1.30	2.20	128.610	71	74	66	250	250	58
1-5	6:35:00	1.30	2.20	136.220	70	75	66	250	250	58
1-5	6:45:00	1.30	2.20	144.930	70	74	67	250	250	59
1-6	6:55:00	1.30	2.20	153.520	70	75	67	250	250	60
1-6	7:05:00	1.20	2.00	161.550	71	76	68	250	250	60
1-7	7:15:00	1.20	2.00	169.120	72	79	70	250	250	60
1-7	7:25:00	1.20	2.00	177.750	73	80	72	250	250	60
1-8	7:35:00	1.10	1.90	185.820	74	81	75	250	250	55
1-8	7:45:00	1.20	2.00	193.840	72	79	74	250	250	51
1-9	7:55:00	1.10	1.90	201.920	71	78	73	250	250	50
1-9	8:05:00	1.10	1.90	209.680	71	78	72	250	250	49
1-10	8:15:00	0.89	1.50	217.020	71	77	72	250	250	51
1-10	8:25:00	0.89	1.50	224.220	71	77	71	250	250	52
1-11	8:35:00	0.77	1.30	230.910	71	78	71	250	250	52
1-11	8:45:00	0.75	1.30	237.460	71	79	73	250	250	53
1-12	8:55:00	0.73	1.20	243.730	74	81	75	250	250	55
1-12	9:05:00	0.72	1.20	250.070	76	84	78	250	250	56
	9:15:00			256.150						
2-1	9:33:00	0.79	1.40	256.509	80	84	83	250	250	52
2-1	9:43:00	0.79	1.30	268.710	78	88	84	250	250	51
2-2	9:53:00	0.80	1.40	275.780	78	88	85	250	250	51
2-2	10:03:00	0.80	1.40	282.410	78	88	85	250	250	52
2-3	10:13:00	0.89	1.70	288.080	77	89	84	250	250	52
2-3	10:23:00	0.89	1.50	295.390	77	90	85	250	250	52
2-4	10:33:00	1.10	1.90	303.460	78	93	86	250	250	53
2-4	10:43:00	1.10	1.90	311.160	81	93	88	250	250	54
2-5	10:53:00	1.10	1.90	318.660	81	93	88	250	250	55
2-5	11:03:00	1.10	1.90	326.980	81	93	88	250	250	55
2-6	11:13:00	1.20	2.00	334.550	81	92	89	250	250	55
2-6	11:23:00	1.20	2.00	342.870	82	92	90	250	250	58
2-7	11:33:00	1.20	2.00	350.360	83	92	89	250	250	57
2-7	11:43:00	1.20	2.00	358.240	81	94	89	250	250	57
2-8	11:53:00	1.10	1.90	366.800	83	94	90	250	250	58
2-8	12:03:00	1.10	1.90	374.020	82	93	90	250	250	60
2-9	12:13:00	1.10	1.90	377.890	83	91	89	250	250	56
2-9	12:23:00	1.10	1.90	385.760	85	93	90	250	250	56
2-10	12:33:00	0.93	1.60	393.130	85	95	90	250	250	56
2-10	12:43:00	0.95	1.60	400.880	86	95	91	250	259	57
2-11	12:53:00	0.96	1.60	407.510	86	94	92	250	250	60
2-11	13:03:00	0.97	1.70	415.110	86	94	91	250	250	61
2-12	13:13:00	0.92	1.60	422.340	86	95	91	250	250	62
2-12	13:23:00	0.92	1.60	429.460	87	95	92	250	250	62
	13:33:00			436.549						
Total	8:00:00			366.177		83.5	78.3			
Average			1.82		76.3	80.9				
Min			1.20		68.0	59.0				
Max			2.70		87.0	95.0				

Impinger Weight Sheet - Run 1

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Outlet East
Project #: M232604
Date: 6/27/2023
Test Method: 29
Weighed/Measured By: CST
Balance ID: S10-35

Scale Calibration Check Date: 6/27/2023

Scale Calibration Check (see QS-6.05C for procedure)
must be within ± 0.5g of certified mass

Certified Weight, grams	Result, grams
250	250.0
500	500.1
750	750.1

IMPINGER CONTENTS	FINAL MLS / GRAMS	INITIAL MLS / GRAMS	GAIN MLS / GRAMS
HNO3/H2O2	681.5	720.8	-39.3
HNO3/H2O2	723.1	722.4	0.7
Empty	666.4	644.2	22.2
KMnO4/H2SO4	796.9	771.4	25.5
KMnO4/H2SO4	698.4	684.6	13.8
Silica Gel	913.3	867.8	45.5

3,566.3	3,543.4	22.9
Liquid Final	**Liquid Initial**	**Liquid Gain**
913.3	867.8	45.5
Silica Final	**Silica Initial**	**Silica Gain**

Run 2 - Method 29

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Outlet East
Source Condition: Batch Process

Date: 6/30/23
Start Time: 5:25
End Time: 13:35

DRY GAS METER CONDITIONS			STACK CONDITIONS		
ΔH:	1.80	In. H_2O	Static Pressure	0.50	in. H_2O
Meter Temperature, Tm:	81.9	°F	Flue Pressure (Ps):	30.01	in. Hg. abs.
Sqrt ΔP:	1.025	In. H_2O	Carbon Dioxide:		%
Stack Temperature, Ts:	77.6	°F	Oxygen:		%
Meter Volume, Vm:	361.704	ft^3	Nitrogen:	#VALUE!	%
Meter Volume, Vmstd:	355.670	dscf	Gas Weight dry, Md:	29.000	lb/lb mole
Meter Volume, Vwstd:	3.080	wscf	Gas Weight wet, Ms:	28.906	lb/lb mole
Isokinetic Variance:	100.1	%I	Excess Air:	#VALUE!	%
			Gas Velocity, Vs:	57.947	fps
Test Length:	480.00	in mins.	Volumetric Flow:	21,916	acfm
Nozzle Diameter:	0.200	in inches	Volumetric Flow:	21,401	dscfm
Barometric Pressure:	29.97	in Hg	Volumetric Flow:	21,586	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3309.9	ml	Silica Initial Wt.	821.5	grams
Final Impinger Content:	3354.4	ml	Silica Final Wt.	842.4	grams
Impinger Difference:	44.5	ml	Silica Difference:	20.9	grams

Total Water Gain: 65.4 Moisture, Bws: 0.009 **Supersaturation Value, Bws: 0.032**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	5:25:00	0.98	1.70	95.536	71	67	65	249	249	45
1-1	5:35:00	0.97	1.60	102.870	71	66	66	249	250	53
1-2	5:45:00	0.96	1.60	110.220	72	76	68	250	251	45
1-2	5:55:00	0.95	1.60	117.230	72	77	69	250	249	46
1-3	6:05:00	0.94	1.60	124.160	71	79	69	250	250	46
1-3	6:15:00	0.98	1.70	131.180	72	79	70	250	248	47
1-4	6:25:00	1.00	1.70	138.620	72	79	71	250	253	47
1-4	6:35:00	1.00	1.70	146.030	71	79	71	250	251	47
1-5	6:45:00	1.00	1.70	153.230	71	79	72	250	248	47
1-5	6:55:00	1.00	1.70	160.270	71	78	71	250	250	47
1-6	7:05:00	1.00	1.70	168.480	70	78	71	250	250	47
1-6	7:15:00	0.98	1.70	175.660	70	79	72	250	246	48
1-7	7:25:00	1.00	1.70	182.240	71	78	72	250	252	48
1-7	7:35:00	1.00	1.70	189.400	72	80	72	250	247	49
1-8	7:45:00	1.00	1.70	197.520	72	81	73	250	250	50
1-8	7:55:00	1.00	1.70	204.950	73	81	73	250	250	45
1-9	8:05:00	1.00	1.70	212.170	72	81	73	251	249	44
1-9	8:15:00	1.00	1.70	219.890	72	82	74	250	249	44
1-10	8:25:00	1.00	1.70	227.570	73	82	74	250	252	45
1-10	8:35:00	1.00	1.70	234.220	73	83	74	250	248	45
1-11	8:45:00	1.00	1.70	241.100	74	82	75	250	252	47
1-11	8:55:00	1.10	1.90	249.380	74	81	75	250	251	48
1-12	9:05:00	1.10	1.90	256.520	74	81	75	250	250	47
1-12	9:15:00	1.10	1.90	264.650	75	83	77	250	250	47
	9:25:00			269.544						
2-1	9:35:00	1.10	1.90	269.544	76	82	80	250	250	48
2-1	9:45:00	1.10	1.90	277.370	78	88	82	250	251	49
2-2	9:55:00	1.10	1.90	285.170	78	89	83	250	250	57
2-2	10:05:00	1.10	1.90	293.310	79	89	83	250	250	51
2-3	10:15:00	1.10	1.90	300.980	78	89	83	250	250	47
2-3	10:25:00	1.10	1.90	308.590	80	90	84	250	250	47
2-4	10:35:00	1.10	1.90	316.870	80	90	84	250	253	48
2-4	10:45:00	1.10	1.90	324.920	80	89	84	250	259	49
2-5	10:55:00	1.10	1.90	332.250	80	89	85	250	250	50
2-5	11:05:00	1.10	1.90	334.230	81	90	86	250	250	51
2-6	11:15:00	1.10	1.90	348.050	81	90	86	250	250	51
2-6	11:25:00	1.10	1.90	355.920	82	91	85	250	251	53
2-7	11:35:00	1.10	1.90	363.630	83	91	86	250	254	53
2-7	11:45:00	1.10	1.90	371.920	85	93	86	250	249	55
2-8	11:55:00	1.10	1.90	379.360	86	93	87	250	250	56
2-8	12:05:00	1.10	1.90	386.640	86	93	87	250	250	57
2-9	12:15:00	1.10	1.90	394.580	86	94	88	250	250	59
2-9	12:25:00	1.10	1.90	402.820	87	93	87	250	247	51
2-10	12:35:00	1.10	1.90	410.450	88	94	88	250	252	52
2-10	12:45:00	1.10	1.90	418.330	88	94	88	250	250	53
2-11	12:55:00	1.10	1.90	426.010	88	94	88	250	250	52
2-11	13:05:00	1.10	1.90	433.880	89	95	88	250	250	54
2-12	13:15:00	1.10	1.90	441.620	89	95	88	250	250	55
2-12	13:25:00	1.10	1.90	449.750	89	95	89	250	248	55
	13:35:00			457.240						
Total	8:00:00			361.704		85.0	78.7			
Average			1.80		77.6	81.9				
Min			1.60		70.0	65.0				
Max			1.90		89.0	95.0				

Impinger Weight Sheet - Run 2

Client:	**PCC Structurals, Inc.**	**Scale Calibration Check Date:**	**6/27/2023**
Facility:	**Large Parts Campus Facility - Milwaukie, OR**	**Scale Calibration Check (see QS-6.05C for procedure)**	
Test Location:	**BH9203 Outlet East**	**must be within ± 0.5g of certified mass**	
Project #:	**M232604**	**Certified Weight, grams**	**Result, grams**
Date:	**6/30/2023**	**250**	**250.0**
Test Method:	**29**		
Weighed/Measured By:	**CST**	**500**	**500.1**
Balance ID:	**S10-35**		
		750	**750.1**

IMPINGER CONTENTS	FINAL MLS / GRAMS	INITIAL MLS / GRAMS	GAIN MLS / GRAMS
HNO3/H2O2	728.9	766.0	-37.1
HNO3/H2O2	821.6	777.7	43.9
Empty	531.6	507.2	24.4
KMnO4/H2SO4	692.3	689.0	3.3
KMnO4/H2SO4	580.0	570.0	10.0
Silica Gel	842.4	821.5	20.9

3,354.4	3,309.9	44.5
Liquid Final	**Liquid Initial**	**Liquid Gain**
842.4	821.5	20.9
Silica Final	**Silica Initial**	**Silica Gain**

Client:	PCC Structurals, Inc.	
Facility:	Large Parts Campus Facility - Milwaukie, OR	
Test Location:	BH9203 Outlet West	
Project #:	M232604	
Test Method:	0061	
Test Engineer:	MPS	
Test Technician:	CIR1	
	Run 1	**Run 2**
Temp ID:	CM36	CM14
Meter ID:	CM36	CM14
Pitot ID:	1037	1037
Nozzle Diameter (Inches):	0.207	0.214
Meter Calibration Date:	6/6/2023	6/21/2023
Meter Calibration Factor (Y):	0.991	1.001
Meter Orifice Setting (Delta H):	1.832	1.646
Nozzle Kit ID Number and Material:	GLASS	GLASS
Pitot Tube Coefficient:	0.840	
Probe Length (Feet):	4.0	
Probe Liner Material:	Glass	
Sample Plane:	Horizontal	
Port Length (Inches):	4.00	
Port Size (Diameter, Inches):	4.00	
Port Type:	Flange	
Duct Shape:	Circular	
Diameter (Feet):	2.833	
Duct Area (Square Feet):	6.304	
Upstream Diameters:	>.5	
Downstream Diameters:	>2.0	
Number of Ports Sampled:	2	
Number of Points per Port:	12	
Minutes per Point:	20.0	
Minutes per Reading:	10.0	
Total Number of Traverse Points:	24	
Test Length (Minutes):	480	
Train Type:	Anderson Box	
Source Condition:	Batch Process	
# of Runs	2	

Run 1 - Method 0061

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Outlet West
Source Condition: Batch Process

Date: 6/27/23
Start Time: 5:15
End Time: 13:33

DRY GAS METER CONDITIONS

ΔH:	2.02	in. H_2O
Meter Temperature, Tm:	78.3	°F
Sqrt ΔP:	0.971	in. H_2O
Stack Temperature, Ts:	73.6	°F
Meter Volume, Vm:	365.314	ft^3
Meter Volume, Vmstd:	357.472	dscf
Meter Volume, Vwstd:	0.000	wscf
Isokinetic Variance:	98.6	%I
Test Length:	480.00	in mins.
Nozzle Diameter:	0.207	in inches
Barometric Pressure:	29.97	in Hg

STACK CONDITIONS

Static Pressure	0.50	in. H_2O
Flue Pressure (Ps):	30.01	in. Hg. abs.
Gas Weight dry, Md:	29.000	lb/lb mole
Gas Weight wet, Ms:	28.923	lb/lb mole
Gas Velocity, Vs:	54.703	fps
Volumetric Flow:	20,689	acfm
Volumetric Flow:	20,387	dscfm
Volumetric Flow:	20,531	scfm

Moisture, Bws: 0.007 **Supersaturation Value, Bws: 0.028**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Impinger Exit Temp °F
1-1	5:15:00	0.96	2.00	80.045	68	57	57	52
1-1	5:25:00	0.96	2.00	87.460	68	57	57	57
1-2	5:35:00	1.00	2.10	94.880	68	58	58	59
1-2	5:45:00	1.00	2.10	102.440	68	58	58	60
1-3	5:55:00	1.00	2.10	110.020	68	59	59	60
1-3	6:05:00	1.00	2.10	117.630	68	60	60	60
1-4	6:15:00	1.00	2.10	125.250	68	61	61	60
1-4	6:25:00	1.00	2.10	132.880	68	62	62	60
1-5	6:35:00	1.00	2.10	140.530	68	62	62	60
1-5	6:45:00	1.00	2.10	148.180	68	63	63	59
1-6	6:55:00	1.00	2.10	155.820	69	64	64	59
1-6	7:05:00	1.00	2.10	163.480	69	65	65	60
1-7	7:15:00	1.00	2.10	171.160	69	67	67	61
1-7	7:25:00	1.00	2.10	178.850	70	69	69	61
1-8	7:35:00	1.00	2.10	186.580	70	71	71	62
1-8	7:45:00	1.00	2.10	194.330	69	72	72	61
1-9	7:55:00	0.90	1.90	202.120	70	72	72	61
1-9	8:05:00	0.90	1.90	209.480	69	72	72	61
1-10	8:15:00	0.85	1.80	216.850	70	72	72	60
1-10	8:25:00	0.83	1.80	224.040	70	72	72	60
1-11	8:35:00	0.75	1.60	231.110	70	72	72	60
1-11	8:45:00	0.75	1.60	237.850	71	73	73	61
1-12	8:55:00	0.80	1.70	244.580	71	74	74	62
1-12	9:05:00	0.85	1.80	251.550	73	76	76	63
	9:15:00			258.721				
2-1	9:33:00	0.85	1.80	258.914	75	82	82	67
2-1	9:43:00	0.85	1.80	266.180	75	84	84	64
2-2	9:53:00	0.95	2.00	273.480	74	85	85	62
2-2	10:03:00	0.94	2.00	281.170	74	86	86	60
2-3	10:13:00	1.00	2.20	288.920	74	86	86	60
2-3	10:23:00	1.00	2.20	296.820	75	85	85	62
2-4	10:33:00	1.00	2.20	304.790	75	86	86	62
2-4	10:43:00	1.00	2.20	312.680	76	88	88	63
2-5	10:53:00	1.00	2.20	320.720	76	90	90	63
2-5	11:03:00	1.00	2.20	328.660	77	92	92	64
2-6	11:13:00	1.00	2.20	336.680	77	94	94	64
2-6	11:23:00	1.00	2.20	344.730	78	95	95	64
2-7	11:33:00	1.00	2.20	352.780	79	94	94	64
2-7	11:43:00	1.00	2.20	360.790	78	93	93	64
2-8	11:53:00	1.00	2.20	368.830	79	92	92	63
2-8	12:03:00	1.00	2.20	376.790	80	92	92	64
2-9	12:13:00	0.95	2.00	384.790	80	92	92	64
2-9	12:23:00	0.95	2.00	392.580	81	92	92	62
2-10	12:33:00	0.90	1.90	400.330	82	92	92	61
2-10	12:43:00	0.90	1.90	407.920	81	93	93	62
2-11	12:53:00	0.90	1.90	415.480	82	94	94	63
2-11	13:03:00	0.90	1.90	423.050	82	94	94	63
2-12	13:13:00	0.88	1.90	430.660	82	94	94	63
2-12	13:23:00	0.85	1.90	438.180	82	94	94	64
	13:33:00			445.552				
Total	8:00:00			365.314		78.3	78.3	
Average			2.02		73.6	78.3		
Min			1.60		68.0	57.0		
Max			2.20		82.0	95.0		

Run 2 - Method 0061

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Outlet West
Source Condition: Batch Process

Date: 6/30/23
Start Time: 5:25
End Time: 13:25

DRY GAS METER CONDITIONS			STACK CONDITIONS		
ΔH:	2.28	In. H_2O	Static Pressure	0.50	in. H_2O
Meter Temperature, Tm:	81.1	°F	Flue Pressure (Ps):	30.01	in. Hg. abs.
Sqrt ΔP:	0.972	In. H_2O			
Stack Temperature, Ts:	80.2	°F			
Meter Volume, Vm:	385.912	ft^3			
Meter Volume, Vmstd:	379.700	dscf	Gas Weight dry, Md:	29.000	lb/lb mole
Meter Volume, Vwstd:	0.000	wscf	Gas Weight wet, Ms:	28.890	lb/lb mole
Isokinetic Variance:	98.8	%I			
			Gas Velocity, Vs:	55.084	fps
Test Length:	480.00	in mins.	Volumetric Flow:	20,833	acfm
Nozzle Diameter:	0.214	in inches	Volumetric Flow:	20,218	dscfm
Barometric Pressure:	29.97	in Hg	Volumetric Flow:	20,422	scfm

Moisture, Bws: 0.010 **Supersaturation Value, Bws: 0.035**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Impinger Exit Temp °F
1-1	5:25:00	0.95	2.30	35.338	73	64	64	55
1-1	5:35:00	0.95	2.30	43.370	73	67	65	63
1-2	5:45:00	1.00	2.40	51.430	73	68	65	64
1-2	5:55:00	1.00	2.40	59.710	73	70	66	64
1-3	6:05:00	1.00	2.40	67.970	73	72	67	64
1-3	6:15:00	1.00	2.40	76.310	73	73	68	64
1-4	6:25:00	1.00	2.40	84.650	73	74	69	64
1-4	6:35:00	1.00	2.40	93.010	73	75	70	64
1-5	6:45:00	1.00	2.40	101.380	74	75	71	64
1-5	6:55:00	1.00	2.40	109.730	74	75	72	64
1-6	7:05:00	1.00	2.40	118.140	74	76	72	64
1-6	7:15:00	1.00	2.40	126.550	74	75	72	63
1-7	7:25:00	1.00	2.40	134.920	74	77	72	63
1-7	7:35:00	1.00	2.40	143.350	75	78	73	64
1-8	7:45:00	1.00	2.40	151.740	75	78	74	63
1-8	7:55:00	1.00	2.40	160.140	75	78	74	62
1-9	8:05:00	0.90	2.20	168.540	75	78	74	61
1-9	8:15:00	0.90	2.20	176.560	75	78	75	61
1-10	8:25:00	0.85	2.10	184.520	75	78	75	60
1-10	8:35:00	0.85	2.10	192.320	76	79	75	61
1-11	8:45:00	0.75	1.80	200.030	76	79	75	62
1-11	8:55:00	0.75	1.80	207.350	77	80	76	62
1-12	9:05:00	0.80	1.90	214.640	77	81	77	63
1-12	9:15:00	0.80	1.90	222.220	79	82	78	64
	9:25:00			229.734				
2-1	9:35:00	0.85	2.10	229.734	81	82	79	65
2-1	9:45:00	0.85	2.10	237.470	81	82	79	64
2-2	9:55:00	0.95	2.30	245.250	82	84	80	65
2-2	10:05:00	0.95	2.30	253.470	82	85	81	66
2-3	10:15:00	1.00	2.40	261.730	83	86	82	65
2-3	10:25:00	1.00	2.40	270.220	83	86	82	64
2-4	10:35:00	1.00	2.40	278.690	83	87	83	63
2-4	10:45:00	1.00	2.40	287.220	84	88	84	63
2-5	10:55:00	1.00	2.40	295.690	85	89	85	63
2-5	11:05:00	1.00	2.40	304.220	85	89	86	64
2-6	11:15:00	1.00	2.40	312.680	85	90	86	63
2-6	11:25:00	1.00	2.40	321.230	86	91	87	63
2-7	11:35:00	1.00	2.40	329.770	87	92	88	62
2-7	11:45:00	1.00	2.40	338.340	87	93	88	62
2-8	11:55:00	1.00	2.40	346.820	88	94	89	63
2-8	12:05:00	1.00	2.40	355.370	88	94	90	62
2-9	12:15:00	0.95	2.30	363.990	89	96	91	62
2-9	12:25:00	0.95	2.30	372.340	89	97	92	62
2-10	12:35:00	0.90	2.20	380.710	90	97	93	62
2-10	12:45:00	0.90	2.20	388.880	90	98	93	62
2-11	12:55:00	0.90	2.20	397.020	90	98	93	62
2-11	13:05:00	0.90	2.20	405.180	91	98	93	63
2-12	13:15:00	0.85	2.10	413.330	91	99	94	63
	13:25:00			421.250				
Total	7:50:00			385.912		83.1	79.1	
Average			2.28		80.2	81.1		
Min			1.80		73.0	64.0		
Max			2.40		91.0	99.0		

Client:	PCC Structurals, Inc.	
Facility:	Large Parts Campus Facility - Milwaukie, OR	
Test Location:	BH9203 Outlet East	
Project #:	M232604	
Test Method:	0061	
Test Engineer:	MPS	
Test Technician:	CIR1	
	Run 1	**Run 2**
Temp ID:	CM22	CM40
Meter ID:	CM22	CM40
Pitot ID:	835	835
Nozzle Diameter (Inches):	0.210	0.199
Meter Calibration Date:	6/16/2023	6/20/2023
Meter Calibration Factor (Y):	0.999	0.989
Meter Orifice Setting (Delta H):	1.889	1.774
Nozzle Kit ID Number and Material:	GLASS	GLASS
Pitot Tube Coefficient:	0.840	
Probe Length (Feet):	4.0	
Probe Liner Material:	Glass	
Sample Plane:	Horizontal	
Port Length (Inches):	4.00	
Port Size (Diameter, Inches):	4.00	
Port Type:	Flange	
Duct Shape:	Circular	
Diameter (Feet):	2.833	
Duct Area (Square Feet):	6.304	
Upstream Diameters:	>.5	
Downstream Diameters:	>2.0	
Number of Ports Sampled:	2	
Number of Points per Port:	12	
Minutes per Point:	20.0	
Minutes per Reading:	10.0	
Total Number of Traverse Points:	24	
Test Length (Minutes):	480	
Train Type:	Anderson Box	
Source Condition:	Batch Process	
# of Runs	2	

Run 1 - Method 0061

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Outlet East
Source Condition: Batch Process

Date: 6/27/23
Start Time: 5:15
End Time: 13:33

DRY GAS METER CONDITIONS			STACK CONDITIONS		
ΔH:	2.21	in. H_2O	Static Pressure	0.50	in. H_2O
Meter Temperature, Tm:	87.5	°F	Flue Pressure (Ps):	30.01	in. Hg. abs.
Sqrt ΔP:	0.993	in. H_2O			
Stack Temperature, Ts:	76.4	°F			
Meter Volume, Vm:	394.654	ft^3			
Meter Volume, Vmstd:	382.895	dscf	Gas Weight dry, Md:	29.000	lb/lb mole
Meter Volume, Vwstd:	0.000	wscf	Gas Weight wet, Ms:	28.901	lb/lb mole
Isokinetic Variance:	100.8	%I			
			Gas Velocity, Vs:	56.087	fps
Test Length:	480.00	in mins.	Volumetric Flow:	21,213	acfm
Nozzle Diameter:	0.210	in inches	Volumetric Flow:	20,753	dscfm
Barometric Pressure:	29.97	in Hg	Volumetric Flow:	20,941	scfm

Moisture, Bws: 0.009 **Supersaturation Value, Bws: 0.031**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Impinger Exit Temp °F
1-1	5:15:00	1.00	2.20	56.216	68	65	66	51
1-1	5:25:00	0.96	2.10	64.230	68	63	66	54
1-2	5:35:00	1.00	2.20	72.030	68	61	66	58
1-2	5:45:00	1.00	2.20	80.020	68	61	67	60
1-3	5:55:00	1.00	2.20	87.980	68	63	68	62
1-3	6:05:00	1.00	2.20	95.980	68	64	68	63
1-4	6:15:00	1.00	2.20	104.040	68	65	69	63
1-4	6:25:00	1.00	2.20	112.110	69	65	70	62
1-5	6:35:00	1.00	2.20	120.130	69	65	71	62
1-5	6:45:00	1.00	2.20	128.170	69	65	71	62
1-6	6:55:00	1.00	2.20	136.220	70	67	73	62
1-6	7:05:00	1.00	2.20	144.280	71	68	75	62
1-7	7:15:00	1.00	2.20	152.370	72	74	81	63
1-7	7:25:00	1.00	2.20	160.530	73	79	86	63
1-8	7:35:00	1.00	2.20	168.720	72	83	89	63
1-8	7:45:00	1.00	2.20	176.960	71	81	87	63
1-9	7:55:00	1.00	2.20	185.270	71	78	82	63
1-9	8:05:00	1.00	2.20	193.520	71	76	80	63
1-10	8:15:00	1.00	2.20	201.660	71	74	78	63
1-10	8:25:00	1.00	2.20	209.780	71	74	77	62
1-11	8:35:00	0.90	2.00	217.950	71	74	78	62
1-11	8:45:00	0.90	2.00	225.660	73	77	82	63
1-12	8:55:00	0.95	2.10	233.440	74	80	86	64
1-12	9:05:00	0.95	2.10	241.450	76	87	94	65
	9:15:00			249.596				
2-1	9:33:00	0.95	2.20	249.983	79	104	107	64
2-1	9:43:00	0.96	2.20	258.320	78	103	108	61
2-2	9:53:00	1.00	2.30	266.640	78	100	104	58
2-2	10:03:00	1.00	2.30	275.120	77	99	103	57
2-3	10:13:00	1.10	2.50	283.620	77	96	99	58
2-3	10:23:00	1.10	2.50	292.440	79	95	98	58
2-4	10:33:00	1.10	2.50	301.250	80	97	99	59
2-4	10:43:00	1.10	2.50	310.110	81	101	103	59
2-5	10:53:00	1.00	2.30	318.930	81	104	105	60
2-5	11:03:00	1.00	2.30	327.460	82	106	106	61
2-6	11:13:00	1.00	2.30	335.970	82	106	106	61
2-6	11:23:00	1.00	2.30	344.530	83	106	105	61
2-7	11:33:00	1.00	2.30	352.970	83	103	102	61
2-7	11:43:00	1.00	2.30	361.460	83	100	99	60
2-8	11:53:00	1.00	2.30	369.880	83	98	98	61
2-8	12:03:00	1.00	2.30	378.260	84	97	98	62
2-9	12:13:00	1.00	2.30	386.630	85	98	99	60
2-9	12:23:00	1.00	2.30	395.040	85	99	100	57
2-10	12:33:00	0.90	2.00	403.370	86	99	100	58
2-10	12:43:00	0.90	2.00	411.360	86	100	102	58
2-11	12:53:00	0.90	2.00	419.310	86	101	102	58
2-11	13:03:00	0.90	2.00	427.320	86	101	102	58
2-12	13:13:00	0.90	2.00	435.310	87	101	102	60
2-12	13:23:00	0.90	2.00	443.270	86	101	102	61
	13:33:00			451.257				
Total	8:00:00			394.654		85.9	89.1	
Average			2.21		76.4	87.5		
Min			2.00		68.0	61.0		
Max			2.50		87.0	108.0		

AET-014 ISO Template V26 1-16-23.xls

Run 2 - Method 0061

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Outlet East
Source Condition: Batch Process

Date: 6/30/23
Start Time: 5:25
End Time: 13:25

DRY GAS METER CONDITIONS			STACK CONDITIONS		
ΔH:	1.74	In. H_2O	Static Pressure	0.50	in. H_2O
Meter Temperature, Tm:	74.1	°F	Flue Pressure (Ps):	30.01	in. Hg. abs.
Sqrt ΔP:	0.990	In. H_2O			
Stack Temperature, Ts:	77.9	°F			
Meter Volume, Vm:	340.243	ft^3			
Meter Volume, Vmstd:	334.654	dscf	Gas Weight dry, Md:	29.000	lb/lb mole
Meter Volume, Vwstd:	0.000	wscf	Gas Weight wet, Ms:	28.901	lb/lb mole
Isokinetic Variance:	98.6	%I			
			Gas Velocity, Vs:	55.972	fps
Test Length:	480.00	in mins.	Volumetric Flow:	21,169	acfm
Nozzle Diameter:	0.199	in inches	Volumetric Flow:	20,652	dscfm
Barometric Pressure:	29.97	in Hg	Volumetric Flow:	20,839	scfm

Moisture, Bws: 0.009 **Supersaturation Value, Bws: 0.032**

Port-Point No.	Clock Time	Velocity Head Δp in. H2O	Orifice ΔH in. H2O	Actual Meter Vol. ft^3	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Impinger Exit Temp °F
1-1	5:25:00	1.00	1.70	86.937	71	61	61	54
1-1	5:35:00	0.95	1.70	94.110	71	62	62	54
1-2	5:45:00	1.00	1.70	101.140	71	62	62	54
1-2	5:55:00	1.00	1.70	108.320	70	63	63	55
1-3	6:05:00	1.00	1.70	115.520	70	64	64	54
1-3	6:15:00	1.00	1.70	122.740	71	65	65	55
1-4	6:25:00	1.00	1.70	130.010	71	66	66	55
1-4	6:35:00	1.00	1.70	137.020	71	66	66	55
1-5	6:45:00	1.00	1.70	144.510	71	67	67	56
1-5	6:55:00	1.00	1.70	151.770	71	67	67	56
1-6	7:05:00	1.00	1.70	159.030	71	68	68	56
1-6	7:15:00	1.00	1.70	166.310	71	68	68	57
1-7	7:25:00	1.00	1.80	173.620	72	68	68	57
1-7	7:35:00	1.00	1.80	180.850	72	68	68	58
1-8	7:45:00	1.00	1.80	188.150	72	69	69	58
1-8	7:55:00	1.00	1.80	195.440	72	69	69	57
1-9	8:05:00	1.00	1.80	202.730	72	70	70	55
1-9	8:15:00	1.00	1.80	210.040	72	70	70	55
1-10	8:25:00	1.00	1.80	217.340	73	70	70	55
1-10	8:35:00	1.00	1.80	224.630	73	70	70	56
1-11	8:45:00	0.90	1.60	231.920	74	71	71	56
1-11	8:55:00	0.90	1.60	238.860	74	71	71	56
1-12	9:05:00	0.95	1.70	245.730	75	72	72	57
1-12	9:15:00	0.95	1.70	252.880	77	72	72	58
	9:25:00			260.002				
2-1	9:35:00	0.95	1.70	260.002	79	74	74	60
2-1	9:45:00	0.95	1.70	267.080	79	74	74	61
2-2	9:55:00	1.00	1.80	274.220	80	75	75	62
2-2	10:05:00	1.00	1.80	281.570	80	76	76	63
2-3	10:15:00	1.00	1.80	288.890	81	77	77	62
2-3	10:25:00	1.00	1.80	296.190	81	78	78	60
2-4	10:35:00	1.00	1.80	303.620	81	79	79	60
2-4	10:45:00	1.00	1.80	310.970	82	79	79	60
2-5	10:55:00	1.00	1.80	318.330	83	80	80	61
2-5	11:05:00	1.00	1.80	325.690	83	81	81	61
2-6	11:15:00	1.00	1.80	333.050	83	81	81	61
2-6	11:25:00	1.00	1.80	340.380	84	82	82	62
2-7	11:35:00	1.00	1.80	347.750	84	82	82	62
2-7	11:45:00	1.00	1.80	355.140	85	82	82	62
2-8	11:55:00	1.00	1.80	362.510	86	83	83	63
2-8	12:05:00	1.00	1.80	369.940	88	84	84	64
2-9	12:15:00	1.00	1.80	377.350	87	84	84	63
2-9	12:25:00	1.00	1.80	384.740	87	85	85	64
2-10	12:35:00	0.90	1.60	392.150	88	85	85	64
2-10	12:45:00	0.90	1.60	399.130	88	85	85	64
2-11	12:55:00	0.90	1.60	406.140	88	85	85	65
2-11	13:05:00	0.90	1.60	413.160	88	85	85	65
2-12	13:15:00	0.90	1.60	420.180	89	86	86	64
	13:25:00			427.180				
Total	7:50:00			340.243		74.1	74.1	
Average			1.74		77.9	74.1		
Min			1.60		70.0	61.0		
Max			1.80		89.0	86.0		

PCC Structurals - Milwaukie, OR Facility
9203 Outlet
Volumetric Flow Rate Continuous Data

Date	Time	Southwest Stack Temp, °F	Southwest Stack dP, "H_2O	Southeast Stack Temp, °F	Southeast Stack dP, "H_2O	Northeast Stack Temp, °F	Northeast Stack dP, "H_2O	Northwest Stack Temp, °F	Northwest Stack dP, "H_2O
6/27/2023	5:15:00	81.6	0.99	78.1	1	79.8	1.14	64.9	0.95
6/27/2023	5:16:00	81.7	0.99	78.2	1	76.6	1.13	64.9	0.95
6/27/2023	5:17:00	81.9	0.99	78.2	1	76.8	1.12	64.9	0.95
6/27/2023	5:18:00	82	0.99	78.4	1	76.8	1.12	64.9	0.95
6/27/2023	5:19:00	82.1	0.99	78.5	1	76.8	1.12	64.9	0.95
6/27/2023	5:20:00	82.3	0.99	78.6	1	76.8	1.15	64.9	0.96
6/27/2023	5:21:00	82.4	0.99	78.6	1	76.8	1.16	64.9	0.98
6/27/2023	5:22:00	82.5	1	78.6	1	76.8	1.17	64.9	0.99
6/27/2023	5:23:00	82.7	1	78.6	1	76.8	1.18	64.9	0.99
6/27/2023	5:24:00	82.8	1	78.6	1	76.8	1.17	64.9	0.99
6/27/2023	5:25:00	82.9	1	78.5	1	76.8	1.17	64.9	0.99
6/27/2023	5:26:00	83	1	78.5	1	76.8	1.17	64.9	0.99
6/27/2023	5:27:00	83	1	78.4	1	76.8	1.17	64.9	1
6/27/2023	5:28:00	83.1	1	78.3	1	76.8	1.17	64.9	0.99
6/27/2023	5:29:00	83.2	1	78	1	76.8	1.17	64.9	0.99
6/27/2023	5:30:00	83.2	1	77.8	1	76.8	1.17	64.9	0.99
6/27/2023	5:31:00	83.2	1	77.5	1	76.8	1.17	64.9	0.99
6/27/2023	5:32:00	83.2	1	77.3	1	76.8	1.17	64.9	0.99
6/27/2023	5:33:00	83.3	1	77.2	1	76.8	1.17	64.9	0.99
6/27/2023	5:34:00	83.4	1	77.1	1	76.8	1.17	64.9	1
6/27/2023	5:35:00	83.4	1	76.9	1	76.8	1.17	64.9	0.99
6/27/2023	5:36:00	83.4	1	76.7	1	76.8	1.17	64.9	0.99
6/27/2023	5:37:00	83.4	1	76.6	1	76.8	1.17	64.9	0.99
6/27/2023	5:38:00	83.5	1	76.5	1	76.8	1.17	64.9	0.99
6/27/2023	5:39:00	83.5	1	76.5	1	76.8	1.16	64.9	0.99
6/27/2023	5:40:00	83.6	1	76.4	1	76.8	1.16	64.9	0.99
6/27/2023	5:41:00	83.6	1	76.3	1	76.8	1.16	64.9	0.99
6/27/2023	5:42:00	83.6	1	76.3	1	76.8	1.16	64.9	1
6/27/2023	5:43:00	83.7	1	76.2	1	76.8	1.16	64.9	0.99
6/27/2023	5:44:00	83.7	1	76.1	1	76.8	1.16	64.9	0.99
6/27/2023	5:45:00	83.8	1	76	1	76.8	1.16	64.9	0.99
6/27/2023	5:46:00	83.8	1	76	1	76.8	1.16	64.9	0.99
6/27/2023	5:47:00	83.8	1	75.9	1	76.8	1.16	64.9	0.99
6/27/2023	5:48:00	83.9	1	75.9	1	76.8	1.16	64.9	0.99
6/27/2023	5:49:00	83.9	1	76	1	76.8	1.16	64.9	0.99
6/27/2023	5:50:00	84	1	75.9	1	76.8	1.16	64.9	0.99
6/27/2023	5:51:00	84	1	75.9	1	76.8	1.16	64.9	0.99
6/27/2023	5:52:00	84	1	75.8	1	76.8	1.16	64.9	0.99
6/27/2023	5:53:00	84.2	1	75.6	1	76.8	1.16	64.9	0.99
6/27/2023	5:54:00	84.2	1	75.5	1	76.8	1.16	64.9	0.99
6/27/2023	5:55:00	84.2	1	75.4	1	76.8	1.16	64.9	0.99
6/27/2023	5:56:00	84.2	1	75.3	1	76.8	1.16	64.9	0.99
6/27/2023	5:57:00	84.2	1	75.1	1	76.8	1.16	64.9	0.99
6/27/2023	5:58:00	84.2	1	74.9	1	76.8	1.16	64.9	0.99
6/27/2023	5:59:00	84.2	1	74.6	1	76.8	1.16	64.9	0.99
6/27/2023	6:00:00	84.2	1	74.4	1	76.8	1.16	64.9	0.99
6/27/2023	6:01:00	84.1	1	74.3	1	76.8	1.16	64.9	0.99
6/27/2023	6:02:00	84	1	74	1	76.8	1.16	64.9	0.99
6/27/2023	6:03:00	83.9	1	73.7	1	76.8	1.16	64.9	0.99
6/27/2023	6:04:00	83.9	1	73.4	1	76.8	1.15	64.9	0.99
6/27/2023	6:05:00	83.8	1	73.2	1	76.8	1.16	64.9	1
6/27/2023	6:06:00	83.8	1	73.1	1	76.8	1.15	64.9	0.99
6/27/2023	6:07:00	83.7	1	72.9	1	76.8	1.15	64.9	0.99
6/27/2023	6:08:00	83.9	1	72.8	1	76.8	1.15	64.9	1
6/27/2023	6:09:00	83.9	1	72.6	1	76.8	1.15	64.9	0.99
6/27/2023	6:10:00	83.9	1	72.5	1	76.8	1.15	64.9	0.99
6/27/2023	6:11:00	84	1	72.4	1	76.8	1.15	64.9	1
6/27/2023	6:12:00	84.1	1	72.3	1	76.8	1.15	64.9	0.99
6/27/2023	6:13:00	84.2	1	72.1	1	76.8	1.15	64.9	0.99
6/27/2023	6:14:00	84.2	1	71.8	1	76.8	1.15	64.9	0.99
6/27/2023	6:15:00	84.2	1	71.4	1	76.8	1.15	64.9	0.99
6/27/2023	6:16:00	84.1	1	70.9	1	76.8	1.15	64.9	0.99
6/27/2023	6:17:00	84.1	1	70.3	1	76.8	1.15	64.9	0.99
6/27/2023	6:18:00	84	1	69.6	1	76.8	1.15	64.9	0.99

PCC Structurals - Milwaukie, OR Facility
9203 Outlet
Volumetric Flow Rate Continuous Data

Date	Time	Southwest Stack Temp, °F	Southwest Stack dP, "H_2O	Southeast Stack Temp, °F	Southeast Stack dP, "H_2O	Northeast Stack Temp, °F	Northeast Stack dP, "H_2O	Northwest Stack Temp, °F	Northwest Stack dP, "H_2O
6/27/2023	6:19:00	83.9	1	69	1	76.8	1.15	64.9	1
6/27/2023	6:20:00	83.9	1	68.3	1	76.8	1.15	64.9	1
6/27/2023	6:21:00	83.7	1	67.7	1	76.8	1.15	64.9	0.99
6/27/2023	6:22:00	83.7	1	67.1	1	76.8	1.15	64.9	0.99
6/27/2023	6:23:00	83.7	1	66.4	1	76.8	1.15	64.9	0.99
6/27/2023	6:24:00	83.7	1	65.9	1	76.8	1.15	64.9	0.99
6/27/2023	6:25:00	83.8	1	65.3	1	76.8	1.15	64.9	1
6/27/2023	6:26:00	83.8	1	71.8	1	76.8	1.15	64.9	1
6/27/2023	6:27:00	83.7	1	71.2	1	76.8	1.15	64.9	1
6/27/2023	6:28:00	83.7	1	70.8	1	76.8	1.15	64.9	1
6/27/2023	6:29:00	83.7	1	70.3	1	76.8	1.15	64.9	0.99
6/27/2023	6:30:00	83.7	1	69.8	1	76.8	1.15	64.9	0.99
6/27/2023	6:31:00	83.6	1	69.4	1	76.8	1.15	64.9	1
6/27/2023	6:32:00	83.7	1	69	1	76.8	1.14	64.9	0.99
6/27/2023	6:33:00	83.8	1	68.6	1	76.8	1.14	64.9	1
6/27/2023	6:34:00	83.8	1	68.3	1	76.8	1.14	64.9	1
6/27/2023	6:35:00	83.6	1	67.9	1	76.8	1.14	64.9	0.99
6/27/2023	6:36:00	83.6	1	67.6	1	76.8	1.14	64.9	1
6/27/2023	6:37:00	83.5	1	67.3	1	76.8	1.14	64.9	0.99
6/27/2023	6:38:00	83.6	1	67	1	77.8	1.14	64.9	0.99
6/27/2023	6:39:00	83.5	1	66.7	1	77.3	1.14	64.9	0.99
6/27/2023	6:40:00	83.6	1	69.5	1	76.5	1.14	64.9	0.99
6/27/2023	6:41:00	83.6	1	69.3	1	75.8	1.14	64.9	0.99
6/27/2023	6:42:00	83.6	1	69.1	1	74.7	1.14	64.9	0.99
6/27/2023	6:43:00	83.7	1	68.9	1	74.1	1.14	64.9	0.99
6/27/2023	6:44:00	83.8	1	68.7	1	73.5	1.14	64.9	1
6/27/2023	6:45:00	83.8	1	68.5	1	72.7	1.14	64.9	1
6/27/2023	6:46:00	83.8	1	68.4	1	72	1.14	64.9	0.99
6/27/2023	6:47:00	83.8	1	68.2	1	71.3	1.14	64.9	0.99
6/27/2023	6:48:00	83.8	1	68.1	1	70.7	1.14	64.9	1
6/27/2023	6:49:00	83.8	1	68	1	70.3	1.14	64.9	0.99
6/27/2023	6:50:00	83.9	1	67.9	1	69.6	1.14	64.9	1
6/27/2023	6:51:00	83.9	1	67.8	1	69.1	1.14	64.9	1
6/27/2023	6:52:00	83.8	1	67.7	1	68.3	1.13	64.9	0.99
6/27/2023	6:53:00	83.9	1	67.6	1	68	1.13	64.9	0.99
6/27/2023	6:54:00	84	1	67.5	1	67.7	1.13	64.9	1
6/27/2023	6:55:00	84	1	67.4	1	67.3	1.13	64.9	1
6/27/2023	6:56:00	84.1	1	67.4	1	66.9	1.13	64.9	1
6/27/2023	6:57:00	84.1	1	67.3	1	66.5	1.13	64.9	0.99
6/27/2023	6:58:00	84.1	1	67.3	1	66.2	1.13	64.9	1
6/27/2023	6:59:00	84.1	1	67.2	1	65.8	1.13	64.9	1
6/27/2023	7:00:00	83.9	1	67.2	1	65.5	1.13	64.9	1
6/27/2023	7:01:00	83.9	1	67.2	1	65.2	1.13	64.9	1
6/27/2023	7:02:00	83.9	1	67.2	1	65	1.13	64.9	1
6/27/2023	7:03:00	83.9	1	67.1	1	64.9	1.13	64.9	1
6/27/2023	7:04:00	84	1	67.1	1	64.6	1.13	64.9	1
6/27/2023	7:05:00	84	1	67	1	64.5	1.13	64.9	1
6/27/2023	7:06:00	84	1	67	1	64.3	1.13	64.9	0.99
6/27/2023	7:07:00	84	1	67	1	63.9	1.13	64.9	1
6/27/2023	7:08:00	84.1	1	67	1	63.6	1.13	64.9	1
6/27/2023	7:09:00	84.1	1	67	1	63.4	1.13	64.9	1
6/27/2023	7:10:00	84.1	1	67.1	1	63.2	1.13	64.9	1
6/27/2023	7:11:00	84	1	67.1	1	63.1	1.13	64.9	0.99
6/27/2023	7:12:00	84.1	1	67.2	1	63	1.13	64.9	1
6/27/2023	7:13:00	84.2	1	67.3	1	62.9	1.13	64.9	1
6/27/2023	7:14:00	84.2	1	67.4	1	62.8	1.13	64.9	0.99
6/27/2023	7:15:00	84.2	1	67.5	1	62.6	1.12	64.9	0.99
6/27/2023	7:16:00	84.1	1	67.7	1	62.5	1.12	64.9	0.99
6/27/2023	7:17:00	84	1	67.9	1	62.3	1.12	64.9	0.99
6/27/2023	7:18:00	84	1	68.1	1	62.3	1.12	64.9	0.99
6/27/2023	7:19:00	84	1	68.3	1	62.3	1.12	64.9	1
6/27/2023	7:20:00	84	1	68.5	1	62.3	1.12	64.9	1
6/27/2023	7:21:00	84	1	68.7	1	62.3	1.12	64.9	0.99
6/27/2023	7:22:00	83.9	1	68.9	1	62.3	1.12	64.9	1

PCC Structurals - Milwaukie, OR Facility
9203 Outlet
Volumetric Flow Rate Continuous Data

Date	Time	Southwest Stack Temp, °F	Southwest Stack dP, "H_2O	Southeast Stack Temp, °F	Southeast Stack dP, "H_2O	Northeast Stack Temp, °F	Northeast Stack dP, "H_2O	Northwest Stack Temp, °F	Northwest Stack dP, "H_2O
6/27/2023	7:23:00	83.8	1	69.1	1	62.3	1.12	64.9	1
6/27/2023	7:24:00	83.8	1	69.2	1	62.2	1.12	64.9	1
6/27/2023	7:25:00	83.8	1	69.4	1	62.1	1.12	64.9	1
6/27/2023	7:26:00	83.9	1	69.6	1	62.1	1.12	64.9	1
6/27/2023	7:27:00	84	1	69.7	1	62	1.12	64.9	1
6/27/2023	7:28:00	84.1	1	69.8	1	62	1.12	64.9	1
6/27/2023	7:29:00	84.1	1	69.9	1	62	1.12	64.9	1
6/27/2023	7:30:00	84.2	1	70	1	61.7	1.12	64.9	1
6/27/2023	7:31:00	84.3	1	70.1	1	61.8	1.12	64.9	1
6/27/2023	7:32:00	84.3	1	70.1	1	62	1.12	64.9	1
6/27/2023	7:33:00	84.5	1	70.1	1	62	1.12	64.9	1
6/27/2023	7:34:00	84.4	1	70.1	1	62	1.12	64.9	1
6/27/2023	7:35:00	84.4	1	70.1	1	62	1.12	64.9	1
6/27/2023	7:36:00	84.3	1	70	1	62	1.12	64.9	1
6/27/2023	7:37:00	84.3	1	69.9	1	62	1.12	64.9	1
6/27/2023	7:38:00	84.2	1	69.8	1	62	1.11	64.9	1
6/27/2023	7:39:00	84.1	1	69.6	1	62	1.11	64.9	1
6/27/2023	7:40:00	84.1	1	69.5	1	62	1.11	64.9	1
6/27/2023	7:41:00	83.9	1	69.4	1	62	1.11	64.9	1
6/27/2023	7:42:00	83.8	1	69.3	1	62	1.11	64.9	1
6/27/2023	7:43:00	83.8	1	69.1	1	62	1.11	64.9	1
6/27/2023	7:44:00	83.8	1	69	1	62	1.11	64.9	1
6/27/2023	7:45:00	83.7	1	68.9	1	61.8	1.11	64.9	1
6/27/2023	7:46:00	83.7	1	68.8	1	61.7	1.11	64.9	1
6/27/2023	7:47:00	83.6	1	68.7	1	61.9	1.11	64.9	1
6/27/2023	7:48:00	83.5	1	68.6	1	61.7	1.11	64.9	1
6/27/2023	7:49:00	83.4	1	68.6	1	61.8	1.11	64.9	1
6/27/2023	7:50:00	83.3	1	68.5	1	62	1.11	64.9	1
6/27/2023	7:51:00	83.2	1	68.4	1	62	1.11	64.9	1
6/27/2023	7:52:00	83.2	1	68.3	1	62	1.11	64.9	1
6/27/2023	7:53:00	83	1	68.2	1	62	1.11	64.9	1
6/27/2023	7:54:00	82.9	1	68.2	1	62	1.11	64.9	1
6/27/2023	7:55:00	82.9	1	68.1	1	62.1	1.11	64.9	1
6/27/2023	7:56:00	82.8	1	68	1	62.2	1.11	64.9	1
6/27/2023	7:57:00	82.9	1	67.9	1	62.3	1.11	64.9	1
6/27/2023	7:58:00	82.8	1	67.9	1	62.3	1.11	64.9	1
6/27/2023	7:59:00	82.7	1	67.8	1	62.6	1.11	64.9	1
6/27/2023	8:00:00	82.7	1	67.8	1	62.9	1.11	64.9	1
6/27/2023	8:01:00	82.5	1	67.7	1	63.2	1.1	64.9	1
6/27/2023	8:02:00	82.5	1	67.6	1	63.3	1.1	64.9	1
6/27/2023	8:03:00	82.4	1	67.5	1	63.5	1.1	64.9	1
6/27/2023	8:04:00	82.3	1	67.5	1	63.9	1.1	64.9	1
6/27/2023	8:05:00	82.2	1	67.4	1	64.3	1.1	64.9	0.99
6/27/2023	8:06:00	82	1	67.4	1	64.5	1.1	64.9	1
6/27/2023	8:07:00	81.9	1	67.3	1	64.7	1.1	64.9	1
6/27/2023	8:08:00	81.8	1	67.3	1	65	1.1	64.9	1
6/27/2023	8:09:00	81.8	1	67.2	1	65.1	1.1	64.9	1
6/27/2023	8:10:00	81.8	1	67.2	1	65.3	1.1	64.9	1
6/27/2023	8:11:00	81.7	1	67.1	1	65.2	1.1	64.9	1
6/27/2023	8:12:00	81.8	1	67.1	1	65.3	1.1	64.9	1
6/27/2023	8:13:00	81.8	1	67	1	65.3	1.1	64.9	1
6/27/2023	8:14:00	81.7	1	66.9	1	65.3	1.1	64.9	1
6/27/2023	8:15:00	81.6	1	66.8	1	65.2	1.09	64.9	1
6/27/2023	8:16:00	81.5	1	66.7	1	65	1.09	64.9	1
6/27/2023	8:17:00	81.5	1	66.7	1	65	1.09	64.9	1
6/27/2023	8:18:00	81.5	1	66.6	1	65.1	1.09	64.9	1
6/27/2023	8:19:00	81.5	1	66.6	1	65.2	1.09	64.9	1
6/27/2023	8:20:00	81.4	1	66.6	1	65.2	1.09	64.9	1
6/27/2023	8:21:00	81.3	1	66.5	1	65.3	1.09	64.9	1
6/27/2023	8:22:00	81.2	1	66.5	1	65.1	1.09	64.9	1
6/27/2023	8:23:00	81.1	1	66.4	1	65.1	1.09	64.9	1
6/27/2023	8:24:00	81	1	66.3	1	65.2	1.09	64.9	1
6/27/2023	8:25:00	81	1	66.3	1	65.2	1.09	64.9	1
6/27/2023	8:26:00	80.9	1	66.2	1	65.2	1.09	64.9	1

PCC Structurals - Milwaukie, OR Facility
9203 Outlet
Volumetric Flow Rate Continuous Data

		Southwest Stack		Southeast Stack		Northeast Stack		Northwest Stack	
Date	Time	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O
6/27/2023	8:27:00	80.8	1	66.1	1	65.2	1.08	64.9	1
6/27/2023	8:28:00	80.7	1	66.1	1	65.2	1.08	64.9	1
6/27/2023	8:29:00	80.6	1	66	1	65.1	1.08	64.9	1
6/27/2023	8:30:00	80.5	1	65.9	1	65.1	1.08	64.9	1
6/27/2023	8:31:00	80.3	1	65.8	1	65.1	1.08	64.9	1
6/27/2023	8:32:00	80.2	1	65.6	1	65	1.08	64.9	1.01
6/27/2023	8:33:00	80.1	1	65.5	1	64.8	1.08	64.9	1
6/27/2023	8:34:00	79.9	1	65.4	1	64.8	1.08	64.9	1
6/27/2023	8:35:00	79.8	1	65.3	1	64.7	1.08	64.9	1
6/27/2023	8:36:00	79.8	1	65.2	1	64.7	1.08	64.9	1
6/27/2023	8:37:00	79.7	1	65	1	64.7	1.08	64.9	1
6/27/2023	8:38:00	79.6	1	64.9	1	64.7	1.07	64.9	1
6/27/2023	8:39:00	79.5	1	64.8	1	64.8	1.07	64.9	1
6/27/2023	8:40:00	79.4	1	64.7	1	64.5	1.07	64.9	1.01
6/27/2023	8:41:00	79.2	1	64.6	1	64.4	1.07	64.9	1
6/27/2023	8:42:00	79.1	1	64.5	1	64.4	1.07	64.9	1
6/27/2023	8:43:00	79.2	1	64.4	1	64.2	1.07	64.9	1
6/27/2023	8:44:00	79.1	1	64.3	1	64.2	1.07	64.9	1
6/27/2023	8:45:00	79.1	1	64.2	1	64.2	1.07	64.9	1
6/27/2023	8:46:00	79	1	64	1	64	1.07	64.9	1
6/27/2023	8:47:00	79	1	63.9	1	63.9	1.06	64.9	1
6/27/2023	8:48:00	78.9	1	63.8	1	63.9	1.06	64.9	1
6/27/2023	8:49:00	78.9	1	63.7	1	64	1.06	64.9	1
6/27/2023	8:50:00	78.9	1	63.6	1	63.9	1.06	64.9	1
6/27/2023	8:51:00	78.8	1	63.5	1	64	1.06	64.9	1
6/27/2023	8:52:00	78.8	1	63.4	1	64	1.06	64.9	1
6/27/2023	8:53:00	78.8	1	63.3	1	64	1.06	64.9	1
6/27/2023	8:54:00	78.7	1	63.2	1	63.8	1.06	64.9	1
6/27/2023	8:55:00	78.6	1	63.1	1	63.6	1.05	64.9	1
6/27/2023	8:56:00	78.6	1	63	1	63.4	1.05	64.9	1
6/27/2023	8:57:00	78.5	1	62.9	1	63.4	1.05	64.9	1
6/27/2023	8:58:00	78.5	1	62.8	1	63.3	1.05	64.9	1
6/27/2023	8:59:00	78.4	1	62.7	1	63.2	1.05	64.9	1
6/27/2023	9:00:00	78.3	1	62.6	1	63	1.05	64.9	1
6/27/2023	9:01:00	78.4	1	62.5	1	62.8	1.05	64.9	1
6/27/2023	9:02:00	78.3	1	62.4	1	62.4	1.05	64.9	1
6/27/2023	9:03:00	78.2	1	62.3	1	62.2	1.05	64.9	1
6/27/2023	9:04:00	78.1	1	62.3	1	62.2	1.04	64.9	1
6/27/2023	9:05:00	78	1	62.2	1	62.2	1.04	64.9	1
6/27/2023	9:06:00	77.9	1	62.1	1	62	1.04	64.9	1
6/27/2023	9:07:00	77.9	1	62	1	61.8	1.04	64.9	1
6/27/2023	9:08:00	77.8	1	61.8	1	61.5	1.04	64.9	1
6/27/2023	9:09:00	77.8	1	61.7	1	61.2	1.04	64.9	1
6/27/2023	9:10:00	77.7	1	61.6	1	60.9	1.04	64.9	1
6/27/2023	9:11:00	77.6	1	61.5	1	60.8	1.04	64.9	1
6/27/2023	9:12:00	77.6	1	61.4	1	60.5	1.04	64.9	1
6/27/2023	9:13:00	77.5	1	61.3	1	60.4	1.03	64.9	1
6/27/2023	9:14:00	77.5	1	61.2	1	60.3	1.03	64.9	1
6/27/2023	9:15:00	77.4	1	61.1	1	60.2	1.03	64.9	1
6/27/2023	9:16:00	77.4	1	61.1	1	69.8	1.03	64.9	1
6/27/2023	9:17:00	77.4	1	61	1	69.6	1.03	64.9	1
6/27/2023	9:18:00	77.4	1	60.9	1	69.5	1.03	64.9	1
6/27/2023	9:19:00	77.3	1	60.8	1	69.5	1.03	64.9	1
6/27/2023	9:20:00	77.3	1	60.7	1	69.5	1.03	64.9	1
6/27/2023	9:21:00	77.2	1	60.6	1	69.5	1.03	64.9	1
6/27/2023	9:22:00	77.1	1	60.6	1	69.5	1.02	64.9	1
6/27/2023	9:23:00	77.1	1	60.5	1	69.5	1.02	64.9	1
6/27/2023	9:24:00	77	1.01	60.4	1	69.5	1.02	64.9	1
6/27/2023	9:25:00	76.9	1.01	60.3	1	69.5	1.02	64.9	1
6/27/2023	9:26:00	76.8	1.01	60.2	1	69.5	1.02	64.9	1
6/27/2023	9:27:00	76.8	1.01	60.2	1	69.5	1.02	64.9	1
6/27/2023	9:28:00	76.7	1.01	60.1	1	69.3	1.02	64.9	1
6/27/2023	9:29:00	76.6	1.01	60.1	1	69.2	1.02	64.9	1
6/27/2023	9:30:00	76.5	1.01	60	1	69	1.02	64.9	1

PCC Structurals - Milwaukie, OR Facility
9203 Outlet
Volumetric Flow Rate Continuous Data

Date	Time	Southwest Stack Temp, °F	Southwest Stack dP, "H_2O	Southeast Stack Temp, °F	Southeast Stack dP, "H_2O	Northeast Stack Temp, °F	Northeast Stack dP, "H_2O	Northwest Stack Temp, °F	Northwest Stack dP, "H_2O
6/27/2023	9:31:00	76.4	1.01	60	1	68.9	1.02	64.9	1
6/27/2023	9:32:00	76.3	1.01	79.9	1	68.9	1.02	64.9	1
6/27/2023	9:33:00	76.2	1.01	79.9	1	68.8	1.01	64.9	1
6/27/2023	9:34:00	76.2	1.01	79.8	1	68.6	1.01	64.9	1
6/27/2023	9:35:00	76	1.01	79.7	1	68.5	1.01	64.9	1
6/27/2023	9:36:00	75.9	1.01	79.6	1	68.1	1.01	64.9	1.01
6/27/2023	9:37:00	75.8	1.01	79.6	1	68	1.01	64.9	1
6/27/2023	9:38:00	75.6	1.01	79.6	1	67.7	1.01	64.9	1
6/27/2023	9:39:00	75.5	1.01	79.5	1	67.5	1.01	64.9	1
6/27/2023	9:40:00	75.3	1.01	79.4	1	67.3	1.01	64.9	1.01
6/27/2023	9:41:00	75.1	1.01	79.3	1	67.1	1.01	64.8	1.01
6/27/2023	9:42:00	75	1.01	79.3	1	66.9	1	64.8	1
6/27/2023	9:43:00	74.8	1.01	79.2	1	66.5	1	64.8	1
6/27/2023	9:44:00	74.7	1.01	79.1	1	66.5	1	64.8	1
6/27/2023	9:45:00	74.5	1.01	79	1	66.5	1	64.8	1.01
6/27/2023	9:46:00	74.3	1.01	78.9	1	66.3	1	64.8	1.01
6/27/2023	9:47:00	74.2	1.01	78.8	1	65.8	1	64.8	1
6/27/2023	9:48:00	74	1.01	78.8	1	65.5	1	64.8	1.01
6/27/2023	9:49:00	73.8	1.01	78.7	1	65.3	1	64.8	1.01
6/27/2023	9:50:00	73.6	1.01	78.6	1	65.2	0.99	64.8	1
6/27/2023	9:51:00	73.4	1.01	78.5	1	65.1	0.99	64.8	1.01
6/27/2023	9:52:00	73.2	1.01	78.4	1	64.9	0.99	64.8	1
6/27/2023	9:53:00	73.1	1.01	78.3	1	64.6	0.99	64.8	1
6/27/2023	9:54:00	72.9	1.01	78.2	1	64.4	0.99	64.8	1.01
6/27/2023	9:55:00	72.8	1.01	78.1	1	64.3	0.99	64.8	1.01
6/27/2023	9:56:00	72.7	1.01	78	1	64.1	0.98	64.8	1.01
6/27/2023	9:57:00	72.5	1.01	77.9	1	63.9	0.98	64.8	1.01
6/27/2023	9:58:00	72.4	1.01	77.8	1	63.7	0.98	64.8	1.01
6/27/2023	9:59:00	72.3	1.01	77.7	1	63.8	0.98	64.8	1.01
6/27/2023	10:00:00	72.1	1.01	77.5	1	63.7	0.98	64.8	1.01
6/27/2023	10:01:00	72	1.01	77.5	1	63.5	0.98	64.8	1.01
6/27/2023	10:02:00	71.9	1.01	77.4	1	63.3	0.98	64.8	1.01
6/27/2023	10:03:00	71.8	1.01	77.3	1	63	0.97	64.8	1.01
6/27/2023	10:04:00	71.6	1.01	77.2	1	63.1	0.97	64.8	1.01
6/27/2023	10:05:00	71.6	1.01	77.1	1	63	0.97	64.8	1.01
6/27/2023	10:06:00	71.4	1.01	77	1	62.8	0.97	64.8	1.01
6/27/2023	10:07:00	71.4	1.01	76.9	1	62.3	0.97	64.8	1.01
6/27/2023	10:08:00	71.3	1.01	76.7	1	62.3	0.97	64.8	1.01
6/27/2023	10:09:00	71.2	1.01	76.6	1	62.2	0.96	64.8	1.01
6/27/2023	10:10:00	71	1.01	76.5	1	62.1	0.96	64.8	1.01
6/27/2023	10:11:00	70.9	1.01	76.5	1	62	0.96	64.8	1.01
6/27/2023	10:12:00	70.9	1.01	76.4	1	61.7	0.96	64.8	1.01
6/27/2023	10:13:00	70.8	1.01	76.3	1	61.7	0.96	64.8	1.01
6/27/2023	10:14:00	70.7	1.01	76.3	1	61.7	0.96	64.8	1.01
6/27/2023	10:15:00	70.7	1.01	76.2	1	63.3	0.96	64.8	1.01
6/27/2023	10:16:00	70.6	1.01	76.1	1	64.5	0.95	64.8	1.01
6/27/2023	10:17:00	70.5	1.01	76	1	65.6	0.95	64.8	1.01
6/27/2023	10:18:00	70.4	1.01	75.9	1	65.5	0.95	64.8	1.01
6/27/2023	10:19:00	70.4	1.01	75.9	1	64.5	0.95	64.8	1.01
6/27/2023	10:20:00	70.3	1.01	75.8	1	63.2	0.95	64.8	1.01
6/27/2023	10:21:00	70.2	1.01	75.7	1	65.6	0.95	64.8	1.01
6/27/2023	10:22:00	70.1	1.01	75.6	1	66.6	0.95	64.8	1.01
6/27/2023	10:23:00	70	1.01	75.6	1	66.2	0.94	64.8	1.01
6/27/2023	10:24:00	70	1.01	75.5	1	66.3	0.94	64.8	1.01
6/27/2023	10:25:00	69.9	1.01	75.4	1	66.4	0.94	64.8	1.01
6/27/2023	10:26:00	69.8	1.01	75.3	1	66.4	0.94	64.8	1.01
6/27/2023	10:27:00	69.8	1.01	75.2	1	66.8	0.94	64.8	1.01
6/27/2023	10:28:00	69.8	1.02	75.2	1	66.4	0.94	64.8	1.01
6/27/2023	10:29:00	69.6	1.02	75.1	1	66.8	0.94	64.8	1.01
6/27/2023	10:30:00	69.6	1.02	75	1	68.4	0.93	64.8	1.01
6/27/2023	10:31:00	69.5	1.02	75	1	67.8	0.93	64.8	1.01
6/27/2023	10:32:00	69.4	1.02	74.9	1	67.5	0.93	64.8	1.01
6/27/2023	10:33:00	69.4	1.02	74.8	1	64.3	0.93	64.8	1.01
6/27/2023	10:34:00	69.3	1.02	74.8	1	64.2	0.93	64.8	1.01

PCC Structurals - Milwaukie, OR Facility
9203 Outlet
Volumetric Flow Rate Continuous Data

		Southwest Stack		Southeast Stack		Northeast Stack		Northwest Stack	
Date	Time	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O
6/27/2023	10:35:00	69.3	1.02	74.7	1	65	0.93	64.8	1.01
6/27/2023	10:36:00	69.1	1.02	74.7	1	66.7	0.93	64.8	1.01
6/27/2023	10:37:00	69.1	1.02	74.6	1	66.3	0.92	64.8	1.01
6/27/2023	10:38:00	69.1	1.02	74.5	1	66.5	0.92	64.8	1.02
6/27/2023	10:39:00	69	1.02	74.4	1	66.3	0.92	64.8	1.02
6/27/2023	10:40:00	68.9	1.02	74.3	1	68	0.92	64.8	1.01
6/27/2023	10:41:00	68.9	1.02	74.3	1	68.2	0.92	64.8	1.01
6/27/2023	10:42:00	68.8	1.02	74.2	1	68.8	0.92	64.8	1.01
6/27/2023	10:43:00	68.7	1.02	74.2	1	69.1	0.91	64.8	1.01
6/27/2023	10:44:00	68.7	1.02	74.1	1	68.2	0.91	64.8	1.01
6/27/2023	10:45:00	68.6	1.02	74	1	68	0.91	64.8	1.02
6/27/2023	10:46:00	68.5	1.02	74	1	67	0.91	64.8	1.02
6/27/2023	10:47:00	68.5	1.02	73.9	1	66.5	0.91	64.8	1.02
6/27/2023	10:48:00	68.4	1.02	73.9	1	66.4	0.91	64.8	1.01
6/27/2023	10:49:00	68.3	1.02	73.8	1	66.8	0.91	64.8	1.02
6/27/2023	10:50:00	68.3	1.02	73.8	1	66.7	0.9	64.8	1.02
6/27/2023	10:51:00	68.2	1.02	73.7	1	67.2	0.9	64.8	1.02
6/27/2023	10:52:00	68.2	1.02	73.7	1	68.2	0.9	64.8	1.02
6/27/2023	10:53:00	68.1	1.02	73.6	1	67.9	0.9	64.8	1.02
6/27/2023	10:54:00	68.1	1.02	73.5	1	67	0.9	64.8	1.02
6/27/2023	10:55:00	68	1.02	73.5	1	67.5	0.9	64.8	1.02
6/27/2023	10:56:00	68	1.02	73.4	1	69.2	0.9	64.8	1.02
6/27/2023	10:57:00	67.9	1.02	73.4	1	69.4	0.89	64.8	1.02
6/27/2023	10:58:00	67.8	1.02	73.3	1	68.8	0.89	64.8	1.02
6/27/2023	10:59:00	67.8	1.02	73.2	1	67.1	0.89	64.8	1.02
6/27/2023	11:00:00	67.7	1.02	73.1	1	67.4	0.89	64.8	1.02
6/27/2023	11:01:00	67.6	1.02	73	1	67	0.89	64.8	1.02
6/27/2023	11:02:00	67.6	1.02	73	1	68.3	0.89	64.8	1.02
6/27/2023	11:03:00	67.5	1.02	72.9	1	68	0.88	64.8	1.02
6/27/2023	11:04:00	67.4	1.02	72.8	1	69.1	0.88	64.8	1.02
6/27/2023	11:05:00	67.3	1.02	72.8	1	67	0.88	64.8	1.02
6/27/2023	11:06:00	67.3	1.02	72.7	1	67.3	0.88	64.8	1.02
6/27/2023	11:07:00	67.2	1.02	72.6	1	67.5	0.88	64.8	1.02
6/27/2023	11:08:00	67.2	1.02	72.5	1	68	0.88	64.8	1.02
6/27/2023	11:09:00	67.1	1.02	72.5	1	68.1	0.88	64.8	1.02
6/27/2023	11:10:00	67	1.02	72.4	1	68.4	0.87	64.8	1.02
6/27/2023	11:11:00	67	1.02	72.3	1	68.7	0.87	64.8	1.02
6/27/2023	11:12:00	66.9	1.02	72.2	1	66.9	0.87	64.8	1.02
6/27/2023	11:13:00	66.9	1.02	72.2	1	66.9	0.87	64.8	1.02
6/27/2023	11:14:00	66.9	1.02	72.1	1	66.9	0.87	64.8	1.02
6/27/2023	11:15:00	66.8	1.03	72.1	1	66.9	0.87	64.8	1.02
6/27/2023	11:16:00	66.7	1.02	72	1	66.9	0.87	64.8	1.02
6/27/2023	11:17:00	66.7	1.02	71.9	1	66.9	0.86	64.8	1.02
6/27/2023	11:18:00	66.6	1.03	71.8	1	66.9	0.86	64.8	1.02
6/27/2023	11:19:00	66.5	1.03	71.8	1	66.9	0.86	64.8	1.02
6/27/2023	11:20:00	66.6	1.03	71.7	1	66.9	0.86	64.8	1.02
6/27/2023	11:21:00	66.5	1.03	71.6	1	66.9	0.86	64.8	1.02
6/27/2023	11:22:00	66.3	1.03	71.6	1	66.9	0.86	64.8	1.02
6/27/2023	11:23:00	66.3	1.03	71.6	1	66.9	0.86	64.8	1.02
6/27/2023	11:24:00	66.3	1.03	71.5	1	66.9	0.85	64.8	1.02
6/27/2023	11:25:00	66.3	1.03	71.4	1	66.9	0.85	64.8	1.02
6/27/2023	11:26:00	66.3	1.03	71.4	1	66.9	0.85	64.8	1.02
6/27/2023	11:27:00	66.3	1.03	71.3	1	66.9	0.85	64.8	1.02
6/27/2023	11:28:00	66.2	1.03	71.3	1	66.9	0.85	64.8	1.02
6/27/2023	11:29:00	66.1	1.03	71.2	1	66.9	0.85	64.8	1.03
6/27/2023	11:30:00	66.1	1.03	71.2	1	66.9	0.85	64.8	1.02
6/27/2023	11:31:00	66	1.03	71.2	1	66.9	0.84	64.8	1.03
6/27/2023	11:32:00	66	1.03	71.1	1	66.9	0.84	64.8	1.03
6/27/2023	11:33:00	66	1.03	71.1	1	66.9	0.84	64.8	1.02
6/27/2023	11:34:00	65.9	1.03	71.1	1	66.9	0.84	64.8	1.03
6/27/2023	11:35:00	65.9	1.03	71	1	66.9	0.84	64.8	1.02
6/27/2023	11:36:00	65.8	1.03	71	1	66.9	0.84	64.8	1.03
6/27/2023	11:37:00	65.8	1.03	70.9	1	66.9	0.84	64.8	1.03
6/27/2023	11:38:00	65.7	1.03	70.9	1	66.9	0.84	64.8	1.03

PCC Structurals - Milwaukie, OR Facility
9203 Outlet
Volumetric Flow Rate Continuous Data

		Southwest Stack		Southeast Stack		Northeast Stack		Northwest Stack	
Date	Time	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O
6/27/2023	11:39:00	65.6	1.03	70.8	1	66.9	0.84	64.8	1.03
6/27/2023	11:40:00	65.6	1.03	70.7	1	66.9	0.83	64.8	1.03
6/27/2023	11:41:00	65.6	1.03	70.7	1	66.9	0.83	64.8	1.03
6/27/2023	11:42:00	65.5	1.03	70.6	1	66.9	0.83	64.8	1.03
6/27/2023	11:43:00	65.5	1.03	70.5	1	66.9	0.83	64.8	1.03
6/27/2023	11:44:00	65.4	1.03	70.5	1	66.9	0.83	64.8	1.03
6/27/2023	11:45:00	65.4	1.03	70.4	1	66.9	0.83	64.8	1.03
6/27/2023	11:46:00	65.3	1.03	70.4	1	66.9	0.83	64.8	1.03
6/27/2023	11:47:00	65.3	1.03	70.3	1	66.9	0.83	64.8	1.03
6/27/2023	11:48:00	65.2	1.03	70.3	1	66.9	0.83	64.8	1.03
6/27/2023	11:49:00	65.2	1.03	70.2	1	66.9	0.83	64.8	1.03
6/27/2023	11:50:00	65.2	1.03	70.2	1	66.9	0.82	64.8	1.03
6/27/2023	11:51:00	65.1	1.03	70.2	1	66.9	0.82	64.8	1.03
6/27/2023	11:52:00	65.1	1.03	70.1	1	66.9	0.82	64.8	1.03
6/27/2023	11:53:00	65.1	1.03	70.1	1	66.9	0.82	64.8	1.03
6/27/2023	11:54:00	65	1.03	70.1	1	66.9	0.82	64.8	1.03
6/27/2023	11:55:00	64.9	1.03	70	1	66.9	0.82	64.8	1.03
6/27/2023	11:56:00	64.9	1.03	70	1	66.9	0.82	64.8	1.03
6/27/2023	11:57:00	64.9	1.03	70	1	66.9	0.82	64.8	1.03
6/27/2023	11:58:00	64.9	1.03	69.9	1	66.9	0.82	64.8	1.03
6/27/2023	11:59:00	64.9	1.03	69.9	1	66.9	0.82	64.8	1.03
6/27/2023	12:00:00	64.8	1.03	69.9	1	66.9	0.81	64.8	1.03
6/27/2023	12:01:00	64.7	1.03	69.8	1	66.9	0.81	64.8	1.03
6/27/2023	12:02:00	64.7	1.03	69.8	1	66.9	0.81	64.8	1.03
6/27/2023	12:03:00	64.7	1.03	69.8	1	66.9	0.81	64.8	1.03
6/27/2023	12:04:00	64.7	1.03	69.8	1	66.9	0.81	64.8	1.03
6/27/2023	12:05:00	64.6	1.03	69.8	1	66.9	0.81	64.8	1.03
6/27/2023	12:06:00	64.6	1.03	69.8	1	66.9	0.81	64.8	1.03
6/27/2023	12:07:00	64.5	1.03	69.7	1	66.9	0.81	64.8	1.03
6/27/2023	12:08:00	64.6	1.03	69.7	1	66.9	0.81	64.8	1.03
6/27/2023	12:09:00	64.6	1.03	69.6	1	66.9	0.81	64.8	1.03
6/27/2023	12:10:00	64.5	1.03	69.6	1	66.9	0.8	64.8	1.03
6/27/2023	12:11:00	64.5	1.03	69.6	1	66.9	0.8	64.8	1.03
6/27/2023	12:12:00	64.5	1.03	69.6	1	66.9	0.8	64.8	1.03
6/27/2023	12:13:00	64.4	1.03	69.5	1	66.9	0.8	64.8	1.03
6/27/2023	12:14:00	64.4	1.03	69.5	1	66.9	0.8	64.8	1.03
6/27/2023	12:15:00	64.4	1.03	69.5	1	66.9	0.8	64.8	1.03
6/27/2023	12:16:00	64.4	1.03	69.4	1	66.9	0.8	64.8	1.04
6/27/2023	12:17:00	64.4	1.03	69.4	1	66.9	0.8	64.8	1.04
6/27/2023	12:18:00	64.3	1.03	69.4	1	66.9	0.8	64.8	1.03
6/27/2023	12:19:00	64.2	1.03	69.4	1	66.9	0.8	64.8	1.03
6/27/2023	12:20:00	64.2	1.03	69.4	1	66.9	0.79	64.8	1.03
6/27/2023	12:21:00	64.2	1.03	69.3	1	66.9	0.79	64.8	1.03
6/27/2023	12:22:00	64.2	1.03	69.3	1	66.9	0.79	64.8	1.03
6/27/2023	12:23:00	64.2	1.03	69.3	1	66.9	0.79	64.8	1.03
6/27/2023	12:24:00	64.1	1.03	69.2	1	66.9	0.79	64.8	1.03
6/27/2023	12:25:00	64.1	1.03	69.2	1	66.9	0.79	64.8	1.03
6/27/2023	12:26:00	64	1.03	69.2	1	66.9	0.79	64.8	1.03
6/27/2023	12:27:00	64	1.03	69.2	1	66.9	0.79	64.8	1.03
6/27/2023	12:28:00	63.9	1.03	69.2	1	66.9	0.79	64.8	1.03
6/27/2023	12:29:00	63.9	1.03	69.1	1	66.9	0.79	64.8	1.04
6/27/2023	12:30:00	63.9	1.03	69.1	1	66.9	0.79	64.8	1.03
6/27/2023	12:31:00	63.8	1.04	69.1	1	66.9	0.79	64.8	1.03
6/27/2023	12:32:00	63.8	1.03	69	1	66.9	0.78	64.8	1.03
6/27/2023	12:33:00	63.8	1.03	68.9	1	66.9	0.78	64.8	1.04
6/27/2023	12:34:00	63.7	1.03	68.8	1	66.9	0.78	64.8	1.03
6/27/2023	12:35:00	63.7	1.03	68.8	1	66.9	0.78	64.8	1.04
6/27/2023	12:36:00	63.7	1.03	68.7	1	66.9	0.78	64.8	1.04
6/27/2023	12:37:00	63.6	1.03	68.7	1	66.9	0.78	64.8	1.03
6/27/2023	12:38:00	63.5	1.04	68.6	1	66.9	0.78	64.8	1.04
6/27/2023	12:39:00	63.5	1.04	68.5	1	66.9	0.78	64.7	1.04
6/27/2023	12:40:00	63.5	1.04	68.5	1	66.9	0.78	64.7	1.03
6/27/2023	12:41:00	63.4	1.04	68.4	1	66.9	0.78	64.7	1.04
6/27/2023	12:42:00	63.4	1.04	68.4	1	66.9	0.77	64.7	1.04

PCC Structurals - Milwaukie, OR Facility
9203 Outlet
Volumetric Flow Rate Continuous Data

		Southwest Stack		Southeast Stack		Northeast Stack		Northwest Stack	
Date	**Time**	**Temp, °F**	**dP, "H_2O**	**Temp, °F**	**dP, "H_2O**	**Temp, °F**	**dP, "H_2O**	**Temp, °F**	**dP, "H_2O**
6/27/2023	12:43:00	63.3	1.04	68.3	1	66.9	0.77	64.7	1.04
6/27/2023	12:44:00	63.3	1.04	68.3	1	66.9	0.77	64.7	1.04
6/27/2023	12:45:00	63.3	1.04	68.2	1	66.9	0.77	64.7	1.04
6/27/2023	12:46:00	63.2	1.04	68.2	1	66.9	0.77	64.7	1.04
6/27/2023	12:47:00	63.1	1.04	68.1	1	66.9	0.77	64.7	1.04
6/27/2023	12:48:00	63.1	1.04	68.1	1	66.9	0.77	64.7	1.04
6/27/2023	12:49:00	63.1	1.04	68.1	1	66.9	0.77	64.7	1.04
6/27/2023	12:50:00	63.1	1.04	68	1	66.9	0.77	64.7	1.04
6/27/2023	12:51:00	63.1	1.04	68	1	66.9	0.77	64.7	1.04
6/27/2023	12:52:00	63	1.04	68	1	66.9	0.77	64.7	1.04
6/27/2023	12:53:00	62.9	1.04	67.9	1	66.9	0.77	64.7	1.04
6/27/2023	12:54:00	63	1.04	67.9	1	66.9	0.76	64.7	1.04
6/27/2023	12:55:00	62.8	1.04	67.8	1	66.9	0.76	64.7	1.04
6/27/2023	12:56:00	62.9	1.04	67.8	1	66.9	0.76	64.7	1.04
6/27/2023	12:57:00	62.8	1.04	67.8	1	66.9	0.76	64.7	1.04
6/27/2023	12:58:00	62.8	1.04	67.7	1	66.9	0.76	64.7	1.04
6/27/2023	12:59:00	62.8	1.04	67.7	1	66.9	0.76	64.7	1.04
6/27/2023	13:00:00	62.7	1.04	67.6	1	66.9	0.76	64.7	1.04
6/27/2023	13:01:00	62.7	1.04	67.6	1	66.9	0.76	64.7	1.04
6/27/2023	13:02:00	62.6	1.04	67.6	1	66.9	0.76	64.7	1.04
6/27/2023	13:03:00	62.6	1.04	67.5	1	66.9	0.76	64.7	1.04
6/27/2023	13:04:00	62.6	1.04	67.5	1	66.9	0.76	64.7	1.04
6/27/2023	13:05:00	62.6	1.04	67.4	1	66.9	0.76	64.7	1.04
6/27/2023	13:06:00	62.5	1.04	67.4	1	66.9	0.76	64.7	1.04
6/27/2023	13:07:00	62.5	1.04	67.3	1	66.9	0.76	64.7	1.04
6/27/2023	13:08:00	62.3	1.04	67.3	1	66.9	0.75	64.7	1.04
6/27/2023	13:09:00	62.4	1.04	67.2	1	66.9	0.75	64.7	1.04
6/27/2023	13:10:00	62.3	1.04	67.2	1	66.9	0.75	64.7	1.04
6/27/2023	13:11:00	62.3	1.04	67.2	1	66.9	0.75	64.7	1.04
6/27/2023	13:12:00	62.3	1.04	67.2	1	66.9	0.75	64.7	1.04
6/27/2023	13:13:00	62.3	1.04	67.1	1	66.9	0.75	64.7	1.04
6/27/2023	13:14:00	62.2	1.04	67.1	1	66.9	0.75	64.7	1.04
6/27/2023	13:15:00	62.1	1.04	67.1	1	66.9	0.75	64.7	1.04
6/27/2023	13:16:00	62.2	1.04	67	1	66.9	0.75	64.7	1.04
6/27/2023	13:17:00	62.1	1.04	67	1	66.9	0.75	64.7	1.04
6/27/2023	13:18:00	62.1	1.04	67	1	66.6	0.75	64.7	1.04
6/27/2023	13:19:00	62.1	1.04	66.9	1	66.6	0.75	64.7	1.04
6/27/2023	13:20:00	62.1	1.04	66.9	1	66.6	0.75	64.7	1.04
6/27/2023	13:21:00	62.1	1.04	66.9	1	66.6	0.74	64.7	1.04
6/27/2023	13:22:00	62.1	1.04	66.9	1	66.6	0.74	64.7	1.04
6/27/2023	13:23:00	62	1.04	66.9	1	66.6	0.74	64.7	1.04
6/27/2023	13:24:00	62	1.04	66.9	1	66.6	0.74	64.7	1.04
6/27/2023	13:25:00	62	1.04	66.8	1	66.6	0.74	64.7	1.04
6/27/2023	13:26:00	62	1.04	66.8	1	66.6	0.74	64.7	1.04
6/27/2023	13:27:00	61.9	1.04	66.8	1	66.6	0.74	64.7	1.04
6/27/2023	13:28:00	61.8	1.04	66.7	1	66.6	0.74	64.7	1.04
6/27/2023	13:29:00	61.8	1.04	66.7	1	66.6	0.74	64.7	1.04
6/27/2023	13:30:00	61.8	1.04	66.7	1	66.6	0.74	64.7	1.04
6/27/2023	13:31:00	61.7	1.04	66.6	1	66.6	0.74	64.7	1.04
6/27/2023	13:32:00	61.7	1.04	66.6	1	66.6	0.74	64.7	1.04
6/27/2023	13:33:00	61.7	1.04	66.6	1	66.6	0.74	64.7	1.04
Average		**74.7**	**1.01**	**70.2**	**1.00**	**67.7**	**0.99**	**64.8**	**1.01**
Min		**61.7**	**0.99**	**60.0**	**1.00**	**60.2**	**0.74**	**64.7**	**0.95**
Max		**84.5**	**1.04**	**79.9**	**1.00**	**79.8**	**1.18**	**64.9**	**1.04**
		Sqrt DP	1.006	Sqrt DP	1.000	Sqrt DP	0.994	Sqrt DP	1.005
		Vs	56.640	Vs	56.053	Vs	55.608	Vs	56.028
		ACFM	21,424	ACFM	21,202	ACFM	21,033	ACFM	21,192
		DSCFM	21,027	DSCFM	20,985	DSCFM	20,920	DSCFM	21,192

PCC Structurals - Milwaukie, OR Facility
9203 Outlet
Volumetric Flow Rate Continuous Data

		Southwest Stack		Southeast Stack		Northeast Stack		Northwest Stack	
Date	Time	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O
6/30/2023	5:36:00	67.1	1.11	72.3	1	67.1	0.69	75.5	1.08
6/30/2023	5:37:00	67	1.11	72.2	1	67	0.67	75.5	1.1
6/30/2023	5:38:00	67.2	1.11	72.2	1	66.9	0.67	75.5	1.14
6/30/2023	5:39:00	67.3	1.11	72.4	1	67	0.66	75.5	1.2
6/30/2023	5:40:00	67.5	1.11	72.5	1	67.1	0.66	75.5	1.11
6/30/2023	5:41:00	67.4	1.1	72.5	1	67.2	0.66	75.5	1.08
6/30/2023	5:42:00	67.4	1	72.5	1	67.1	0.67	75.5	1.1
6/30/2023	5:43:00	67.5	1.04	72.5	1	67.1	0.67	75.5	1
6/30/2023	5:44:00	67.5	1.09	72.5	1	67	0.67	75.5	1.03
6/30/2023	5:45:00	67.4	1	72.4	1	67	0.67	75.5	1
6/30/2023	5:46:00	67.3	1	72.4	1	67	0.68	75.5	1.15
6/30/2023	5:47:00	67.3	0.99	72.3	1	67.1	0.68	75.5	1.16
6/30/2023	5:48:00	67.1	0.99	72.2	1	67	0.69	75.5	1.13
6/30/2023	5:49:00	67.1	0.99	72.2	1	67	0.65	75.5	1.2
6/30/2023	5:50:00	67.1	0.98	72.1	1	67	0.66	75.5	1.22
6/30/2023	5:51:00	67	0.99	72.1	1	66.9	0.66	75.5	1.18
6/30/2023	5:52:00	67	0.98	72.1	1	66.8	0.67	75.5	1.13
6/30/2023	5:53:00	67	0.98	72.1	1	66.8	0.67	75.5	1.19
6/30/2023	5:54:00	67	0.99	72.1	1	66.7	0.67	75.5	1.2
6/30/2023	5:55:00	66.9	0.98	72.1	1	66.8	0.67	75.5	1.19
6/30/2023	5:56:00	67	0.98	72	1	66.7	0.67	75.5	1.11
6/30/2023	5:57:00	67.1	0.98	72.1	1	66.7	0.66	75.5	1.1
6/30/2023	5:58:00	67.1	0.98	72.1	1	66.7	0.64	75.5	1.04
6/30/2023	5:59:00	67.1	0.99	72.2	1	67	0.65	75.5	1.1
6/30/2023	6:00:00	67.1	0.98	72.1	1	67	0.67	75.5	1.12
6/30/2023	6:01:00	67.1	0.99	72	1	66.9	0.66	75.5	1.15
6/30/2023	6:02:00	67	0.98	72.1	1	66.9	0.66	75.5	1.04
6/30/2023	6:03:00	67.1	0.97	72.1	1	67	0.65	75.5	1.02
6/30/2023	6:04:00	67	0.98	72.1	1	66.9	0.66	75.5	1
6/30/2023	6:05:00	67	1	72.1	1	66.9	0.67	75.5	0.66
6/30/2023	6:06:00	67	1.01	72.1	1	66.9	0.67	75.5	0.66
6/30/2023	6:07:00	66.9	0.99	72	1	66.7	0.67	75.5	0.67
6/30/2023	6:08:00	66.9	0.99	72.1	1	66.8	0.68	75.5	0.68
6/30/2023	6:09:00	67	0.98	72.1	1	66.9	0.68	75.5	0.72
6/30/2023	6:10:00	67	0.98	72.1	1	66.9	0.69	75.5	0.7
6/30/2023	6:11:00	67	0.99	72.1	1	67.1	0.68	75.5	0.69
6/30/2023	6:12:00	66.9	0.99	72.1	1	67	0.7	75.5	0.67
6/30/2023	6:13:00	67	0.98	72.1	1	66.9	0.7	75.5	0.66
6/30/2023	6:14:00	67	0.99	72.1	1	67	0.7	75.5	0.67
6/30/2023	6:15:00	67	0.99	72.1	1	66.9	0.67	75.5	0.7
6/30/2023	6:16:00	67	0.98	72.1	1	66.9	0.68	75.5	0.7
6/30/2023	6:17:00	67.1	0.98	72.2	1	66.9	0.65	75.5	0.7
6/30/2023	6:18:00	67.1	0.99	72.2	1	66.9	0.66	75.5	0.72
6/30/2023	6:19:00	67.1	0.99	72.2	1	67	0.67	75.5	0.66
6/30/2023	6:20:00	67.1	0.99	72.3	1	66.9	0.67	75.5	0.7
6/30/2023	6:21:00	67.2	0.98	72.3	1	67	0.67	75.5	0.7
6/30/2023	6:22:00	67.2	0.99	72.3	1	67	0.66	75.5	0.7
6/30/2023	6:23:00	67.2	1	72.3	1	67	0.65	75.5	0.6
6/30/2023	6:24:00	67.2	0.98	72.3	1	67	0.66	75.5	0.68
6/30/2023	6:25:00	67.2	0.99	72.3	1	67.3	0.67	75.5	0.67
6/30/2023	6:26:00	67.1	1	72.4	1	67.3	0.67	75.5	0.67
6/30/2023	6:27:00	67.2	0.98	72.4	1	67.3	0.67	75.5	0.66
6/30/2023	6:28:00	67.1	0.98	72.5	1	67.3	0.7	75.5	0.65
6/30/2023	6:29:00	67.3	0.99	72.6	1	67.5	0.7	75.5	0.6
6/30/2023	6:30:00	67.3	0.98	72.7	1	67.5	0.7	75.5	0.68
6/30/2023	6:31:00	67.4	0.98	72.7	1	67.6	0.7	75.5	0.67
6/30/2023	6:32:00	67.4	0.98	72.8	1	67.8	0.73	75.5	0.67
6/30/2023	6:33:00	67.6	0.98	72.9	1	67.9	0.73	75.5	0.68
6/30/2023	6:34:00	67.7	0.98	72.9	1	67.9	0.72	75.5	0.66
6/30/2023	6:35:00	67.6	0.99	72.9	1	67.8	0.7	75.5	0.65
6/30/2023	6:36:00	67.6	0.98	72.8	1	67.8	0.67	75.5	0.66
6/30/2023	6:37:00	67.6	0.98	72.9	1	67.9	0.68	75.5	0.66
6/30/2023	6:38:00	67.7	0.99	72.9	1	67.9	0.7	75.5	0.67

PCC Structurals - Milwaukie, OR Facility
9203 Outlet
Volumetric Flow Rate Continuous Data

		Southwest Stack		Southeast Stack		Northeast Stack		Northwest Stack	
Date	Time	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O
6/30/2023	6:39:00	67.7	0.98	72.9	1	67.9	0.73	75.5	0.68
6/30/2023	6:40:00	67.8	0.99	73	1	67.9	0.71	75.5	0.65
6/30/2023	6:41:00	67.8	0.99	72.9	1	67.9	0.7	75.5	0.66
6/30/2023	6:45:00	64.5	0.95	70.4	1	65	0.82	73	0.68
6/30/2023	6:46:00	67.9	1.26	73	1	67.9	0.86	75.5	0.63
6/30/2023	6:49:00	67.9	1.26	73.2	1	67.9	0.83	75.5	0.61
6/30/2023	6:50:00	67.9	1.26	73.2	1	67.9	0.82	75.5	0.61
6/30/2023	6:51:00	68	1.26	73.2	0.9	67.9	0.84	75.5	0.61
6/30/2023	6:52:00	68	1.28	73.2	0.9	67.9	0.84	75.5	0.61
6/30/2023	6:53:00	68	1.27	73.2	0.91	67.9	0.83	75.5	0.6
6/30/2023	6:54:00	68	1.25	73.2	0.89	68	0.84	75.5	0.62
6/30/2023	6:55:00	68	1.29	73.2	0.9	68	0.84	75.5	0.61
6/30/2023	6:56:00	67.9	1.26	73.2	0.89	68.1	0.85	75.5	0.61
6/30/2023	6:57:00	68	1.25	73.2	0.9	68	0.85	75.5	0.61
6/30/2023	6:58:00	68	1.28	73.2	0.91	67.9	0.84	75.5	0.6
6/30/2023	6:59:00	68	1.26	73.2	0.89	68	0.85	75.5	0.62
6/30/2023	7:00:00	67.9	1.27	73.2	0.9	67.9	0.85	75.5	0.6
6/30/2023	7:01:00	68	1.26	73.2	0.9	67.9	0.84	75.5	0.61
6/30/2023	7:02:00	68	1.26	73.2	0.89	67.9	0.85	75.5	0.61
6/30/2023	7:03:00	68	1.26	73.3	0.89	67.9	0.84	75.5	0.61
6/30/2023	7:04:00	68.1	1.27	73.3	0.89	67.9	0.85	75.5	0.61
6/30/2023	7:05:00	68	1.25	73.3	0.9	67.9	0.84	75.5	0.6
6/30/2023	7:06:00	67.9	1.26	73.3	0.89	67.9	0.84	75.5	0.61
6/30/2023	7:07:00	68	1.24	73.2	0.89	67.9	0.84	75.5	0.61
6/30/2023	7:08:00	67.9	1.25	73.2	0.9	67.9	0.84	75.5	0.61
6/30/2023	7:09:00	67.8	1.24	73.2	0.9	67.9	0.84	75.5	0.61
6/30/2023	7:10:00	67.9	1.25	73.2	0.88	67.8	0.84	75.5	0.62
6/30/2023	7:11:00	67.8	1.26	73.2	0.89	67.9	0.84	75.6	0.61
6/30/2023	7:12:00	67.8	1.26	73.2	0.89	67.9	0.85	75.6	0.61
6/30/2023	7:13:00	67.8	1.26	73.2	0.88	67.9	0.85	75.6	0.61
6/30/2023	7:14:00	67.7	1.24	73.2	0.88	67.9	0.85	75.6	0.62
6/30/2023	7:15:00	67.8	1.26	73.3	0.88	67.9	0.85	75.6	0.61
6/30/2023	7:16:00	67.8	1.26	73.4	0.88	67.9	0.85	75.6	0.62
6/30/2023	7:17:00	67.9	1.24	73.5	0.89	68	0.84	75.6	0.66
6/30/2023	7:18:00	68	1.25	73.6	0.89	68.1	0.83	75.6	0.66
6/30/2023	7:19:00	68.2	1.26	73.8	0.89	68.2	0.85	75.6	0.6
6/30/2023	7:20:00	68.3	1.25	73.9	0.88	68.5	0.86	75.6	0.6
6/30/2023	7:21:00	68.4	1.24	74	0.88	68.5	0.86	75.6	0.6
6/30/2023	7:22:00	68.4	1.25	74	0.88	68.6	0.87	75.6	0.61
6/30/2023	7:23:00	68.3	1.25	74	0.88	68.6	0.86	75.6	0.61
6/30/2023	7:24:00	68.4	1.27	74.1	0.87	68.6	0.86	75.6	0.6
6/30/2023	7:25:00	68.4	1.25	74.2	0.88	68.7	0.87	75.6	0.61
6/30/2023	7:26:00	68.5	1.26	74.2	0.88	68.8	0.86	75.6	0.61
6/30/2023	7:27:00	68.5	1.25	74.3	0.88	69	0.87	75.6	0.61
6/30/2023	7:28:00	68.6	1.25	74.4	0.88	69.1	0.86	75.6	0.61
6/30/2023	7:29:00	68.7	1.26	74.5	0.88	69.1	0.86	75.6	0.61
6/30/2023	7:30:00	68.8	1.25	74.5	0.88	69.1	0.86	75.6	0.62
6/30/2023	7:31:00	68.8	1.25	74.5	0.88	69.1	0.86	75.6	0.61
6/30/2023	7:32:00	68.8	1.26	74.5	0.9	69.1	0.87	75.6	0.63
6/30/2023	7:33:00	68.7	1.26	74.5	0.9	69.1	0.86	75.6	0.6
6/30/2023	7:34:00	68.8	1.26	74.6	0.9	69.3	0.87	75.6	0.61
6/30/2023	7:35:00	68.7	1.27	74.6	0.88	69.4	0.88	75.6	0.61
6/30/2023	7:36:00	68.8	1.25	74.6	0.89	69.4	0.87	75.6	0.63
6/30/2023	7:37:00	68.8	1.25	74.6	0.89	69.4	0.88	75.6	0.61
6/30/2023	7:38:00	68.7	1.26	74.6	0.88	69.4	0.88	75.6	0.6
6/30/2023	7:39:00	68.8	1.25	74.6	0.9	69.3	0.87	75.6	0.61
6/30/2023	7:40:00	68.8	1.26	74.6	0.89	69.1	0.88	75.6	0.61
6/30/2023	7:41:00	68.8	1.26	74.6	0.88	69.1	0.89	75.6	0.61
6/30/2023	7:42:00	68.7	1.26	74.5	0.89	69.1	0.87	75.6	0.6
6/30/2023	7:43:00	68.7	1.25	74.5	0.89	69.4	0.88	75.6	0.61
6/30/2023	7:44:00	68.9	1.26	74.5	0.9	69.3	0.86	75.6	0.61
6/30/2023	7:45:00	68.9	1.26	74.6	0.89	69.4	0.87	75.6	0.63
6/30/2023	7:46:00	68.9	1.26	74.6	0.9	69.3	0.87	75.6	0.61

PCC Structurals - Milwaukie, OR Facility
9203 Outlet
Volumetric Flow Rate Continuous Data

		Southwest Stack		Southeast Stack		Northeast Stack		Northwest Stack	
Date	Time	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O
6/30/2023	7:47:00	68.9	1.26	74.6	0.91	69.3	0.87	75.6	0.61
6/30/2023	7:48:00	69	1.24	74.7	0.89	69.4	0.88	75.6	0.63
6/30/2023	7:49:00	69	1.25	74.7	0.89	69.4	0.88	75.6	0.61
6/30/2023	7:50:00	69.1	1.26	74.8	0.87	69.5	0.89	75.6	0.61
6/30/2023	7:51:00	69	1.26	74.7	0.87	69.4	0.89	75.6	0.62
6/30/2023	7:52:00	69.1	1.26	74.6	0.89	69.2	0.89	75.6	0.61
6/30/2023	7:53:00	69	1.26	74.6	0.89	69.2	0.88	75.6	0.6
6/30/2023	7:54:00	69	1.25	74.6	0.87	69.1	0.89	75.6	0.62
6/30/2023	7:55:00	68.9	1.25	74.6	0.89	69.4	0.89	75.6	0.6
6/30/2023	7:56:00	69	1.25	74.6	0.89	69.4	0.88	75.6	0.61
6/30/2023	7:57:00	68.9	1.25	74.6	0.9	69.4	0.88	75.6	0.62
6/30/2023	7:58:00	68.9	1.25	74.7	0.9	69.4	0.87	75.6	0.6
6/30/2023	7:59:00	68.9	1.26	74.7	0.89	69.4	0.89	75.6	0.59
6/30/2023	8:00:00	68.9	1.25	74.6	0.89	69.4	0.88	75.6	0.61
6/30/2023	8:01:00	68.9	1.25	74.6	0.88	69.3	0.89	75.6	0.61
6/30/2023	8:02:00	68.9	1.27	74.6	0.88	69.2	0.89	75.6	0.61
6/30/2023	8:03:00	68.8	1.26	74.5	0.89	69.2	0.89	75.6	0.6
6/30/2023	8:04:00	68.9	1.25	74.5	0.9	69.1	0.88	75.6	0.62
6/30/2023	8:05:00	68.7	1.24	74.4	0.89	69.1	0.9	75.6	0.61
6/30/2023	8:06:00	68.7	1.26	74.3	0.88	69	0.89	75.6	0.61
6/30/2023	8:07:00	68.7	1.24	74.3	0.87	68.8	0.91	75.6	0.6
6/30/2023	8:08:00	68.6	1.26	74.4	0.88	68.9	0.91	75.6	0.61
6/30/2023	8:09:00	68.8	1.26	74.4	0.88	69	0.91	75.6	0.61
6/30/2023	8:10:00	68.8	1.25	74.4	0.89	68.8	0.89	75.6	0.61
6/30/2023	8:11:00	68.8	1.24	74.4	0.89	68.9	0.88	75.6	0.62
6/30/2023	8:12:00	68.8	1.24	74.5	0.89	69	0.9	75.6	0.6
6/30/2023	8:13:00	68.9	1.25	74.5	0.88	69.3	0.88	75.6	0.62
6/30/2023	8:14:00	68.9	1.25	74.6	0.9	69.3	0.89	75.6	0.6
6/30/2023	8:15:00	68.9	1.25	74.6	0.9	69.4	0.89	75.6	0.61
6/30/2023	8:16:00	69	1.24	74.8	0.88	69.4	0.9	75.6	0.61
6/30/2023	8:17:00	69.1	1.25	74.9	0.89	69.5	0.91	75.6	0.61
6/30/2023	8:18:00	69.1	1.25	74.9	0.9	69.6	0.89	75.6	0.61
6/30/2023	8:19:00	69.2	1.25	75	0.89	69.7	0.89	75.6	0.59
6/30/2023	8:20:00	69.2	1.27	75	0.87	69.7	0.91	75.6	0.6
6/30/2023	8:21:00	69.3	1.27	75.1	0.89	69.8	0.91	75.6	0.61
6/30/2023	8:22:00	69.2	1.26	75.1	0.87	69.7	0.91	75.6	0.62
6/30/2023	8:23:00	69.3	1.25	75.2	0.87	69.8	0.91	75.6	0.61
6/30/2023	8:24:00	69.4	1.25	75.2	0.87	69.7	0.91	75.6	0.61
6/30/2023	8:25:00	69.3	1.25	75.2	0.88	69.8	0.91	75.6	0.62
6/30/2023	8:26:00	69.3	1.26	75.2	0.87	69.7	0.9	75.6	0.63
6/30/2023	8:27:00	69.5	1.24	75.3	0.88	69.8	0.89	75.6	0.6
6/30/2023	8:28:00	69.4	1.24	75.3	0.89	69.9	0.88	75.6	0.6
6/30/2023	8:29:00	69.4	1.23	75.3	0.89	65	0.89	75.6	0.6
6/30/2023	8:30:00	69.5	1.24	75.5	0.87	65	0.91	75.6	0.61
6/30/2023	8:31:00	69.5	1.23	75.5	0.87	65	0.91	75.6	0.59
6/30/2023	8:32:00	69.6	1.24	75.6	0.89	65	0.9	75.6	0.6
6/30/2023	8:33:00	69.6	1.24	75.6	0.88	65.3	0.89	75.6	0.6
6/30/2023	8:34:00	69.6	1.25	75.7	0.87	65.3	0.92	75.6	0.61
6/30/2023	8:35:00	69.6	1.24	75.7	0.87	65.2	0.9	75.6	0.62
6/30/2023	8:36:00	69.6	1.25	75.7	0.87	65.2	0.91	75.6	0.6
6/30/2023	8:37:00	69.7	1.25	75.7	0.87	65.3	0.91	75.6	0.6
6/30/2023	8:38:00	69.6	1.24	75.7	0.86	65.3	0.92	75.6	0.61
6/30/2023	8:39:00	69.6	1.25	75.7	0.87	65.3	0.91	75.6	0.62
6/30/2023	8:40:00	69.7	1.24	75.8	0.87	65.3	0.91	75.6	0.62
6/30/2023	8:41:00	69.7	1.26	75.8	0.87	65.2	0.91	75.6	0.62
6/30/2023	8:42:00	69.8	1.25	75.9	0.88	65.6	0.9	75.6	0.67
6/30/2023	8:43:00	69.7	1.23	75.9	0.88	65.6	0.9	75.6	0.65
6/30/2023	8:44:00	69.9	1.24	76	0.87	65.6	0.9	75.6	0.66
6/30/2023	8:45:00	69.9	1.23	76	0.87	65.6	0.91	75.6	0.64
6/30/2023	8:46:00	70	1.24	76.1	0.87	65.8	0.91	75.6	0.62
6/30/2023	8:47:00	69.9	1.24	76.1	0.87	65.9	0.92	75.6	0.63
6/30/2023	8:48:00	69.9	1.23	76.1	0.86	65.9	0.93	75.6	0.61
6/30/2023	8:49:00	70	1.24	76.2	0.87	65.9	0.93	75.6	0.61

PCC Structurals - Milwaukie, OR Facility
9203 Outlet
Volumetric Flow Rate Continuous Data

		Southwest Stack		Southeast Stack		Northeast Stack		Northwest Stack	
Date	Time	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O
6/30/2023	8:50:00	70.1	1.24	76.2	0.87	65.9	0.94	75.6	0.61
6/30/2023	8:51:00	70.2	1.24	76.4	0.89	66	0.92	75.6	0.65
6/30/2023	8:52:00	70.3	1.25	76.5	0.89	66.2	0.91	75.6	0.68
6/30/2023	8:53:00	70.4	1.24	76.5	0.87	66.2	0.91	75.6	0.64
6/30/2023	8:54:00	70.4	1.26	76.6	0.87	66.1	0.92	75.6	0.65
6/30/2023	8:55:00	70.3	1.22	76.6	0.87	66	0.93	75.6	0.62
6/30/2023	8:56:00	70.4	1.24	76.6	0.87	66.1	0.92	75.6	0.62
6/30/2023	8:57:00	70.3	1.23	76.6	0.85	66.2	0.94	75.6	0.6
6/30/2023	8:58:00	70.4	1.23	76.7	0.87	66.2	0.93	75.6	0.65
6/30/2023	8:59:00	70.5	1.23	76.8	0.88	66.2	0.91	75.6	0.68
6/30/2023	9:00:00	70.6	1.24	77	0.86	66.4	0.92	75.6	0.69
6/30/2023	9:01:00	70.8	1.22	77.1	0.87	66.6	0.93	75.6	0.62
6/30/2023	9:02:00	70.9	1.23	77.3	0.87	66.7	0.93	75.6	0.64
6/30/2023	9:03:00	70.9	1.22	77.4	0.86	67.1	0.94	75.6	0.61
6/30/2023	9:04:00	71	1.23	77.6	0.86	67.1	0.94	75.6	0.61
6/30/2023	9:05:00	71	1.24	77.8	0.86	67.3	0.95	75.6	0.61
6/30/2023	9:06:00	71	1.24	77.8	0.86	67.2	0.94	75.6	0.61
6/30/2023	9:07:00	71.1	1.22	77.8	0.85	67.2	0.95	75.6	0.6
6/30/2023	9:08:00	71.1	1.23	77.9	0.86	67.2	0.94	75.6	0.61
6/30/2023	9:09:00	71.1	1.25	78.2	0.86	67.8	0.94	75.6	0.61
6/30/2023	9:10:00	71.2	1.23	78.6	0.86	68.1	0.95	75.6	0.61
6/30/2023	9:11:00	71.5	1.22	79	0.86	68.4	0.94	75.6	0.62
6/30/2023	9:12:00	71.8	1.23	79.3	0.86	68.6	0.94	75.6	0.63
6/30/2023	9:13:00	72	1.24	79.7	0.87	68.8	0.93	75.6	0.65
6/30/2023	9:14:00	72.2	1.22	80	0.86	69.4	0.94	75.6	0.65
6/30/2023	9:15:00	72.3	1.21	80.2	0.86	69.6	0.94	75.6	0.62
6/30/2023	9:16:00	72.4	1.2	80.4	0.85	69.7	0.95	75.6	0.61
6/30/2023	9:17:00	72.7	1.23	80.6	0.84	69.8	0.95	75.6	0.6
6/30/2023	9:18:00	72.7	1.23	80.6	0.85	70	0.96	75.6	0.6
6/30/2023	9:19:00	72.7	1.24	80.5	0.85	70	0.96	75.6	0.61
6/30/2023	9:20:00	72.7	1.22	80.5	0.85	69.8	0.96	75.6	0.62
6/30/2023	9:21:00	72.7	1.22	80.5	0.86	69.7	0.94	75.6	0.63
6/30/2023	9:22:00	72.7	1.21	80.6	0.87	69.7	0.95	75.6	0.62
6/30/2023	9:23:00	72.9	1.21	80.8	0.86	70.1	0.95	75.6	0.61
6/30/2023	9:24:00	72.9	1.22	80.9	0.85	70.2	0.96	75.6	0.61
6/30/2023	9:25:00	73	1.22	81	0.84	65.4	0.97	75.6	0.61
6/30/2023	9:26:00	73	1.23	81.1	0.85	65.4	0.97	75.6	0.6
6/30/2023	9:27:00	73.2	1.22	81.2	0.85	65.4	0.97	75.6	0.6
6/30/2023	9:28:00	73.2	1.22	81.3	0.85	65.8	0.97	75.6	0.6
6/30/2023	9:29:00	73.3	1.22	81.4	0.85	65.8	0.95	75.6	0.64
6/30/2023	9:30:00	73.4	1.21	81.6	0.85	66.1	0.96	75.6	0.65
6/30/2023	9:31:00	73.6	1.21	81.7	0.84	66.2	0.96	75.6	0.63
6/30/2023	9:32:00	73.6	1.21	81.7	0.85	66.2	0.98	75.6	0.63
6/30/2023	9:33:00	73.5	1.22	81.8	0.85	66.2	0.99	75.6	0.61
6/30/2023	9:34:00	73.6	1.23	81.8	0.87	66.2	0.97	75.6	0.59
6/30/2023	9:35:00	73.7	1.28	81.9	0.88	66.4	1	75.6	0.62
6/30/2023	9:36:00	73.8	1.27	82.1	0.88	66.4	1.01	75.6	0.64
6/30/2023	9:37:00	73.9	1.25	82.1	0.89	66.4	1	75.6	0.66
6/30/2023	9:38:00	73.9	1.27	82.2	0.88	66.4	1	75.6	0.7
6/30/2023	9:39:00	74	1.27	82.2	0.9	66.4	0.99	75.6	0.7
6/30/2023	9:40:00	74.1	1.29	82.3	0.89	66.7	1	75.6	0.7
6/30/2023	9:41:00	74.2	1.27	82.3	0.88	67	1	75.6	0.65
6/30/2023	9:42:00	74.1	1.26	82.4	0.88	67	1.01	75.6	0.64
6/30/2023	9:43:00	74.2	1.26	82.4	0.87	66.8	1.02	75.6	0.64
6/30/2023	9:44:00	74.3	1.25	82.4	0.88	66.7	1.01	75.6	0.64
6/30/2023	9:45:00	74.3	1.27	82.4	0.89	66.7	1.01	75.6	0.69
6/30/2023	9:46:00	74.3	1.28	82.4	0.89	66.9	1	75.6	0.71
6/30/2023	9:47:00	74.3	1.24	82.5	0.89	67	1.02	75.6	0.66
6/30/2023	9:48:00	74.3	1.27	82.5	0.87	67	1.03	75.6	0.62
6/30/2023	9:49:00	74.2	1.27	82.6	0.87	66.9	1.03	75.6	0.63
6/30/2023	9:50:00	74.2	1.26	82.6	0.88	66.9	1.03	75.6	0.64
6/30/2023	9:51:00	74.2	1.27	82.6	0.86	67	1.03	75.6	0.63
6/30/2023	9:52:00	74.2	1.26	82.6	0.89	67	1.03	75.6	0.63

PCC Structurals - Milwaukie, OR Facility
9203 Outlet
Volumetric Flow Rate Continuous Data

		Southwest Stack		Southeast Stack		Northeast Stack		Northwest Stack	
Date	Time	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O
6/30/2023	9:53:00	74.2	1.27	82.6	0.89	66.9	1.02	75.6	0.63
6/30/2023	9:54:00	74.2	1.25	82.6	0.87	67	1.03	75.6	0.65
6/30/2023	9:55:00	74.2	1.26	82.7	0.88	67	1.02	75.6	0.66
6/30/2023	9:56:00	74.3	1.25	82.7	0.87	67.1	1.03	75.6	0.63
6/30/2023	9:57:00	74.4	1.26	82.8	0.89	67.1	1.02	75.6	0.66
6/30/2023	9:58:00	74.4	1.24	82.8	0.88	67.1	1.03	75.6	0.66
6/30/2023	9:59:00	74.6	1.25	82.9	0.89	67.2	1.03	75.6	0.65
6/30/2023	10:00:00	74.6	1.27	82.9	0.88	67.6	1.03	75.6	0.64
6/30/2023	10:01:00	74.7	1.26	83	0.89	67.5	1.03	75.6	0.7
6/30/2023	10:02:00	74.7	1.25	83	0.87	67.3	1.04	75.6	0.68
6/30/2023	10:03:00	74.7	1.26	83.1	0.88	67.4	1.03	75.6	0.66
6/30/2023	10:04:00	74.8	1.27	83.2	0.89	67.6	1.03	75.6	0.71
6/30/2023	10:05:00	74.9	1.25	83.2	0.94	67.6	1.03	75.6	0.73
6/30/2023	10:06:00	75	1.25	83.3	0.92	67.8	1.04	75.6	0.65
6/30/2023	10:07:00	75.1	1.27	83.4	0.92	67.7	1.05	75.6	0.65
6/30/2023	10:08:00	75.2	1.24	83.5	0.94	68.1	1.02	75.6	0.65
6/30/2023	10:09:00	75.3	1.25	83.5	0.95	68.2	1.03	75.6	0.64
6/30/2023	10:10:00	75.2	1.25	83.6	0.93	68.2	1.05	75.6	0.63
6/30/2023	10:11:00	75.3	1.25	83.7	0.9	68.2	1.06	75.6	0.65
6/30/2023	10:12:00	75.3	1.25	83.7	0.91	68.1	1.05	75.6	0.65
6/30/2023	10:13:00	75.3	1.26	83.7	0.93	68.2	1.05	75.6	0.63
6/30/2023	10:14:00	75.3	1.26	83.7	0.94	68.2	1.05	75.6	0.63
6/30/2023	10:15:00	75.3	1.24	83.7	0.93	68.2	1.05	75.6	0.63
6/30/2023	10:16:00	75.4	1.25	83.7	0.93	68	1.05	75.6	0.63
6/30/2023	10:17:00	75.4	1.26	83.8	0.92	68.3	1.05	75.6	0.65
6/30/2023	10:18:00	75.4	1.24	83.9	0.91	68.6	1.05	75.6	0.72
6/30/2023	10:19:00	75.6	1.24	83.9	0.91	68.6	1.05	75.6	0.71
6/30/2023	10:20:00	75.7	1.23	84	0.91	68.6	1.06	75.6	0.7
6/30/2023	10:21:00	75.8	1.25	84.2	0.9	68.7	1.06	75.6	0.66
6/30/2023	10:22:00	75.9	1.24	84.3	0.91	68.8	1.07	75.6	0.66
6/30/2023	10:23:00	75.8	1.24	84.3	0.92	68.8	1.05	75.6	0.67
6/30/2023	10:24:00	76	1.25	84.3	0.92	69.1	1.05	75.6	0.7
6/30/2023	10:25:00	76.2	1.25	84.4	0.91	69.1	1.07	75.6	0.64
6/30/2023	10:26:00	76.3	1.25	84.5	0.9	69.2	1.06	75.6	0.66
6/30/2023	10:27:00	76.3	1.23	84.5	0.89	69.2	1.09	75.6	0.65
6/30/2023	10:28:00	76.2	1.24	84.5	0.89	69.1	1.09	75.6	0.64
6/30/2023	10:29:00	76.2	1.25	84.5	0.9	69.3	1.09	75.6	0.63
6/30/2023	10:30:00	76.2	1.23	84.4	0.9	69.3	1.09	75.6	0.63
6/30/2023	10:31:00	76.1	1.24	84.4	0.91	69.2	1.08	75.6	0.63
6/30/2023	10:32:00	76.1	1.25	84.4	0.89	69.1	1.1	75.6	0.64
6/30/2023	10:33:00	76.2	1.23	84.4	0.92	69.1	1.07	75.6	0.63
6/30/2023	10:34:00	76.2	1.23	84.4	0.89	69.1	1.09	75.6	0.65
6/30/2023	10:35:00	76.1	1.23	84.5	0.89	69.1	1.09	75.6	0.66
6/30/2023	10:36:00	76.1	1.24	84.5	0.89	69.1	1.1	75.6	0.64
6/30/2023	10:37:00	76.2	1.23	84.5	0.9	69.4	1.09	75.6	0.64
6/30/2023	10:38:00	76.3	1.24	84.6	0.89	69.4	1.1	75.6	0.63
6/30/2023	10:39:00	76.2	1.22	84.6	0.89	69.4	1.1	75.6	0.64
6/30/2023	10:40:00	76.2	1.23	84.7	0.89	69.4	1.09	75.6	0.66
6/30/2023	10:41:00	76.3	1.24	84.6	0.9	69.4	1.09	75.6	0.68
6/30/2023	10:42:00	76.4	1.23	84.8	0.89	69.4	1.1	75.6	0.64
6/30/2023	10:43:00	76.5	1.24	84.8	0.9	69.4	1.1	75.6	0.67
6/30/2023	10:44:00	76.4	1.22	84.8	0.89	69.4	1.09	75.6	0.64
6/30/2023	10:45:00	76.5	1.2	84.7	0.89	69.5	1.09	75.6	0.65
6/30/2023	10:46:00	76.5	1.21	84.8	0.88	69.5	1.1	75.6	0.65
6/30/2023	10:47:00	76.5	1.22	84.8	0.88	69.6	1.1	75.6	0.67
6/30/2023	10:48:00	76.5	1.23	84.8	0.88	69.6	1.1	75.6	0.64
6/30/2023	10:49:00	76.4	1.23	84.7	0.88	69.6	1.11	75.6	0.64
6/30/2023	10:50:00	76.5	1.21	84.7	0.89	69.6	1.1	75.6	0.66
6/30/2023	10:51:00	76.4	1.21	84.8	0.89	69.6	1.12	75.7	0.63
6/30/2023	10:52:00	76.4	1.21	84.9	0.88	69.7	1.14	75.7	0.63
6/30/2023	10:53:00	76.5	1.21	85	0.87	69.8	1.14	75.7	0.64
6/30/2023	10:54:00	76.5	1.21	85.1	0.89	69.9	1.15	75.7	0.64
6/30/2023	10:55:00	76.5	1.23	85.1	0.88	69.9	1.18	75.7	0.64

PCC Structurals - Milwaukie, OR Facility
9203 Outlet
Volumetric Flow Rate Continuous Data

		Southwest Stack		Southeast Stack		Northeast Stack		Northwest Stack	
Date	Time	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O
6/30/2023	10:56:00	76.4	1.21	85.1	0.9	70	1.17	75.7	0.64
6/30/2023	10:57:00	76.5	1.21	85.1	0.9	70.1	1.2	75.7	0.63
6/30/2023	10:58:00	76.3	1.22	85.1	0.87	69.9	1.22	75.7	0.64
6/30/2023	10:59:00	76.3	1.2	85.2	0.88	70.2	1.24	75.7	0.65
6/30/2023	11:00:00	76.3	1.2	85.1	0.88	70.1	1.26	75.7	0.64
6/30/2023	11:01:00	76.2	1.19	85	0.88	69.8	1.28	75.7	0.64
6/30/2023	11:02:00	76.1	1.2	84.9	0.87	70	1.3	75.7	0.65
6/30/2023	11:03:00	75.9	1.2	84.8	0.87	69.7	1.31	75.7	0.65
6/30/2023	11:04:00	75.8	1.21	84.7	0.87	69.6	1.33	75.7	0.65
6/30/2023	11:05:00	75.8	1.19	84.8	0.87	69.7	1.34	75.7	0.65
6/30/2023	11:06:00	75.9	1.2	84.8	0.88	69.8	1.36	75.7	0.65
6/30/2023	11:07:00	76	1.2	84.9	0.88	69.9	1.36	75.7	0.67
6/30/2023	11:08:00	76.2	1.19	85.1	0.87	70.2	1.36	75.7	0.7
6/30/2023	11:09:00	76.2	1.18	85.1	0.87	70.2	1.37	75.7	0.67
6/30/2023	11:10:00	76.3	1.19	85.2	0.87	70.4	1.4	75.7	0.65
6/30/2023	11:11:00	76.3	1.19	85.1	0.87	70.2	1.41	75.7	0.64
6/30/2023	11:12:00	76.3	1.18	85.1	0.86	70.1	1.41	75.7	0.64
6/30/2023	11:13:00	76.3	1.18	85	0.86	70.1	1.41	75.7	0.64
6/30/2023	11:14:00	76.3	1.19	85.1	0.87	70	1.42	75.7	0.65
6/30/2023	11:15:00	76.4	1.2	85.1	0.89	70.1	1.39	75.7	0.64
6/30/2023	11:16:00	76.4	1.2	85.2	0.89	70.3	1.39	75.7	0.69
6/30/2023	11:17:00	76.5	1.21	85.5	0.9	70.4	1.41	75.7	0.72
6/30/2023	11:18:00	76.7	1.24	85.6	0.9	70.7	1.42	75.7	0.7
6/30/2023	11:19:00	76.9	1.25	85.8	0.9	70.9	1.41	75.7	0.7
6/30/2023	11:20:00	77.1	1.24	85.8	0.91	71.3	1.41	75.7	0.73
6/30/2023	11:21:00	77.3	1.21	85.9	0.88	71.3	1.43	75.7	0.69
6/30/2023	11:22:00	77.5	1.22	86	0.88	71.4	1.43	75.7	0.66
6/30/2023	11:23:00	77.6	1.23	86	0.89	71.6	1.42	75.7	0.63
6/30/2023	11:24:00	77.7	1.23	86.1	0.89	71.6	1.42	75.7	0.65
6/30/2023	11:25:00	77.7	1.22	86.1	0.9	71.5	1.4	75.7	0.63
6/30/2023	11:26:00	77.8	1.22	86.1	0.9	71.7	1.41	75.7	0.63
6/30/2023	11:27:00	77.9	1.22	86.2	0.88	71.8	1.41	75.7	0.64
6/30/2023	11:28:00	77.8	1.19	86.1	0.87	71.6	1.42	75.7	0.64
6/30/2023	11:29:00	77.8	1.2	86	0.87	71.5	1.42	75.7	0.64
6/30/2023	11:30:00	77.7	1.21	86	0.88	71.5	1.42	75.7	0.62
6/30/2023	11:31:00	77.7	1.21	86	0.87	71.5	1.42	75.7	0.63
6/30/2023	11:32:00	77.7	1.2	86	0.87	71.4	1.41	75.7	0.63
6/30/2023	11:33:00	77.7	1.21	86	0.87	71.4	1.42	75.7	0.63
6/30/2023	11:34:00	77.6	1.21	86.1	0.87	71.6	1.41	75.7	0.63
6/30/2023	11:35:00	77.6	1.21	86.1	0.87	71.7	1.43	75.7	0.62
6/30/2023	11:36:00	77.5	1.18	86.1	0.86	71.7	1.43	75.7	0.63
6/30/2023	11:37:00	77.5	1.2	86.1	0.87	71.6	1.44	75.7	0.63
6/30/2023	11:38:00	77.4	1.18	86.1	0.86	71.8	1.44	75.7	0.63
6/30/2023	11:39:00	77.3	1.19	86	0.88	72	1.43	75.7	0.61
6/30/2023	11:40:00	77.3	1.19	86.1	0.86	72	1.46	75.7	0.63
6/30/2023	11:41:00	77.4	1.2	86.1	0.86	72	1.47	75.7	0.62
6/30/2023	11:42:00	77.4	1.19	86.1	0.86	72.1	1.47	75.7	0.62
6/30/2023	11:43:00	77.4	1.19	86.2	0.87	72.2	1.46	75.7	0.64
6/30/2023	11:44:00	77.4	1.16	86.4	0.87	72.2	1.47	75.7	0.68
6/30/2023	11:45:00	77.6	1.2	86.4	0.86	72.3	1.49	75.7	0.67
6/30/2023	11:46:00	77.6	1.19	86.5	0.86	72.5	1.49	75.7	0.62
6/30/2023	11:47:00	77.7	1.16	86.6	0.86	72.5	1.49	75.7	0.64
6/30/2023	11:48:00	77.7	1.16	86.7	0.85	72.7	1.5	75.8	0.64
6/30/2023	11:49:00	77.7	1.17	86.7	0.84	72.5	1.52	75.8	0.61
6/30/2023	11:50:00	77.7	1.17	86.6	0.84	72.5	1.52	75.8	0.6
6/30/2023	11:51:00	77.7	1.17	86.6	0.84	72.4	1.53	75.8	0.59
6/30/2023	11:52:00	77.7	1.17	86.5	0.85	72.4	1.52	75.8	0.61
6/30/2023	11:53:00	77.7	1.17	86.6	0.85	72.5	1.53	75.8	0.62
6/30/2023	11:54:00	77.7	1.15	86.6	0.87	72.5	1.52	75.8	0.59
6/30/2023	11:55:00	77.7	1.15	86.7	0.83	72.7	1.55	75.8	0.6
6/30/2023	11:56:00	77.7	1.14	86.7	0.85	72.6	1.53	75.8	0.59
6/30/2023	11:57:00	77.9	1.14	86.7	0.84	72.7	1.54	75.8	0.59
6/30/2023	11:58:00	78	1.14	86.8	0.83	72.6	1.55	75.8	0.61

PCC Structurals - Milwaukie, OR Facility
9203 Outlet
Volumetric Flow Rate Continuous Data

		Southwest Stack		Southeast Stack		Northeast Stack		Northwest Stack	
Date	Time	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O	Temp, °F	dP, "H_2O
6/30/2023	11:59:00	78	1.14	86.9	0.82	72.8	1.55	75.8	0.61
6/30/2023	12:00:00	78	1.13	86.8	0.81	72.8	1.57	75.8	0.6
6/30/2023	12:01:00	77.9	1.14	86.8	0.83	72.6	1.55	75.8	0.57
6/30/2023	12:02:00	77.9	1.15	86.8	0.84	72.7	1.55	75.8	0.57
6/30/2023	12:03:00	78.1	1.12	86.9	0.81	72.5	1.56	75.8	0.59
6/30/2023	12:04:00	78.2	1.13	87	0.81	72.8	1.57	75.8	0.58
6/30/2023	12:05:00	78.3	1.14	87	0.83	72.8	1.55	75.8	0.57
6/30/2023	12:06:00	78.4	1.12	87.1	0.8	72.8	1.57	75.8	0.59
6/30/2023	12:07:00	78.5	1.12	87.1	0.8	73	1.56	75.8	0.58
6/30/2023	12:08:00	78.5	1.12	87.1	0.8	73.1	1.56	75.8	0.59
6/30/2023	12:09:00	78.5	1.13	87.2	0.81	73.1	1.56	75.8	0.58
6/30/2023	12:10:00	78.7	1.11	87.3	0.8	73.1	1.55	75.8	0.58
6/30/2023	12:11:00	78.7	1.11	87.5	0.81	73.4	1.54	75.8	0.57
6/30/2023	12:12:00	78.8	1.12	87.5	0.8	73.3	1.55	75.8	0.58
6/30/2023	12:13:00	79	1.12	87.6	0.81	73.4	1.57	75.8	0.58
6/30/2023	12:14:00	79.1	1.13	87.6	0.82	73.5	1.55	75.8	0.6
6/30/2023	12:15:00	79	1.12	87.7	0.82	73.8	1.55	75.8	0.57
6/30/2023	12:16:00	79.1	1.14	87.7	0.82	73.8	1.55	75.8	0.57
6/30/2023	12:17:00	79.1	1.12	87.6	0.82	73.5	1.55	75.8	0.58
6/30/2023	12:18:00	79	1.11	87.5	0.81	73.4	1.54	75.8	0.58
6/30/2023	12:19:00	78.9	1.08	87.5	0.8	73.4	1.54	75.8	0.58
6/30/2023	12:20:00	78.9	1.1	87.5	0.81	73.4	1.53	75.8	0.59
6/30/2023	12:21:00	79	1.13	87.5	0.79	73.4	1.53	75.8	0.57
6/30/2023	12:22:00	79.1	1.1	87.6	0.8	73.4	1.53	75.8	0.57
6/30/2023	12:23:00	79.2	1.11	87.7	0.81	73.4	1.52	75.8	0.57
6/30/2023	12:24:00	79.3	1.1	87.7	0.81	73.7	1.52	75.8	0.56
6/30/2023	12:25:00	79.3	1.09	87.8	0.8	73.8	1.52	75.8	0.57
6/30/2023	12:26:00	79.5	1.1	87.9	0.81	74	1.5	75.8	0.56
6/30/2023	12:27:00	79.5	1.12	87.9	0.82	74	1.48	75.8	0.56
6/30/2023	12:28:00	79.5	1.09	88	0.83	74	1.49	75.8	0.57
6/30/2023	12:29:00	79.7	1.11	88.1	0.81	74.3	1.5	75.8	0.56
6/30/2023	12:30:00	79.7	1.1	88.1	0.81	74.3	1.49	75.8	0.56
6/30/2023	12:31:00	79.8	1.09	88.1	0.81	74.3	1.49	75.8	0.56
6/30/2023	12:32:00	79.8	1.09	88.1	0.79	74	1.5	75.8	0.56
6/30/2023	12:33:00	79.8	1.09	88	0.8	74	1.49	75.8	0.56
6/30/2023	12:34:00	79.8	1.09	88	0.81	74	1.48	75.8	0.56
6/30/2023	12:35:00	79.9	1.08	88.1	0.78	74.1	1.48	75.8	0.57
6/30/2023	12:36:00	80	1.08	88.2	0.81	74.1	1.45	75.8	0.57
6/30/2023	12:37:00	80.2	1.08	88.3	0.81	74.4	1.45	75.8	0.6
6/30/2023	12:38:00	80.4	1.08	88.6	0.79	74.8	1.46	75.8	0.6
6/30/2023	12:39:00	80.5	1.08	88.5	0.79	74.9	1.46	75.8	0.58
6/30/2023	12:40:00	80.5	1.08	88.5	0.79	74.9	1.45	75.8	0.59
6/30/2023	12:41:00	80.5	1.08	88.5	0.8	74.9	1.45	75.8	0.62
6/30/2023	12:42:00	80.5	1.07	88.5	0.8	74.9	1.44	75.8	0.6
6/30/2023	12:43:00	80.6	1.07	88.6	0.79	74.9	1.44	75.8	0.58
6/30/2023	12:44:00	80.7	1.07	88.6	0.79	74.9	1.44	75.8	0.55
6/30/2023	12:45:00	80.7	1.08	88.7	0.8	74.9	1.43	75.8	0.56
6/30/2023	12:46:00	80.7	1.09	88.6	0.78	75	1.44	75.8	0.56
6/30/2023	12:47:00	80.6	1.07	88.6	0.78	74.9	1.43	75.8	0.57
6/30/2023	12:48:00	80.6	1.1	88.5	0.78	74.9	1.43	75.8	0.57
6/30/2023	12:49:00	80.6	1.08	88.5	0.79	74.9	1.43	75.8	0.57
6/30/2023	12:50:00	80.6	1.09	88.5	0.79	74.9	1.43	75.8	0.56
6/30/2023	12:51:00	80.6	1.08	88.6	0.78	74.9	1.44	75.8	0.57
6/30/2023	12:52:00	80.7	1.08	88.5	0.78	74.8	1.43	75.8	0.57
6/30/2023	12:53:00	80.4	1.08	88.4	0.8	74.6	1.41	75.8	0.57
6/30/2023	12:54:00	80.4	1.08	88.4	0.77	74.6	1.43	75.8	0.57
6/30/2023	12:55:00	80.4	1.05	88.4	0.78	74.8	1.43	75.8	0.57
6/30/2023	12:56:00	80.4	1.07	88.4	0.77	74.9	1.42	75.8	0.55
6/30/2023	12:57:00	80.5	1.08	88.4	0.81	74.9	1.4	75.8	0.55
6/30/2023	12:58:00	80.5	1.07	88.3	0.78	74.9	1.41	75.8	0.56
6/30/2023	12:59:00	80.5	1.07	88.4	0.78	74.9	1.42	75.8	0.56
6/30/2023	13:00:00	80.6	1.06	88.5	0.76	74.9	1.43	75.8	0.56
6/30/2023	13:01:00	80.7	1.07	88.7	0.77	74.9	1.41	75.8	0.58

PCC Structurals - Milwaukie, OR Facility
9203 Outlet
Volumetric Flow Rate Continuous Data

		Southwest Stack		Southeast Stack		Northeast Stack		Northwest Stack	
Date	**Time**	**Temp, °F**	**dP, "H_2O**	**Temp, °F**	**dP, "H_2O**	**Temp, °F**	**dP, "H_2O**	**Temp, °F**	**dP, "H_2O**
6/30/2023	13:02:00	80.8	1.06	88.8	0.76	74.9	1.42	75.8	0.57
6/30/2023	13:03:00	80.9	1.07	88.9	0.77	75	1.4	75.8	0.56
6/30/2023	13:04:00	81	1.05	89	0.73	75.1	1.42	75.8	0.56
6/30/2023	13:05:00	81.1	1.07	89	0.75	75.2	1.43	75.8	0.55
6/30/2023	13:06:00	81.2	1.06	89	0.76	75.2	1.41	75.8	0.58
6/30/2023	13:07:00	81.3	1.05	89	0.74	75.2	1.42	75.8	0.56
6/30/2023	13:08:00	81.3	1.05	89	0.74	75.1	1.42	75.8	0.57
6/30/2023	13:09:00	81.3	1.05	89	0.73	74.9	1.42	75.8	0.57
6/30/2023	13:10:00	81.3	1.04	89	0.73	74.9	1.43	75.8	0.57
6/30/2023	13:11:00	81.3	1.04	88.9	0.73	74.9	1.43	75.8	0.57
6/30/2023	13:12:00	81.3	1.04	88.9	0.74	74.9	1.42	75.8	0.58
6/30/2023	13:13:00	81.4	0.85	88.9	0.75	74.9	1.26	75.8	0.65
6/30/2023	13:14:00	81	0.47	88.4	0.73	74.7	1	75.8	0.67
6/30/2023	13:15:00	80.6	0.45	88	0.75	74.3	0.99	75.8	0.67
6/30/2023	13:16:00	80.6	0.45	87.9	0.73	74	0.99	75.8	0.67
6/30/2023	13:17:00	80.7	0.61	87.9	0.7	74	1.11	75.8	0.7
6/30/2023	13:18:00	81.3	1.03	88.6	0.7	74.5	1.39	75.8	0.71
6/30/2023	13:19:00	81.9	1.05	89.2	0.72	75	1.41	75.8	0.67
6/30/2023	13:20:00	82.1	1.04	89.3	0.71	75.2	1.43	75.8	0.66
6/30/2023	13:21:00	82.1	1.05	89.4	0.74	75.2	1.39	75.8	0.57
6/30/2023	13:22:00	82	1.06	89.4	0.73	75.2	1.4	75.8	0.56
6/30/2023	13:23:00	82	1.04	89.4	0.71	75.2	1.42	75.8	0.56
6/30/2023	13:24:00	82.1	1.04	89.4	0.71	75.2	1.42	75.8	0.56
6/30/2023	13:25:00	81.9	1.02	89.4	0.7	74.9	1.42	75.8	0.56
6/30/2023	13:26:00	81.9	1.05	89.3	0.71	74.9	1.43	75.8	0.56
6/30/2023	13:27:00	81.8	1.06	89.3	0.71	74.9	1.41	75.8	0.57
6/30/2023	13:28:00	81.8	1.05	89.4	0.7	74.9	1.42	75.8	0.57
6/30/2023	13:29:00	81.9	1.06	89.5	0.7	74.9	1.42	75.8	0.57
6/30/2023	13:30:00	82	1.05	89.5	0.7	74.9	1.43	75.8	0.57
6/30/2023	13:31:00	82	1.06	89.6	0.71	74.9	1.42	75.8	0.57
6/30/2023	13:32:00	82	1.05	89.6	0.7	74.9	1.43	75.8	0.57
6/30/2023	13:33:00	82.1	1.07	89.6	0.71	74.9	1.42	75.8	0.57
6/30/2023	13:34:00	82.2	1.06	89.6	0.71	74.9	1.42	75.8	0.56
6/30/2023	13:35:00	82.4	1.07	89.7	0.71	75	1.41	75.8	0.6
Average		**73.4**	**1.17**	**80.5**	**0.88**	**69.6**	**1.07**	**75.6**	**0.65**
Min		**64.5**	**0.45**	**70.4**	**0.70**	**65.0**	**0.64**	**73.0**	**0.55**
Max		**82.4**	**1.29**	**89.7**	**1.00**	**75.2**	**1.57**	**75.8**	**1.22**
		Sqrt DP	1.080	Sqrt DP	0.936	Sqrt DP	1.036	Sqrt DP	0.808
		Vs	60.697	Vs	52.991	Vs	58.063	Vs	45.531
		ACFM	22,958	ACFM	20,043	ACFM	21,962	ACFM	17,222
		DSCFM	22,588	DSCFM	19,462	DSCFM	21,762	DSCFM	16,874

Method 1 and 2 Cyclonic Flow Check Data

Project Number	M232604	**Source Condition:**	Batch Process
Client:	PCC Structurals, Inc.	**Run No.:**	1
Facility:	Large Parts Campus Facility - Milwaukie, OR	**Date:**	6/26/2023
Location:	BH 9203 Inlet East	**Start Time:**	12:07
Pitot ID:	289	**End Time:**	12:22
Pitot Coefficient:	0.840	**RM Testers:**	NCC/EE
Probe Length:	4	**Port Length:**	4.00

Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)	Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)
A	1	1.30	1.1402	4.0	61.31	B	1	1.30	1.1402	4.0	61.31
A	2	1.30	1.1402	3.0	61.31	B	2	1.30	1.1402	4.0	61.31
A	3	1.20	1.0954	3.0	58.90	B	3	1.30	1.1402	4.0	61.31
A	4	1.30	1.1402	4.0	61.31	B	4	1.30	1.1402	3.0	61.31
A	5	1.30	1.1402	5.0	61.31	B	5	1.30	1.1402	3.0	61.31
A	6	1.10	1.0488	4.0	56.39	B	6	1.20	1.0954	4.0	58.90
A	7	0.90	0.9487	4.0	51.01	B	7	1.30	1.1402	4.0	61.31
A	8	0.95	0.9747	3.0	52.41	B	8	1.20	1.0954	2.0	58.90
A	9	0.77	0.8775	5.0	47.18	B	9	1.10	1.0488	4.0	56.39
A	10	0.57	0.7550	7.0	40.59	B	10	0.95	0.9747	5.0	52.41
A	11	0.82	0.9055	5.0	48.69	B	11	0.84	0.9165	6.0	49.28
A	12	0.45	0.6708	6.0	36.07	B	12	0.84	0.9165	8.0	49.28

Average Yaw Angle 4.3 ^{o}

Method 1 and 2 Cyclonic Flow Check Data

Project Number	M232604	**Source Condition:**	Batch Process
Client:	PCC Structurals, Inc.	**Run No.:**	1
Facility:	Large Parts Campus Facility - Milwaukie, OR	**Date:**	6/26/2023
Location:	BH 9203 Inlet Center	**Start Time:**	12:25
Pitot ID:	289	**End Time:**	12:42
Pitot Coefficient:	0.840	**RM Testers:**	NCC/EE
Probe Length:	4	**Port Length:**	4.00

Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)
A	**1**	1.60	1.2649	4.0	68.01
A	**2**	1.60	1.2649	3.0	68.01
A	**3**	1.50	1.2247	4.0	65.85
A	**4**	1.50	1.2247	3.0	65.85
A	**5**	1.60	1.2649	4.0	68.01
A	**6**	1.50	1.2247	3.0	65.85
A	**7**	1.30	1.1402	4.0	61.31
A	**8**	1.20	1.0954	3.0	58.90
A	**9**	0.97	0.9849	3.0	52.96
A	**10**	0.80	0.8944	4.0	48.09
A	**11**	0.65	0.8062	3.0	43.35
A	**12**	0.62	0.7874	4.0	42.34

Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)
B	**1**	1.40	1.1832	2.0	63.62
B	**2**	1.50	1.2247	3.0	65.85
B	**3**	1.50	1.2247	3.0	65.85
B	**4**	1.50	1.2247	4.0	65.85
B	**5**	1.50	1.2247	4.0	65.85
B	**6**	1.40	1.1832	3.0	63.62
B	**7**	1.30	1.1402	4.0	61.31
B	**8**	1.20	1.0954	3.0	58.90
B	**9**	1.20	1.0954	3.0	58.90
B	**10**	0.97	0.9849	4.0	52.96
B	**11**	0.95	0.9747	3.0	52.41
B	**12**	0.92	0.9592	4.0	51.57

Average Yaw Angle 3.4 ^{o}

Method 1 and 2 Cyclonic Flow Check Data

Project Number	M232604	**Source Condition:**	Batch Process
Client:	PCC Structurals, Inc.	**Run No.:**	1
Facility:	Large Parts Campus Facility - Milwaukie, OR	**Date:**	6/26/2023
Location:	BH 9203 Inlet West	**Start Time:**	11:45
Pitot ID:	289	**End Time:**	12:02
Pitot Coefficient:	0.840	**RM Testers:**	NCC/EE
Probe Length:	4	**Port Length:**	4.00

Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)	Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)
A	1	1.40	1.1832	5.0	63.62	B	1	1.60	1.2649	4.0	68.01
A	2	1.50	1.2247	1.0	65.85	B	2	1.70	1.3038	3.0	70.11
A	3	1.50	1.2247	2.0	65.85	B	3	1.70	1.3038	3.0	70.11
A	4	1.60	1.2649	3.0	68.01	B	4	1.70	1.3038	2.0	70.11
A	5	1.70	1.3038	3.0	70.11	B	5	1.70	1.3038	3.0	70.11
A	6	1.70	1.3038	4.0	70.11	B	6	1.60	1.2649	5.0	68.01
A	7	1.60	1.2649	3.0	68.01	B	7	1.40	1.1832	5.0	63.62
A	8	1.50	1.2247	2.0	65.85	B	8	1.20	1.0954	4.0	58.90
A	9	1.30	1.1402	3.0	61.31	B	9	1.20	1.0954	3.0	58.90
A	10	1.20	1.0954	5.0	58.90	B	10	1.00	1.0000	5.0	53.77
A	11	1.00	1.0000	7.0	53.77	B	11	0.95	0.9747	7.0	52.41
A	12	0.95	0.9747	7.0	52.41	B	12	0.83	0.9110	9.0	48.99

Average Yaw Angle 4.1 ^{o}

Method 1 and 2 Cyclonic Flow Check Data

Project Number	M232604	**Source Condition:**	Batch Process
Client:	PCC Structurals, Inc.	**Run No.:**	1
Facility:	Large Parts Campus Facility - Milwaukie, OR	**Date:**	6/26/2023
Location:	BH 9203 Outlet Southeast	**Start Time:**	17:29
Pitot ID:	289	**End Time:**	17:38
Pitot Coefficient:	0.840	**RM Testers:**	VTV/MPS
Probe Length:	4	**Port Length:**	4.00

Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)	Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)
A	1	0.63	0.7937	3.0	42.68	B	1	0.76	0.8718	4.0	46.87
A	2	0.74	0.8602	2.0	46.25	B	2	0.77	0.8775	3.0	47.18
A	3	0.76	0.8718	3.0	46.87	B	3	0.79	0.8888	3.0	47.79
A	4	0.77	0.8775	3.0	47.18	B	4	0.79	0.8888	3.0	47.79
A	5	0.78	0.8832	3.0	47.49	B	5	0.80	0.8944	3.0	48.09
A	6	0.79	0.8888	3.0	47.79	B	6	0.79	0.8888	3.0	47.79
A	7	0.81	0.9000	4.0	48.39	B	7	0.79	0.8888	4.0	47.79
A	8	0.80	0.8944	3.0	48.09	B	8	0.79	0.8888	4.0	47.79
A	9	0.81	0.9000	3.0	48.39	B	9	0.81	0.9000	3.0	48.39
A	10	0.82	0.9055	3.0	48.69	B	10	0.77	0.8775	3.0	47.18
A	11	0.81	0.9000	3.0	48.39	B	11	0.77	0.8775	3.0	47.18
A	12	0.81	0.9000	4.0	48.39	B	12	0.71	0.8426	3.0	45.31

Average Yaw Angle 3.2 ^{o}

Method 1 and 2 Cyclonic Flow Check Data

Project Number	M232604	**Source Condition:**	Batch Process
Client:	PCC Structurals, Inc.	**Run No.:**	1
Facility:	Large Parts Campus Facility - Milwaukie, OR	**Date:**	6/26/2023
Location:	BH 9203 Outlet Southwest	**Start Time:**	16:18
Pitot ID:	289	**End Time:**	16:52
Pitot Coefficient:	0.840	**RM Testers:**	VTV/MPS
Probe Length:	4	**Port Length:**	4.00

Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)	Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)
A	1	0.73	0.8544	9.0	45.94	B	1	0.82	0.9055	4.0	48.69
A	2	0.75	0.8660	7.0	46.56	B	2	0.84	0.9165	5.0	49.28
A	3	0.80	0.8944	4.0	48.09	B	3	0.85	0.9220	5.0	49.57
A	4	0.79	0.8888	5.0	47.79	B	4	0.86	0.9274	4.0	49.86
A	5	0.78	0.8832	8.0	47.49	B	5	0.84	0.9165	3.0	49.28
A	6	0.80	0.8944	9.0	48.09	B	6	0.85	0.9220	5.0	49.57
A	7	0.81	0.9000	8.0	48.39	B	7	0.86	0.9274	5.0	49.86
A	8	0.80	0.8944	5.0	48.09	B	8	0.85	0.9220	5.0	49.57
A	9	0.81	0.9000	5.0	48.39	B	9	0.84	0.9165	3.0	49.28
A	10	0.82	0.9055	5.0	48.69	B	10	0.84	0.9165	3.0	49.28
A	11	0.78	0.8832	5.0	47.49	B	11	0.79	0.8888	4.0	47.79
A	12	0.77	0.8775	7.0	47.18	B	12	0.70	0.8367	5.0	44.99

Average Yaw Angle 5.3 ^{o}

Method 1 and 2 Cyclonic Flow Check Data

Project Number	M232604	**Source Condition:**	Batch Process
Client:	PCC Structurals, Inc.	**Run No.:**	1
Facility:	Large Parts Campus Facility - Milwaukie, OR	**Date:**	6/26/2023
Location:	BH 9203 Outlet Northwest	**Start Time:**	16:55
Pitot ID:	289	**End Time:**	17:08
Pitot Coefficient:	0.840	**RM Testers:**	VTV/MPS
Probe Length:	4	**Port Length:**	4.00

Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)	Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)
A	1	0.63	0.7937	6.0	42.68	B	1	0.63	0.7937	7.0	42.68
A	2	0.72	0.8485	4.0	45.62	B	2	0.70	0.8367	5.0	44.99
A	3	0.76	0.8718	4.0	46.87	B	3	0.77	0.8775	3.0	47.18
A	4	0.78	0.8832	3.0	47.49	B	4	0.75	0.8660	2.0	46.56
A	5	0.76	0.8718	4.0	46.87	B	5	0.78	0.8832	3.0	47.49
A	6	0.76	0.8718	3.0	46.87	B	6	0.78	0.8832	3.0	47.49
A	7	0.78	0.8832	4.0	47.49	B	7	0.78	0.8832	3.0	47.49
A	8	0.80	0.8944	3.0	48.09	B	8	0.78	0.8832	4.0	47.49
A	9	0.80	0.8944	4.0	48.09	B	9	0.78	0.8832	3.0	47.49
A	10	0.79	0.8888	3.0	47.79	B	10	0.80	0.8944	3.0	48.09
A	11	0.77	0.8775	4.0	47.18	B	11	0.80	0.8944	3.0	48.09
A	12	0.73	0.8544	4.0	45.94	B	12	0.78	0.8832	3.0	47.49

Average Yaw Angle 3.7 ^{o}

Method 1 and 2 Cyclonic Flow Check Data

Project Number	M232604	**Source Condition:**	Batch Process
Client:	PCC Structurals, Inc.	**Run No.:**	1
Facility:	Large Parts Campus Facility - Milwaukie, OR	**Date:**	6/26/2023
Location:	BH 9203 Outlet Northeast	**Start Time:**	16:55
Pitot ID:	289	**End Time:**	17:08
Pitot Coefficient:	0.840	**RM Testers:**	VTV/MPS
Probe Length:	4	**Port Length:**	4.00

Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)	Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)
A	**1**	0.72	0.8485	4.0	45.62	**B**	**1**	0.75	0.8660	6.0	46.56
A	**2**	0.72	0.8485	3.0	45.62	**B**	**2**	0.76	0.8718	7.0	46.87
A	**3**	0.73	0.8544	3.0	45.94	**B**	**3**	0.78	0.8832	6.0	47.49
A	**4**	0.75	0.8660	4.0	46.56	**B**	**4**	0.76	0.8718	6.0	46.87
A	**5**	0.76	0.8718	3.0	46.87	**B**	**5**	0.76	0.8718	6.0	46.87
A	**6**	0.77	0.8775	3.0	47.18	**B**	**6**	0.76	0.8718	5.0	46.87
A	**7**	0.77	0.8775	3.0	47.18	**B**	**7**	0.76	0.8718	5.0	46.87
A	**8**	0.76	0.8718	4.0	46.87	**B**	**8**	0.76	0.8718	5.0	46.87
A	**9**	0.78	0.8832	3.0	47.49	**B**	**9**	0.77	0.8775	6.0	47.18
A	**10**	0.77	0.8775	4.0	47.18	**B**	**10**	0.75	0.8660	6.0	46.56
A	**11**	0.78	0.8832	3.0	47.49	**B**	**11**	0.75	0.8660	5.0	46.56
A	**12**	0.72	0.8485	4.0	45.62	**B**	**12**	0.69	0.8307	7.0	44.66

Average Yaw Angle 4.6 ^{o}

Method 1 and 2 Cyclonic Flow Check Data

Project Number	M232604	**Source Condition:**	Batch Process
Client:	PCC Structurals, Inc.	**Run No.:**	1
Facility:	Large Parts Campus Facility - Milwaukie, OR	**Date:**	6/26/2023
Location:	BH 9203 Outlet West Center	**Start Time:**	16:00
Pitot ID:	289	**End Time:**	16:15
Pitot Coefficient:	0.840	**RM Testers:**	VTV/MPS
Probe Length:	4	**Port Length:**	4.00

Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)	Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)
A	**1**	0.81	0.9000	3.0	48.39	**B**	**1**	0.81	0.9000	3.0	48.39
A	**2**	0.82	0.9055	3.0	48.69	**B**	**2**	0.83	0.9110	3.0	48.99
A	**3**	0.80	0.8944	2.0	48.09	**B**	**3**	0.81	0.9000	5.0	48.39
A	**4**	0.79	0.8888	5.0	47.79	**B**	**4**	0.80	0.8944	4.0	48.09
A	**5**	0.78	0.8832	2.0	47.49	**B**	**5**	0.80	0.8944	3.0	48.09
A	**6**	0.80	0.8944	3.0	48.09	**B**	**6**	0.79	0.8888	4.0	47.79
A	**7**	0.81	0.9000	3.0	48.39	**B**	**7**	0.82	0.9055	5.0	48.69
A	**8**	0.80	0.8944	4.0	48.09	**B**	**8**	0.80	0.8944	5.0	48.09
A	**9**	0.79	0.8888	5.0	47.79	**B**	**9**	0.79	0.8888	4.0	47.79
A	**10**	0.76	0.8718	6.0	46.87	**B**	**10**	0.78	0.8832	7.0	47.49
A	**11**	0.75	0.8660	6.0	46.56	**B**	**11**	0.77	0.8775	6.0	47.18
A	**12**	0.70	0.8367	7.0	44.99	**B**	**12**	0.73	0.8544	8.0	45.94

Average Yaw Angle 4.4 ^{o}

Method 1 and 2 Cyclonic Flow Check Data

Project Number	M232604	**Source Condition:**	Batch Process
Client:	PCC Structurals, Inc.	**Run No.:**	1
Facility:	Large Parts Campus Facility - Milwaukie, OR	**Date:**	6/26/2023
Location:	BH 9203 Outlet East Center	**Start Time:**	15:38
Pitot ID:	289	**End Time:**	15:52
Pitot Coefficient:	0.840	**RM Testers:**	VTV/MPS
Probe Length:	4	**Port Length:**	4.00

Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)	Port	Point	DP (in. H_2O)	Sqrt. DP	Yaw (o)	Velocity (V)
A	1	0.83	0.9110	4.0	48.99	B	1	0.78	0.8832	5.0	47.49
A	2	0.81	0.9000	4.0	48.39	B	2	0.82	0.9055	3.0	48.69
A	3	0.79	0.8888	3.0	47.79	B	3	0.80	0.8944	5.0	48.09
A	4	0.82	0.9055	4.0	48.69	B	4	0.81	0.9000	4.0	48.39
A	5	0.80	0.8944	3.0	48.09	B	5	0.80	0.8944	5.0	48.09
A	6	0.79	0.8888	4.0	47.79	B	6	0.82	0.9055	4.0	48.69
A	7	0.80	0.8944	4.0	48.09	B	7	0.79	0.8888	5.0	47.79
A	8	0.80	0.8944	5.0	48.09	B	8	0.81	0.9000	6.0	48.39
A	9	0.80	0.8944	5.0	48.09	B	9	0.80	0.8944	5.0	48.09
A	10	0.78	0.8832	4.0	47.49	B	10	0.80	0.8944	6.0	48.09
A	11	0.74	0.8602	5.0	46.25	B	11	0.75	0.8660	7.0	46.56
A	12	0.72	0.8485	4.0	45.62	B	12	0.73	0.8544	7.0	45.94

Average Yaw Angle 4.6 ^{o}

Appendix E - Plant Operating Data

BH 9203
Testing Production Data

Casting No.	Casting Weight [1] (lb)	
	Run 1 6/27/2023	Run 2 6/30/2023
1	3,084	455
2	316	760
3	316	1,080
4	430	760
5	430	1,080
6	440	3,100
7	440	1,890
8	430	760
9	420	440
10	1,415	590
11	1,600	440
12	440	1,415
13	430	760
14	430	760
15	440	760
16	420	1,415
17	440	1,555
18	440	1,080
19	1,600	--
20	2,025	--
21	430	--
22	430	--
23	430	--
24	430	--
Total Casting (lb)	**17,706**	**19,100**

(1) Sampling equipment was down for a period of 15-30 min for each run, on both the inlet and outlet. The period of downtime cannot be clearly linked to a specific period of production, so no adjustments are made to the production data.

Time	Differential Pressure (inches w.c.)			
	Primary (West)	HEPA (West)	Primary (East)	HEPA (East)
Run 1 (6/27/2023)				
5:16	0.3	1.2	0.2	1.2
5:46	0.3	1.2	0.3	1.2
6:16	0.3	1.2	0.3	1.2
6:46	0.3	1.2	0.2	1.2
7:16	0.2	1.2	0.3	1.2
7:46	0.2	1.2	0.3	1.2
8:16	0.3	1.2	0.3	1.2
8:46	0.3	1.2	0.3	1.2
9:15	0.3	1.2	0.3	1.2
9:46	0.3	1.2	0.3	1.2
10:17	0.3	1.2	0.3	1.2
10:47	0.3	1.2	0.3	1.2
11:16	0.3	1.2	0.3	1.2
11:46	0.3	1.2	0.3	1.2
12:16	0.3	1.2	0.3	1.2
12:47	0.3	1.2	0.3	1.2
13:15	0.3	1.2	0.3	1.2
13:45	0.3	1.2	0.3	1.2
Run 2 (6/30/2023)				
5:25	0.2	1.2	0.3	1.2
5:55	0.2	1.2	0.3	1.2
6:25	0.3	1.2	0.3	1.2
6:55	0.2	1.2	0.3	1.2
7:25	0.3	1.2	0.2	1.2
7:55	0.2	1.2	0.2	1.2
8:25	0.2	1.2	0.2	1.2
8:55	0.2	1.2	0.3	1.2
9:25	0.2	1.2	0.3	1.2
9:55	0.2	1.2	0.3	1.2
10:25	0.3	1.2	0.3	1.2
10:55	0.2	1.2	0.3	1.2
11:25	0.3	1.3	0.3	1.2
11:55	0.3	1.4	0.3	1.4
12:25	0.3	1.2	0.3	1.2
12:55	0.2	1.2	0.3	1.2
13:25	0.3	1.2	0.3	1.2

Appendix F - Field Data Sheets

Isokinetic Sampling Cover Sheet

Client:	PCC Structurals Inc	Pitot Tube Cp:	.84
Facility:	Large parts campus Milwauke	Probe Length (Feet):	4
Test Location:	BH9203 Inlet ~~N~~orth	Probe Liner Material:	Glass
Project #:	M232604	Sample Plane:	Hrzt or Vert.
Test Method(s):	M29	Port Length ("):	4
Test Engineer:	JXJ	Port Diameter ("):	4
Test Technician:	FJD1	Port Type:	Nipple
Upstream Diameters:	22ft	Duct Shape:	Circ or Rect.
Downstream Diameters:	28ft	Diameter (Feet):	3
# of Ports Sampled:	2	~~Length (Feet)~~:	
# of Points per Port:	12	Width (Feet):	
Source Condition:	Normal	Duct Area (Sq. Feet):	7.069
Diluent Model/SN:	N/A	Minutes per Point:	20
Mid Gas ID/concentration:	N/A /% CO_2 % O_2	Total Traverse Points:	24
High Gas ID/concentration:	N/A /% CO_2 % O_2	Test Length (Min.):	480
Moisture Balance ID:		Train Type:	Hot Box

	R# 1	R# 2	R#
Meter ID:	CM43	CM43	
Pitot ID:	312	312	
Filter ID:	N/A	N/A	
Filter Pre-Weight (g):	N/A	N/A	
Nozzle Diameter ("):	.200	.200	
Meter Cal Factor (Y):	.992	.992	
Meter Orifice Setting (DH):	1.810	1.810	
Nozzle Kit ID:			
Individual Nozzle ID:			
Pre Pitot Leak Check:	0.000 @ 3.5 "H_2O	0.000 @ 6 "H_2O	@ "H_2O
Post Pitot Leak Check:	0.000 @ 5 "H_2O	0.000 @ 7 "H_2O	@ "H_2O
Pre Nozzle Leak Check:	0.000 @ 10 "Hg	0.000 @ 10 "Hg	@ "Hg
Post Nozzle Leak Check:	0.000 @ 10 "Hg	0.000 @ 10 "Hg	@ "Hg
Barometric Pressure, "Hg:	29.97	~~30.05~~ 29.97	
Static Pressure, "H_2O:	-4	-3.7	
CO_2 %:			
O_2 %:			

Comments:

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6/27/2023	Test Number:	1
Client:	PCC Structurals, INC	Test Location:	BH9203 Inlet	Operator:	JXJ Test Tech: PPP
Plant:	Milwaukie, OR	Test Method:	M29	Page Number:	1 of 2

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional)			
													K=	x	
												Square Root, ΔP	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
1-1	5:15	.51	.84	7.983	65	57	57	5	251	260	50				
1-1	5:25	.52	.85	13.047	65	58	58	5	255	259	48				
1-2	5:35	1.5	2.5	18.170	64	60	60	5	249	260	50				
1-2	5:45	1.7	2.8	26.913	64	62	62	5	255	248	50				
1-3	5:55	1.4	2.3	36.257	64	62	62	5	250	251	48				
1-3	6:05	1.3	2.2	44.736	64	63	63	5	249	251	49				
1-4	6:15	1.2	2.0	52.923	63	64	64	5	249	257	51				
1-4	6:25	1.2	2.0	60.811	64	65	65	5	246	252	51				
1-5	6:35	1.1	1.8	69.706	64	66	66	5	250	249	52				
1-5	6:45	1.2	2.0	76.280	65	67	67	5	251	247	52				
1-6	6:55	1.2	2.0	84.195	66	67	67	5	250	260	52				
1-6	7:05	1.2	2.0	92.108	65	68	68	5	244	248	53				
1-7	7:15	1.2	2.0	100.041	66	69	69	5	254	258	54				
1-7	7:25	1.3	2.2	107.981	66	69	69	5	248	255	55				
1-8	7:35	1.1	1.8	116.246	66	70	70	5	247	258	55				
1-8	7:45	1.2	2.0	123.863	66	71	71	5	247	257	55				
1-9	7:55	1.1	1.85	131.833	65	71	71	5	261	255	55				
1-9	8:05	1.1	1.85	139.471	65	72	72	5	256	257	54				
1-10	8:15	1.1	1.86	147.124	65	73	73	5	251	260	55				
1-10	8:25	1.1	1.86	154.791	65	73	73	5	250	250	55				
1-11	8:35	1.1	1.86	162.458	67	74	74	5	245	260	55				
1-11	8:45	1.1	1.86	170.125	67	74	74	5	241	261	56				
1-12	8:55	1.2	2.0	177.792	67	75	75	5	249	253	57				
1-12	9:05	1.1	1.86	185.815	68	77	77	5	255	247	57				
	9:15			193.518											

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6/27/2023	Test Number:	1
Client:	PCC Structurals Inc	Test Location:	BH9203 Inlet N	Operator:	DXD Test Tech: PPP
Plant:	Milwaukie, OR	Test Method:	M29	Page Number:	2 of 3

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional)			
													K=	x	
												Square Root, ΔP	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
2-1	9:42	1.3	2.2	194.815	70	82	82	5	253	251	59				
2-1	9:52	1.3	2.2	203.251	70	82	82	5	248	257	60				
2-2	10:02	1.7	2.9	211.686	69	82	82	5	249	259	59				
2-2	10:12	1.8	3.0	221.342	69	82	82	5	251	247	58				
2-3	10:22	1.7	2.9	231.278	71	83	83	5	255	258	57				
2-3	10:32	1.8	3.0	240.933	71	84	84	5	252	247	58				
2-4	10:42	1.7	2.9	250.887	71	86	85	5	249	247	57				
2-4	10:52	1.6	2.7	260.517	71	87	87	5	263	255	58				
2-5	11:02	1.7	2.9	270.013	72	87	87	5	258	259	61				
2-5	11:12	1.7	2.9	279.731	73	87	87	5	249	246	62				
2-6	11:22	1.8	3.0	289.434	73	88	88	5	243	255	63				
2-6	11:32	1.7	2.9	299.447	72	89	89	5	253	259	58				
2-7	11:42	1.7	2.9	309.200	72	90	90	5	256	259	49				
2-7	11:52	1.7	2.9	318.970	73	91	91	5	251	247	49				
2-8	12:02	1.7	2.9	328.749	74	91	91	5	249	251	50				
2-8	12:12	1.6	2.7	338.228	76	92	92	5	249	259	50				
2-9	12:22	1.7	2.9	347.997	76	92	92	5	250	247	50				
2-9	12:32	1.7	2.9	357.767	76	93	93	5	255	256	51				
2-10	12:42	1.8	3.0	367.554	75	95	95	5	257	258	53				
2-10	12:52	1.8	3.0	377.670	76	95	95	5	255	250	54				
2-11	13:02	1.7	2.9	387.778	76	96	96	5	248	248	49				
2-11	13:12	1.6	2.7	397.324	76	96	96	5	255	258	49				
2-12	13:22	1.6	2.7	406.871	76	96	96	5	250	250	53				
2-12	13:32	1.7	2.9	416.711	76	97	97	5	256	260	54				
	13:42			426.569											

IMPINGER WEIGHT SHEET

PLANT: PCC STRUCTURALS

UNIT NO: BAGHOUSE 9203

LOCATION: INLET NORTH

DATE: 6-27-23

TEST NO: #1

METHOD: M29

WEIGHED/MEASURED BY: [illegible]

Scale ID Number S10-85

Scale Calibration Check Date: 6-27-23

Scale Calibration Check (see QS-6.05C for procedure) must be within ± 0.5g of certified mass

250 grams 250.0

500 grams 500.1

750 grams 750.1

Circle One:	FINAL WEIGHT MLS / GRAMS	INITIAL WEIGHT MLS / GRAMS	IMPINGER GAIN	IMPINGER CONTENTS
IMPINGER 1	608.3	603.6		0.1N HNO_3/H_2O_2
IMPINGER 2	780.9	777.6		0.1N HNO_3/H_2O_2
IMPINGER 3	658.6	657.0		EMPTY
IMPINGER 4	620.6	625.7		$KMnO_4$
IMPINGER 5	780.2	850.3		$KMnO_4$
IMPINGER 6	861.6	810.9		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL IMPINGER GAIN

SILICA ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL SILICA GAIN

Isokinetic Sampling Field Data Sheet

Project Number: M232604 Date: 6/30/23 Test Number: 2

Client: PCC Structurals Test Location: BH9203 Inlet Operator: JXJ Test Tech: FJDL

Plant: Milwaukie, OR Test Method: 29 Page Number: 1 of 2

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional)			
													K=	x ____	
												Square Root, ΔP	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
1-1	5:25	1.6	2.6	36.474	68	59	59	5	245	247	54				
-1	5:35	1.6	2.6	45.405	68	60	60	5	250	252	56				
-2	5:45	1.4	2.3	54.355	66	61	61	5	258	250	56				
-2	5:55	1.5	2.5	62.755	67	64	64	5	252	246	56				
-3	6:05	1.5	2.5	71.495	67	64	64	5	252	245	54				
-3	6:15	1.5	2.5	80.236	67	66	66	5	245	257	53				
-4	6:25	1.4	2.3	89.010	67	67	67	5	244	246	53				
-4	6:35	1.4	2.3	97.495	67	67	67	5	243	247	53				
-5	6:45	1.5	2.5	105.982	69	69	69	5	254	254	54				
-5	6:55	1.6	2.7	114.800	67	70	70	5	253	248	54				
-6	7:05	1.5	2.5	123.925	67	70	70	5	257	255	54				
-6	7:15	1.4	2.3	132.762	68	71	71	5	248	252	55				
-7	7:25	1.5	2.5	141.310	68	71	71	5	242	253	55				
-7	7:35	1.6	2.7	150.166	68	72	72	5	251	254	56				
-8	7:45	1.6	2.7	159.310	68	72	72	5	256	246	56				
-8	7:55	1.6	2.7	168.465	68	73	73	5	249	247	56				
-9	8:05	1.6	2.7	177.635	68	73	73	5	261	258	57				
-9	8:15	1.5	2.5	186.805	68	73	73	5	260	246	57				
-10	8:25	1.6	2.7	195.690	68	74	74	5	259	249	56				
-10	8:35	1.5	2.5	204.875	68	74	74	5	259	252	56				
-11	8:45	1.5	2.5	213.777	69	75	75	5	263	256	56				
-11	8:55	1.5	2.5	222.675	69	76	76	5	249	247	56				
-12	9:05	1.4	2.3	231.601	70	76	76	5	252	251	56				
-12	9:15	1.5	2.5	240.210	72	77	77	5	250	258	57				
	9:25			249.120											

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6/30/23	Test Number:	2
Client:	PCC Structurals	Test Location:	BH9203 Inlet N	Operator:	JXJ Test Tech: FJ01
Plant:	Milwaukie, OR	Test Method:	29	Page Number:	2 of 2

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft^3, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional): Square Root, ΔP	K= Meter Rate, Cubic Feet/ Min.	x Theoretical Meter Volume, (V_m) ft^3, per point	Theoretical Meter Volume, (V_m) ft^3, total
2-1	10:00	1.5	2.5	249.120	73	80	80	5	250	252	58				
-1	10:10	1.6	2.7	258.075	73	81	81	5	245	248	59				
-2	10:20	1.6	2.7	267.340	74	84	84	5	261	249	56				
-2	10:30	1.5	2.5	276.650	74	85	85	5	246	248	55				
-3	10:40	1.6	2.7	285.680	74	86	86	5	254	250	54				
-3	10:50	1.5	2.5	295.020	75	87	87	5	247	254	57				
-4	11:00	1.5	2.5	304.075	77	88	88	5	250	247	57				
-4	11:10	1.6	2.7	313.125	76	87	87	5	257	247	56				
-5	11:20	1.7	2.9	322.465	77	87	87	5	250	257	57				
-5	11:30	1.5	2.5	332.100	77	88	88	5	245	248	53				
-6	11:40	1.6	2.7	341.145	77	89	89	5	249	249	53				
-6	11:50	1.5	2.5	350.505	79	88	88	5	245	247	54				
-7	12:00	1.5	2.5	359.545	80	89	89	5	246	248	55				
-7	12:10	1.7	2.9	368.586	79	89	89	5	264	255	55				
-8	12:20	1.5	2.5	378.225	80	89	89	5	257	249	55				
-8	12:30	1.5	2.5	387.270	81	89	89	5	253	257	55				
-9	12:40	1.5	2.5	396.305	82	90	90	5	255	249	57				
-9	12:50	1.6	2.7	405.347	80	91	91	5	257	249	58				
-10	13:00	1.7	2.9	414.725	81	92	92	5	261	250	57				
-10	13:10	1.6	2.7	424.395	81	92	92	5	262	255	57				
-11	13:20	1.7	2.9	433.777	81	92	92	5	260	253	58				
-11	13:30	1.7	2.9	443.450	81	92	92	5	250	250	59				
-12	13:40			453.121											
-12	13:50														
	14:00														

IMPINGER WEIGHT SHEET

PLANT: PCC STRUCTURALS

UNIT NO: BH 9203

LOCATION: INLET NORTH

DATE: 6-30-23

TEST NO: #2

METHOD: 29

WEIGHED/MEASURED BY: [illegible]

Scale ID Number S10-35

Scale Calibration Check Date: 6-30-23

Scale Calibration Check (see QS-6.05C for procedure) must be within ± 0.5g of certified mass

250 grams 250.0

500 grams 500.1

750 grams 750.1

Circle One:	FINAL WEIGHT MLS / GRAMS	INITIAL WEIGHT MLS / GRAMS	IMPINGER GAIN	IMPINGER CONTENTS
IMPINGER 1	780.6	735.2		HNO3/H2O2
IMPINGER 2	765.8	764.2		HNO3/H2O2
IMPINGER 3	661.2	655.5		EMPTY
IMPINGER 4	741.3	739.3		KMNO4
IMPINGER 5	738.3	738.3		KMNO4
IMPINGER 6	871.6	807.3		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL IMPINGER GAIN

SILICA ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL SILICA GAIN

Isokinetic Sampling Cover Sheet

Client:	Pcc	**Pitot Tube Cp:**	0.84
Facility:	LPC-Milwaukie	**Probe Length (Feet):**	4
Test Location:	9203 Inlet - Center	**Probe Liner Material:**	Glass
Project #:	M232604	**Sample Plane:**	Hrztl. or Vert.
Test Method(s):	29	**Port Length ("):**	4
Test Engineer:	EE	**Port Diameter ("):**	4
Test Technician:	PPP	**Port Type:**	Nipple
Upstream Diameters:		**Duct Shape:**	Circ. or Rect.
Downstream Diameters:		**Diameter (Feet):**	3.0
# of Ports Sampled:	2	**Length (Feet):**	—
# of Points per Port:	12	**Width (Feet):**	—
Source Condition:	Normal	**Duct Area (Sq. Feet):**	7.069
Diluent Model/SN:	—	**Minutes per Point:**	20/10
Mid Gas ID/concentration:	— /%CO_2 — %O_2	**Total Traverse Points:**	24
High Gas ID/concentration:	— /%CO_2 — %O_2	**Test Length (Min.):**	480
Moisture Balance ID:		**Train Type:**	Hot Box

	R# 1	**R# 2**	**R#**
Meter ID:	CM7	CM7	
Pitot ID:	288	288	
Filter ID:	—	—	
Filter Pre-Weight (g):	—	—	
Nozzle Diameter ("):	0.196	0.196	
Meter Cal Factor (Y):	0.988	0.988	
Meter Orifice Setting (DH):	1.533	1.533	
Nozzle Kit ID:			
Individual Nozzle ID:			
Pre Pitot Leak Check:	0.0 @ 3.3 "H_2O	0.0 @ 3.7 "H_2O	@ "H_2O
Post Pitot Leak Check:	0.0 @ 4.0 "H_2O	0.0 @ 3.3 "H_2O	@ "H_2O
Pre Nozzle Leak Check:	0.002 @ 18 "Hg	0.000 @ 12 "Hg	@ "Hg
Post Nozzle Leak Check:	0.004 @ 20 "Hg	0.002 @ 15 "Hg	@ "Hg
Barometric Pressure,"Hg:	29.97	29.97	
Static Pressure, "H_2O:	-3.7	-3.5	
CO_2 %:	—	—	
O_2 %:	—	—	

Comments:

DS-004 Isokinetic Sampling Cover Sheet   Rev. 3.2   1/1/2021

Isokinetic Sampling Field Data Sheet

Project Number: M232604
Client: PCC
Plant: LPC-Milwaukie, OR
Date: 6/27/23
Test Location: 9203 Inlet-Center
Test Method: 29
Test Number: 1
Operator: CE
Test Tech: MO
Page Number: 1 of 2

												K-Calcs (Optional)	K= 0.635	x 10	
Port-Point #	Time	(ΔP)	1.258 Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	Square Root, ΔP	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
1-1	515	1.6	3.04	460.343	63	58	55	9	257	250	54	1.265	1.06	10.5[illegible]	
1	525	1.6	2.06	470.600	65	58	54	10	241	250	61	1.265	0.870	8.703	470.905
2	535	1.4	1.80	479.77	61	63	57	8	253	250	62	1.183	0.814	8.141	479.608
2	545	1.4	1.80	488.000	61	65	57	8	236	250	49	1.183	0.814	8.141	487.749
3	555	1.5	1.9	496.810	63	66	58	8	231	250	49	1.225	0.842	8.426	495.79
3	605	1.5	1.9	501.570	63	66	59	8	261	250	50	1.225	0.842	8.426	504.316
4	615	1.5	1.9	511.910	63	66	59	8	240	250	47	1.225	0.842	8.426	512.742
4	625	1.5	1.9	521.000	63	67	60	8	241	250	49	1.225	0.842	8.426	521.168
5	635	1.5	1.9	529.220	63	67	61	8	215	250	54	1.225	0.842	8.426	529.594
5	645	1.5	1.9	536.054	64	67	60	8	264	250	46	1.225	0.842	8.426	538.020
6	655	1.5	1.9	545.345	63	67	61	7	250	250	45	1.225	0.842	8.426	546.446
6	705	1.5	1.9	555.420	64	69	62	7	243	251	47	1.225	0.842	8.426	554.872
7	715	1.6	2.1	563.098	64	70	62	8	262	250	47	1.265	0.810	8.702	563.575
7	725	1.5	1.9	571.640	64	72	64	8	241	250	49	1.225	0.842	8.426	572.001
8	735	1.5	1.9	579.900	64	72	64	7	247	250	49	1.225	0.842	8.426	580.427
8	745	1.4	1.8	587.620	64	77	64	7	260	250	48	1.183	0.814	8.141	588.853
9	755	1.5	1.9	596.900	64	71	65	7	259	250	47	1.225	0.842	8.426	596.994
9	805	1.5	1.9	604.220	64	75	65	7	235	250	47	1.225	0.842	8.426	605.414
10	815	1.6	2.06	614.090	65	73	66	7	248	250	46	1.265	0.8[illegible]	[illegible]	613.840
10	825	1.6	2.06	621.240	65	74	67	7	238	250	47	1.265	0.870	8.703	622.543
11	835	1.5	1.9	630.460	65	74	67	7	260	250	47	1.225	0.842	8.426	631.246
11	845	1.4	1.8	637.790	66	76	68	8	244	250	48	1.183	0.814	8.141	639.672
12	855	1.5	1.9	646.410	67	75	69	8	259	250	50	1.225	0.842	8.426	647.813
12	905	1.5	1.9	655.230	67	76	70	8	255	249	53	1.225	0.842	8.426	656.239
	915			663.220											664.665

DS-005 M5 Isokinetic Field Data Sheet

Rev. 2.3

11/3/2022

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6/27/23	Test Number:	1
Client:	PCC	Test Location:	9203-Inlet Center	Operator:	LE Test Tech: MTO
Plant:	LPC-Milwaukie, OR	Test Method:	29	Page Number:	2 of 2

												K-Calcs (Optional)			
			1.313 ~~1.298~~										K= ~~0.644~~ 0.701 x 10		
Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	Square Root, ΔP	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
2-1	9:50	1.3	1.7	663.375	68	78	73	9	247	248	59	1.140	0.799	7.991	~~671.286~~ 671.3
1	10:00	1.3	1.7	670.750	67	78	72	8	241	252	51	1.140	0.799	7.991	679.357
2	10:10	1.2	1.6	678.420	67	78	72	5	240	251	51	1.095	0.768	7.679	687.036
2	10:20	1.2	1.6	~~[illegible]~~ 686.340	69	80	74	5	258	248	47	1.095	0.768	7.679	694.715
3	10:30	1.8	2.4	695.360	70	81	76	4	230	251	46	1.342	0.940	9.405	704.120
3	10:40	1.8	2.4	703.620	71	84	78	7	253	250	47	1.342	0.940	9.405	713.525
4	10:50	1.4	1.8	712.280	72	83	78	6	249	250	45	1.183	0.829	8.294	721.819
4	11:00	1.4	1.8	721.780	73	84	79	6	239	251	49	1.183	0.829	8.294	730.113
5	11:10	1.5	2.0	730.190	72	85	80	6	238	251	47	1.224	0.862	8.622	738.735
5	11:20	1.4	1.8	739.040	73	85	80	6	243	250	48	1.183	0.829	8.294	747.029
6	11:30	1.3	1.7	747.980	74	94	81	5	247	250	49	1.140	0.799	7.991	755.02
6	11:40	1.3	1.7	755.440	72	85	82	5	249	249	50	1.140	0.799	7.991	763.011
7	11:50	1.3	1.7	763.050	72	87	82	5	245	250	48	1.140	0.799	7.991	771.002
7	12:00	1.3	1.7	771.020	73	88	87	5	236	250	47	1.140	0.799	7.991	778.993
8	12:10	1.4	1.8	778.410	74	88	83	5	251	250	50	1.183	0.829	8.294	787.287
8	12:20	1.3	1.7	786.180	75	89	85	5	260	251	51	1.140	0.799	7.991	795.278
9	12:30	1.3	1.7	794.350	76	90	86	5	262	248	48	1.140	0.799	7.991	803.269
9	12:40	1.3	~~2.2~~ 1.7	802.310	76	89	86	5	253	251	55	~~1.303~~	~~0.918~~	~~9.179~~	811.26
10	12:50	1.3	1.7	810.980	76	94	88	5	271	250	54	1.140	0.799	7.991	~~820.~~ 819.251
10	13:00	1.3	1.7	819.160	76	97	89	5	235	250	54	1.140	0.799	7.991	827.242
11	13:10	1.3	1.7	827.640	76	97	90	5	268	251	54	1.140	0.799	7.991	835.233
11	13:20	1.4	1.8	835.660	76	96	91	5	263	250	53	1.183	0.829	8.294	843.527
12	13:30	1.3	1.7	843.550	80	96	91	5	248	249	53	1.140	0.799	7.991	851.518
12	13:40	1.2	1.6	851.740	77	97	91	5	246	252	54	1.095	0.768	7.679	859.197
	13:50			859.665											

IMPINGER WEIGHT SHEET

PLANT: PCC STRUCTURALS

UNIT NO: BAGHOUSE 9203

LOCATION: INLET CENTER

DATE: 6-27-23

TEST NO: #1

METHOD: M29

WEIGHED/MEASURED BY: [illegible]

Scale ID Number S10-35

Scale Calibration Check Date: 6-27-23

Scale Calibration Check (see QS-6.05C for procedure)
must be within ± 0.5g of certified mass

250 grams 250.0

500 grams 500.1

750 grams 750.1

Circle One:	FINAL WEIGHT MLS / GRAMS	INITIAL WEIGHT MLS / GRAMS	IMPINGER GAIN	IMPINGER CONTENTS
IMPINGER 1	770.0	752.2	17.8	0.1N HNO_3/H_2O_2
IMPINGER 2	744.5	741.2	3.3	0.1N HNO_3/H_2O_2
IMPINGER 3	653.2	653.50	-10.2	EMPTY
IMPINGER 4	746.4	756.6	-8.3	$KMnO_4$
IMPINGER 5	728.7	737.0		$KMnO_4$
IMPINGER 6	871.5	816.1	55.4	SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL IMPINGER GAIN

SILICA ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL SILICA GAIN

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6/30/23	Test Number:	2
Client:	PCC	Test Location:	9203 Inlet-Center	Operator:	PPP Test Tech:
Plant:	LPC-Milwaukie, OR	Test Method:	29	Page Number:	1 of 2

Port-Point #	Time	(ΔP)	1.396 Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional) Square Root, ΔP	K=0.708 Meter Rate, Cubic Feet/ Min.	x 10 Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
1-1	5:25	1.5	2.094	62.145	66	57	57	10	254	249	45	1.225	0.867	8.671	
1	5:35	1.7	2.4	69.000	65	60	56	7	253	251	53	1.304	0.923	9.231	70.816
2	5:45	1.6	2.2	77.630	64	64	57	8	250	250	54	1.265	0.896	8.956	80.047
2	5:55	1.6	2.2	86.730	64	67	58	10	245	250	55	1.265	0.896	8.956	89.003
3	6:05	1.6	2.2	96.330	65	69	59	10	258	250	55	1.265	0.896	8.956	97.959
3	6:15	1.6	2.2	106.550	65	67	60	10	249	250	56	1.265	0.896	8.956	106.915
4	6:25	1.6	2.2	116.340	64	68	60	9	262	251	56	1.265	0.896	8.956	115.871
4	6:35	1.6	2.2	125.960	65	70	62	8	255	250	57	1.265	0.896	8.956	124.827
5	6:45	1.5	2.094	134.990	67	70	62	8	260	251	56	1.225	0.867	8.671	133.783
5	6:55	1.6	2.2	144.340	66	70	63	6	256	249	56	1.265	0.896	8.956	142.454
6	7:05	1.6	2.2	152.360	66	71	64	6	249	251	57	1.265	0.896	8.956	151.410
6	7:15	1.6	2.2	160.350	67	71	65	7	250	251	57	1.265	0.896	8.956	160.366
7	7:25	1.6	2.2	168.680	67	72	66	8	242	251	58	1.265	0.896	8.956	169.322
7	7:35	1.5	2.094	177.550	66	72	71	8	258	251	59	1.225	0.867	8.671	178.278
8	7:45	1.5	2.09	186.340	68	73	67	6	249	250	60	1.225	0.867	8.671	186.949
8	7:55	1.5	2.09	194.120	67	74	67	7	249	250	61	1.225	0.867	8.671	195.620
9	8:05	1.6	2.2	202.720	67	74	67	8	262	251	62	1.265	0.896	8.956	204.291
9	8:15	1.6	2.2	214.520	67	74	68	8	252	250	59	1.265	0.896	8.956	213.247
10	8:25	1.6	2.2	220.330	67	75	68	8	245	249	59	1.265	0.896	8.956	222.203
10	8:35	1.6	2.2	229.540	67	74	68	8	256	250	52	1.265	0.896	8.956	231.159
11	8:45	1.5	2.09	238.780	69	76	70	8	245	250	54	1.225	0.867	8.671	240.115
11	8:55	1.6	2.2	247.730	68	77	70	8	245	249	53	1.265	0.896	8.956	248.786
12	9:05	1.6	2.2	255.890	70	77	71	8	244	252	54	1.265	0.896	8.956	257.742
12	9:15	1.6	2.2	265.240	71	77	71	8	250	250	54	1.265	0.896	8.956	266.698
	9:25			275.660											275.654

Isokinetic Sampling Field Data Sheet

L

Project Number:	m232604	Date:	6/30/23	Test Number:	2
Client:	PCC	Test Location:	9203 Inlet · Center	Operator:	Test Tech:
Plant:	LPC - Milwaukie, OR	Test Method:	29	Page Number:	2 of 2

1.396

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	Square Root, ΔP	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
												K-Calcs (Optional)	K=0.708 x 1.0		
2-1	10:00	1.5	2.01	75.660	73	72	69	8	241	250	56	1.225	0.867	8.673	~~84.333~~
1	10:10	1.5	2.1	84.600	73	77	71	8	249	250	53	1.225	0.867	8.673	84.333
2	10:20	1.5	2.1	93.200	75	79	73	8	248	249	52	1.225	0.867	8.673	93.006
2	10:30	1.5	2.1	102.90	75	81	74	8	263	252	49	1.225	0.867	8.673	101.679
3	10:40	1.5	2.1	110.30	75	82	76	8	239	251	051	1.225	0.867	8.673	110.352
3	10:50	1.6	2.2	119.10	74	84	78	8	254	249	50	1.265	0.895	8.956	119.025
4	11:00	1.6	2.2	127.6	75	86	79	8	252	250	51	1.265	0.895	8.956	127.981
4	11:10	1.6	2.2	136.6	75	86	81	8	244	250	52	1.265	0.895	8.956	136.937
5	11:20	1.6	2.2	145.0	77	87	82	8	245	256	50	1.265	0.895	8.956	145.893
5	11:30	1.7	2.4	153.7	77	88	84	8	235	252	46	~~1.264~~ 1.304	0.923	9.23	154.849
6	11:40	1.7	2.4	162.3	78	89	85	8	250	249	47	1.304	0.923	9.23	~~155.772~~ 165.[illegible]
6	11:50	1.6	2.2	171.2	78	91	86	8	263	250	47	1.265	0.895	8.956	175.002
7	12:00	1.6	2.2	180.4	77	92	87	11	249	249	48	1.265	0.895	8.956	183.958
7	12:10	1.6	2.2	190.7	78	91	88	13.5	238	249	48	1.265	0.895	8.956	192.914
8	12:20	1.6	2.2	201.4	78	91	89	13.5	248	252	47	1.265	0.895	8.956	201.870
8	12:30	1.6	2.2	212.3	80	92	90	13.5	246	248	50	1.265	0.895	8956	210.826
9	12:40	1.6	2.2	221.5	80	93	90	10	250	250	50	1.265	0.895	8.956	219.782
9	12:50	1.5	2.2	230.6	80	96	91	11.5	227	250	51	1.265	0.895	8.956	228.738
10	13:00	1.5	2.1	238.3	81	97	92	7	251	252	51	1.225	0.867	8.673	237.694
10	13:10	1.5	2.1	245.9	81	98	93	7	246	251	52	1.225	0.867	8.673	246.367
~~11~~	~~13:20~~														~~255.04~~
~~11~~	~~13:30~~														
~~12~~	~~13:40~~														
~~12~~	~~13:50~~														
11	13:20	1.5	2.1	251.2	81	98	94	6.5	255	248	54	1.225	0.867	8.673	255.04
11	13:30	1.5	2.1	258.2	80	99	94	6.5	256	248	57	1.225	0.867	8.673	263.713
12															
12															

3:15 Flow is lost for ~2 min

IMPINGER WEIGHT SHEET

PLANT: PCC STRUCTURAL

UNIT NO: ~~INLET CENTER~~ BH 9203

LOCATION: INLET CENTER

DATE: 6-30-23

TEST NO: #2

METHOD: 29

WEIGHED/MEASURED BY: [signature]

Scale ID Number S10-35

Scale Calibration Check Date: 6-30-23

Scale Calibration Check (see QS-6.05C for procedure) must be within ± 0.5g of certified mass

250 grams 250.0

500 grams 500.1

750 grams 750.1

Circle One:	FINAL WEIGHT MLS / GRAMS	INITIAL WEIGHT MLS / GRAMS	IMPINGER GAIN	IMPINGER CONTENTS
IMPINGER 1	776.1	754.7		HNO3/H2O2
IMPINGER 2	760.0	746.3		HNO3/H2O2
IMPINGER 3	630.0	624.4		EMPTY
IMPINGER 4	763.7	769.2		KMNO4
IMPINGER 5	742.1	740.9		KMNO4
IMPINGER 6	900.4	839.1		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL IMPINGER GAIN

SILICA ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL SILICA GAIN

Isokinetic Sampling Cover Sheet

Client:	Pcc Structurals, Inc.	Pitot Tube Cp:	0.840
Facility:	Large Parts Campus Milwaukie, OR	Probe Length (Feet):	
Test Location:	9203 Inlet - South	Probe Liner Material:	Glass
Project #:	M232604	Sample Plane:	Hrztl. or Vert.
Test Method(s):	29	Port Length ("):	4
Test Engineer:	NCL	Port Diameter ("):	4
Test Technician:	PPP	Port Type:	Nipple
Upstream Diameters:	2.0	Duct Shape:	Circ. or Rect.
Downstream Diameters:	78	Diameter (Feet):	3.0
# of Ports Sampled:	2	Length (Feet):	—
# of Points per Port:	12	Width (Feet):	—
Source Condition:	Normal	Duct Area (Sq. Feet):	7.069
Diluent Model/SN:	—	Minutes per Point:	20 (10/reading)
Mid Gas ID/concentration:	— /%CO_2 — %O_2	Total Traverse Points:	24
High Gas ID/concentration:	— /%CO_2 — %O_2	Test Length (Min.):	480
Moisture Balance ID:		Train Type:	Hot Box

	R# 1	R# 2	R#
Meter ID:	CM8	CM8	
Pitot ID:	290	290	
Filter ID:	—	—	
Filter Pre-Weight (g):	—	—	
Nozzle Diameter ("):	.193	.193	
Meter Cal Factor (Y):	.984	.984	
Meter Orifice Setting (DH):	1.860	1.860	
Nozzle Kit ID:	Teflon	Teflon	
Individual Nozzle ID:			
Pre Pitot Leak Check:	✓ @ 4.5 "H_2O	✓ @ 4.5 "H_2O	@ "H_2O
Post Pitot Leak Check:	✓ @ 4.5 "H_2O	✓ @ 4.5 "H_2O	@ "H_2O
Pre Nozzle Leak Check:	.000 @ 19 "Hg	.000 @ 17 "Hg	@ "Hg
Post Nozzle Leak Check:	.000 @ 16 "Hg	.000 @ 15 "Hg	@ "Hg
Barometric Pressure, "Hg:	29.97	~~30.05~~ 29.97	
Static Pressure, "H_2O:	-3.7	-3.7	
CO_2 %:	—	—	
O_2 %:	—	—	

Comments:

DS-004 Isokinetic Sampling Cover Sheet Rev. 3.2 1/1/2021

Isokinetic Sampling Field Data Sheet

Project Number: m232604
Client: Pcc
Plant: LPC Milwaukie OR
Date: 6/27/23
Test Location: 9203 Inlet - South
Test Method: 29
Test Number: 1
Operator: WCC Test Tech: PPP
Page Number: 1 of 2

Port-Point #	Time	X (ΔP)	K'=1.501 Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional) √x Square Root, ΔP	K=.680 Meter Rate, Cubic Feet/ Min.	x 10 Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
1-1	515	1.3	2.0	74.482	65	5	7	7	251	254	57	1.140	.775	7.753	—
1	525	1.3	2.0	82.30	65	5	7	7	251	254	54	1.140	.775	7.753	82.235
2	535	1.3	2.0	90.05	65	6	8	7	250	254	52	1.140	.775	7.753	89.988
2	545	1.3	2.0	97.84	64	5	8	7	251	254	51	1.140	.775	7.753	97.741
3	555	1.1	1.7	105.54	65	5	9	7	251	254	52	1.049	.713	7.132	105.494
3	605	1.1	1.7	112.70	65	6	0	6	251	254	51	1.049	.713	7.132	112.626
4	615	1.1	1.7	119.82	66	6	1	6	251	254	52	1.049	.713	7.132	119.758
4	625	1.1	1.7	126.95	65	6	1	6	251	254	52	1.049	.713	7.132	126.890
5	635	1.1	1.7	134.09	65	6	2	7	251	254	53	1.049	.713	7.132	134.022
5	645	1.1	1.7	141.23	65	6	3	6	250	254	53	1.049	.713	7.132	141.154
6	655	1.0	1.5	148.35	66	6	3	6	251	254	54	1.000	.680	6.800	148.286
6	705	1.0	1.5	155.16	66	6	4	6	251	254	53	1.000	.680	6.800	155.086
7	715	1.1	1.7	161.95	66	6	4	6	251	254	53	1.049	.713	7.132	161.886
7	725	1.1	1.7	169.09	66	6	4	6	251	254	53	1.049	.713	7.132	169.018
8	735	1.1	1.7	176.23	67	6	5	6	251	254	54	1.049	.713	7.132	176.150
8	745	1.1	1.7	183.37	67	6	5	6	251	254	55	1.049	.713	7.132	183.282
9	755	1.2	1.8	190.51	66	6	6	6	251	254	53	1.095	.745	7.449	190.414
9	805	1.1	1.7	197.94	66	6	7	6	252	254	52	1.049	.713	7.132	197.863
10	815	1.1	1.7	205.46	66	6	7	6	251	254	53	1.049	.713	7.132	204.995
10	825	1.2	1.8	213.67	67	6	8	6	252	254	54	1.095	.745	7.449	212.127
11	835	1.2	1.8	220.74	67	6	8	6	251	254	53	1.095	.745	7.449	219.576
11	845	1.2	1.8	226.47	68	6	9	6	251	254	55	1.095	.745	7.449	227.025
12	855	1.1	1.7	233.10	69	6	9	6	251	254	56	1.049	.713	7.132	234.649
12	905	1.1	1.7	240.32	70	7	1	6	251	254	58	1.049	.713	7.132	241.831
	915	—	—	249.037	—	—	—	—	—	—	—	—	—	—	248.963

Isokinetic Sampling Field Data Sheet

Project Number: m232604
Client: PCC
Plant: LPC Milwaukie, OR
Date: 6/27/23
Test Location: 9203 Inlet-South
Test Method: 29
Test Number: 1
Operator: NCC
Test Tech: PPP
Page Number: 2 of 2

K' = 1.501

Port-Point #	Time	K (ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional): √x Square Root, ΔP	K=.680: Meter Rate, Cubic Feet/ Min.	x 10: Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
2-1	930	1.2	1.8	249.644	70	7	0	7	231	254	61	1.095	.7449	7.449	—
1	940	1.2	1.8	258.52	71	7	0	7	231	254	61	1.095	.7449	7.449	257.093
2	950	1.2	1.8	262.17	71	7	0	7	231	254	61	1.095	.7449	7.449	265.379
2	1000	1.2	1.8	269.31	71	7	1	9	250	254	62	1.095	.7449	7.449	272.828
3	1010	1.2	1.8	275.52	71	7	1	9	251	254	57	1.095	.7449	7.449	280.227
3	1020	1.2	1.8	286.22	73	7	1	15	245	254	57	1.095	.7449	7.449	287.726
4	1030	1.2	1.8	293.62	74	7	1	15	251	254	56	1.095	.7449	7.449	295.175
4	1040	1.2	1.8	303.39	74	7	1	15	250	254	58	1.095	.7449	7.449	302.624
5	1050	1.2	1.8	310.63	74	7	1	10	251	254	59	1.095	.7449	7.449	310.023
5	~~1060~~ 1100	1.3	2.0	319.25	74	7	1	10	250	254	57	1.414	.9617	9.617	317.522
6	1110	1.3	2.0	328.14	75	7	1	10	251	254	57	1.414	.9617	9.617	327.139
6	1120	1.3	2.0	333.71	76	7	1	10	250	254	58	1.414	.9617	9.617	336.756
7	1130	1.1	1.7	342.34	76	7	1	10	251	254	55	1.285	.8738	8.738	346.373
7	1140	1.2	1.8	350.37	74	7	1	11	257	254	55	1.095	.7449	7.449	355.111
8	1150	1.1	1.7	359.98	75	7	2	13	250	254	53	1.285	.8738	8.738	362.560
8	1200	1.1	1.7	368.13	76	7	4	13	251	254	54	1.285	.8738	8.738	371.298
9	1210	1.2	1.8	377.42	78	7	5	13	250	254	50	1.095	.7449	7.449	380.036
9	1220	1.2	1.8	386.64	28	7	7	15	251	254	50	1.095	.7449	7.449	387.485
10	1230	1.2	1.8	395.76	79	8	0	15	252	254	50	1.095	.7449	7.449	394.934
10	1240	1.2	1.8	405.15	79	8	2	11	251	254	50	1.095	.7449	7.449	402.383
11	1250	1.2	1.8	412.74	79	8	5	11	252	254	50	1.095	.7449	7.449	409.832
11	1300	1.2	1.8	420.66	80	8	7	10	251	254	50	1.095	.7449	7.449	417.281
12	1310	1.2	1.8	427.27	80	8	9	8	252	254	52	1.095	.7449	7.449	424.730
12	1320	1.2	1.8	434.28	80	9	1	7	251	254	51	1.095	.7449	7.449	432.179
	1330			439.15											439.628

DS-005 M5 Isokinetic Field Data Sheet

IMPINGER WEIGHT SHEET

PLANT: PCC STRUCTURALS

UNIT NO: BAGHOUSE 9203

LOCATION: INLET SOUTH

DATE: 6-27-23

TEST NO: #1

METHOD: M29

WEIGHED/MEASURED BY: [illegible]

Scale ID Number 510-35

Scale Calibration Check Date: 6-27-23

Scale Calibration Check (see QS-6.05C for procedure)
must be within ± 0.5g of certified mass

250 grams 250.0

500 grams 500.1

750 grams 750.1

	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS
IMPINGER 1	732.7	720.3		O.W HNO3/H2O2
IMPINGER 2	794.0	779.6		O.W HNO3/H2O2
IMPINGER 3	625.5	623.2		EMPTY
IMPINGER 4	768.0	779.1		KMNO4
IMPINGER 5	734.1	737.2		KMNO4
IMPINGER 6	888.7	837.2		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL IMPINGER GAIN

SILICA ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL SILICA GAIN

Isokinetic Sampling Field Data Sheet

Project Number:	M 232604	Date:	6-30-2023	Test Number:	2
Client:	PCC	Test Location:	9203 Inlet South	Operator:	MTD Test Tech: NCC
Plant:	LPCF - Milwaukee	Test Method:	M29	Page Number:	1 of 2

Port-Point #	Time	X (ΔP)	k' = 1.490 Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional) √X Square Root, ΔP	K= .680 x 10 Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
1-1	525	1.5	2.2	40.542	67	6	0	5	251	254	54	1.225	.833	8.328	—
1	535	1.5	2.2	48.12	68	6	1	5	250	254	55	1.225	.833	8.328	48.870
2	545	1.3	1.9	56.58	69	6	1	6	251	254	60	1.140	.775	7.753	57.198
2	555	1.2	1.8	65.58	67	6	2	6	250	254	66	1.095	.745	7.449	64.951
3	605	1.2	1.8	72.73	66	6	3	5	250	254	58	1.095	.745	7.449	72.400
3	615	1.2	1.8	80.22	67	6	4	5	251	254	58	1.095	.745	7.449	79.899
4	625	1.1	1.6	87.59	67	6	4	5	251	254	56	1.049	.713	7.132	87.298
4	635	1.1	1.6	94.02	68	6	5	5	251	254	59	1.049	.713	7.132	94.430
5	645	1.1	1.6	101.22	67	6	4	5	251	254	58	1.049	.713	7.132	101.562
5	655	1.1	1.6	108.78	69	6	7	5	249	254	61	1.049	.713	7.132	108.694
6	705	1.1	1.6	115.83	67	6	7	5	251	254	59	1.049	.713	7.132	115.826
6	715	1.1	1.6	123.75	67	6	8	5	251	254	60	1.049	.713	7.132	122.958
7	725	1.0	1.5	130.61	68	6	9	5	251	254	62	1.000	.680	6.800	130.090
7	735	1.1	1.6	136.49	68	6	9	5	250	254	60	1.049	.713	7.132	136.890
8	745	1.1	1.6	144.83	68	7	0	5	250	254	61	1.049	.713	7.132	144.022
8	755	1.2	1.8	151.61	69	7	0	5	251	254	58	1.095	.745	7.449	151.154
9	805	1.1	1.6	159.34	69	7	0	5	249	254	59	1.049	.713	7.132	158.603
9	815	.95	1.4	166.22	71	7	1	5	251	254	60	.975	.663	6.628	165.735
10	825	1.0	1.5	172.64	70	7	1	5	251	254	58	1.000	.680	6.800	172.363
10	835	1.0	1.5	179.85	70	7	2	5	251	254	59	1.000	.680	6.800	179.963
11	845	1.1	1.6	186.22	71	7	2	5	251	254	57	1.049	.713	7.132	185.963
11	855	1.0	1.5	193.04	71	7	3	5	251	254	59	1.000	.680	6.800	193.095
12	905	.95	1.4	200.67	71	7	3	5	249	254	58	.975	.663	6.628	199.895
12	915	1.0	1.5	206.87	72	7	4	5	250	254	61	1.000	.680	6.800	206.523
	925			213.521											213.323

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6-30-2023	Test Number:	2
Client:	PCC	Test Location:	9203 Inlet South	Operator:	MTD Test Tech: NCC
Plant:	LPCF - Milwaukee	Test Method:	M29	Page Number:	2 of 2

Port-Point #	Time	(ΔP)	X Orifice Setting (ΔH)	K' = ~~1.440~~ 1.476 Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional) √ x Square Root, ΔP	K= ~~.680~~ .650 Meter Rate, Cubic Feet/ Min.	x 10 Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
2-1	1000	1.2	1.8	213.522	74	72	72	5	250	254	61	1.095	.745	7.449	—
1	1010	1.1	1.6	220.45	74	72	72	5	250	254	61	1.049	.713	7.132	220.971
2	1020	1.1	1.6	228.91	74	7	3	5	251	254	57	1.049	.713	7.132	228.103
2	1030	1.1	1.6	236.01	75	7	3	6	249	254	57	1.049	.713	7.132	235.235
3	1040	1.0	1.5	242.75	75	7	4	5	252	254	55	1.000	.680	6.80	242.367
3	1050	1.1	1.6	249.69	75	7	5	5	251	254	58	1.049	.713	7.132	249.167
4	1100	1.2	1.8	256.99	77	7	5	5	250	254	58	1.095	.745	7.449	256.287
4	1110	1.1	1.6	264.56	78	7	6	5	250	254	60	1.049	.713	7.132	263.736
5	1120	1.3	1.9	271.52	80	7	7	5	252	254	56	1.140	.775	7.753	270.868
5	1130	1.2	1.8	277.75	79	7	7	5	250	254	53	1.095	.745	7.449	278.621
6	1140	1.1	1.6	285.63	81	7	8	5	251	254	51	1.049	.713	7.132	286.070
6	1150	1.1	1.6	292.54	80	7	9	6	251	254	52	1.049	.713	7.132	293.202
7	1200	1.0	1.5	299.79	80	8	1	6	247	254	52	1.000	.680	6.80	300.334
7	1210	1.1	1.6	307.54	81	8	3	6	251	254	54	1.049	.713	7.132	307.134
8	1220	1.2	1.8	315.72	81	8	5	6	251	254	53	1.095	.745	7.449	314.266
8	1230	1.1	1.6	322.41	81	8	8	5	249	254	56	1.049	.713	7.132	321.715
9	1240	1.1	1.6	329.31	82	8	9	5	251	254	55	1.049	.713	7.132	328.847
9	1250	1.1	1.6	336.51	82	9	1	5	251	254	57	1.049	.713	7.132	335.967
10	1300	1.1	1.6	343.78	82	9	3	5	252	254	56	1.049	.713	7.132	343.099
10	1310	1.1	1.6	350.49	83	9	5	5	252	254	59	1.049	.713	7.132	350.231
11	1320	1.3	1.9	356.52	83	9	6	5	250	254	57	1.140	.775	7.753	357.363
11	1330			362.79											363.116
12	1340														
12	1350														
	1400														

Ending 1330

DS-005 M5 Isokinetic Field Data Sheet Rev. 2.3 11/3/2022

IMPINGER WEIGHT SHEET

PLANT: PCC STRUCTURALS

UNIT NO: BH 9203

LOCATION: INLET SOUTH

DATE: 6-30-23

TEST NO: #2

METHOD: M29

WEIGHED/MEASURED BY: [illegible]

Scale ID Number 510-35

Scale Calibration Check Date: 6-30-23

Scale Calibration Check (see QS-6.05C for procedure)
must be within ± 0.5g of certified mass

250 grams 250.0

500 grams 500.4

750 grams 750.1

Circle One:	FINAL WEIGHT MLS / GRAMS	INITIAL WEIGHT MLS / GRAMS	IMPINGER GAIN	IMPINGER CONTENTS
IMPINGER 1	779.2	752.7		HNO3/H2O2
IMPINGER 2	764.3	752.1		HNO3/H2O2
IMPINGER 3	657.7	657.2		EMPTY
IMPINGER 4	776.9	782.1		KMNO4
IMPINGER 5	764.1	761.7		KMNO4
IMPINGER 6	868.8	807.1		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL IMPINGER GAIN

SILICA ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL SILICA GAIN

Isokinetic Sampling Cover Sheet

Client:	PCC Structurals Inc.	**Pitot Tube Cp:**	.84
Facility:	Large Parts Campus Milwaukie	**Probe Length (Feet):**	4
Test Location:	BH9203 Inlet North	**Probe Liner Material:**	Glass
Project #:	M232604	**Sample Plane:**	Hrztl. or Vert.
Test Method(s):	M0061	**Port Length ("):**	4
Test Engineer:	JXJ	**Port Diameter ("):**	4
Test Technician:	PPP	**Port Type:**	Nipple
Upstream Diameters:	22ft	**Duct Shape:**	Circ or Rect.
Downstream Diameters:	28ft	**Diameter (Feet):**	3
# of Ports Sampled:	2	**~~Length (Feet)~~:**	
# of Points per Port:	12	**~~Width (Feet)~~:**	
Source Condition:	Normal	**Duct Area (Sq. Feet):**	7.069
Diluent Model/SN:	N/A	**Minutes per Point:**	20
Mid Gas ID/concentration:	N/A /% CO_2 % O_2	**Total Traverse Points:**	24
High Gas ID/concentration:	N/A /% CO_2 % O_2	**Test Length (Min.):**	480
Moisture Balance ID:		**Train Type:**	Hot Box

	R# 1	R#	R#
Meter ID:	CM39	CM39	
Pitot ID:	~~CM39~~ 316	316	
Filter ID:	N/A	N/A	
Filter Pre-Weight (g):	N/A	N/A	
Nozzle Diameter ("):	.195	.195	
Meter Cal Factor (Y):	1.010	1.010	
Meter Orifice Setting (DH):	1.924	1.924	
Nozzle Kit ID:			
Individual Nozzle ID:			
Pre Pitot Leak Check:	0.000 @ 3.5 "H_2O	0.000 @ 4 "H_2O	@ "H_2O
Post Pitot Leak Check:	0.000 @ 5 "H_2O	0.000 @ 6 "H_2O	@ "H_2O
Pre Nozzle Leak Check:	0.000 @ 10 "Hg	0.000 @ 10 "Hg	@ "Hg
Post Nozzle Leak Check:	0.000 @ 10 "Hg	0.000 @ 10 "Hg	@ "Hg
Barometric Pressure,"Hg:	29.97	~~30.05~~ 29.97	
Static Pressure, "H_2O:	-4	-3.7	
CO_2 %:			
O_2 %:			

Comments:

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6/27/2023
Client:	PCC Structuralsinc.	Test Location:	BH9203 Inlet N.
Plant:	Milwaukie, OR	Test Method:	M0061
Test Number:	1		
Operator:	JXJ	Test Tech:	PPP
Page Number:	1 of 2		

											K-Calcs (Optional)			
												K=	x	
Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	Square Root, ΔP	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
1-1	5:15	1.5	2.35	8.005	60	52	52	5			50				
1-1	5:25	1.6	2.5	16.058	60	53	53	5			50				
1-2	5:35	1.3	2.05	24.391	59	54	54	5			52				
1-2	5:45	1.3	2.05	31.924	60	55	55	5			51				
1-3	5:55	1.6	2.5	39.465	59	56	56	5			53				
1-3	6:05	1.5	2.37	47.955	59	56	56	5			52				
1-4	6:15	1.4	2.22	55.979	59	57	57	5			54				
1-4	6:25	1.4	2.22	63.842	60	57	57	5			50				
1-5	6:35	1.5	2.4	71.698	61	59	59	5			52				
1-5	6:45	1.5	2.4	79.853	61	59	59	5			53				
1-6	6:55	1.3	2.1	88.008	61	60	60	5			54				
1-6	7:05	1.3	2.1	95.615	60	61	61	5			51				
1-7	7:15	1.4	2.2	103.244	62	61	61	5			53				
1-7	7:25	1.3	2.1	111.145	62	63	63	5			52				
1-8	7:35	1.2	1.9	118.788	62	64	64	5			52				
1-8	7:45	1.4	2.2	126.146	62	65	65	5			57				
1-9	7:55	1.3	2.1	134.108	61	65	65	5			55				
1-9	8:05	1.3	2.1	141.787	60	65	65	5			55				
1-10	8:15	1.2	1.9	149.475	61	67	67	5			56				
1-10	8:25	1.3	2.1	156.881	61	67	67	5			55				
1-11	8:35	1.4	2.2	164.590	63	69	69	5			59				
1-11	8:45	1.3	2.1	172.605	63	70	70	5			56				
1-12	8:55	1.4	2.3	180.343	64	71	71	5			55				
1-12	9:05	1.3	2.1	188.381	65	74	74	5			56				
	9:15			196.163											

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6/27/2023	Test Number:	1
Client:	PCC structurals inc	Test Location:	BH 9203 Inlet N.	Operator:	JXJ Test Tech: PPP
Plant:	Milwaukie, OR	Test Method:	Mod 61	Page Number:	2 of 2

												K-Calcs (Optional)			
													K=	x ___	
Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	Square Root, ΔP	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
2-1	9:42	1.4	2.3	197.361	65	81	81	5	—	—	54				
2-1	9:52	1.4	2.3	205.542	64	81	81	5	—	—	55				
2-2	10:02	1.4	2.3	213.731	63	81	81	5			54				
2-2	10:12	1.3	2.1	221.929	66	81	81	5			55				
2-3	10:22	1.4	2.3	229.804	67	81	81	5			56				
2-3	10:32	1.2	1.9	237.970	68	82	82	5			55				
2-4	10:42	1.3	2.1	245.537	69	83	83	5			57				
2-4	10:52	1.2	1.9	253.420	68	84	84	5			57				
2-5	11:02	1.2	1.9	261.014	69	85	85	5			56				
2-5	11:12	1.1	1.8	268.616	70	85	85	5			56				
2-6	11:22	1.5	2.5	275.887	70	86	86	5			56				
2-6	11:32	1.4	2.3	284.393	70	86	86	5			56				
2-7	11:42	1.8	2.9	292.611	70	87	87	5			56				
2-7	11:52	1.2	1.9	300.233	70	87	87	5			56				
2-8	12:02	1.2	1.9	307.855	72	88	88	5			57				
2-8	12:12	1.3	2.1	315.788	73	88	88	5			54				
2-9	12:22	1.3	2.1	323.713	73	88	88	5			54				
2-9	12:32	1.2	1.9	331.639	73	88	88	5			63				
2-10	12:42	1.3	2.1	339.253	73	88	88	5			53				
2-10	12:52	1.3	2.1	347.179	74	92	92	5			39				
2-11	13:02	1.2	1.9	355.155	75	92	92	5			63				
2-11	13:12	1.2	1.9	362.811	75	92	92	5			63				
2-12	13:22	1.2	1.9	370.466	73	92	92	5			63				
2-12	13:32	1.2	1.9	378.137	73	94	94	5			64				
	13:42			385.834											

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6/30	Test Number:	2
Client:	PCC Structurals	Test Location:	BH 9203 inlet N	Operator:	jxj Test Tech: FJDI
Plant:	Milwaukie, OR	Test Method:	0061	Page Number:	1 of 2

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional) Square Root, ΔP	K= Meter Rate, Cubic Feet/ Min.	x Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
1-1	5:25	1.7	2.7	59.025	62	57	57	5			52				
-1	5:35	1.7	2.7	67.640	62	61	61	5			61				
-2	5:45	1.6	2.6	76.315	61	64	64	5			66				
-2	5:55	1.6	2.6	84.790	61	64	64	5			64				
-3	6:05	1.5	2.4	93.262	61	64	64	5			61				
-3	6:15	1.6	2.5	101.468	62	64	64	5			60				
-4	6:25	1.5	2.4	109.935	62	65	65	5			59				
-4	6:35	1.5	2.4	118.150	63	67	67	5			61				
-5	6:45	1.7	2.7	126.390	63	66	66	5			59				
-5	6:55	1.6	2.6	135.140	63	66	66	5			59				
-6	7:05	1.5	2.4	143.627	62	66	66	5			59				
-6	7:15	1.5	2.4	151.856	63	65	65	5			59				
-7	7:25	1.5	2.4	160.065	63	65	65	5			60				
-7	7:35	1.6	2.6	168.267	64	65	65	5			59				
-8	7:45	1.6	2.5	176.735	64	65	65	5			59				
-8	7:55	1.6	2.5	185.200	64	65	65	5			59				
-9	8:05	1.7	2.7	193.610	64	66	66	5			59				
-9	8:15	1.6	2.5	202.415	64	66	66	5			58				
-10	8:25	1.6	2.5	210.895	64	67	67	5			59				
-10	8:35	1.5	2.4	219.395	65	67	67	5			59				
-11	8:45	1.5	2.4	227.615	65	67	67	5			60				
-11	8:55	1.6	2.5	235.835	65	67	67	5			60				
-12	9:05	1.5	2.4	244.325	66	67	67	5			60				
-12	9:15	1.5	2.4	252.540	68	68	68	5			58				
	9:25			260.755											

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6/30/23	Test Number:	2
Client:	PCC Structurals	Test Location:	BH9203 Inlet N.	Operator:	jxj Test Tech: FJDi
Plant:	Milwaukie, OR	Test Method:	0061	Page Number:	2 of 2

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft^3, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional): Square Root, ΔP	K= Meter Rate, Cubic Feet/ Min.	x Theoretical Meter Volume, (V_m) ft^3, per point	Theoretical Meter Volume, (V_m) ft^3, total
2-1	10:00	1.7	2.7	260.755	69	76	76	5			58				
-1	10:10	1.7	2.7	269.625	70	75	75	5			58				
-2	10:20	1.7	2.7	278.470	70	75	75	5			59				
-2	10:30	1.7	2.7	287.310	71	75	75	5			59				
-3	10:40	1.6	2.6	296.145	72	76	76	5			59				
-3	10:50	1.5	2.4	304.725	72	76	76	5			60				
-4	11:00	1.6	2.6	313.030	74	77	77	5			60				
-4	11:10	1.7	2.7	321.610	74	77	77	5			57				
-5	11:20	1.6	2.5	330.450	75	77	77	5			56				
-5	11:30	1.6	2.6	339.025	75	80	80	5			51				
-6	11:40	1.6	2.6	347.645	75	80	80	5			50				
-6	11:50	1.5	2.4	356.260	76	81	81	5			50				
-7	12:00	1.6	2.6	364.610	76	82	82	5			51				
-7	12:10	1.7	2.7	373.251	77	83	83	5			50				
-8	12:20	1.6	2.6	382.170	77	83	83	5			50				
-8	12:30	1.5	2.4	390.818	79	84	84	5			48				
-9	12:40	1.5	2.4	399.195	79	85	85	5			48				
-9	12:50	1.7	2.7	407.588	78	86	86	5			48				
-10	13:00	1.7	2.7	416.545	79	87	87	5			48				
-10	13:10	1.7	2.7	425.510	78	88	88	5			49				
-11	13:20	1.6	2.6	434.501	78	88	88	5			49				
-11	13:30	1.6	2.6	443.220	78	88	88	5			50				
-12				451.940											
-12															

Isokinetic Sampling Cover Sheet

Client:	PCC	Pitot Tube Cp:	0.84
Facility:	LPC - Milwaukie OR	Probe Length (Feet):	4
Test Location:	9203 - Inlet Center	Probe Liner Material:	Glass
Project #:	M232604	Sample Plane:	Hrztl. or Vert.
Test Method(s):	0061	Port Length ("):	✓
Test Engineer:	KS	Port Diameter ("):	✓
Test Technician:	PPP	Port Type:	Nipple
Upstream Diameters:		Duct Shape:	Circ. or Rect.
Downstream Diameters:		Diameter (Feet):	7.069
# of Ports Sampled:	2	Length (Feet):	
# of Points per Port:	12	Width (Feet):	
Source Condition:	Normal	Duct Area (Sq. Feet):	
Diluent Model/SN:	—	Minutes per Point:	20 / 10
Mid Gas ID/concentration:	— /%CO_2 — %O_2	Total Traverse Points:	24
High Gas ID/concentration:	— /%CO_2 — %O_2	Test Length (Min.):	480
Moisture Balance ID:		Train Type:	Silver

	R# 1	R# 2	R#
Meter ID:	CM11	CM11	
Pitot ID:	289	289	
Filter ID:	—	—	
Filter Pre-Weight (g):	—	—	
Nozzle Diameter ("):	0.199	0.199	
Meter Cal Factor (Y):	~~1.004~~ 0.994 (SB)	~~1.004~~ 0.994 (SB)	
Meter Orifice Setting (DH):	1.833	1.833	
Nozzle Kit ID:			
Individual Nozzle ID:			
Pre Pitot Leak Check:	0.0 @ 3.6 "H_2O	0.0 @ 3.3 "H_2O	@ "H_2O
Post Pitot Leak Check:	0.0 @ 4.0 "H_2O	0.0 @ 3.6 "H_2O	@ "H_2O
Pre Nozzle Leak Check:	0.002 @ 18 "Hg	0.002 @ 18 "Hg	@ "Hg
Post Nozzle Leak Check:	0.002 @ 20 "Hg	0.004 @ 16 "Hg	@ "Hg
Barometric Pressure,"Hg:	29.97	29.97	
Static Pressure, "H_2O:	-3.7	-3.5	
CO_2 %:	—		
O_2 %:	—		

Comments:

Isokinetic Sampling Field Data Sheet

Project Number: M232604
Client: PCC
Plant: LPC-Milwaukie OR
Date: 6/27/23
Test Location: 9203 Inlet-Center
Test Method: OOL
Test Number: 1
Operator: KE Test Tech: PPP
Page Number: 1 of 2

K-Calcs (Optional): K= [illegible] x 10

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	Square Root, ΔP	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
1-1	515	1.6	2.5	621.033	63	56	54	10			57	1.205	0.916	9.162	
1	525	1.4	2.3	627.300	61	63	56	10			62	1.183	0.825	8.257	630.195
2	535	1.2	2.0	635.100	62	59	56	13			63	1.095	0.763	7.637	638.152
2	545	1.2	2.0	646.100	61	65	57	13			41	1.095	0.763	7.637	645.987
3	555	1.3	2.1	654.200	63	66	58	13			47	1.140	0.784	7.844	653.536
3	605	1.3	2.1	661.600	63	61	58	13			50	1.140	0.784	7.844	661.378
4	615	1.3	2.1	669.507	64	61	57	13			62	1.140	0.784	7.844	669.214
4	625	1.4	2.3	677.310	64	61	58	13			62	1.183	0.825	8.257	677.055
5	635	1.4	2.3	685.530	65	61	58	14			62	1.183	0.825	8.257	685.312
5	645	1.4	2.3	693.032	65	61	55	15			61	1.183	0.825	8.257	693.561
6	655	1.4	2.3	701.555	64	61	58	15			60	1.183	0.825	8.257	701.526
6	705	1.5	2.5	710.559	64	62	59	15			60	1.225	0.843	8.426	719.252
7	715	1.5	2.5	720.135	65	62	60	15			60	1.225	0.843	8.426	727.678
7	725	1.4	2.3	727.860	65	63	60	15			62	1.183	0.825	8.257	735.935
8	735	1.4	2.3	735.000	64	64	61	16			62	1.183	0.825	8.257	735.935
8	745	1.4	2.3	743.550	64	64	67	16			61	1.183	0.825	8.257	744.192
9	755	1.3	2.1	751.980	65	64	62	16			59	1.140	0.789	7.843	752.449
9	805	1.4	2.3	760.310	65	64	62	16			59	1.183	0.825	8.257	760.292
10	815	1.5	2.5	769.240	66	65	63	16			58	1.225	0.843	8.426	768.549
10	825	1.5	2.5	776.860	65	66	64	16			58	1.225	0.843	8.426	776.975
11	835	1.5	2.5	785.560	66	66	64	16			58	1.225	0.843	8.426	785.401
11	845	1.5	2.5	793.830	67	67	64	16			58	1.225	0.843	8.426	793.827
12	855	1.4	2.3	802.160	67	68	65	16			60	1.183	0.825	8.257	802.253
12	905	1.5	2.5	810.330	67	68	66	16			61	1.225	0.843	8.426	810.510
	915			817.880											818.936

DS-005 M5 Isokinetic Field Data Sheet

Rev. 2.3

Isokinetic Sampling Field Data Sheet

Project Number: M232604
Client: PCC
Plant: PCC - Milwaukie, OR
Date: 6/27/23
Test Location: 9203 Inlet - Center
Test Method: 0061
Test Number: 1
Operator: GE
Test Tech: PPP
Page Number: 2 of 2

Port-Point #	Time	(ΔP)	1.621 Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional): Square Root, ΔP	K=0.69 x 10: Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
2-1	9:50	1.6	2.69	818.025	68	70	69	16			59	1.265	0.878	8.778	826.803
1	10:00	1.5	2.4	826.520	61	70	69	16			60	1.225	0.850	9.500	835.303
2	10:10	1.6	2.6	836.230	69	70	69	16			59	1.265	0.878	8.778	844.081
2	10:20	1.5	2.4	845.000	69	70	69	16			59	1.225	0.850	8.500	852.581
3	10:30	1.7	2.7	854.100	70	71	69	17			59	1.304	0.905	9.049	861.629
3	10:40	2.0	3.2	862.610	72	72	70	17			60	1.414	0.981	9.815	871.444
4	10:50	1.6	2.6	870.990	72	72	70	17			60	1.265	0.878	8.778	880.222
4	11:00	1.6	2.6	879.290	72	73	72	17			59	1.265	0.878	8.778	889.000
5	11:10	1.6	2.6	887.930	73	73	73	17			60	1.265	0.878	8.778	897.778
5	11:20	1.6	2.6	896.230	73	73	74	17			60	1.265	0.878	8.778	906.556
6	11:30	1.7	2.7	905.160	73	76	75	17			59	1.304	0.905	9.049	915.605
6	11:40	1.7	2.7	913.650	73	78	76	17			59	1.304	0.905	9.049	924.654
7	11:50	1.7	2.7	922.310	72	80	78	17			59	1.304	0.905	9.049	933.703
7	12:00	1.7	2.7	931.550	74	83	80	17			61	1.304	0.905	9.049	942.752
8	12:10	1.6	2.6	940.090	74	84	82	17			57	1.265	0.878	8.778	951.801
8	12:20	1.6	2.6	948.930	75	85	83	17			56	1.265	0.878	8.778	960.579
9	12:30	1.6	2.6	959.220	76	87	85	17			56	1.265	0.878	8.778	969.357
9	12:40	1.7	2.7	968.540	76	90	87	17			55	1.304	0.905	9.049	978.135
10	12:50	1.7	2.7	977.950	77	90	87	17			54	1.304	0.905	9.049	987.184
10	13:00	1.8	2.9	985.000	77	92	89	17			54	1.341	0.931	9.307	996.233
11	13:10	1.8	2.9	994.180	76	93	90	17			54	1.341	0.931	9.307	1005.540
11	13:20	1.5	2.4	1003.190	77	94	91	17			57	1.225	0.850	8.500	1014.847
12	13:30	1.6	2.6	1011.560	77	94	92	17			53	1.265	0.878	8.778	1023.347
12	13:40	1.5	2.4	1020.740	77	95	93	16			54	1.225	0.850	8.500	1032.125
	13:50			1029.090											

DS-005 M5 Isokinetic Field Data Sheet

Rev. 2.3

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6/30/23	Test Number:	2
Client:	PCC	Test Location:	9203 Inlet - Center	Operator:	PPP Test Tech:
Plant:	LPCC Milwaukie, OR	Test Method:	0061	Page Number:	1 of 2

Port-Point #	Time	(ΔP)	1.691 Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional) Square Root, ΔP	K=0.712 Meter Rate, Cubic Feet/ Min.	x 10 Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
1-1	5:25	1.3	2.198	31.956	68	60	58	3			58	1.140	0.812	8.118	
1	5:35	1.2	2.0	40.230	68	62	58	3			58	1.095	0.780	7.780	40.074
2	5:45	1.1	1.9	48.410	67	65	60	3			58	1.049	0.747	7.468	47.874
2	5:55	1.1	1.9	55.440	66	65	60	3			55	1.049	0.747	7.468	55.342
3	6:05	1.1	1.9	62.970	67	66	61	3			54	1.049	0.747	7.468	62.810
3	6:15	1.1	1.9	70.580	67	67	60	3			51	1.049	0.747	7.468	70.278
4	6:25	1.1	1.9	77.670	67	67	61	3			51	1.049	0.747	7.468	77.746
4	6:35	1.1	1.9	85.430	68	68	62	3			51	1.049	0.747	7.468	85.214
5	6:45	1.1	1.9	92.510	69	69	62	3			52	1.049	0.747	7.468	92.682
5	6:55	1.1	1.9	99.750	68	69	64	3			51	1.049	0.747	7.468	100.150
6	7:05	1.1	1.9	~~99~~ 107.460	68	70	64	3			52	1.049	0.747	7.468	107.618
6	7:15	1.1	1.9	115.480	69	70	65	3			52	1.049	0.747	7.468	115.086
7	7:25	1.1	1.9	122.820	67	70	65	3			53	1.049	0.747	7.468	122.538
7	7:35	1.1	1.9	130.830	68	70	66	3			52	1.049	0.747	7.468	129.996
8	7:45	1.1	1.9	138.140	68	72	66	3			53	1.049	0.747	7.468	137.464
8	7:55	1.1	1.9	145.530	68	71	67	3			52	1.049	0.747	7.468	144.932
9	8:05	1.1	1.9	153.540	68	72	67	3			53	1.049	0.747	7.468	152.400
9	8:15	1.1	1.9	160.410	68	72	68	3			53	1.049	0.747	7.468	159.868
10	8:25	1.1	1.9	168.130	68	73	68	3			53	1.049	0.747	7.468	167.336
10	8:35	1.1	1.9	175.640	69	73	69	3			52	1.049	0.747	7.468	174.804
11	8:45	1.1	1.9	181.910	70	74	70	3			52	1.049	0.747	7.468	182.272
11	8:55	1.1	1.9	189.580	69	74	70	3			53	1.049	0.747	7.468	189.740
12	9:05	1.1	1.9	196.820	71	72	71	3			52	1.049	0.747	7.468	197.208
12	9:15	1.1	1.9	204.130	71	76	71	3			53	1.049	0.747	7.468	204.676
	9:25			212.090											212.084

DS-005 M5 Isokinetic Field Data Sheet Rev. 2.3 11/3/2022

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6/30/23	Test Number:	2
Client:	PCC	Test Location:	9203 Inlet Center	Operator:	Test Tech:
Plant:	LPC - Milwaukie, OR	Test Method:	0061	Page Number:	2 of 2

DGM

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	1.691 Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional) Square Root, ΔP	K= 0.712x 10 Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
2-1	10:00	1.6	2.7	216.00	71	70	68	3			57	1.265	0.901	9.006	216.911
1	10:10	1.5	2.5	220.400	71	73	69	4			59	1.225	0.872	8.72	225.917
2	10:20	1.5	2.5	231.900	~~75~~ 72	~~74~~ 74	~~72~~ 70	2			61	1.225	0.872	8.72	234.637
2	10:30	1.5	2.5	235.84	72	75	70	2			59	1.225	0.872	8.72	234.637
3	10:40	1.5	2.5	244.90	72	77	71	4			60	1.225	0.872	8.72	243.357
3	10:50	1.5	2.5	253.40	72	78	72	4			62	1.225	0.872	8.72	252.077
4	11:00	1.6	2.7	262.0	73	80	74	4.5			63	1.265	0.901	9.01	260.797
4	11:10	1.6	2.7	270.7	73	81	76	4.5			64	1.265	0.901	9.01	269.803
5	11:20	1.6	2.7	279.5	75	83	78	4			60	1.265	0.901	9.01	278.813
5	11:30	1.7	2.9	288.0	76	85	81	4			55	1.304	0.928	9.28	287.823
6	11:40	1.7	2.9	296.6	75	87	83	4			55	1.304	0.928	9.28	297.106
6	11:50	1.6	2.7	305.2	75	90	85	4			55	1.265	0.901	9.01	306.386
7	12:00	1.6	2.7	313.8	77	91	86	4			54	1.265	0.901	9.01	315.396
7	12:10	1.6	2.7	322.0	78	93	88	5			55	1.265	0.901	9.01	324.406
8	12:20	1.6	2.7	333.1	77	94	89	5			56	1.265	0.901	9.01	333.416
8	12:30	1.6	2.7	342.34	78	95	90	5			56	1.265	0.901	9.01	342.426
9	12:40	1.6	2.7	352.6	78	96	91	4			56	1.265	0.901	9.01	351.436
9	12:50	1.6	2.7	361.7	79	97	92	4			56	1.265	0.901	9.01	360.446
10	13:00	1.5	2.5	369.7	78	97	93	4			55	1.225	0.872	8.72	369.456
10	13:10	1.5	2.5	378.2	79	98	94	4			56	1.225	0.872	8.72	378.176
~~11~~	~~13:20~~														386.896
~~11~~	~~13:30~~														
~~12~~	~~13:40~~														
~~12~~	~~13:50~~														
11	13:20	1.5	2.5	384.4	79	97	94	4			56	1.225	0.872	8.72	386.896
11	13:30	1.5	2.5	392.1	80	99	95	4			57	1.225	0.872	8.72	395.616
12															
12															

3:15 → lost flow for ~2min

Isokinetic Sampling Cover Sheet

Client:	Pcc Structurals, Inc.	**Pitot Tube Cp:**	0.840
Facility:	Large Parts Campus Milwaukie, OR	**Probe Length (Feet):**	4
Test Location:	9203 Inlet - South	**Probe Liner Material:**	Glass
Project #:	M232604	**Sample Plane:**	Hrztl. or Vert
Test Method(s):	0061	**Port Length ("):**	4
Test Engineer:	NLC	**Port Diameter ("):**	4
Test Technician:	PPP	**Port Type:**	Nipple
Upstream Diameters:	2.0	**Duct Shape:**	Circ or Rect.
Downstream Diameters:	78.0	**Diameter (Feet):**	3.0
# of Ports Sampled:	2	**Length (Feet):**	—
# of Points per Port:	12	**Width (Feet):**	—
Source Condition:	Normal	**Duct Area (Sq. Feet):**	7.069
Diluent Model/SN:	—	**Minutes per Point:**	20 (10/reading)
Mid Gas ID/concentration:	— /%CO2 — %O2	**Total Traverse Points:**	24
High Gas ID/concentration:	— /%CO2 — %O2	**Test Length (Min.):**	480
Moisture Balance ID:		**Train Type:**	Hot Box

	R# 1	R# 2	R#
Meter ID:	CM10	CM10	
Pitot ID:	291	291	
Filter ID:	—	—	
Filter Pre-Weight (g):	—	—	
Nozzle Diameter ("):	.195	.195	
Meter Cal Factor (Y):	.990	.990	
Meter Orifice Setting (DH):	1.849	1.849	
Nozzle Kit ID:	Teflon	Teflon	
Individual Nozzle ID:			
Pre Pitot Leak Check:	✓ @ 4.5 "H_2O	✓ @ 4.5 "H_2O	@ "H_2O
Post Pitot Leak Check:	✓ @ 4.5 "H_2O	✓ @ 4.5 "H_2O	@ "H_2O
Pre Nozzle Leak Check:	.000 @ 21 "Hg	.000 @ 18 "Hg	@ "Hg
Post Nozzle Leak Check:	.000 @ 18 "Hg	.000 @ 16 "Hg	@ "Hg
Barometric Pressure, "Hg:	29.97	~~30.05~~ 29.97	
Static Pressure, "H_2O:	-3.7	-3.7	
CO_2 %:	—	—	
O_2 %:	—	—	

Comments:

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6/27/23	Test Number:	1
Client:	PCC Structurals, Inc	Test Location:	9203 Inlet-South	Operator:	NCC Test Tech: PPP
Plant:	LPC Milwaukie, OR	Test Method:	0061	Page Number:	1 of 2

Port-Point #	Time	x (ΔP)	K'=1.529 Orifice Setting (ΔH)	Meter Volume (V_m) ft^3, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional) √x Square Root, ΔP	K= .685 Meter Rate, Cubic Feet/ Min.	x 10 Theoretical Meter Volume, (V_m) ft^3, per point	Theoretical Meter Volume, (V_m) ft^3, total
1-1	515	1.3	2.0	35.151	65	59	59	11			61	1.140	.781	7.810	—
1	525	1.3	2.0	43.04	65	60	59	11			60	1.140	.781	7.810	42.961
2	535	1.3	2.0	50.84	65	61	59	11			60	1.140	.781	7.810	50.771
2	545	1.2	1.8	58.66	66	63	59	11			58	1.095	.750	7.504	58.561
3	555	1.2	1.8	66.15	66	63	60	11			57	1.095	.750	7.504	66.085
3	605	1.0	1.5	73.65	66	63	60	9			57	1.000	.685	6.850	73.589
4	645	1.0	1.5	80.51	66	64	60	9			57	1.000	.685	6.850	80.439
4	625	1.0	1.5	87.36	66	64	60	9			56	1.000	.685	6.850	87.289
5	635	1.2	1.8	94.22	66	65	61	10			56	1.095	.750	7.504	94.139
5	645	1.2	1.8	101.71	65	66	61	10			57	1.095	.750	7.504	101.643
6	655	1.0	1.5	109.23	65	66	62	9			58	1.000	.685	6.850	109.147
6	705	1.0	1.5	116.06	66	67	62	9			58	1.000	.685	6.850	115.997
7	715	1.0	1.5	122.92	66	67	63	9			57	1.000	.685	6.850	122.847
7	725	1.0	1.5	129.77	66	68	63	9			57	1.000	.685	6.850	129.697
8	735	1.0	1.5	136.63	66	68	63	10			58	1.000	.685	6.850	136.547
8	745	1.0	1.5	143.44	66	69	63	10			59	1.000	.685	6.850	143.397
9	755	1.1	1.7	150.32	66	69	64	10			57	1.049	.718	7.184	150.249
9	805	1.0	1.5	157.51	65	69	64	10			55	1.000	.685	6.850	157.433
10	815	1.0	1.5	166.317	66	69	64	10			61	1.000	.685	6.850	164.283
10	825	1.0	1.5	172.42	66	70	64	10			57	1.000	.685	6.850	171.133
11	835	1.1	1.7	179.23	67	71	65	10			57	1.049	.718	7.184	177.983
11	845	1.1	1.7	185.88	67	70	65	10			59	1.049	.718	7.184	185.167
12	855	1.1	1.7	192.12	69	71	66	10			62	1.049	.718	7.184	192.351
12	905	~~1.1~~	~~1.7~~	198.55	~~71~~	~~72~~	~~66~~	~~10~~			~~62~~	~~1.049~~	~~.718~~	~~7.184~~	199.535 Nick
	915			206.777											206.719

Isokinetic Sampling Field Data Sheet

Project Number: M232604 Date: 6/27/23 Test Number: 1

Client: PCC Test Location: 9203 Inlet South Operator: KCC Test Tech: PPP

Plant: LPC Milwaukie, OR Test Method: 0061 Page Number: 2 of 2

			K' = 1.529									K-Calcs (Optional)			
													K= .685 x 10		
Port-Point #	Time	X (ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft^3, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	√X Square Root, ΔP	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft^3, per point	Theoretical Meter Volume, (V_m) ft^3, total
2-1	930	1.1	1.7	207.551	69	73	68	10			56	1.049	.7184	7.184	—
1	940	1.1	1.7	215.27	70	73	68	10			57	1.049	.7184	7.184	214.735
2	950	1.1	1.7	218.15	70	74	68	10			56	1.049	.7184	7.184	221.919
2	1000	1.2	1.8	225.62	69	73	68	15			58	1.095	.7504	7.504	229.103
3	1010	1.1	1.7	233.05	70	73	69	17			58	1.049	.7184	7.184	236.607
3	1020	.97	1.5	243.52	74	72	68	17			59	.9849	.6746	6.746	243.791
4	1030	1.1	1.7	251.02	73	73	68	16			60	1.049	.7184	7.184	250.537
4	1040	1.1	1.7	259.64	73	72	68	13			60	1.049	.7184	7.184	257.721
5	1050	1.1	1.7	266.25	73	76	67	10			64	1.049	.7184	7.184	264.905
5	1100	1.2	1.8	273.76	72	74	68	10			59	1.095	.7504	7.504	272.089
6	~~1070~~ 1110	1.3	2.0	282.09	73	75	68	10			57	1.4[illegible]	.9658	9.658	279.593
6	1120	1.2	1.8	288.97	74	74	70	10			59	1.095	.7504	7.504	289.251
7	1130	1.2	1.8	295.98	74	75	70	10			59	1.095	.7504	7.504	296.755
7	1140	1.2	1.8	303.66	74	75	70	11			60	1.095	.7504	7.504	304.259
8	1150	1.3	2.0	311.54	73	75	72	11			60	1.410	.9658	9.658	311.763
8	1200	1.3	2.0	319.12	75	76	70	11			61	1.410	.9658	9.658	321.421
9	1210	1.2	1.8	327.12	76	76	71	11			61	1.095	.7504	7.504	331.079
9	1220	1.3	2.0	336.35	77	77	73	17			61	1.410	.9658	9.658	338.583
10	1230	1.2	1.8	345.32	77	78	72	17			60	1.095	.7504	7.504	348.241
10	1240	1.2	1.8	355.36	77	77	73	17			61	1.095	.7504	7.504	355.745
11	1250	1.3	2.0	364.56	79	79	72	17			60	1.410	.9658	9.658	363.249
11	1300	1.3	2.0	373.87	78	78	73	10			59	1.410	.9658	9.658	372.907
12	1310	1.3	2.0	381.23	78	81	74	10			59	1.410	.9658	9.658	382.565
12	1320	1.3	2.0	389.13	78	[illegible]	76	10			59	1.410	.9659	9.658	392.223
	1330	—	—	399.65	—	—	—	—	—	—	—	—	—	—	401.881

Isokinetic Sampling Field Data Sheet

Project Number: M232604 | Date: 6-30-2023 | Test Number: 2

Client: PCC | Test Location: 9203 Inlet South | Operator: MTD | Test Tech: NCC

Plant: LPCF - Milwaukie | Test Method: 0061 | Page Number: 1 of 2

Port-Point #	Time	K (ΔP)	K = 1.537 Orifice Setting (ΔH)	Meter Volume (V_m) ft^3, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional): √ x Square Root, ΔP	K= .689 Meter Rate, Cubic Feet/ Min.	x 10 Theoretical Meter Volume, (V_m) ft^3, per point	Theoretical Meter Volume, (V_m) ft^3, total
1-1	525	1.2	1.8	5.634	67	59	60	3			54	1.095	.755	7.548	—
1	535	1.2	1.8	12.253	67	63	60	5			57	1.095	.755	7.548	12.912
2	545	1.2	1.8	20.17	67	67	61	5			64	1.095	.755	7.548	20.460
2	555	1.2	1.8	27.92	66	70	62	5			65	1.095	.755	7.548	28.008
3	605	1.2	1.8	36.18	66	71	63	5			60	1.095	.755	7.548	35.556
3	615	1.1	1.7	43.91	66	74	65	5			62	1.049	.723	7.226	43.104
4	625	1.1	1.7	51.02	66	72	65	5			62	1.049	.723	7.226	50.330
4	635	1.1	1.7	58.37	66	72	65	5			59	1.049	.723	7.226	57.556
5	645	1.1	1.7	65.55	66	74	66	5			59	1.049	.723	7.226	64.782
5	655	1.1	1.7	72.34	66	75	67	5			59	1.049	.723	7.226	72.008
6	705	1.0	1.5	79.85	66	75	67	5			58	1.000	.689	6.890	79.234
6	715	1.1	1.7	87.01	66	73	67	5			59	1.049	.723	7.226	86.124
7	725	1.1	1.7	93.42	66	74	68	5			60	1.049	.723	7.226	93.35
7	735	1.1	1.7	100.02	66	74	68	5			63	1.049	.723	7.226	100.576
8	745	1.1	1.7	107.08	67	74	69	5			61	1.049	.723	7.226	107.802
8	755	1.1	1.7	114.52	67	75	69	5			61	1.049	.723	7.226	115.028
9	805	1.2	1.8	122.61	69	76	70	5			61	1.095	.755	7.548	122.254
9	815	1.2	1.8	129.47	70	76	70	5			61	1.095	.755	7.548	129.802
10	825	1.1	1.7	137.91	69	77	70	5			60	1.049	.723	7.226	137.350
10	835	1.0	1.5	145.14	69	77	70	5			61	1.000	.689	6.890	144.576
11	845	1.1	1.7	152.36	69	77	71	5			61	1.049	.723	7.226	151.466
11	855	1.2	1.8	159.12	69	79	71	5			61	1.095	.755	7.548	158.692
12	905	1.1	1.7	166.95	69	78	71	5			62	1.049	.723	7.226	166.240
12	915	1.2	1.8	174.22	69	77	72	5			64	1.095	.755	7.548	173.466
	925	—	—	181.261	—	—	—	—	—	—	—	—	—	—	~~181.014~~
		—													

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6-30-2023	Test Number:	2
Client:	PCC	Test Location:	9203 Inlet South	Operator:	MTD Test Tech: NCC
Plant:	LPCF - Milwaukie	Test Method:	0061	Page Number:	2 of 2

			K' = 1.523									K-Calcs (Optional)			
													K= .689	x 10	
Port-Point #	Time	X (ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft^3, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	Square Root, ΔP	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft^3, per point	Theoretical Meter Volume, (V_m) ft^3, total
2-1	1000	1.0	1.5	181.381	72	78	72	5			66	1.000	.689	6.890	——
1	1010	1.2	1.8	188.93	72	78	72	5			66	1.095	.755	7.548	188.271
2	1020	1.1	1.7	196.39	73	80	75	5			67	1.049	.723	7.228	195.819
2	1030	1.1	1.7	203.82	73	80	74	5			67	1.049	.723	7.228	203.047
3	1040	1.1	1.7	210.51	74	81	74	5			66	1.049	.723	7.228	210.275
3	1050	1.2	1.8	218.72	75	81	75	5			65	1.095	.755	7.548	217.503
4	1100	1.1	1.7	225.86	76	82	78	5			64	1.049	.723	7.228	225.051
4	1110	1.1	1.7	231.79	76	81	76	6			64	1.049	.723	7.228	232.279
5	1120	1.2	1.8	238.95	76	82	77	5			60	1.095	.755	7.548	239.507
5	1130	1.1	1.7	247.52	77	83	78	5			58	1.049	.723	7.228	247.775
6	1140	1.2	1.8	254.87	78	82	80	5			58	1.095	.755	7.548	255.003
6	1150	1.1	1.7	262.62	78	81	80	5			57	1.049	.723	7.228	262.551
7	1200	1.1	1.7	270.24	79	79	79	5			57	1.049	.723	7.228	269.779
7	1210	1.1	1.7	277.87	81	79	78	5			58	1.049	.723	7.228	277.007
8	1220	1.2	1.8	284.81	82	79	76	5			58	1.095	.755	7.548	284.235
8	1230	1.1	1.7	292.52	80	78	75	4			59	1.049	.723	7.228	291.783
9	1240	1.1	1.7	299.77	81	79	76	5			59	1.049	.723	7.228	299.011
9	1250	1.1	1.7	306.22	82	81	78	5			60	1.049	.723	7.228	306.239
10	1300	1.0	1.5	314.01	81	82	79	5			62	1.000	.689	6.890	313.467
10	1310	1.1	1.7	321.87	82	83	80	5			67	1.049	.723	7.228	320.357
11	1320	1.3	2.0	328.55	82	84	81	5			67	1.140	.786	7.856	327.595
11	1330			335.56											335.446
12	1340														
12	1350														
	1400	——	——		——	——	——	——	——	——	——	——	——	——	

Isokinetic Sampling Cover Sheet

Client:	PCC Structural Inc.	Pitot Tube Cp:	
Facility:	Large Parts Campus Milwaukie OR	Probe Length (Feet):	3
Test Location:	BH9203 Outlet North	Probe Liner Material:	Glass
Project #:	M232604	Sample Plane:	Hrzl. or Vert.
Test Method(s):	29	Port Length ("):	4.0
Test Engineer:	VTV	Port Diameter ("):	4.0
Test Technician:	CIR1	Port Type:	Flange
Upstream Diameters:	7.5	Duct Shape:	Circ. or Rect.
Downstream Diameters:	72.0	Diameter (Feet):	2.873
# of Ports Sampled:	2	Length (Feet):	—
# of Points per Port:	12	Width (Feet):	—
Source Condition:	Normal	Duct Area (Sq. Feet):	6.305
Diluent Model/SN:	—	Minutes per Point:	20
Mid Gas ID/concentration:	— /% CO_2 % O_2	Total Traverse Points:	24
High Gas ID/concentration:	— /% CO_2 % O_2	Test Length (Min.):	480
Moisture Balance ID:		Train Type:	Anderson

	VTV R# 1	R# 2	R#
Meter ID:	~~CM1~~ CM1	CM1	
Pitot ID:	961	961	
~~Filter ID:~~			
~~Filter Pre-Weight (g):~~			
Nozzle Diameter ("):	0.215	0.215	
Meter Cal Factor (Y):	1.003	1.003	
Meter Orifice Setting (DH):	1.570	1.570	
Nozzle Kit ID:	Glass 1	Glass 6	
Individual Nozzle ID:	31	31	
Pre Pitot Leak Check:	0 @ 5 "H_2O	0 @ 5 "H_2O	@ "H_2O
Post Pitot Leak Check:	0 @ 5 "H_2O	0 @ 5 "H_2O	@ "H_2O
Pre Nozzle Leak Check:	0 @ 15 "Hg	0 @ 10 "Hg	@ "Hg
Post Nozzle Leak Check:	0 @ 15 "Hg	0 @ 15 "Hg	@ "Hg
Barometric Pressure, "Hg:	29.97	29.97	
Static Pressure, "H_2O:	0.5	0.5	
CO_2 %:	0	0	
O_2 %:	11	21	

Comments:

North

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	06/27/2023	Test Number:	1
Client:	PCC Structurals Inc.	Test Location:	BH 9203 outlet N	Operator:	VTV Test Tech: CR1
Plant:	LPC Milwaukie OR	Test Method:	29	Page Number:	1 of 2

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional) Square Root, ΔP	K= Meter Rate, Cubic Feet/ Min.	x Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
1-1	5:15	0.83	1.70	46.468	65	58	58	0	260	250	45				
1	5:25	0.85	1.70	54.250	67	62	58	0	260	260	48				
2	5:35	0.87	1.80	62.130	66	65	59	0	260	260	41				
2	5:45	1.00	2.00	70.160	67	68	60	0	260	262	49				
3	5:55	1.10	2.00	78.150	66	70	61	0	260	260	49				
3	6:05	1.10	2.00	86.910	67	72	63	2	258	260	50				
4	6:15	1.10	2.20	95.710	67	73	64	2	260	260	51				
4	6:25	1.30	2.60	104.240	67	74	65	3	252	260	51				
5	6:35	1.20	2.40	113.530	67	75	66	3	260	260	52				
5	6:45	1.20	2.40	122.850	67	76	67	4	260	260	54				
6	6:55	1.20	2.40	132.330	68	77	68	4	260	260	57				
6	7:05	1.20	2.40	141.879	69	78	69	4	250	260	59				
7	7:15	1.20	2.40	151.420	69	80	72	5	260	260	61				
7	7:25	1.20	2.40	160.470	70	83	74	5	250	260	62				
8	7:35	1.20	2.50	169.790	70	84	77	5	260	260	59				
8	7:45	1.20	2.50	179.569	69	84	78	4	260	260	52				
9	7:55	1.10	2.20	188.830	69	83	77	~~360~~ 4	260	260	51				
9	8:05	1.10	2.30	197.79	67	82	77	3	250	260	53				
10	8:15	1.00	2.00	206.75	69	82	76	3	260	260	53				
10	8:25	1.00	2.00	215.530	69	81	76	2	260	260	50				
11	8:35	0.88	1.80	223.680	69	82	76	2	260	260	53				
11	8:45	0.88	1.80	232.330	71	83	77	3	250	260	56				
12	8:55	0.87	1.80	240.470	71	85	79	3	260	260	58				
12	9:05	0.88	1.80	248.220	74	88	81	2	250	260	61				
	9:15	0.89	1.80	255.431	75	88	82	3	260	260	64				

North

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	06/27/23	Test Number:	1
Client:	PLC Structurals	Test Location:	BH9203 outlet N	Operator:	VTV Test Tech: CIR1
Plant:	LPC Milwaukie OR	Test Method:	29	Page Number:	2 of 2

Port-Point #	Time	1st Four ΔH VTV (ΔP)	1st Four DP Orifice Setting (ΔH)	Meter Volume (V_m) ft^3, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional) ~~Square Root, ΔP~~	~~K= Meter Rate, Cubic Feet/ Min.~~	~~x Theoretical Meter Volume, (V_m) ft^3, per point~~	~~Theoretical Meter Volume, (V_m) ft^3, total~~
2-1	9:33	1.60	0.78	256.281	76	91	89	5	260	260	65				
1	9:43	1.60	0.76	264.150	75	95	91	5	260	260	55				
2	9:53	1.70	0.82	271.420	75	95	91	5	262	262	55				
2	~~9:5~~ VTV 10:03	1.70	0.83	279.380	75	96	92	5	260	260	55				
3	10:13	0.90	1.90	287.210	75	95	91	5	260	260	53				
3	10:23	0.90	1.40	303.050	76	94	91	5	260	260	57				
4	10:33	1.00	2.00	308.540	77	97	92	5	260	260	58				
4	10:43	1.00	2.00	320.190	78	99	95	5	260	260	59				
5	10:53	1.10	2.30	329.905	78	100	96	5	260	260	58				
5	11:03	1.10	2.30	338.640	79	100	97	5	260	260	60				
6	11:13	1.10	2.30	347.940	79	101	98	5	260	260	61				
6	11:23	1.10	2.20	357.129	79	100	98	5	260	260	61				
7	11:33	1.20	2.50	366.410	79	100	98	5	260	260	61				
7	11:43	1.20	2.50	376.020	79	100	98	5	260	260	61				
8	11:53	1.20	2.50	385.670	80	100	98	5	260	260	61				
8	12:03	1.20	2.50	394.620	80	100	99	5	260	260	64				
9	12:13	1.10	2.30	397.950	80	100	99	3	260	260	67				
9	12:23	1.20	2.50	406.410	81	101	100	3	260	260	66				
10	12:33	1.10	2.30	416.790	82	100	101	3	260	260	67				
10	12:43	1.10	2.30	425.360	82	103	101	5	260	260	61				
11	12:53	1.00	2.00	434.350	83	104	102	6	260	260	60				
11	13:03	0.95	2.00	443.920	83	104	102	6	260	260	61				
12	13:13	0.96	2.00	452.120	83	104	103	5	260	260	63				
12	13:23	0.94	2.00	465.970	83	104	103	5	260	260	62				
	13:33			469.330											

IMPINGER WEIGHT SHEET

PLANT: PCC STRUCTURALS

UNIT NO: BAGHOUSE 9203

LOCATION: OUTLET NORTH

DATE: 6-27-23

TEST NO: #1

METHOD: M29

WEIGHED/MEASURED BY: CA

Scale ID Number S10-35

Scale Calibration Check Date: 6-27-23

Scale Calibration Check (see QS-6.05C for procedure)
must be within ± 0.5g of certified mass

250 grams 250.0

500 grams 500.1

750 grams 750.1

Circle One:	FINAL WEIGHT MLS / GRAMS	INITIAL WEIGHT MLS / GRAMS	IMPINGER GAIN	IMPINGER CONTENTS
IMPINGER 1	704.6	752.6		0.1N HNO_3/H_2O_2
IMPINGER 2	819.5	767.4		0.1N HNO_3/H_2O_2
IMPINGER 3	659.7	648.5		EMPTY
IMPINGER 4	761.5	762.3		$KMnO_4$
IMPINGER 5	707.9	706.2		$KMnO_4$
IMPINGER 6	859.6	814.4		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL IMPINGER GAIN

SILICA ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL SILICA GAIN

North

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	06/30/2023	Test Number:	2
Client:	PCC Structurals Inc.	Test Location:	BH9203 outlet N	Operator:	VTV Test Tech: CJR1
Plant:	Milwaukie OR	Test Method:	M29	Page Number:	1 of 2

												K-Calcs (Optional)			
													K=	x	
Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft^3, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	Square Root ΔP	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft^3, per point	Theoretical Meter Volume, (V_m) ft^3, total
1-1	5:25	1.00	2.00	28.873	70	64	64	0	248	249	55				
1	5:35	1.10	2.10	37.450	70	71	65	0	250	250	52				
2	5:45	1.10	2.20	46.510	70	75	67	0	250	255	54				
2	5:55	1.10	2.20	55.170	70	75	68	0	259	250	54				
3	6:05	1.10	2.20	64.370	70	75	68	0	247	250	54				
3	6:15	1.10	2.20	72.380	70	76	69	0	245	250	53				
4	6:25	1.10	2.20	81.560	69	78	71	3	254	251	52				
4	6:35	1.10	2.20	90.420	70	80	71	3	250	250	51				
5	6:45	1.10	2.20	98.830	70	79	72	3	253	248	51				
5	6:55	1.10	2.20	108.550	71	78	71	3	250	250	59				
6	7:05	1.10	2.20	117.250	71	78	71	3	250	250	50				
6	7:15	1.10	2.20	126.070	70	79	72	3	250	250	49				
7	7:25	1.10	2.20	135.210	72	78	72	3	250	249	48				
7	7:35	1.10	2.20	143.660	71	80	73	3	250	250	49				
8	7:45	1.10	2.20	152.980	71	79	74	3	250	250	50				
8	7:55	1.10	2.20	161.720	72	80	74	3	252	249	47				
9	8:05	1.10	2.20	171.070	71	81	73	3	249	245	45				
9	8:15	1.10	2.20	180.230	72	82	74	3	252	241	45				
10	8:25	1.10	2.20	188.740	72	81	74	3	251	250	45				
10	8:35	1.10	2.20	197.520	73	82	74	3	250	248	46				
11	8:45	1.10	2.20	206.319	73	82	75	3	252	250	46				
11	8:55	1.10	2.20	215.740	73	82	75	3	250	251	47				
12	9:05	1.10	2.20	224.450	75	81	75	3	246	252	47				
12	9:15	1.10	2.20	233.360	75	83	77	3	252	250	48				
	9:25			242.049											

North

Isokinetic Sampling Field Data Sheet

Project Number: M232604 Date: 06/30/2023 Test Number: 2

Client: PLC Structurals Inc Test Location: BH9203 outlet N Operator: VTV Test Tech: CIR1

Plant: Milwaukie OR Test Method: M29 Page Number: 2 of 2

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft^3, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional): ~~Square Root, ΔP~~	K= ~~Meter Rate, Cubic Feet/ Min.~~	x ~~Theoretical Meter Volume, (V_m) ft^3, per point~~	Theoretical Meter Volume, (V_m) ft^3, total
2-1	9:35	1.10	2.30	242.049	76	83	80	3	250	250	47				
1	9:45	1.10	2.20	251.320	77	87	81	3	251	251	48				
2	9:55	1.10	2.20	260.710	77	89	83	3	249	249	52				
2	10:05	1.10	2.20	269.850	78	90	83	3	250	250	49				
3	10:15	1.10	2.20	278.469	78	89	83	3	246	250	47				
3	10:25	1.10	2.20	287.570	79	88	84	3	247	250	47				
4	10:35	1.10	2.20	296.220	80	89	84	3	252	251	47				
4	10:45	1.10	2.20	305.540	80	89	85	3	253	252	49				
5	10:55	1.10	2.20	314.310	81	90	85	3	249	249	49				
5	11:05	1.10	2.20	323.930	80	90	85	3	250	250	50				
6	11:15	1.10	2.20	332.750	81	90	85	3	255	252	50				
6	11:25	1.10	2.20	341.340	83	91	85	3	252	256	51				
7	11:35	1.10	2.20	350.780	83	91	85	3	251	252	52				
7	11:45	1.10	2.20	360.120	84	93	86	3	257	252	53				
8	11:55	1.10	2.20	368.670	86	93	87	3	250	250	55				
8	12:05	1.10	2.20	377.260	85	93	87	3	250	248	56				
9	12:15	1.10	2.20	386.750	87	93	88	3	250	250	59				
9	12:25	1.10	2.20	395.510	86	93	88	3	251	256	51				
10	12:35	1.10	2.20	404.770	87	94	88	3	250	250	51				
10	12:45	1.10	2.20	414.220	89	94	88	3	244	251	53				
11	12:55	1.10	2.20	422.560	88	94	88	3	250	250	52				
11	13:05	1.10	2.20	431.480	89	94	88	3	250	250	52				
12	13:15	1.10	2.20	440.130	89	95	89	3	250	245	53				
12	13:25	1.10	2.20	450.110	90	95	89	3	250	250	56				
	13:35			458.925											

IMPINGER WEIGHT SHEET

PLANT: PCC STRUCTURALS

UNIT NO: ~~SOUTH OUTLET~~ BH9203

LOCATION: NORTH ~~SOUTH~~ OUTLET

DATE: 6-30-23

TEST NO: #2

METHOD: M29

WEIGHED/MEASURED BY: [signature]

Scale ID Number 510-35

Scale Calibration Check Date: 6-30-23

Scale Calibration Check (see QS-6.05C for procedure)
must be within ± 0.5g of certified mass

250 grams 250.0

500 grams 500.1

750 grams 750.1

Circle One:	FINAL WEIGHT MLS / GRAMS	INITIAL WEIGHT MLS / GRAMS	IMPINGER GAIN	IMPINGER CONTENTS
IMPINGER 1	756.3	766.1		HNO_3/H_2O_2
IMPINGER 2	806.0	765.6		HNO_3/H_2O_2
IMPINGER 3	675.3	651.5		EMPTY
IMPINGER 4	706.8	702.1		$KMnO_4$
IMPINGER 5	792.7	780.8		$KMnO_4$
IMPINGER 6	866.2	842.7		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL IMPINGER GAIN

SILICA ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL SILICA GAIN

Isokinetic Sampling Cover Sheet

Client:	PCC Structurals Inc.	Pitot Tube Cp:	
Facility:	Large Parts Campus Milwaukie OR	Probe Length (Feet):	3
Test Location:	BH9203 Outlet South	Probe Liner Material:	Glass
Project #:	M232604	Sample Plane:	Hrztl. or Vert.
Test Method(s):	29	Port Length ("):	4.0
Test Engineer:	VTV	Port Diameter ("):	4.0
Test Technician:	CJR2	Port Type:	Flange
Upstream Diameters:	7.5	Duct Shape:	Circ. or Rect.
Downstream Diameters:	72.0	Diameter (Feet):	2.873
# of Ports Sampled:	2	Length (Feet):	—
# of Points per Port:	12	Width (Feet):	—
Source Condition:	Normal	Duct Area (Sq. Feet):	6.305
Diluent Model/SN:	—	Minutes per Point:	20
Mid Gas ID/concentration:	— /% CO_2 % O_2	Total Traverse Points:	24
High Gas ID/concentration:	— /% CO_2 % O_2	Test Length (Min.):	480
Moisture Balance ID:		Train Type:	Anderson

	R# 1	R# 2	R#
Meter ID:	CM34	CM34	
Pitot ID:	4037	4037	
~~Filter ID:~~			
~~Filter Pre-Weight (g):~~			
Nozzle Diameter ("):	0.200	0.200	
Meter Cal Factor (Y):	1.003	1.003	
Meter Orifice Setting (DH):	1.758	1.758	
Nozzle Kit ID:	TN8 Glass	TN8 Glass	
Individual Nozzle ID:	36	36	
Pre Pitot Leak Check:	0 @ 5 "H_2O	0 @ 5 "H_2O	@ "H_2O
Post Pitot Leak Check:	0 @ 5 "H_2O	0 @ 5 "H_2O	@ "H_2O
Pre Nozzle Leak Check:	0 @ 15 "Hg	0 @ 10 "Hg	@ "Hg
Post Nozzle Leak Check:	0 @ 15 "Hg	0 @ 15 "Hg	@ "Hg
Barometric Pressure, "Hg:	29.97	29.97	
Static Pressure, "H_2O:	0.5	0.5	
CO_2 %:	0	0	
O_2 %:	21	21	

Comments:

South

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	06/27/2023	Test Number:	1
Client:	PCC Structurals	Test Location:	BH9203 Outlet S	Operator:	VTV Test Tech: CJR2
Plant:	LPL Milwaukie OR	Test Method:	29	Page Number:	1 of 2

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional): ~~Square Root, ΔP~~	~~K= Meter Rate, Cubic Feet/ Min.~~	~~x Theoretical Meter Volume, (V_m) ft³, per point~~	~~Theoretical Meter Volume, (V_m) ft³, total~~
1-1	5:15	1.70	2.70	70.013	68	59	59	7	250	250	45	VTV			
1	5:25	1.20	1.90	78.740	69	62	59	8	250	250	~~52~~ 49				
2	5:35	1.39	2.10	87.350	69	66	60	7	250	250	54				
2	5:45	1.20	2.00	95.520	68	69	61	5	250	250	56				
3	5:55	1.30	2.20	103.430	68	71	62	6	250	250	55				
3	6:05	1.30	2.20	112.270	69	73	64	6	250	250	56				
4	6:15	1.30	2.20	120.420	69	73	65	7	250	250	56				
4	6:25	1.30	2.20	128.610	71	74	66	7	250	250	58				
5	6:35	1.30	2.20	136.220	70	75	66	8	250	250	58				
5	6:45	1.30	2.20	144.930	70	74	67	8	250	250	59				
6	6:55	1.30	2.20	153.520	70	75	67	8	250	250	60				
6	7:05	1.20	2.00	161.550	71	76	68	7	250	250	60				
7	7:15	1.20	2.00	169.120	72	79	70	7	250	250	60				
7	7:25	1.20	2.00	177.750	73	80	72	7	250	250	60				
8	7:35	1.10	1.90	185.82	74	81	75	7	250	250	55				
8	7:45	1.20	2.00	193.840	72	79	74	6	250	250	51				
9	7:55	1.10	1.90	201.920	71	78	73	6	250	250	50				
9	8:05	1.10	1.90	209.680	71	78	72	5	250	250	49				
10	8:15	0.89	1.50	217.020	71	77	72	6	250	250	51				
10	8:25	0.89	1.50	224.220	71	77	71	5	250	250	52				
11	8:35	0.77	1.30	230.910	71	78	71	5	250	250	52				
11	8:45	0.75	1.30	237.460	71	79	73	5	250	250	53				
12	8:55	0.73	1.20	243.730	74	81	75	5	250	250	55				
12	~~9~~ 9:05	0.72	1.20	250.070	76	84	78	5	250	250	56				
	9:15	0.73	1.20	256.150	76	84	78	5	250	250	56				

VTV

South

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	06/27/2023	Test Number:	1
Client:	PCL Structurals Inc.	Test Location:	BH9203 outlet S	Operator:	VTV Test Tech: CIS2
Plant:	LPL Milwaukie OR	Test Method:	29	Page Number:	2 of 2

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional): Square ~~Root~~, ΔP	~~K=~~ ~~Meter Rate, Cubic Feet/ Min.~~	x ~~Theoretical Meter Volume, (V_m) ft³, per point~~	Theoretical Meter Volume, (V_m) ft³, total
2-1	9:33	0.79	1.40	256.509	80	84	83	6	250	250	52				
1	9:43	0.79	1.30	268.710	78	88	84	7	250	250	51				
2	9:53	0.80	1.40	275.780	78	88	85	7	250	250	51				
2	10:03	0.80	1.40	282.410	78	88	85	7	250	250	52				
3	10:13	0.89	1.70	288.080	77	89	84	7	250	250	52				
3	10:23	0.89	1.50	295.390	77	90	85	7	250	250	52				
4	10:33	1.10	1.90	303.460	78	93	86	7	250	250	53				
4	10:43	1.10	1.90	311.160	81	93	88	7	250	250	54				
5	10:53	1.10	1.90	318.660	81	93	88	7	250	250	55				
5	11:03	1.10	1.90	326.980	81	93 VTV	88	7	250	250	55				
6	11:13	1.20	2.00	334.550	81	~~92~~ 92	89	6	250	250	55				
6	11:23	1.20	2.00	342.870	82	92	90	7	250	250	57				
7	11:33	1.20	2.00	350.360	83	92	89	7	250	250	57				
7	11:43	1.20	2.00	358.240	81	94	89	7	250	250	57				
8	11:53	1.10	1.90	366.800	83	94	90	7	250	250	58				
8	12:03	1.10	1.90	374.020	82	93	90	7	250	250	60				
9	12:13	1.10	1.90	377.890	83	91	89	7	250	250	56				
9	12:23	1.10	1.90	385.760	85	93	90	7	250	250	56				
10	12:33	0.93	1.60	393.130	85	95	90	7	250	250	56				
10	12:43	0.95	1.60	400.880	86	95	91	5	250	250	57				
11	12:53	0.96	1.60	407.510	86	94	92	5	250	250	60				
11	13:03	0.97	1.70	415.110	86	94	91	6	250	250	61				
12	13:13	0.92	1.60	422.340	86	95	91	6	250	250	62				
12	13:23	0.92	1.60	429.460	87	95	92	7	250	250	62				
	13:33			436.549											

IMPINGER WEIGHT SHEET

PLANT: PCC STRUCTURALS

UNIT NO: BAGHOUSE 9203

LOCATION: OUTLET SOUTH

DATE: 6-27-23

TEST NO: #1

METHOD: M29

WEIGHED/MEASURED BY: CF

Scale ID Number SIO-85

Scale Calibration Check Date: 6-27-23

Scale Calibration Check (see QS-6.05C for procedure)
must be within ± 0.5g of certified mass

250 grams 250.0

500 grams 500.1

750 grams 750.1

Circle One:	FINAL WEIGHT MLS / GRAMS	INITIAL WEIGHT MLS / GRAMS	IMPINGER GAIN	IMPINGER CONTENTS
IMPINGER 1	681.5	720.8		0.1N HNO_3/H_2O_2
IMPINGER 2	723.1	722.4		0.1N HNO_3/H_2O_2
IMPINGER 3	666.4	644.2		EMPTY
IMPINGER 4	796.9	771.4		$KMnO_4$
IMPINGER 5	698.4	684.6		$KMnO_4$
IMPINGER 6	913.3	867.8		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS ____ FINAL TOTAL ____ INITIAL TOTAL ____ TOTAL IMPINGER GAIN

SILICA ____ FINAL TOTAL ____ INITIAL TOTAL ____ TOTAL SILICA GAIN

South

Isokinetic Sampling Field Data Sheet

Project Number: M232604
Client: PLC Structurals Inc
Plant: Milwaukie OR

Date: 06/30/2023
Test Location: BH9203 outlet South
Test Method: M29

Test Number: 2
Operator: VTV
Test Tech: LER1
Page Number: 1 of 2

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft^3, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional) Square Root, ΔP	K= Meter Rate, Cubic Feet/ Min.	x Theoretical Meter Volume, (V_m) ft^3, per point	Theoretical Meter Volume, (V_m) ft^3, total
1-1	5:25	0.98	1.70	95.536	71	67	65	5	249	249	45				
1	5:35	0.97	1.60	102.870	71	66	66	5	249	250	53				
2	5:45	0.96	1.60	110.220	72	76	68	5	250	251	45				
2	5:55	0.95	1.60	117.230	72	77	69	5	250	249	46				
3	6:05	0.94	1.60	124.160	71	79	69	5	250	250	46				
3	6:15	0.98	1.70	131.186	72	79	70	5	250	248	47				
4	6:25	1.00	1.70	138.620	72	79	71	5	250	253	47				
4	6:35	1.00	1.70	146.030	71	79	71	5	250	251	47				
5	6:45	1.00	1.70	153.230	71	79	72	5	250	248	47				
5	6:55	1.00	1.70	160.270	71	78	71	5	250	250	47				
6	7:05	1.00	1.70	168.480	70	78	71	5	250	250	47				
6	7:15	0.98	1.70	175.660	70	79	72	5	250	246	48				
7	7:25	1.00	1.70	182.240	71	78	72	5	250	252	48				
7	7:35	1.00	1.70	189.400	72	80	72	5	250	247	49				
8	7:45	1.00	1.70	197.520	72	81	73	5	250	250	50				
8	7:55	1.00	1.70	204.450	73	81	73	5	250	250	45				
9	8:05	1.00	1.70	212.170	72	81	73	5	251	249	44				
9	8:15	1.00	1.70	219.890	72	82	74	5	250	249	44				
10	8:25	1.00	1.70	227.570	73	82	74	5	250	252	45				
10	8:35	1.00	1.70	234.220	73	83	74	5	250	248	45				
11	8:45	1.00	1.70	241.100	74	82	75	5	250	252	47				
11	8:55	1.10	1.90	249.380	74	81	75	5	250	251	48				
12	9:05	1.10	1.90	256.520	74	81	75	5	250	250	47				
12	9:15	1.10	1.90	264.660	75	83	77	5	250	250	47				
	9:25			269.544											

South

Isokinetic Sampling Field Data Sheet

Project Number: M232604 Date: 06/30/2023 Test Number: 2

Client: PLC Structurals Inc Test Location: BH9203 outlet S Operator: VTV Test Tech: LIR1

Plant: Milwaukie OR Test Method: M29 Page Number: 2 of 2

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional) Square Root, ΔP	K= Meter Rate, Cubic Feet/ Min.	x Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
2-1	9:35	1.10	1.90	269.544	76	82	80	5	250	250	48				
1	9:45	1.10	1.90	277.370	78	88	82	5	250	251	49				
2	9:55	1.10	1.90	285.170	78	89	83	5	250	250	57				
2	10:05	1.10	1.90	293.310	79	89	83	5	250	250	51				
3	10:15	1.10	1.90	300.980	78	89	83	5	250	250	47				
3	10:25	1.10	1.90	308.59	80	90	84	5	250	250	47				
4	10:35	1.10	1.90	316.870	80	90	84	5	250	253	48				
4	10:45	1.10	1.90	324.420	80	89	84	5	250	254	49				
5	10:55	1.10	1.90	332.250	80	89	85	5	250	250	50				
5	11:05	1.10	1.90	334.230	81	90	86	5	250	250	51				
6	11:15	1.10	1.90	348.050	81	90	66	5	250	250	51				
6	11:25	1.10	1.90	355.920	82	91	85	5	250	251	53				
7	11:35	1.10	1.90	363.630	83	91	86	6	250	254	53				
7	11:45	1.10	1.90	371.920	85	93	86	5	250	249	55				
8	11:55	1.10	1.90	379.360	86	93	87	5	250	250	56				
8	12:05	1.10	1.90	386.640	86	93	87	5	250	250	57				
9	12:15	1.10	1.90	394.580	86	94	88	5	250	250	59				
9	12:25	1.10	1.90	402.820	87	93	87	5	250	247	51				
10	12:35	1.10	1.90	410.430	88	94	88	5	250	252	52				
10	12:45	1.10	1.90	418.330	88	94	88	5	250	250	53				
11	12:55	1.10	1.90	426.010	88	94	88	5	250	250	52				
11	13:05	1.10	1.90	433.880	89	95	88	5	250	250	54				
12	13:15	1.10	1.90	441.620	89	95	88	5	250	250	55				
12	13:25	1.10	1.90	449.750	89	95	89	5	250	248	55				
	13:35			457.240											

IMPINGER WEIGHT SHEET

PLANT: PCC STRUCTURALS

Scale ID Number S10-35

UNIT NO: BH 9203

Scale Calibration Check Date: 6-30-23

LOCATION: ~~NORTH~~ SOUTH OUTLET

Scale Calibration Check (see QS-6.05C for procedure) must be within ± 0.5g of certified mass

DATE: 6-30-23

250 grams 250.0

TEST NO: #2

500 grams 500.1

METHOD: M29

750 grams 750.1

WEIGHED/MEASURED BY: [signature]

Circle One:	FINAL WEIGHT MLS / GRAMS	INITIAL WEIGHT MLS / GRAMS	IMPINGER GAIN	IMPINGER CONTENTS
IMPINGER 1	728.9	766.0		HNO3/H2O2
IMPINGER 2	821.6	777.7		HNO3/H2O2
IMPINGER 3	531.6	507.2		EMPTY
IMPINGER 4	692.3	689.0		KMNO4
IMPINGER 5	580.0	570.0		KMNO4
IMPINGER 6	842.4	821.5		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL IMPINGER GAIN

SILICA ______ FINAL TOTAL ______ INITIAL TOTAL ______ TOTAL SILICA GAIN

Isokinetic Sampling Cover Sheet

Client:	Pcc Structurals, Inc.	**Pitot Tube Cp:**	0.840
Facility:	Large Parts Campus Milwaukie, OR	**Probe Length (Feet):**	6.0
Test Location:	9203 Outlet ~~South~~ North	**Probe Liner Material:**	Glass
Project #:	M232604	**Sample Plane:**	Hrzt. or Vert.
Test Method(s):	~~29~~ 0061	**Port Length ("):**	9.0
Test Engineer:	MPS	**Port Diameter ("):**	4.0
Test Technician:	CJR	**Port Type:**	Flange
Upstream Diameters:	7.5	**Duct Shape:**	Circ. or Rect.
Downstream Diameters:	72.0	**Diameter (Feet):**	2.833
# of Ports Sampled:	2	**Length (Feet):**	—
# of Points per Port:	12	**Width (Feet):**	—
Source Condition:	Normal	**Duct Area (Sq. Feet):**	6.305
Diluent Model/SN:	—	**Minutes per Point:**	20 (10/reading)
Mid Gas ID/concentration:	— /%CO_2 — %O_2	**Total Traverse Points:**	24
High Gas ID/concentration:	— /%CO_2 — %O_2	**Test Length (Min.):**	480
Moisture Balance ID:		**Train Type:**	Anderson

	R# 1	R# 2	R#
Meter ID:	CM36	~~CM36~~ CM14	
Pitot ID:	1037	1037	
Filter ID:	—	—	
Filter Pre-Weight (g):	—	—	
Nozzle Diameter ("):	.207	~~.207~~ .214	
Meter Cal Factor (Y):	1.001	~~1.011~~ 1.001	
Meter Orifice Setting (DH):	1.945	~~1.945~~ 1.646	
Nozzle Kit ID:	Glass	Glass	
Individual Nozzle ID:			
Pre Pitot Leak Check:	0 @ 5 "H_2O	0 @ 5 "H_2O	@ "H_2O
Post Pitot Leak Check:	0 @ 5 "H_2O	0 @ 5 "H_2O	@ "H_2O
Pre Nozzle Leak Check:	0 @ 15 "Hg	0 @ 15 "Hg	@ "Hg
Post Nozzle Leak Check:	0 @ 15 "Hg	0 @ 10 "Hg	@ "Hg
Barometric Pressure, "Hg:	29.97	29.97	
Static Pressure, "H_2O:	.5	.5	
CO_2 %:	—	—	
O_2 %:	—	—	

Comments:

DS-004 Isokinetic Sampling Cover Sheet Rev. 3.2 1/1/2021

Isokinetic Sampling Field Data Sheet

Project Number:	m232604	Date:	6-27-23	Test Number:	1
Client:	PCC	Test Location:	9203 Outlet ~~South~~ North	Operator:	MPS Test Tech: CJRI
Plant:	LPC - Milwaukie, OR	Test Method:	29	Page Number:	1 of 2

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional) Square Root, ΔP	K= Meter Rate, Cubic Feet/ Min.	x ___ Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
1-1	515	.96	2.0	~~56.80~~ 75.045	68	57	57	10	—	—	52				
1	525	.96	2.0	82.46	68	57	57	10	—	—	57				
2	535	1.0	2.1	94.88	68	58	58	10	—	—	59				
2	545	1.0	2.1	102.44	68	58	58	10	—	—	60				
3	555	1.0	2.1	110.02	68	59	59	10	—	—	60				
3	605	1.0	2.1	117.63	68	60	60	10	—	—	60				
4	615	1.0	2.1	125.25	68	61	61	10	—	—	60				
4	625	1.0	2.1	132.88	68	62	62	10	—	—	60				
5	635	1.0	2.1	140.53	68	62	62	10	—	—	60				
5	6:45	1.0	2.1	148.18	68	63	63	10	—	—	59				
6	6:55	1.0	2.1	155.82	69	64	64	10	—	—	59				
6	705	1.0	2.1	163.48	69	65	65	10	—	—	60				
7	715	1.0	2.1	171.16	69	67	67	10	—	—	61				
7	725	1.0	2.1	178.85	70	69	69	10	—	—	61				
8	735	1.0	2.1	186.58	70	71	71	10	—	—	62				
8	745	1.0	2.1	194.33	69	72	72	10	—	—	61				
9	755	.90	1.9	202.12	70	72	72	10	—	—	61				
9	805	.90	1.9	209.48	69	72	72	10	—	—	61				
10	815	.85	1.8	216.85	70	72	72	10	—	—	60				
10	825	.83	1.8	224.04	70	72	72	10	—	—	60				
11	835	.75	1.6	231.11	70	72	72	10	—	—	60				
11	845	.75	1.6	237.85	71	73	73	10	—	—	61				
12	855	.80	1.7	244.58	71	74	74	10	—	—	62				
12	905	.85	1.8	251.55	73	76	76	10	—	—	63				
	915			258.721											

Isokinetic Sampling Field Data Sheet

Project Number: m232604 | Date: 6-27-23 | Test Number: 1
Client: PCC | Test Location: 9203 Outlet - ~~South~~ North | Operator: MB | Test Tech: CJRI
Plant: LPC-Milwaukie, OR | Test Method: 29 | Page Number: 2 of 2

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft^3, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional)			
													K=	x ____	
												Square Root, ΔP	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft^3, per point	Theoretical Meter Volume, (V_m) ft^3, total
2-1	933	.85	1.8	258.914	75	82	82	10	—	—	67				
1	943	.85	1.8	266.18	75	84	84	10	—	—	64				
2	953	.95	2.0	273.48	74	85	85	10	—	—	62				
2	1003	.94	2.0	281.17	74	86	86	10	—	—	60				
3	1013	1.0	2.2	288.92	74	86	86	10	—	—	60				
3	1023	1.0	2.2	296.82	75	85	85	10	—	—	62				
4	1033	1.0	2.2	304.79	75	86	86	10	—	—	62				
4	1043	1.0	2.2	312.68	76	88	88	10	—	—	63				
5	1053	1.0	2.2	320.72	76	90	90	10	—	—	63				
5	1103	1.0	2.2	328.66	77	92	92	10	—	—	64				
6	1113	1.0	2.2	336.68	77	94	94	10	—	—	64				
6	1123	1.0	2.2	344.73	78	95	95	10	—	—	64				
7	1133	1.0	2.2	352.78	79	94	94	10	—	—	64				
7	1143	1.0	2.2	360.79	78	93	93	10	—	—	64				
8	1153	1.0	2.2	368.83	79	92	92	10	—	—	63				
8	1203	1.0	2.2	376.79	80	92	92	10	—	—	64				
9	1213	.95	2.0	384.79	80	92	92	10	—	—	64				
9	1223	.95	2.0	392.58	81	92	92	10	—	—	62				
10	1233	.90	1.9	400.33	82	92	92	10	—	—	61				
10	1243	.90	1.9	407.92	81	93	93	10	—	—	62				
11	1253	.90	1.9	415.48	82	94	94	10	—	—	63				
11	1303	.90	1.9	423.06	82	94	94	10	—	—	63				
12	1313	.88	1.9	430.66	82	94	94	10	—	—	63				
12	1323	.85	1.9	438.18	82	94	94	10	—	—	64				
	1333			445.552											

Isokinetic Sampling Field Data Sheet

Project Number: M232604 | Date: 6-30-23 | Test Number: 2

Client: PCC Structural | Test Location: North BH9203 Outlet | Operator: MPS | Test Tech: JTMI

Plant: Large Parts Campus Facility | Test Method: 0061 | Page Number: 1 of 2

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft^3, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional) Square Root, ΔP	K= Meter Rate, Cubic Feet/ Min.	x ___ Theoretical Meter Volume, (V_m) ft^3, per point	Theoretical Meter Volume, (V_m) ft^3, total
1-1	525	.95	2.3	35.338	73	64	64	5	–	–	55				
1	535	.95	2.3	43.37	73	67	65	5	–	–	63				
2	545	1.0	2.4	51.43	73	68	65	5	–	–	64				
2	555	1.0	2.4	59.71	73	70	66	5	–	–	64				
3	605	1.0	2.4	67.97	73	72	67	5	–	–	64				
3	615	1.0	2.4	76.31	73	73	68	5	–	–	64				
4	625	1.0	2.4	84.65	73	74	69	5	–	–	64				
4	635	1.0	2.4	93.01	73	75	70	5	–	–	64				
5	645	1.0	2.4	101.38	74	75	71	5	–	–	64				
5	655	1.0	2.4	109.73	74	75	72	5	–	–	64				
6	705	1.0	2.4	118.14	74	76	72	5	–	–	64				
6	715	1.0	2.4	126.55	74	75	72	5	–	–	63				
7	725	1.0	2.4	134.92	74	77	72	5	–	–	63				
7	735	1.0	2.4	143.35	75	78	73	5	–	–	64				
8	745	1.0	2.4	151.74	75	78	74	5	–	–	63				
8	755	1.0	2.4	160.14	75	78	74	5	–	–	62				
9	805	.90	2.2	168.54	75	78	74	5	–	–	61				
9	815	.90	2.2	176.56	75	78	75	5	–	–	61				
10	825	.85	2.1	184.52	75	78	75	5	–	–	60				
10	835	.85	2.1	192.32	76	79	75	5	–	–	61				
11	845	.75	1.8	200.03	76	79	75	5	–	–	62				
11	855	.75	1.8	207.35	77	80	76	5	–	–	62				
12	905	.80	1.9	214.64	77	81	77	5	–	–	63				
12	915	.80	1.9	222.22	79	82	78	5	–	–	64				
				229.734											

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6-30-23	Test Number:	2
Client:	PCC Structural	Test Location:	BH9203 Outlet North	Operator:	MPS Test Tech: JTM
Plant:	Large Parts Campus Facility	Test Method:	0061	Page Number:	2 of 2

												K-Calcs (Optional)			
													K=	x ____	
Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft^3, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	Square Root, ΔP	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft^3, per point	Theoretical Meter Volume, (V_m) ft^3, total
2-1	935	.85	2.1	229.734	81	82	79	5	–	–	65				
1	945	.85	2.1	237.47	81	82	79	5	–	–	64				
2	955	.95	2.3	245.25	82	84	80	5	–	–	65				
2	1005	.95	2.3	253.47	82	85	81	5	–	–	66				
3	1015	1.0	2.4	261.73	83	86	82	5	–	–	65				
3	1025	1.0	2.4	270.22	83	86	82	5	–	–	64				
4	1035	1.0	2.4	278.69	83	87	83	5	–	–	63				
4	1045	1.0	2.4	[illegible]	84	88	84	5	–	–	63				
5	1055	1.0	2.4	295.69	85	89	85	5	–	–	63				
5	1105	1.0	2.4	304.22	85	89	86	5	–	–	64				
6	1115	1.0	2.4	312.68	85	90	86	5	–	–	63				
6	1125	1.0	2.4	321.23	86	91	87	5	–	–	63				
7	1135	1.0	2.4	329.77	87	92	88	5	–	–	62				
7	1145	1.0	2.4	338.34	87	93	88	5	–	–	62				
8	1155	1.0	2.4	346.82	88	94	89	5	–	–	63				
8	1205	1.0	2.4	355.37	88	94	90	5	–	–	62				
9	1215	.95	2.3	363.99	89	96	91	5	–	–	62				
9	1225	.95	2.3	372.34	89	97	92	5	–	–	62				
10	1235	.90	2.2	380.71	90	97	93	5	–	–	62				
10	1245	.90	2.2	388.88	90	98	93	5	–	–	62				
11	1255	.90	2.2	397.02	90	98	93	5	–	–	62				
11	1305	.90	2.2	405.18	91	98	93	5	–	–	63				
12	1315	.85	2.1	413.33	91	99	94	5	–	–	63				
~~12~~	1325	~~.85~~	~~2.1~~	421.25	~~91~~	~~99~~	~~94~~	~~5~~	–	–	~~63~~				
	1335														

Isokinetic Sampling Cover Sheet

Client:	Pcc Structurals, Inc.	**Pitot Tube Cp:**	0.840
Facility:	Large Parts Campus Milwaukie, OR	**Probe Length (Feet):**	6.0
Test Location:	9203 Outlet - South	**Probe Liner Material:**	Glass
Project #:	M232604	**Sample Plane:**	Hrztl. or Vert.
Test Method(s):	0061	**Port Length ("):**	4.0
Test Engineer:	MPS	**Port Diameter ("):**	4.0
Test Technician:	CJRI	**Port Type:**	Flange
Upstream Diameters:	7.5	**Duct Shape:**	Circ. or Rect.
Downstream Diameters:	72.0	**Diameter (Feet):**	2.833
# of Ports Sampled:	2	**Length (Feet):**	—
# of Points per Port:	12	**Width (Feet):**	—
Source Condition:	Normal	**Duct Area (Sq. Feet):**	6.305
Diluent Model/SN:	—	**Minutes per Point:**	20 (10/reading)
Mid Gas ID/concentration:	— /%CO_2 — %O_2	**Total Traverse Points:**	24
High Gas ID/concentration:	— /%CO_2 — %O_2	**Test Length (Min.):**	480
Moisture Balance ID:		**Train Type:**	Face Plate

	R# 1	R# 2	R#
Meter ID:	CM22	~~CM22~~ CM40	
Pitot ID:	835	835	
Filter ID:	—	—	
Filter Pre-Weight (g):	—	—	
Nozzle Diameter ("):	~~.999~~ .210	~~.210~~ .199	
Meter Cal Factor (Y):	~~1.889~~ .999	~~.999~~ .989	
Meter Orifice Setting (DH):	1.889	~~1.889~~ 1.774	
Nozzle Kit ID:	Glass	Glass	
Individual Nozzle ID:	435		
Pre Pitot Leak Check:	0 @ 5 "H_2O	0 @ 5 "H_2O	@ "H_2O
Post Pitot Leak Check:	0 @ 5 "H_2O	0 @ 5 "H_2O	@ "H_2O
Pre Nozzle Leak Check:	0 @ 15 "Hg	0 @ 15 "Hg	@ "Hg
Post Nozzle Leak Check:	0 @ 15 "Hg	0 @ 10 "Hg	@ "Hg
Barometric Pressure,"Hg:	29.97	29.97	
Static Pressure, "H_2O:	.5	.5	
CO_2 %:	—	—	
O_2 %:	—	—	

Comments:

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6-27-23	Test Number:	1
Client:	PCC	Test Location:	9203 Outlet-South	Operator:	MTS Test Tech: CJB2
Plant:	LPC Milwaukie, OR	Test Method:	0061	Page Number:	1 of 2

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft^3, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional) Square Root, ΔP	K= Meter Rate, Cubic Feet/ Min.	x Theoretical Meter Volume, (V_m) ft^3, per point	Theoretical Meter Volume, (V_m) ft^3, total
1-1	515	1.0	2.2	56.216	68	65	66	10	–	–	51				
1	525	.96	2.1	64.23	68	63	66	10	–	–	54				
2	535	1.0	2.2	72.03	68	61	66	10	–	–	58				
2	545	1.0	2.2	80.02	68	61	67	10	–	–	60				
3	555	1.0	2.2	87.98	68	63	68	10	–	–	62				
3	605	1.0	2.2	95.98	68	64	68	10	–	–	63				
4	615	1.0	2.2	104.04	68	65	69	10	–	–	63				
4	625	1.0	2.2	112.11	69	65	70	10	–	–	62				
5	635	1.0	2.2	120.13	69	65	71	10	–	–	62				
5	645	1.0	2.2	128.17	69	65	71	10	–	–	62				
6	655	1.0	2.2	136.22	70	67	73	10	–	–	62				
6	705	1.0	2.2	144.28	71	68	75	10	–	–	62				
7	715	1.0	2.2	152.37	72	74	81	10	–	–	63				
7	725	1.0	2.2	160.53	73	79	86	10	–	–	63				
8	735	1.0	2.2	168.72	72	83	89	10	–	–	63				
8	745	1.0	2.2	176.96	71	81	87	10	–	–	63				
9	755	1.0	2.2	185.27	71	78	82	10	–	–	63				
9	805	1.0	2.2	193.52	71	76	80	10	–	–	63				
10	815	1.0	2.2	201.66	71	74	78	10	–	–	63				
10	825	1.0	2.2	209.78	71	74	77	10	–	–	62				
11	835	.90	2.0	217.95	71	74	78	10	–	–	62				
11	845	.90	2.0	225.66	73	77	82	10	–	–	63				
12	855	.95	2.1	233.44	74	80	84	10	–	–	64				
12	905	.95	2.1	241.45	76	87	94	10	–	–	65				
	915			249.596											

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6-27-23	Test Number:	1
Client:	PCC	Test Location:	9203 Outlet - South	Operator:	MPS Test Tech: CJR
Plant:	LPC - Milwaukie, OR	Test Method:	5061	Page Number:	2 of 2

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional) Square Root, ΔP	K= Meter Rate, Cubic Feet/ Min.	x ___ Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
2-1	933	.95	2.2	249.983	79	104	107	10	—	—	64				
1	943	.96	2.2	258.32	78	103	108	10	—	—	61				
2	953	1.0	2.3	266.64	78	100	104	10	—	—	58				
2	1003	1.0	2.3	275.12	77	99	103	10	—	—	57				
3	1013	1.1	2.5	283.62	77	96	99	10	—	—	58				
3	1023	1.1	2.5	292.44	79	95	98	10	—	—	58				
4	1033	1.1	2.5	301.25	80	97	99	10	—	—	59				
4	1043	1.1	2.5	310.11	81	101	103	10	—	—	59				
5	1053	1.0	2.3	318.93	81	104	105	10	—	—	60				
5	1103	1.0	2.3	327.46	82	106	106	10	—	—	61				
6	1113	1.0	2.3	335.97	82	106	106	10	—	—	61				
6	1123	1.0	2.3	344.53	83	106	105	10	—	—	61				
7	1133	1.0	2.3	352.97	83	103	102	10	—	—	61				
7	1143	1.0	2.3	361.46	83	100	99	10	—	—	66				
8	1153	1.0	2.3	369.88	83	98	98	10	—	—	61				
8	1203	1.0	2.3	378.26	84	97	98	10	—	—	62				
9	1213	1.0	2.3	386.63	85	98	99	10	—	—	60				
9	1223	1.0	2.3	395.04	85	99	100	10	—	—	57				
10	1233	.90	2.0	403.37	86	99	100	10	—	—	58				
10	1243	.90	2.0	411.36	86	100	102	10	—	—	58				
11	1253	.90	2.0	419.31	86	101	102	10	—	—	58				
11	1303	.90	2.0	427.32	86	101	102	10	—	—	58				
12	1313	.90	2.0	435.31	87	101	102	10	—	—	60				
12	1323	.90	2.0	443.27	86	101	102	10	—	—	61				
	1333			451.257											

DS-005 M5 Isokinetic Field Data Sheet Rev. 2.3 11/3/2022

Isokinetic Sampling Field Data Sheet

Project Number: M232604 | Date: 6-30-23 | Test Number: 2
Client: PCC Structural | Test Location: BH9203 Outlet South | Operator: MPS | Test Tech: JTM1
Plant: Large Parts Campus Facility | Test Method: 0061 | Page Number: 1 of 2

Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	Square Root, ΔP	K-Calcs (Optional) K= Meter Rate, Cubic Feet/ Min.	x Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
1-1	525	1.0	1.7	86.937	71	61	61	5	—	—	54				
1	535	.95	1.7	94.11	71	62	62	5	—	—	54				
2	545	1.0	1.7	101.14	71	62	62	5	—	—	54				
2	555	1.0	1.7	108.32	70	63	63	5	—	—	55				
3	605	1.0	1.7	115.52	70	64	64	5	—	—	54				
3	615	1.0	1.7	122.74	71	65	65	5	—	—	55				
4	625	1.0	1.7	130.01	71	66	66	5	—	—	55				
4	635	1.0	1.7	137.02	71	66	66	5	—	—	55				
5	645	1.0	1.7	144.51	71	67	67	5	—	—	56				
5	655	1.0	1.7	151.77	71	67	67	5	—	—	56				
6	705	1.0	1.7	159.03	71	68	68	5	—	—	56				
6	715	1.0	1.7	166.31	71	68	68	5	—	—	57				
7	725	1.0	1.8	173.62	72	68	68	5	—	—	57				
7	735	1.0	1.8	180.85	72	68	68	5	—	—	58				
8	745	1.0	1.8	188.15	72	69	69	5	—	—	58				
8	755	1.0	1.8	195.44	72	69	69	5	—	—	57				
9	805	1.0	1.8	202.73	72	70	70	5	—	—	55				
9	815	1.0	1.8	210.04	72	70	70	5	—	—	55				
10	825	1.0	1.8	217.34	73	70	70	5	—	—	55				
10	835	1.0	1.8	224.63	73	70	70	5	—	—	56				
11	845	.90	1.6	231.92	74	71	71	5	—	—	56				
11	855	.90	1.6	238.86	74	71	71	5	—	—	56				
12	905	.95	1.7	245.73	75	72	72	5	—	—	57				
12	915	.95	1.7	252.88	77	72	72	5	—	—	58				
				260.002											

Isokinetic Sampling Field Data Sheet

Project Number:	M232604	Date:	6-30-23	Test Number:	2
Client:	PCL Structrual	Test Location:	BH9203 Outlet South	Operator:	MPS Test Tech: JTM
Plant:	Large Parts Campus Facility	Test Method:	0061	Page Number:	2 of 2

												K-Calcs (Optional)			
													K=	x ____	
Port-Point #	Time	(ΔP)	Orifice Setting (ΔH)	Meter Volume (V_m) ft³, Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	Square Root, ΔP	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V_m) ft³, per point	Theoretical Meter Volume, (V_m) ft³, total
2-1	935	.95	1.7	260.002	79	74	74	5	—	—	60				
1	945	.95	1.7	267.08	79	74	74	5	—	—	61				
2	955	1.0	1.8	274.22	80	75	75	5	—	—	62				
2	1005	1.0	1.8	281.57	80	76	76	5	—	—	63				
3	1015	1.0	1.8	288.89	81	77	77	5	—	—	62				
3	1025	1.0	1.8	296.19	81	78	78	5	—	—	60				
4	1035	1.0	1.8	303.62	81	79	79	5	—	—	60				
4	1045	1.0	1.8	310.97	82	79	79	5	—	—	60				
5	1055	1.0	1.8	318.33	83	80	80	5	—	—	61				
5	1105	1.0	1.8	325.69	83	81	81	5	—	—	61				
6	1115	1.0	1.8	333.05	83	81	81	5	—	—	61				
6	1125	1.0	1.8	340.38	84	82	82	5	—	—	62				
7	1135	1.0	1.8	347.75	84	82	82	5	—	—	62				
7	1145	1.0	1.8	355.14	85	82	82	5	—	—	62				
8	1155	1.0	1.8	362.51	86	83	83	5	—	—	63				
8	1205	1.0	1.8	369.94	88	84	84	5	—	—	64				
9	1215	1.0	1.8	377.35	87	84	84	5	—	—	63				
9	1225	1.0	1.8	384.74	87	85	85	5	—	—	64				
10	1235	.90	1.6	392.15	88	85	85	5	—	—	64				
10	1245	.90	1.6	399.13	88	85	85	5	—	—	64				
11	1255	.90	1.6	406.14	88	85	85	5	—	—	65				
11	1305	.90	1.6	413.16	88	85	85	5	—	—	65				
12	1315	.90	1.6	420.18	89	86	86	5	—	—	64				
12	1325	~~.90~~	~~1.6~~	427.18	~~89~~	~~86~~	~~86~~	~~5~~	—	—	~~64~~				
	1335	~~.90~~	~~1.6~~												

Appendix G - Calibration Data

Procedures for Isokentic Calibration

Nozzles

The nozzles are measured according to Method 5, Section 10.1

Dry Gas Meters

The test meters are calibrated according to Method 5, Section 10.3 and 16.1. and “Procedures for Calibrating and Using Dry Gas Volume Meters as Calibration Standards” by P.R. Westlin and R.T. Shigehara, March 10, 1978.

Analytical Balance

The accuracy of the analytical balance is checked with Class S, Stainless Steel Type 303 weights manufactured by F. Hopken and Son, Jersey City, New Jersey.

Temperature Sensing Devices

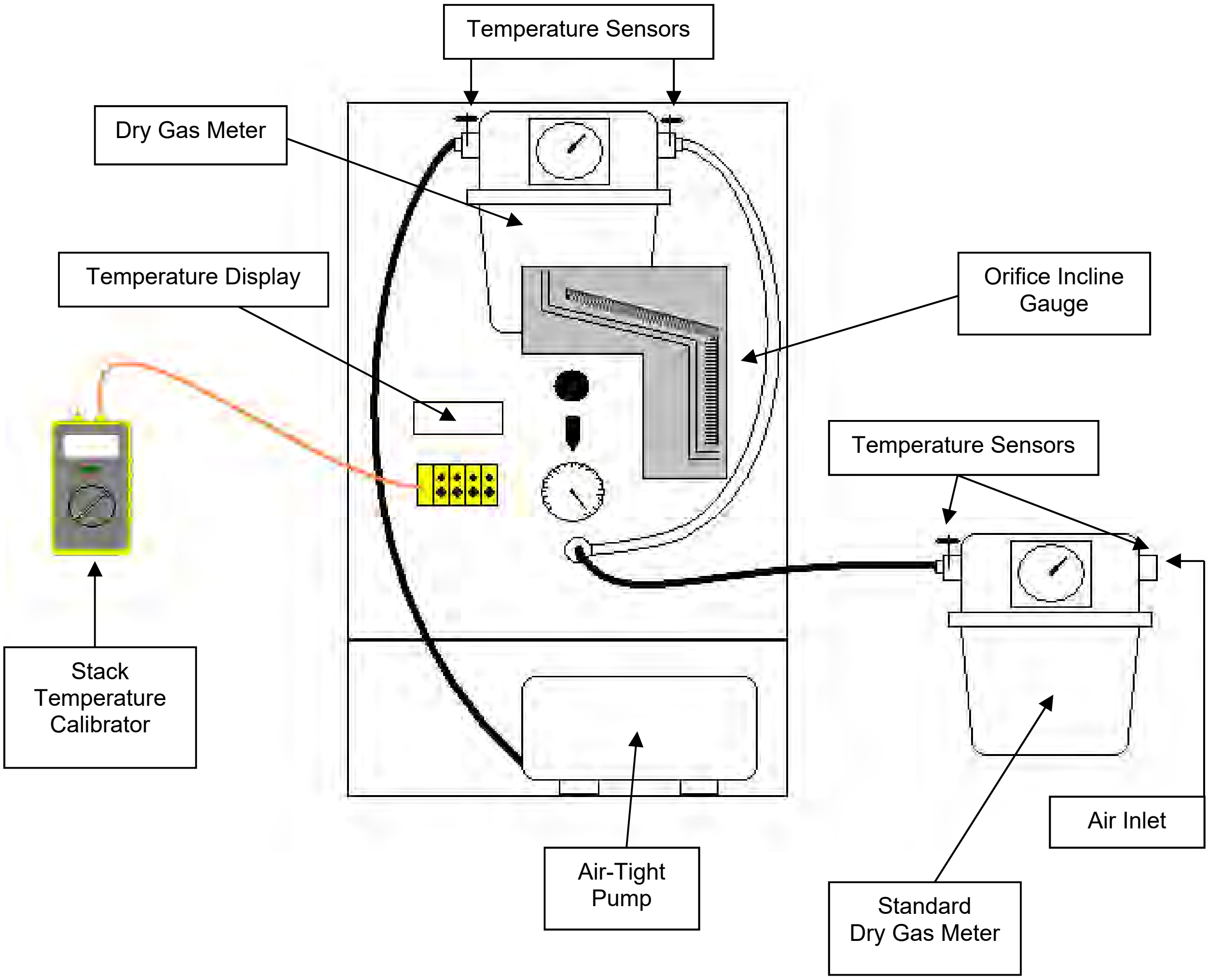
The potentiometer and thermocouples are calibrated utilizing a NIST traceable millivolt source.

Pitot Tubes

The “S” type pitot tubes utilized during this test program are manufactured according to the specification described and illustrated in the *Code of Federal Regulations*, Title 40, Part 60, Appendix A, Methods 1 and 2. The pitot tubes comply with the alignment specifications in Method 2, Section 10.1; and the pitot tube assemblies are in compliance with specifications in the same section.

These pitot tubes will have a wind tunnel calibrated CP calibrated as referenced to a standard type pitot.

Dry Gas Meter/Control Module Calibration Diagram



Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM43	Date:	June 21, 2023
Standard Meter No.	16541852	Calibrated By:	MJD
Standard Meter (Y)	1.00440	Barometric Pressure:	29.42

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F^o tr	Dry Gas Meter Inlet Temp. F^o tdi	Dry Gas Meter Outlet Temp. F^o tdo	Dry Gas Meter Avg. Temp. F^o td	Time Min	Time Sec	Y	Chg (H)
Final			21.956	79.225	76	76	78					
Initial			16.480	73.660	76	75	75					
Difference	1	0.20	5.476	5.565	76	76	77	76	21	13	0.988	1.727
Final			28.004	85.368	77	79	79					
Initial			22.067	79.343	76	78	78					
Difference	2	0.50	5.937	6.025	77	79	79	79	15	2	0.992	1.839
Final			34.604	92.082	77	80	80					
Initial			28.123	85.488	77	79	79					
Difference	3	0.70	6.481	6.594	77	80	80	80	13	36	0.990	1.768
Final			40.139	97.695	78	81	81					
Initial			34.788	92.256	77	80	80					
Difference	4	0.90	5.351	5.439	78	81	81	81	10	12	0.991	1.876
Final			45.492	103.110	78	82	82					
Initial			40.256	97.816	78	81	81					
Difference	5	1.20	5.236	5.294	78	82	82	82	8	32	0.997	1.829
Final			16.417	73.603	76	75	75					
Initial			10.579	67.764	76	74	74					
Difference	6	2.00	5.838	5.839	76	75	75	75	7	20	0.996	1.821

Average	**0.992**	**1.810**

Stack Temperature Sensor Calibration			
Temperature ID :	100769	Name :	MJD
Ambient Temperature, ^oF :	79.5	Date :	June 21, 2023

Temperature Calibrator			
Model # :	CL23A	Certification Date:	May 2, 2023
Serial # :	T-285688	Expiration Date:	May 1, 2024

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^oF)	Test Thermometer Temperature (^oF)	Temperature Difference %
0	0	0.0
250	249	0.1
600	600	0.0
1200	1198	0.1

$$\frac{(\text{Ref. Temp., } ^oF + 460) - (\text{Test Therm. Temp., } ^oF + 460)}{\text{Ref. Temp., } ^oF + 460} * 100 <= 1.5\ \%$$

Meter Box Calibration

Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM43	*Date:*	July 17, 2023
Standard Meter No.	18654530	*Calibrated By:*	FB
Standard Meter (Y)	0.99520	*Barometric Pressure:*	29.23

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F^o tr	Dry Gas Meter Inlet Temp. F^o tdi	Dry Gas Meter Outlet Temp. F^o tdo	Dry Gas Meter Avg. Temp. F^o td	Time Min	Time Sec	Y	Chg (H)
Final			71.056	90.828	79	77	77					
Initial			64.984	84.814	78	76	76					
Difference	1	0.20	6.072	6.014	79	77	77	77	23	47	1.001	1.825
Final			78.680	97.588	80	76	76					
Initial			72.065	90.937	79	75	75					
Difference	2	0.50	6.615	6.651	80	76	76	76	16	43	0.981	1.910
Final			84.966	104.940	81	76	76					
Initial			78.618	98.620	80	76	76					
Difference	3	0.70	6.348	6.320	81	76	76	76	13	3	0.990	1.774
Final			90.695	110.717	81	77	77					
Initial			85.013	105.184	81	76	76					
Difference	4	0.90	5.682	5.533	81	77	77	77	10	22	1.011	1.798
Final			91.756	111.836	81	76	76					
Initial			85.123	105.236	81	76	76					
Difference	5	1.20	6.633	6.600	81	76	76	76	9	59	0.988	1.633
Final			64.827	84.734	78	75	75					
Initial			58.833	78.740	77	75	75					
Difference	6	2.00	5.994	5.994	78	75	75	75	7	46	0.986	1.995

Average	**0.993**	**1.823**

Stack Temperature Sensor Calibration			
Temperature ID :	100769	Name :	FB
Ambient Temperature, ^{o}F :	78.6	Date :	July 17, 2023

Temperature Calibrator			
Model # :	CL23A	Certification Date:	May 18, 2023
Serial # :	T-285668	Expiration Date:	May 17, 2024

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^{o}F)	Test Thermometer Temperature (^{o}F)	Temperature Difference %
0	0	0.0
250	249	0.1
600	600	0.0
1200	1198	0.1

$$\frac{(\text{Ref. Temp., }^{o}F + 460) - (\text{Test Therm. Temp., }^{o}F + 460)}{\text{Ref. Temp., }^{o}F + 460} * 100 <= 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM7	Date:	June 16, 2023
Standard Meter No.	18654530	Calibrated By:	FB
Standard Meter (Y)	0.99520	Barometric Pressure:	29.25

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F^o tr	Dry Gas Meter Inlet Temp. F^o tdi	Dry Gas Meter Outlet Temp. F^o tdo	Dry Gas Meter Avg. Temp. F^o td	Time Min	Time Sec	Y	Chg (H)
Final			34.801	13.013	68	71	70					
Initial			28.891	7.009	67	69	69					
Difference	1	0.20	5.910	6.004	68	70	70	70	21	23	0.983	1.512
Final			41.680	20.015	68	74	72					
Initial			35.080	13.295	68	71	70					
Difference	2	0.50	6.600	6.720	68	73	71	72	15	3	0.983	1.499
Final			49.250	27.752	68	74	73					
Initial			43.571	21.945	68	74	72					
Difference	3	0.70	5.679	5.807	68	74	73	73	11	30	0.981	1.650
Final			65.535	44.155	68	74	74					
Initial			59.670	38.275	68	75	73					
Difference	4	0.90	5.865	5.880	68	75	74	74	10	0	1.002	1.502
Final			71.835	50.755	68	72	71					
Initial			65.926	44.744	68	73	73					
Difference	5	1.20	5.909	6.011	68	73	72	72	8	55	0.983	1.574
Final			28.609	106.730	68	71	68					
Initial			22.333	100.485	68	69	68					
Difference	6	2.00	6.276	6.245	68	70	68	69	7	3	0.997	1.462

Average	**0.988**	**1.533**

Stack Temperature Sensor Calibration			
Temperature ID :	*100769*	*Name :*	*FB*
Ambient Temperature, ^{o}F :	*71.7*	*Date :*	*6/16/2023*

Temperature Calibrator			
Model # :	*CL23A*	*Certification Date:*	*May 18, 2022*
Serial # :	*T-285668*	*Expiration Date:*	*May 18, 2023*

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^{o}F)	Test Thermometer Temperature (^{o}F)	Temperature Difference %
0	*2*	0.2
250	*248*	0.2
600	*599*	0.1
1200	*1203*	0.3

$$\frac{(\text{Ref. Temp., }^{o}F + 460) - (\text{Test Therm. Temp., }^{o}F + 460)}{\text{Ref. Temp., }^{o}F + 460} * 100 \le 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No.	*CM7*	*Date:*	*July 17, 2023*
Standard Meter No.	*18654530*	*Calibrated By:*	*FB*
Standard Meter (Y)	*0.99520*	*Barometric Pressure:*	*29.20*

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F^o tr	Dry Gas Meter Inlet Temp. F^o tdi	Dry Gas Meter Outlet Temp. F^o tdo	Dry Gas Meter Avg. Temp. F^o td	Time Min	Time Sec	Y	Chg (H)
Final			96.297	61.442	72	78	77					
Initial			90.556	55.692	72	78	76					
Difference	1	0.20	5.741	5.750	72	78	77	77	21	28	1.003	1.623
Final			103.178	68.465	72	79	77					
Initial			96.306	61.550	72	78	77					
Difference	2	0.50	6.872	6.915	72	79	77	78	15	56	0.998	1.558
Final			110.150	75.775	72	79	78					
Initial			103.334	68.826	73	78	77					
Difference	3	0.70	6.816	6.949	73	79	78	78	14	5	0.985	1.735
Final			117.696	83.278	72	80	78					
Initial			110.305	75.836	72	79	78					
Difference	4	0.90	7.391	7.442	72	80	78	79	12	38	0.999	1.522
Final			126.184	89.997	73	81	78					
Initial			118.742	82.425	73	80	78					
Difference	5	1.20	7.442	7.572	73	81	78	79	10	56	0.987	1.503
Final			90.554	55.597	72	80	72					
Initial			85.060	50.016	72	80	76					
Difference	6	2.00	5.494	5.581	72	80	74	77	6	44	0.984	1.744
									Average		**0.993**	**1.614**

Stack Temperature Sensor Calibration			
Temperature ID :	100679	Name :	FB
Ambient Temperature, °F :	78.1	Date :	July 17, 2023

Temperature Calibrator			
Model # :	CL23A	Certification Date:	May 18, 2023
Serial # :	T-285668	Expiration Date:	May 17, 2024

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (°F)	Test Thermometer Temperature (°F)	Temperature Difference %
0	0	0.0
250	249	0.1
600	597	0.3
1200	1200	0.0

$$\frac{(\text{Ref. Temp., }^{o}\text{F} + 460) - (\text{Test Therm. Temp., }^{o}\text{F} + 460)}{\text{Ref. Temp., }^{o}\text{F} + 460} * 100 <= 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM8	Date:	June 6, 2023
Standard Meter No.	18654530	Calibrated By:	JVC
Standard Meter (Y)	0.99520	Barometric Pressure:	29.01

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F^o tr	Dry Gas Meter Inlet Temp. F^o tdi	Dry Gas Meter Outlet Temp. F^o tdo	Dry Gas Meter Avg. Temp. F^o td	Time Min	Time Sec	Y	Chg (H)
Final			55.874	21.887	78	81	81					
Initial			50.824	16.785	77	80	80					
Difference	1	0.20	5.050	5.102	78	81	81	81	20	30	0.990	1.953
Final			61.234	27.301	79	83	83					
Initial			55.973	21.967	79	82	82					
Difference	2	0.50	5.261	5.334	79	83	83	83	13	15	0.987	1.883
Final			66.894	33.097	80	83	83					
Initial			61.306	27.409	80	83	83					
Difference	3	0.70	5.588	5.688	80	83	83	83	11	55	0.981	1.895
Final			72.970	39.272	79	82	82					
Initial			66.962	33.147	79	83	83					
Difference	4	0.90	6.008	6.125	79	83	83	83	11	0	0.980	1.791
Final			78.547	44.950	79	82	82					
Initial			73.047	39.364	79	81	81					
Difference	5	1.20	5.500	5.586	79	82	82	82	8	45	0.981	1.807
Final			50.732	16.687	80	81	81					
Initial			45.478	11.410	80	80	80					
Difference	6	2.00	5.254	5.277	80	81	81	81	6	30	0.987	1.831

Average **0.984** **1.860**

Stack Temperature Sensor Calibration			
Temperature ID :	*100655*	*Name :*	*JVC*
Ambient Temperature, ^{o}F :	*80*	*Date :*	*June 6, 2023*

Temperature Calibrator			
Model # :	*CL23A*	*Certification Date:*	*May 2, 2023*
Serial # :	*T-314718*	*Expiration Date:*	*May 1, 2024*

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^{o}F)	***Test Thermometer Temperature (^{o}F)***	***Temperature Difference %***
0	*2*	0.4
250	*251*	0.1
600	*598*	0.2
1200	*1196*	0.2

$$\frac{(\text{Ref. Temp., }^{o}\text{F} + 460) - (\text{Test Therm. Temp., }^{o}\text{F} + 460)}{\text{Ref. Temp., }^{o}\text{F} + 460} * 100 <= 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM8	Date:	July 10, 2023
Standard Meter No.	18654530	Calibrated By:	JVC
Standard Meter (Y)	0.99520	Barometric Pressure:	29.21

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F^o tr	Dry Gas Meter Inlet Temp. F^o tdi	Dry Gas Meter Outlet Temp. F^o tdo	Dry Gas Meter Avg. Temp. F^o td	Time Min	Time Sec	Y	Chg (H)
Final			49.841	95.391	78	82	82					
Initial			43.737	89.383	77	80	80					
Difference	1	0.20	6.104	6.008	78	81	81	81	22	33	1.017	1.605
Final			58.469	103.922	79	84	84					
Initial			50.018	95.565	79	82	82					
Difference	2	0.50	8.451	8.357	79	83	83	83	20	25	1.013	1.719
Final			65.925	11.283	80	85	85					
Initial			58.624	4.086	80	85	85					
Difference	3	0.70	7.301	7.197	80	85	85	85	14	57	1.017	1.729
Final			87.708	32.731	76	81	81					
Initial			79.603	24.749	76	80	80					
Difference	4	0.90	8.105	7.982	76	81	81	81	15	2	1.017	1.812
Final			95.741	40.664	76	82	82					
Initial			87.962	32.987	76	81	81					
Difference	5	1.20	7.779	7.677	76	82	82	82	12	24	1.016	1.781
Final			43.503	89.144	77	79	79					
Initial			35.589	81.389	77	78	78					
Difference	6	2.00	7.914	7.755	77	79	79	79	10	5	1.013	1.914
								Average			**1.015**	**1.760**

Stack Temperature Sensor Calibration			
Temperature ID :	*100655*	*Name :*	*JVC*
Ambient Temperature, ^oF :	*29.16*	*Date :*	*July 11, 2023*

Temperature Calibrator			
Model # :	*CL23A*	*Certification Date:*	*May 2, 2023*
Serial # :	*T-265668*	*Expiration Date:*	*May 1, 2024*

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^oF)	***Test Thermometer Temperature (^oF)***	***Temperature Difference %***
0	*2*	0.4
250	*253*	0.4
600	*599*	0.1
1200	*1198*	0.1

$$\frac{(\text{Ref. Temp., }^{o}\text{F} + 460) - (\text{Test Therm. Temp., }^{o}\text{F} + 460)}{\text{Ref. Temp., }^{o}\text{F} + 460} * 100 <= 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM39	Date:	June 20, 2023
Standard Meter No.	366118	Calibrated By:	MJD
Standard Meter (Y)	1.00880	Barometric Pressure:	29.34

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F° tr	Dry Gas Meter Inlet Temp. F° tdi	Dry Gas Meter Outlet Temp. F° tdo	Dry Gas Meter Avg. Temp. F° td	Time Min	Time Sec	Y	Chg (H)
Final			129.045	49.356	75	72	72					
Initial			123.488	43.842	72	72	72					
Difference	1	0.20	5.557	5.514	74	72	72	72	23	0	1.013	1.956
Final			135.858	56.152	77	73	73					
Initial			129.273	49.680	76	73	73					
Difference	2	0.50	6.585	6.472	77	73	73	73	17	18	1.018	1.988
Final			143.360	63.648	80	75	75					
Initial			136.015	56.412	78	74	74					
Difference	3	0.70	7.345	7.236	79	75	75	75	15	29	1.014	1.804
Final			164.014	84.406	80	75	75					
Initial			156.702	77.106	81	77	77					
Difference	4	0.90	7.312	7.300	81	76	76	76	13	57	1.000	1.905
Final			156.513	76.815	81	75	75					
Initial			151.033	71.428	80	74	74					
Difference	5	1.20	5.480	5.387	81	75	75	75	9	2	1.012	1.901
Final			123.244	43.788	72	71	71					
Initial			118.172	38.704	71	71	71					
Difference	6	2.00	5.072	5.084	72	71	71	71	6	43	1.000	1.991
									Average		**1.010**	**1.924**

Stack Temperature Sensor Calibration			
Temperature ID :	*100769*	*Name :*	*MJD*
Ambient Temperature, ^{o}F :	*76.6*	*Date :*	*June 20, 2023*

1.0088

Temperature Calibrator			
Model # :	*CL23A*	*Certification Date:*	*November 8, 2022*
Serial # :	*T-314718*	*Expiration Date:*	*November 8, 2023*

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^{o}F)	***Test Thermometer Temperature (^{o}F)***	***Temperature Difference %***
0	*-1*	
250	*248*	
600	*587*	1.2
1200	*1199*	

Ref. Temp., ^{o}F + 460

Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM39	Date:	July 11, 2023
Standard Meter No.	18654530	Calibrated By:	JVC
Standard Meter (Y)	0.99520	Barometric Pressure:	29.17

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F^o tr	Dry Gas Meter Inlet Temp. F^o tdi	Dry Gas Meter Outlet Temp. F^o tdo	Dry Gas Meter Avg. Temp. F^o td	Time Min	Time Sec	Y	Chg (H)
Final			40.732	88.488	75	77	77					
Initial			34.618	82.375	74	74	74					
Difference	1	0.20	6.114	6.113	75	76	76	76	24	52	0.997	1.946
Final			49.347	97.150	75	78	78					
Initial			40.904	88.657	75	77	77					
Difference	2	0.50	8.443	8.493	75	78	78	78	21	6	0.993	1.834
Final			70.827	18.739	76	79	79					
Initial			56.968	4.818	76	78	78					
Difference	3	0.70	13.859	13.921	76	79	79	79	29	50	0.994	1.908
Final			79.340	27.323	76	79	79					
Initial			70.974	18.904	76	78	78					
Difference	4	0.90	8.366	8.419	76	79	79	79	15	46	0.991	1.880
Final			89.705	37.732	76	80	80					
Initial			79.551	27.524	77	81	81					
Difference	5	1.20	10.154	10.208	77	81	81	81	16	34	0.994	1.876
Final			34.527	82.276	75	74	74					
Initial			27.291	75.156	74	74	74					
Difference	6	2.00	7.236	7.120	75	74	74	74	9	25	1.005	1.998

Average **0.996** **1.907**

Stack Temperature Sensor Calibration			
Temperature ID :	*100769*	*Name :*	*JVC*
Ambient Temperature, ^oF :	*81.6*	*Date :*	*July 11, 2023*

Temperature Calibrator			
Model # :	*CL23A*	*Certification Date:*	*May 2, 2023*
Serial # :	*T-265688*	*Expiration Date:*	*May 1, 2024*

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^oF)	Test Thermometer Temperature (^oF)	Temperature Difference %
0	*1*	0.2
250	*246*	0.6
600	*598*	0.2
1200	*1201*	0.1

$$\frac{(\text{Ref. Temp., }^{o}\text{F} + 460) - (\text{Test Therm. Temp., }^{o}\text{F} + 460)}{\text{Ref. Temp., }^{o}\text{F} + 460} * 100 <= 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No.	*CM11*	*Date:*	*June 20, 2023*
Standard Meter No.	*16541852*	*Calibrated By:*	*MJD*
Standard Meter (Y)	*1.00440*	*Barometric Pressure:*	*29.34*

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F^o tr	Dry Gas Meter Inlet Temp. F^o tdi	Dry Gas Meter Outlet Temp. F^o tdo	Dry Gas Meter Avg. Temp. F^o td	Time Min	Time Sec	Y	Chg (H)
Final			56.634	91.752	72	74	75					
Initial			51.219	86.234	73	74	75					
Difference	1	0.20	5.415	5.518	73	74	75	75	22	17	0.989	1.934
Final			64.294	99.546	74	75	75					
Initial			56.936	92.059	72	74	75					
Difference	2	0.50	7.358	7.487	73	75	75	75	18	38	0.989	1.833
Final			69.534	104.873	73	76	76					
Initial			64.495	99.745	74	75	75					
Difference	3	0.70	5.039	5.128	74	76	76	76	10	42	0.989	1.805
Final			76.751	12.198	74	78	77					
Initial			69.798	5.157	73	76	76					
Difference	4	0.90	6.953	7.041	74	77	77	77	13	1	0.996	1.800
Final			83.213	18.748	74	78	78					
Initial			77.051	12.571	74	78	77					
Difference	5	1.20	6.162	6.177	74	78	78	78	10	0	1.006	1.804
Final			51.056	86.057	71	72	74					
Initial			45.119	80.082	72	73	73					
Difference	6	2.00	5.937	5.975	72	73	74	73	7	30	0.996	1.821

Average **0.994** **1.833**

Stack Temperature Sensor Calibration			
Temperature ID :	*100769*	*Name :*	*MJD*
Ambient Temperature, ^oF :	*76.6*	*Date :*	*June 20, 2023*

Temperature Calibrator			
Model # :	*CL23A*	*Certification Date:*	*November 8, 2022*
Serial # :	*T-314718*	*Expiration Date:*	*November 8, 2023*

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^oF)	***Test Thermometer Temperature (^oF)***	***Temperature Difference %***
0	*0.1*	0.0
250	*250*	0.0
600	*599*	0.1
1200	*1200*	0.0

$$\frac{(\text{Ref. Temp., }^oF + 460) - (\text{Test Therm. Temp., }^oF + 460)}{\text{Ref. Temp., }^oF + 460} * 100 <= 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No.	*CM 11*	*Date:*	*August 15, 2023*
Standard Meter No.	*366118*	*Calibrated By:*	*DS*
Standard Meter (Y)	*0.99950*	*Barometric Pressure:*	*29.23*

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F° tr	Dry Gas Meter Inlet Temp. F° tdi	Dry Gas Meter Outlet Temp. F° tdo	Dry Gas Meter Avg. Temp. F° td	Time Min	Time Sec	Y	Chg (H)
Final			35.615	57.427	71	74	74					
Initial			30.125	51.938	71	73	73					
Difference	1	0.20	5.490	5.489	71	74	74	74	20	54	1.004	1.671
Final			41.822	63.603	71	75	75					
Initial			35.917	57.731	71	74	74					
Difference	2	0.50	5.905	5.872	71	75	75	75	14	30	1.010	1.735
Final			47.999	69.491	72	76	75					
Initial			42.755	64.136	72	75	75					
Difference	3	0.70	5.244	5.355	72	76	75	75	11	37	0.983	1.981
Final			53.800	75.578								
Initial			48.315	70.100	72	75	75					
Difference	4	0.90	5.485	5.478	72	75	75	75	10	20	1.004	1.843
Final			81.074	59.452	71	77	76					
Initial			75.899	54.178	72	76	76					
Difference	5	1.20	5.175	5.274	72	77	76	76	8	21	0.987	1.795
Final			29.681	51.504	71	73	73					
Initial			24.554	46.414	71	73	73					
Difference	6	2.00	5.127	5.090	71	73	73	73	6	25	1.005	1.808

Average **0.999** **1.806**

Stack Temperature Sensor Calibration			
Temperature ID :	*100769*	*Name :*	*DS*
Ambient Temperature, ^{o}F :	*73.1*	*Date :*	*August 15, 2023*

Temperature Calibrator			
Model # :	*CL23A*	*Certification Date:*	*August 15, 2023*
Serial # :	*T-314718*	*Expiration Date:*	*August 14, 2024*

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^{o}F)	***Test Thermometer Temperature (^{o}F)***	***Temperature Difference %***
0	*0*	0.0
250	*249*	0.1
600	*597*	0.3
1200	*1196*	0.2

$$\frac{(\text{Ref. Temp., }^{o}\text{F} + 460) - (\text{Test Therm. Temp., }^{o}\text{F} + 460)}{\text{Ref. Temp., }^{o}\text{F} + 460} * 100 <= 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM 10	Date:	June 19, 2023
Standard Meter No.	16541852	Calibrated By:	BJE
Standard Meter (Y)	1.00440	Barometric Pressure:	29.24

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F° tr	Dry Gas Meter Inlet Temp. F° tdi	Dry Gas Meter Outlet Temp. F° tdo	Dry Gas Meter Avg. Temp. F° td	Time Min	Time Sec	Y	Chg (H)
Final			44.766	37.633	78	81	81					
Initial			39.401	32.153	76	80	80					
Difference	1	0.20	5.365	5.480	77	81	81	81	21	45	0.989	1.894
Final			51.435	44.467	77	83	83					
Initial			45.244	38.123	77	82	82					
Difference	2	0.50	6.191	6.344	77	83	83	83	15	44	0.989	1.854
Final			58.487	51.642	78	83	83					
Initial			51.792	44.797	77	83	83					
Difference	3	0.70	6.695	6.845	78	83	83	83	14	33	0.991	1.900
Final			66.565	59.869	78	84	84					
Initial			58.924	52.072	78	83	83					
Difference	4	0.90	7.641	7.797	78	84	84	84	14	25	0.992	1.843
Final			73.515	66.956	78	84	84					
Initial			66.884	60.187	78	84	84					
Difference	5	1.20	6.631	6.769	78	84	84	84	10	42	0.992	1.795
Final			39.124	31.872	77	80	80					
Initial			31.143	23.761	77	80	80					
Difference	6	2.00	7.981	8.111	77	80	80	80	10	0	0.989	1.811

Average **0.990** **1.849**

Stack Temperature Sensor Calibration			
Temperature ID :	100769	Name :	BJE
Ambient Temperature, ^oF :	81.3	Date :	July 22, 2023

Temperature Calibrator			
Model # :	CL23A	Certification Date:	June 5, 2023
Serial # :	T-285668	Expiration Date:	June 4, 2024

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^oF)	Test Thermometer Temperature (^oF)	Temperature Difference %
0	-1	0.2
250	248	0.3
600	596	0.4
1200	1196	0.2

$$\frac{(\text{Ref. Temp., } ^oF + 460) - (\text{Test Therm. Temp., } ^oF + 460)}{\text{Ref. Temp., } ^oF + 460} * 100 <= 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM10	Date:	July 15, 2023
Standard Meter No.	18654530	Calibrated By:	JVC
Standard Meter (Y)	0.99520	Barometric Pressure:	29.10

Run Number	Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F° tr	Dry Gas Meter Inlet Temp. F° tdi	Dry Gas Meter Outlet Temp. F° tdo	Dry Gas Meter Avg. Temp. F° td	Time Min	Time Sec	Y	Chg (H)
Final		61.495	82.545	76	82	82					
Initial		54.359	75.357	78	80	80					
Difference 1	0.20	7.136	7.188	77	81	81	81	24	10	0.995	1.351
Final		70.193	91.335	77	85	85					
Initial		61.705	82.745	77	82	82					
Difference 2	0.50	8.488	8.590	77	84	84	84	19	27	0.994	1.540
Final		79.256	100.533	77	84	84					
Initial		70.375	91.527	77	83	83					
Difference 3	0.70	8.881	9.006	77	84	84	84	17	20	0.992	1.564
Final		87.748	9.158	77	85	85					
Initial		79.488	0.765	77	84	84					
Difference 4	0.90	8.260	8.393	77	85	85	85	14	25	0.991	1.605
Final		95.456	16.984	77	85	85					
Initial		88.089	9.499	77	85	85					
Difference 5	1.20	7.367	7.485	77	85	85	85	10	59	0.991	1.560
Final		54.251	75.247	76	79	79					
Initial		45.240	66.238	77	79	79					
Difference 6	2.00	9.011	9.009	77	79	79	79	10	43	0.995	1.670

Average **0.993** **1.548**

Stack Temperature Sensor Calibration			
Temperature ID :	100769	Name :	JVC
Ambient Temperature, ^oF :	29.11	Date :	July 15, 2023

Temperature Calibrator			
Model # :	CL23A	Certification Date:	May 2, 2023
Serial # :	T-285688	Expiration Date:	May 1, 2024

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^oF)	Test Thermometer Temperature (^oF)	Temperature Difference %
0	0	0.0
250	251	0.1
600	596	0.4
1200	1206	0.4

$$\frac{(\text{Ref. Temp., }^oF + 460) - (\text{Test Therm. Temp., }^oF + 460)}{\text{Ref. Temp., }^oF + 460} * 100 <= 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM1	Date:	June 13, 2023
Standard Meter No.	16541852	Calibrated By:	JKM
Standard Meter (Y)	1.00440	Barometric Pressure:	28.96

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F^o tr	Dry Gas Meter Inlet Temp. F^o tdi	Dry Gas Meter Outlet Temp. F^o tdo	Dry Gas Meter Avg. Temp. F^o td	Time Min	Time Sec	Y	Chg (H)
Final			36.438	109.068	66	71	70					
Initial			30.632	103.166	65	71	69					
Difference	1	0.20	5.806	5.902	66	71	70	70	20	59	0.996	1.483
Final			45.771	118.501	66	71	70					
Initial			36.552	109.189	66	71	70					
Difference	2	0.50	9.219	9.312	66	71	70	71	22	12	1.002	1.649
Final			54.535	127.309	67	72	70					
Initial			46.012	118.741	66	71	70					
Difference	3	0.70	8.523	8.568	67	72	70	71	16	30	1.005	1.494
Final			63.063	135.849	67	73	71					
Initial			54.788	127.564	67	72	70					
Difference	4	0.90	8.275	8.285	67	73	71	72	14	12	1.009	1.510
Final			70.832	143.664	67	74	71					
Initial			63.516	136.388	67	72	71					
Difference	5	1.20	7.316	7.276	67	73	71	72	11	35	1.016	1.712
Final			10.124	82.798	66	71	71					
Initial			4.584	77.151	66	71	70					
Difference	6	2.00	5.540	5.647	66	71	71	71	6	31	0.989	1.573
									Average		**1.003**	**1.570**

Stack Temperature Sensor Calibration			
Temperature ID :	*100769 CM1*	*Name :*	*JKM*
Ambient Temperature, ^oF :	*69.6*	*Date :*	*June 13, 2023*

Temperature Calibrator			
Model # :	*CL23A*	*Certification Date:*	*May 2, 2023*
Serial # :	*T-285668*	*Expiration Date:*	*May 2, 2024*

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^oF)	**Test Thermometer Temperature (^oF)**	**Temperature Difference %**
0	0	0.0
250	249	0.1
600	598	0.2
1200	1200	0.0

$$\frac{(\text{Ref. Temp., }^oF + 460) - (\text{Test Therm. Temp., }^oF + 460)}{\text{Ref. Temp., }^oF + 460} * 100 <= 1.5\ \%$$

Meter Box Calibration

Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM34	Date:	June 21, 2023
Standard Meter No.		Calibrated By:	MJD
Standard Meter (Y)	1.00880	Barometric Pressure:	29.42

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F° tr	Dry Gas Meter Inlet Temp. F° tdi	Dry Gas Meter Outlet Temp. F° tdo	Dry Gas Meter Avg. Temp. F° td	Time Min	Time Sec	Y	Chg (H)
Final			91.552	42.169	72	80	72					
Initial			86.255	36.871	73	81	76					
Difference	1	0.20	5.297	5.298	73	81	74	77	20	25	1.017	1.669
Final			98.512	49.276	72	81	79					
Initial			92.011	42.645	72	80	77					
Difference	2	0.50	6.501	6.631	72	81	78	79	16	21	1.001	1.766
Final			105.074	56.090	72	84	80					
Initial			98.856	49.638	72	81	79					
Difference	3	0.70	6.218	6.452	72	83	80	81	13	24	0.987	1.809
Final			12.175	63.249	72	86	81					
Initial			5.240	56.151	72	84	80					
Difference	4	0.90	6.935	7.098	72	85	81	83	12	45	1.003	1.688
Final			18.048	69.248	73	87	82					
Initial			12.369	63.440	72	86	81					
Difference	5	1.20	5.679	5.808	73	87	82	84	9	9	1.005	1.728
Final			86.092	36.619	73	81	76					
Initial			80.260	30.740	73	77	75					
Difference	6	2.00	5.832	5.879	73	79	76	77	7	33	1.004	1.886

Average **1.003** **1.758**

Stack Temperature Sensor Calibration			
Temperature ID :	CM34	Name :	MJD
Ambient Temperature, ^oF :	78.2	Date :	June 21, 2023

Temperature Calibrator			
Model # :	CL23A	Certification Date:	May 18, 2023
Serial # :	T-285668	Expiration Date:	May 17, 2024

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^oF)	Test Thermometer Temperature (^oF)	Temperature Difference %
0	-1	0.2
250	248	0.3
600	597	0.3
1200	1199	0.1

$$\frac{(\text{Ref. Temp., }^o\text{F} + 460) - (\text{Test Therm. Temp., }^o\text{F} + 460)}{\text{Ref. Temp., }^o\text{F} + 460} * 100 <= 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM 34	Date:	August 15, 2023
Standard Meter No.	16541852	Calibrated By:	BJE
Standard Meter (Y)	1.00440	Barometric Pressure:	29.23

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F^o tr	Dry Gas Meter Inlet Temp. F^o tdi	Dry Gas Meter Outlet Temp. F^o tdo	Dry Gas Meter Avg. Temp. F^o td	Time Min	Time Sec	Y	Chg (H)
Final			17.639	40.482	71	75	74					
Initial			12.555	35.372	71	74	74					
Difference	1	0.20	5.084	5.110	71	75	74	74	20	24	1.005	1.836
Final			23.530	46.279	71	75	75					
Initial			17.924	40.672	71	75	75					
Difference	2	0.50	5.606	5.607	71	75	75	75	14	29	1.011	1.900
Final			29.215	52.208								
Initial			23.919	46.899	72	76	75					
Difference	3	0.70	5.296	5.309	72	76	75	76	11	34	1.007	1.906
Final			34.078	57.879	72	77	76					
Initial			28.768	52.555	72	76	76					
Difference	4	0.90	5.310	5.324	72	77	76	76	10	15	1.007	1.912
Final			40.435	63.208	72	77	77					
Initial			35.284	58.065	72	74	74					
Difference	5	1.20	5.151	5.143	72	76	76	76	9	1	1.010	2.099
Final			12.308	35.117	71	75	74					
Initial			7.381	30.171	71	74	74					
Difference	6	2.00	4.927	4.946	71	75	74	74	6	24	1.002	1.924

Average **1.007** **1.930**

Stack Temperature Sensor Calibration			
Temperature ID :	100769	Name :	BJE
Ambient Temperature, ^oF :	73.1	Date :	August 15, 2023

Temperature Calibrator			
Model # :	CL23A	Certification Date:	August 15, 2023
Serial # :	T-314718	Expiration Date:	August 14, 2024

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^oF)	Test Thermometer Temperature (^oF)	Temperature Difference %
0	-1	0.2
250	248	0.3
600	597	0.3
1200	1199	0.1

$$\frac{(\text{Ref. Temp., }^oF + 460) - (\text{Test Therm. Temp., }^oF + 460)}{\text{Ref. Temp., }^oF + 460} * 100 <= 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM36	Date:	June 6, 2023
Standard Meter No.	18654530	Calibrated By:	FB
Standard Meter (Y)	0.99520	Barometric Pressure:	29.28

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F^o tr	Dry Gas Meter Inlet Temp. F^o tdi	Dry Gas Meter Outlet Temp. F^o tdo	Dry Gas Meter Avg. Temp. F^o td	Time Min	Time Sec	Y	Chg (H)
Final			127.513	71.923	76	75	75					
Initial			121.210	65.602	75	74	74					
Difference	1	0.20	6.303	6.321	76	75	75	75	24	6	0.990	1.723
Final			88.022	143.740	79	75	75					
Initial			81.448	137.180	78	75	75					
Difference	2	0.50	6.574	6.560	79	75	75	75	16	26	0.990	1.860
Final			151.239	95.610	79	75	75					
Initial			144.047	88.421	78	75	75					
Difference	3	0.70	7.192	7.189	79	75	75	75	15	10	0.987	1.853
Final			158.933	103.183	79	75	75					
Initial			151.690	95.954	78	75	75					
Difference	4	0.90	7.243	7.229	79	75	75	75	13	25	0.988	1.839
Final			166.496	110.304	80	75	75					
Initial			159.690	103.527	80	75	75					
Difference	5	1.20	6.806	6.777	80	75	75	75	11	21	0.987	1.998
Final			121.084	65.404	74	75	75					
Initial			115.045	59.455	74	74	74					
Difference	6	2.00	6.039	5.949	74	75	75	75	7	19	1.006	1.720

Average **0.991** **1.832**

Stack Temperature Sensor Calibration			
Temperature ID :	100769	Name :	FB
Ambient Temperature, ^{o}F :	76.9	Date :	6/6/2023

Temperature Calibrator			
Model # :	CL23A	Certification Date:	May 2, 2023
Serial # :	T-285668	Expiration Date:	May 1, 2024

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^{o}F)	Test Thermometer Temperature (^{o}F)	Temperature Difference %
0	0	0.0
250	248	0.2
600	598	0.2
1200	1202	0.2

$$\frac{(\text{Ref. Temp., }^{o}\text{F} + 460) - (\text{Test Therm. Temp., }^{o}\text{F} + 460)}{\text{Ref. Temp., }^{o}\text{F} + 460} * 100 <= 1.5\ \%$$

Meter Box Calibration

Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM36	Date:	July 25, 2023
Standard Meter No.	18654530	Calibrated By:	FB
Standard Meter (Y)	0.99520	Barometric Pressure:	29.39

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F^o tr	Dry Gas Meter Inlet Temp. F^o tdi	Dry Gas Meter Outlet Temp. F^o tdo	Dry Gas Meter Avg. Temp. F^o td	Time Min	Time Sec	Y	Chg (H)
Final			47.073	62.404	80	76	76					
Initial			41.417	56.825	79	76	76					
Difference	1	0.20	5.656	5.579	80	76	76	76	22	31	1.002	1.884
Final			53.665	68.335	81	76	76					
Initial			47.146	61.838	81	76	76					
Difference	2	0.50	6.519	6.497	81	76	76	76	15	46	0.988	1.748
Final			60.325	74.927	82	77	77					
Initial			53.746	68.525	82	77	77					
Difference	3	0.70	6.579	6.402	82	77	77	77	14	11	1.012	1.948
Final			67.255	81.385	83	77	77					
Initial			61.172	75.432	83	77	77					
Difference	4	0.90	6.083	5.953	83	77	77	77	11	39	1.003	1.984
Final			73.350	87.197	84	77	77					
Initial			67.348	81.388	84	77	77					
Difference	5	1.20	6.002	5.809	84	77	77	77	9	29	1.012	1.807
Final			41.327	56.842	79	76	76					
Initial			34.802	50.528	77	76	76					
Difference	6	2.00	6.525	6.314	78	76	76	76	8	29	1.020	1.998

Average **1.006** **1.895**

Stack Temperature Sensor Calibration			
Temperature ID :	100769	Name :	FB
Ambient Temperature, ^{o}F :	80.4	Date :	July 25, 2023

Temperature Calibrator			
Model # :	CL23A	Certification Date:	November 19, 2022
Serial # :	T-314718	Expiration Date:	November 19, 2023

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^{o}F)	Test Thermometer Temperature (^{o}F)	Temperature Difference %
0	0	0.0
250	249	0.1
600	598	0.2
1200	1200	0.0

$$\frac{(\text{Ref. Temp., }^{o}F + 460) - (\text{Test Therm. Temp., }^{o}F + 460)}{\text{Ref. Temp., }^{o}F + 460} * 100 <= 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM14	Date:	June 21, 2023
Standard Meter No.	18654530	Calibrated By:	FB
Standard Meter (Y)	0.99520	Barometric Pressure:	29.41

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F° tr	Dry Gas Meter Inlet Temp. F° tdi	Dry Gas Meter Outlet Temp. F° tdo	Dry Gas Meter Avg. Temp. F° td	Time Min	Time Sec	Y	Chg (H)
Final			126.550	71.373	76	82	81					
Initial			120.024	64.888	75	82	79					
Difference	1	0.20	6.526	6.485	76	82	80	81	23	31	1.011	1.505
Final			134.342	78.794	76	83	82					
Initial			126.788	71.322	76	82	81					
Difference	2	0.50	7.554	7.472	76	83	82	82	17	24	1.016	1.538
Final			141.132	86.470	76	84	82					
Initial			134.650	79.910	76	83	81					
Difference	3	0.70	6.482	6.560	76	84	82	83	13	30	0.994	1.758
Final			148.346	101.290	76	85	83					
Initial			141.240	94.083	77	84	83					
Difference	4	0.90	7.106	7.207	77	85	83	84	12	30	0.992	1.612
Final			155.782	101.290	76	84	84					
Initial			148.654	94.083	77	85	83					
Difference	5	1.20	7.128	7.207	77	85	84	84	11	4	0.995	1.674
Final			119.974	64.612	75	82	79					
Initial			113.905	58.535	75	81	79					
Difference	6	2.00	6.069	6.077	75	82	79	80	7	32	0.999	1.785

Average	**1.001**	**1.646**

Stack Temperature Sensor Calibration			
Temperature ID :	*CM14*	*Name :*	*FB*
Ambient Temperature, ^oF :	*79*	*Date :*	*6/21/2023*

Temperature Calibrator			
Model # :	*CL23A*	*Certification Date:*	*May 2, 2023*
Serial # :	*T-285668*	*Expiration Date:*	*May 1, 2024*

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^oF)	Test Thermometer Temperature (^oF)	Temperature Difference %
0	*-1*	0.2
250	*249*	0.1
600	*599*	0.1
1200	*1201*	0.1

$$\frac{(\text{Ref. Temp., }^oF + 460) - (\text{Test Therm. Temp., }^oF + 460)}{\text{Ref. Temp., }^oF + 460} * 100 <= 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM 14	Date:	August 11, 2023
Standard Meter No.	16541852	Calibrated By:	BJE
Standard Meter (Y)	1.00440	Barometric Pressure:	29.10

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F^o tr	Dry Gas Meter Inlet Temp. F^o tdi	Dry Gas Meter Outlet Temp. F^o tdo	Dry Gas Meter Avg. Temp. F^o td	Time Min	Time Sec	Y	Chg (H)
Final			69.420	45.989	78	83	82					
Initial			63.824	40.242	78	82	82					
Difference	1	0.20	5.596	5.747	78	83	82	82	20	24	0.985	1.539
Final			75.665	52.349	78	83	83					
Initial			69.665	46.222	78	83	83					
Difference	2	0.50	6.000	6.127	78	83	83	83	13	57	0.991	1.563
Final			81.421	58.203	78	84	83					
Initial			75.909	52.579	78	83	83					
Difference	3	0.70	5.512	5.624	78	84	83	83	11	4	0.992	1.631
Final			87.303	64.182	78	84	83					
Initial			81.583	58.365	78	84	83					
Difference	4	0.90	5.720	5.817	78	84	83	84	10	9	0.995	1.638
Final			93.405	70.368	78	83	83					
Initial			87.589	64.476	78	83	83					
Difference	5	1.20	5.816	5.892	78	83	83	83	9	10	0.998	1.724
Final			63.648	40.044	78	82	81					
Initial			57.701	34.053	78	81	81					
Difference	6	2.00	5.947	5.991	78	82	81	81	7	25	0.998	1.805
									Average		**0.993**	**1.650**

Stack Temperature Sensor Calibration			
Temperature ID :	100769	Name :	BJE
Ambient Temperature, ^oF :	79.3	Date :	August 11, 2023

Temperature Calibrator			
Model # :	CL23A	Certification Date:	August 11, 2023
Serial # :	T-314718	Expiration Date:	August 10, 2024

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^oF)	Test Thermometer Temperature (^oF)	Temperature Difference %
0	2	0.4
250	255	0.7
600	607	0.7
1200	1214	0.8

$$\frac{(\text{Ref. Temp., }^oF + 460) - (\text{Test Therm. Temp., }^oF + 460)}{\text{Ref. Temp., }^oF + 460} * 100 <= 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM22	Date:	June 16, 2023
Standard Meter No.	366118	Calibrated By:	MJD
Standard Meter (Y)	1.00880	Barometric Pressure:	29.21

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F^o tr	Dry Gas Meter Inlet Temp. F^o tdi	Dry Gas Meter Outlet Temp. F^o tdo	Dry Gas Meter Avg. Temp. F^o td	Time Min	Time Sec	Y	Chg (H)
Final			5.514	31.140	68	79	80					
Initial			0.362	25.781	68	76	77					
Difference	1	0.20	5.152	5.359	68	78	79	78	21	23	0.988	1.913
Final			11.274	37.089	68	80	80					
Initial			5.645	31.271	68	79	80					
Difference	2	0.50	5.629	5.818	68	80	80	80	14	30	0.997	1.836
Final			17.226	43.119	68	78	80					
Initial			11.516	37.339	68	80	80					
Difference	3	0.70	5.710	5.780	68	79	80	80	12	30	1.017	1.858
Final			23.075	49.246	68	80	80					
Initial			17.629	43.634	68	79	80					
Difference	4	0.90	5.446	5.612	68	80	80	80	10	33	0.998	1.869
Final			28.741	55.039	68	80	80					
Initial			23.265	49.429	68	80	80					
Difference	5	1.20	5.476	5.610	68	80	80	80	9	23	1.004	1.949
Final			98.789	24.175	68	74	76					
Initial			93.638	18.882	68	74	75					
Difference	6	2.00	5.151	5.293	68	74	76	75	6	44	0.989	1.909

Average **0.999** **1.889**

Stack Temperature Sensor Calibration			
Temperature ID :	*100769*	*Name :*	*MJD*
Ambient Temperature, ^{o} F :	*71.4*	*Date :*	*6/16/2023*

Temperature Calibrator			
Model # :	*CL23A*	*Certification Date:*	*May 18, 2022*
Serial # :	*T-285668*	*Expiration Date:*	*May 18, 2023*

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^{o} F)	***Test Thermometer Temperature (^{o} F)***	***Temperature Difference %***
0	*-1*	
250	*249*	
600	*599*	
1200	*1203*	

$$\frac{(\text{Ref. Temp., } ^{o}\text{F} + 460) - (\text{Test Therm. Temp., } ^{o}\text{F} + 460)}{\text{Ref. Temp., } ^{o}\text{F} + 460} * 100 <= 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No.	*CM22*	*Date:*	*July 14, 2023*
Standard Meter No.	*18654530*	*Calibrated By:*	*JVC*
Standard Meter (Y)	*0.99520*	*Barometric Pressure:*	*29.13*

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F^o tr	Dry Gas Meter Inlet Temp. F^o tdi	Dry Gas Meter Outlet Temp. F^o tdo	Dry Gas Meter Avg. Temp. F^o td	Time Min	Time Sec	Y	Chg (H)
Final			55.743	99.904	79	89	92					
Initial			49.969	94.031	78	86	88					
Difference	1	0.20	5.774	5.873	79	88	90	89	23	54	0.997	1.999
Final			63.794	8.138	79	89	93					
Initial			55.840	0.005	79	91	93					
Difference	2	0.50	7.954	8.133	79	90	93	92	20	13	0.995	1.879
Final			71.770	16.316	80	88	91					
Initial			63.928	8.272	79	92	93					
Difference	3	0.70	7.842	8.044	80	90	92	91	17	2	0.989	1.926
Final			80.199	24.988	81	91	92					
Initial			71.971	16.528	80	91	92					
Difference	4	0.90	8.228	8.460	81	91	92	92	15	42	0.985	1.917
Final			22.136	68.042	77	87	86					
Initial			14.621	60.331	77	84	85					
Difference	5	1.20	7.515	7.711	77	86	86	86	12	23	0.982	1.902
Final			49.832	93.892	78	80	86					
Initial			40.212	84.134	77	81	82					
Difference	6	2.00	9.620	9.758	78	81	84	82	12	32	0.985	1.997

Average **0.989** **1.937**

Temperature ID :	*100769*	*Name :*	*JVC*
Ambient Temperature, ^{o}F :	*80*	*Date :*	*July 15, 2023*

Temperature Calibrator			
Model # :	*CL23A*	*Certification Date:*	*May 2, 2023*
Serial # :	*T-285688*	*Expiration Date:*	*May 1, 2024*

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^{o}F)	***Test Thermometer Temperature (^{o}F)***	***Temperature Difference %***
0	*2*	0.4
250	*253*	0.4
600	*598*	0.2
1200	*1196*	0.2

$$\frac{(\text{Ref. Temp., }^{o}F + 460) - (\text{Test Therm. Temp., }^{o}F + 460)}{\text{Ref. Temp., }^{o}F + 460} * 100 <= 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No. CM40
Standard Meter No.
Standard Meter (Y) 1.00880

Date: June 20, 2023
Calibrated By: MJD
Barometric Pressure: 29.30

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F° tr	Dry Gas Meter Inlet Temp. F° tdi	Dry Gas Meter Outlet Temp. F° tdo	Dry Gas Meter Avg. Temp. F° td	Time Min	Time Sec	Y	Chg (H)
Final			72.871	59.554	72	74	74					
Initial			67.887	54.489	74	72	72					
Difference	1	0.20	4.984	5.065	73	73	73	73	20	20	0.992	1.895
Final			80.039	66.891	72	74	74					
Initial			73.189	59.886	72	74	74					
Difference	2	0.50	6.850	7.005	72	74	74	74	16	42	0.989	1.683
Final			86.296	73.276	72	74	74					
Initial			80.436	67.283	72	75	75					
Difference	3	0.70	5.860	5.993	72	75	75	75	12	35	0.989	1.826
Final			92.013	79.122	72	75	75					
Initial			86.592	73.585	72	75	75					
Difference	4	0.90	5.421	5.537	72	75	75	75	10	6	0.991	1.766
Final			98.520	85.746	73	74	74					
Initial			92.584	79.690	72	75	75					
Difference	5	1.20	5.936	6.056	73	75	75	75	9	46	0.990	1.841
Final			43.635	29.693	74	75	75					
Initial			36.544	22.420	72	74	74					
Difference	6	2.00	7.091	7.273	73	75	75	75	8	30	0.981	1.632

Average **0.989** **1.774**

Stack Temperature Sensor Calibration			
Temperature ID :	100.769	Name :	FB
Ambient Temperature, ^{o}F :	76.9	Date :	6/6/2023

Temperature Calibrator			
Model # :	CL23A	Certification Date:	June 5, 2023
Serial # :	T-285668	Expiration Date:	June 4, 2024

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^{o}F)	**Test Thermometer Temperature (^{o}F)**	**Temperature Difference %**
0	0	0.0
250	250	0.0
600	599	0.1
1200	1204	0.4

$$\frac{(\text{Ref. Temp., } ^{o}F + 460) - (\text{Test Therm. Temp., } ^{o}F + 460)}{\text{Ref. Temp., } ^{o}F + 460} * 100 <= 1.5\ \%$$

Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM40	Date:	July 14, 2023
Standard Meter No.	366118	Calibrated By:	DEJ
Standard Meter (Y)	1.00880	Barometric Pressure:	29.15

Run Number		Orifice Setting in H_2O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F° tr	Dry Gas Meter Inlet Temp. F° tdi	Dry Gas Meter Outlet Temp. F° tdo	Dry Gas Meter Avg. Temp. F° td	Time Min	Time Sec	Y	Chg (H)
Final			39.235	91.582	74	74	74					
Initial			33.060	85.286	75	73	73					
Difference	1	0.20	6.175	6.296	75	74	74	74	22	18	0.987	1.500
Final			46.321	98.781	76	74	74					
Initial			39.571	91.919	74	74	74					
Difference	2	0.50	6.750	6.862	75	74	74	74	16	5	0.989	1.634
Final			62.771	15.525	78	75	75					
Initial			56.460	9.103	78	75	75					
Difference	3	0.70	6.311	6.422	78	75	75	75	12	54	0.984	1.699
Final			71.124	24.026	79	76	76					
Initial			63.073	15.835	78	75	75					
Difference	4	0.90	8.051	8.191	79	76	76	76	14	54	0.984	1.793
Final			78.535	31.538	76	77	77					
Initial			71.377	24.280	76	77	77					
Difference	5	1.20	7.158	7.258	76	77	77	77	11	13	0.994	1.693
Final			24.406	76.077	75	73	73					
Initial			18.008	69.775	74	72	72					
Difference	6	2.00	6.398	6.302	75	73	73	73	8	10	1.015	1.877
									Average		**0.992**	**1.699**

Stack Temperature Sensor Calibration			
Temperature ID :	*100769*	*Name :*	*DEJ*
Ambient Temperature, ^oF :	*78.5*	*Date :*	*July 14, 2023*

Temperature Calibrator			
Model # :	*CL23A*	*Certification Date:*	*May 2, 2023*
Serial # :	*T-285668*	*Expiration Date:*	*May 1, 2024*

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (^oF)	***Test Thermometer Temperature (^oF)***	***Temperature Difference %***
0	*1*	0.2
250	*253*	0.4
600	*602*	0.2
1200	*1205*	0.3

$$\frac{(\text{Ref. Temp., }^oF + 460) - (\text{Test Therm. Temp., }^oF + 460)}{\text{Ref. Temp., }^oF + 460} * 100 <= 1.5\ \%$$

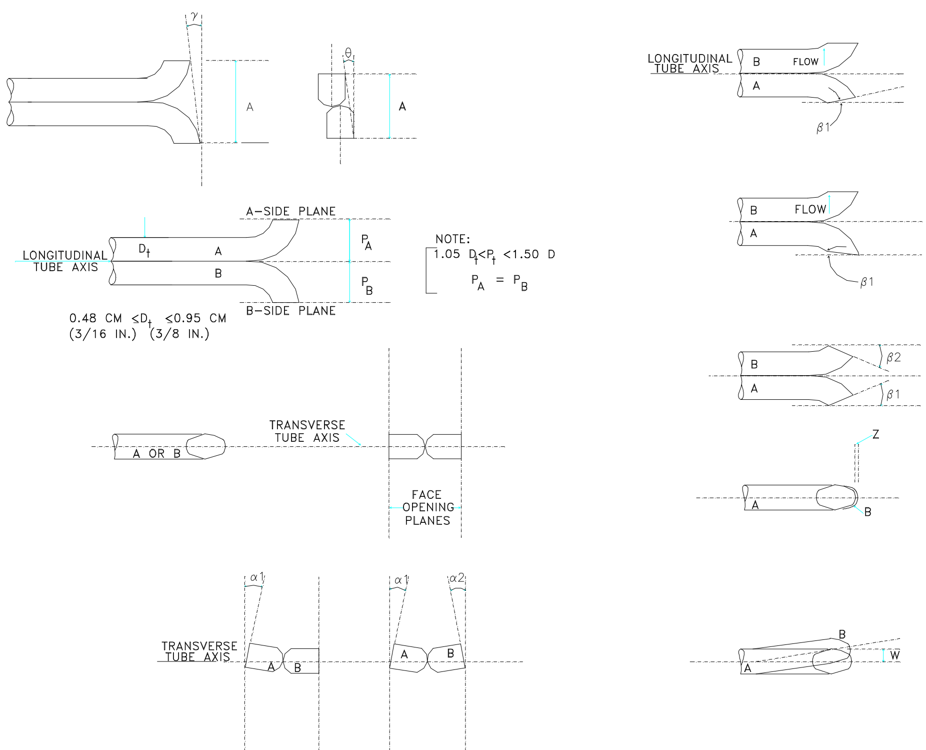
S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 288   Date: 6/14/2023   Inspectors Name: JLH

Type of Probe: (mark one)

M2	M5	M17
	X	

Probe Length: 4 ft.



Pitot tube assembly level? X yes ____ no

Pitot tube openings damaged? ____ yes (explain below) X no

a_1 = 0 ° (≤10°) a_2 = 0 ° (≤10°)   z = A sin γ = **0.000** (in.); (≤0.125 in.)

b_1 = 0 ° (≤5°) b_2 = 0 ° (≤5°)   w = A sin θ = **0.00000** (in.); (≤0.03125 in.)

γ = 0 °   θ = 0 °   A = 0.955 (in.) P_A = 0.487 (in.), P_B = 0.487 (in.), D_t = 0.375 (in.)

Calibration required? ____ yes **X** no

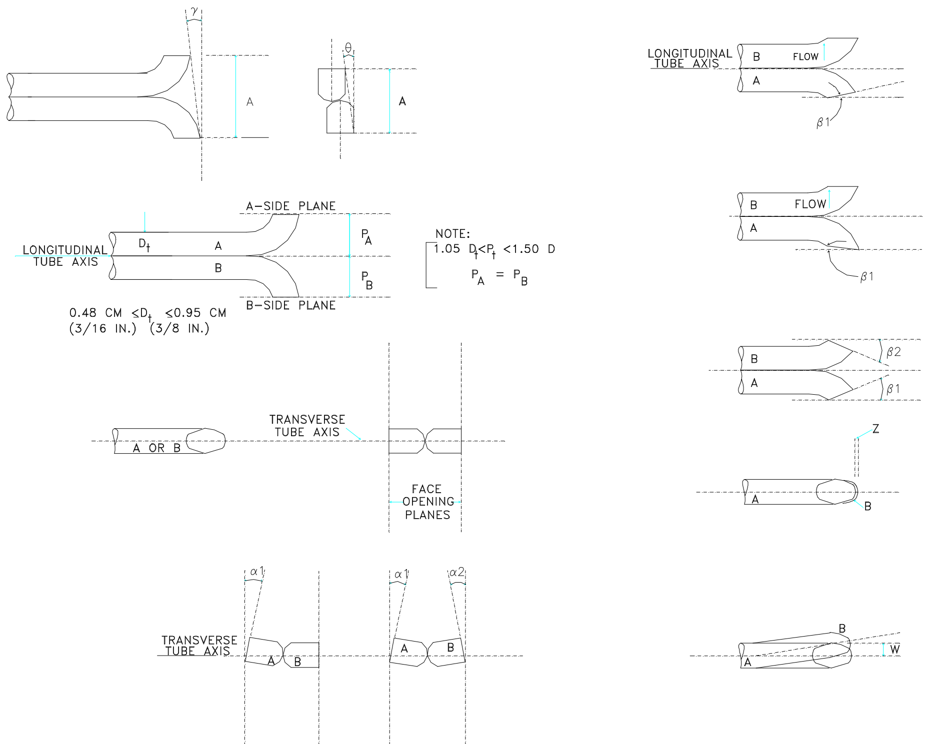
S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 289 Date: 7/20/2023 Inspectors Name: JAM

Type of Probe: (mark one)

M2	M5	M17
	X	

Probe Length: 4 ft.



Pitot tube assembly level? X yes ____ no

Pitot tube openings damaged? ____ yes (explain below) X no

a_1 = 1.5 ^{o} (≤10^o) a_2 = 1.5 ^{o} (≤10^o) z = A sin γ = **0.008** (in.); (≤0.125 in.)

b_1 = 1.5 ^{o} (≤5^o) b_2 = 0.5 ^{o} (≤5^o) w = A sin θ = **0.00818** (in.); (≤0.03125 in.)

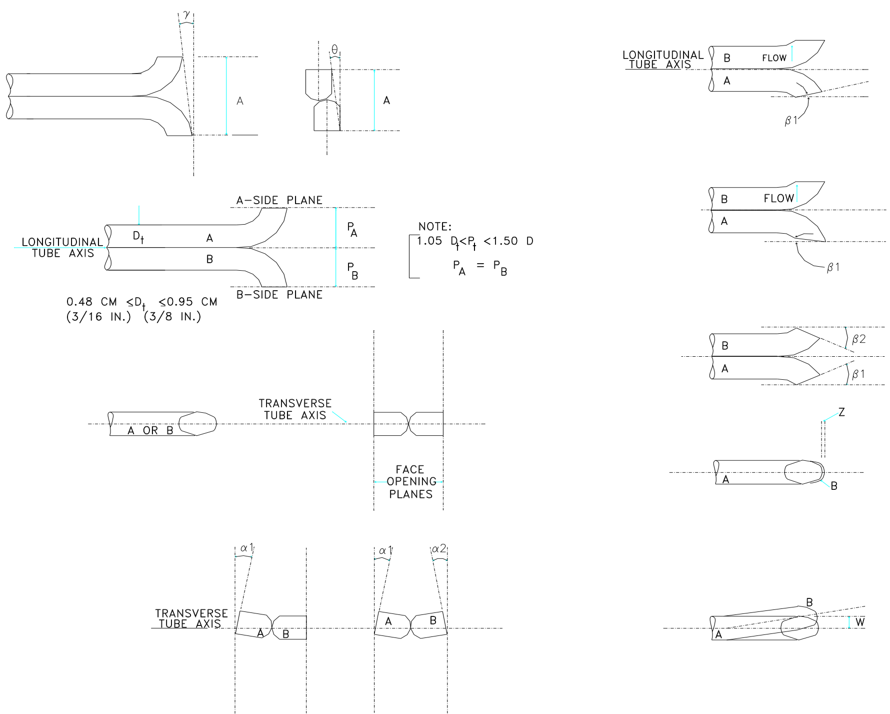
γ = 0.5 ^{o} θ = 0.5 ^{o} A = 0.937 (in.) P_A = 0.469 (in.), P_B = 0.469 (in.), D_t = 0.375 (in.)

Calibration required? ____ yes **X** no

S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 288 Date: 7/14/2023 Inspectors Name: EC

Type of Probe: (circle one) M2 M5 M17 Probe Length: 4 ft.



Pitot tube assembly level? x yes ______ no

Pitot tube openings damaged? ______ yes (explain below) x no

a_1 = 2 ^{o} (<10^o), a_2 = 6 ^{o} (<10^o) z = A sin g = 0.067 (in.); (<0.125 in.)

b_1 = 0.5 ^{o} (<5^o), b_2 = 1 ^{o} (<5^o) w = A sin q = 0.017 (in.); (<0.03125 in.)

γ = 4 ^{o}, θ = 1 ^{o}, A = 0.960 (in.) P_A = 0.480 (in.), P_B = 0.480 (in.), D_t = 0.375 (in.)

Calibration required? ______ yes x no

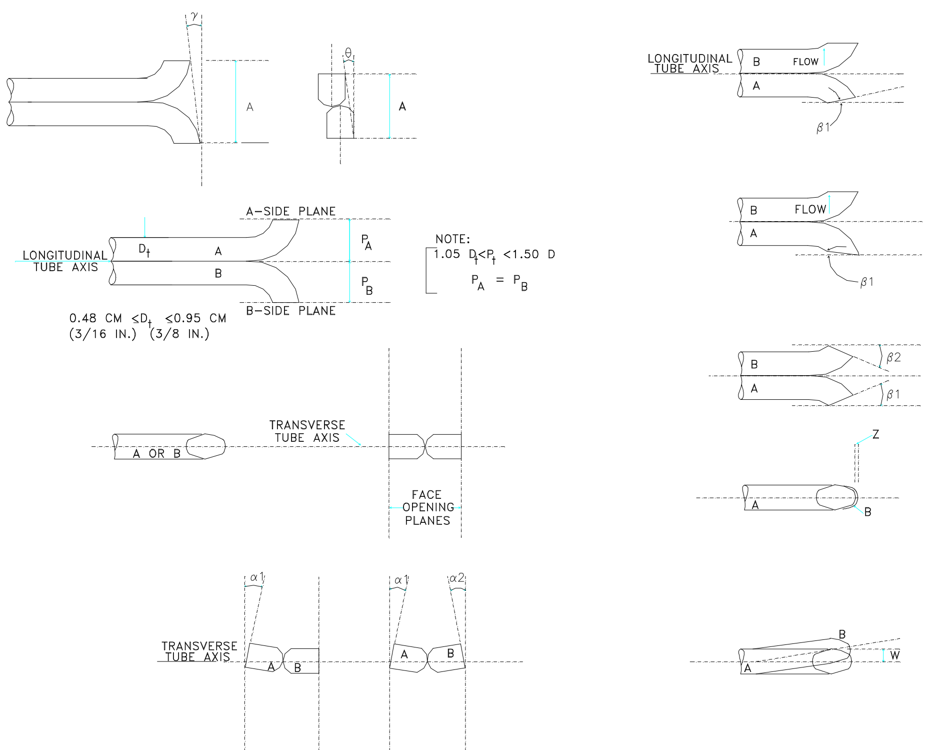
S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 288 Date: 6/14/2023 Inspectors Name: JLH

Type of Probe: (mark one)

M2	M5	M17
	X	

Probe Length: 4 ft.



Pitot tube assembly level? X yes ____ no

Pitot tube openings damaged? ____ yes (explain below) X no

a_1 = 0 ^{o} (≤10^o) a_2 = 0 ^{o} (≤10^o) z = A sin γ = **0.000** (in.); (≤0.125 in.)

b_1 = 0 ^{o} (≤5^o) b_2 = 0 ^{o} (≤5^o) w = A sin θ = **0.00000** (in.); (≤0.03125 in.)

γ = 0 ^{o} θ = 0 ^{o} A = 0.955 (in.) P_A = 0.487 (in.), P_B = 0.487 (in.), D_t = 0.375 (in.)

Calibration required? ____ yes **X** no

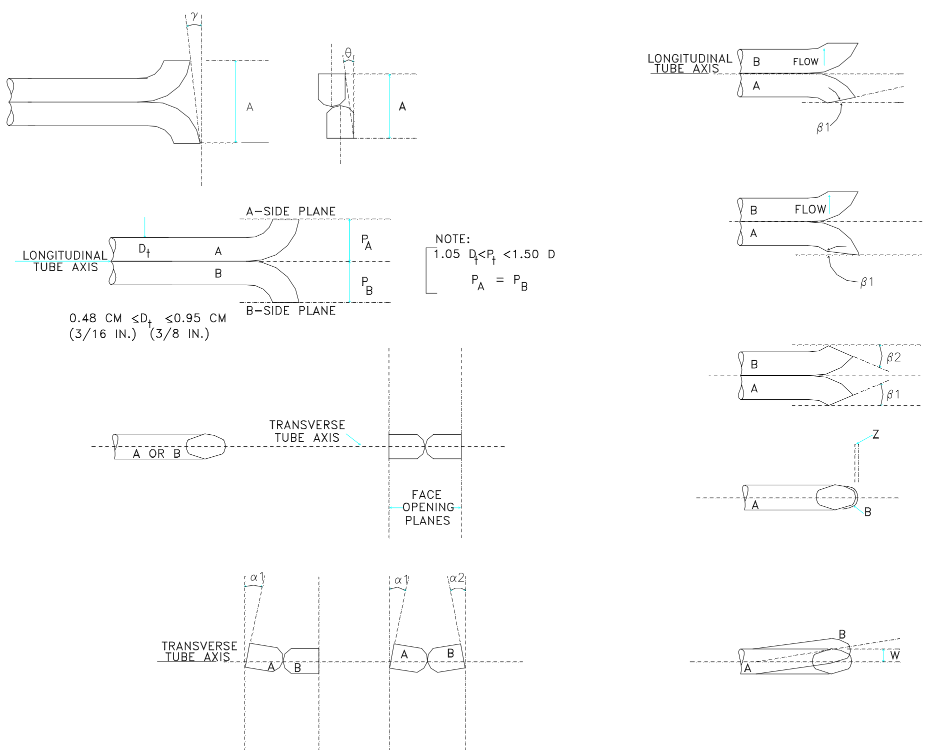
S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 291 Date: 6/14/2023 Inspectors Name: JLH

Type of Probe: (mark one)

M2	M5	M17
	X	

Probe Length: 4 ft.



Pitot tube assembly level? X yes ____ no

Pitot tube openings damaged? ____ yes (explain below) X no

a_1 = 0 ° (≤10°) a_2 = 0 ° (≤10°) z = A sin γ = **0.000** (in.); (≤0.125 in.)

b_1 = 0 ° (≤5°) b_2 = 0 ° (≤5°) w = A sin θ = **0.00000** (in.); (≤0.03125 in.)

γ = 0 ° θ = 0 ° A = 0.955 (in.) P_A = 0.487 (in.), P_B = 0.487 (in.), D_t = 0.375 (in.)

Calibration required? ____ yes **X** no

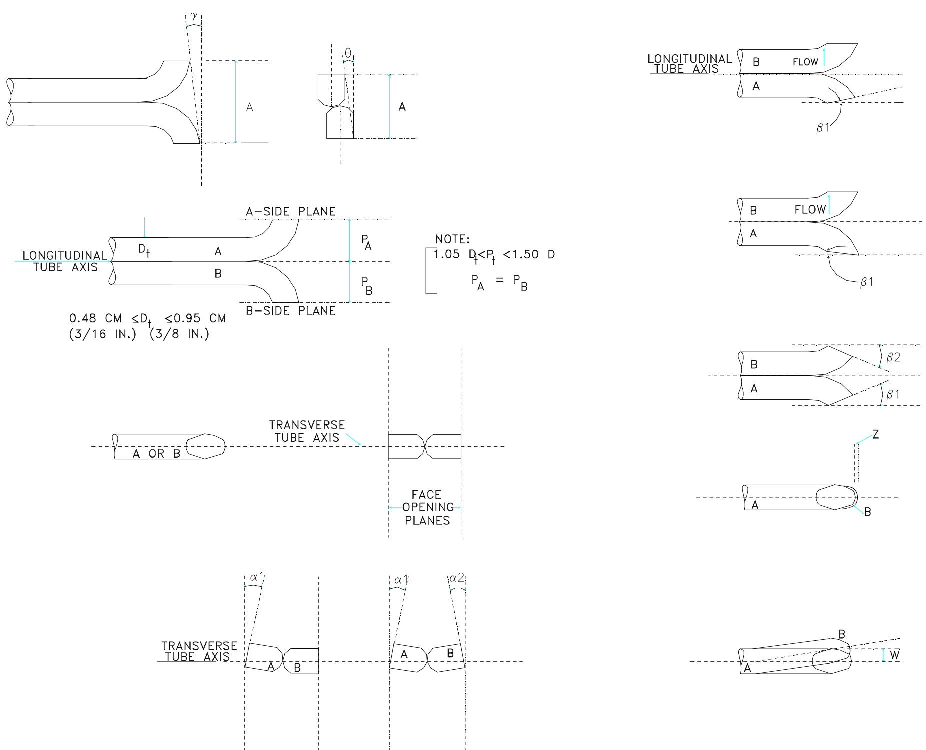
S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 291 Date: 7/7/2023 Inspectors Name: VJR

Type of Probe: (mark one)

M2	M5	M17
	X	

Probe Length: 4 ft.



Pitot tube assembly level? X yes ____ no

Pitot tube openings damaged? ____ yes (explain below) X no

$a_1 =$ 2 ^{o} (≤10^o) $a_2 =$ 1 ^{o} (≤10^o) z = A sin γ = **0.049** (in.); (≤0.125 in.)

$b_1 =$ 2 ^{o} (≤5^o) $b_2 =$ 2.5 ^{o} (≤5^o) w = A sin θ = **0.00000** (in.); (≤0.03125 in.)

γ = 3 ^{o} θ = 0 ^{o} A = 0.940 (in.) P_A = 0.470 (in.), P_B = 0.470 (in.), D_t = 0.375 (in.)

Calibration required? ____ yes **X** no

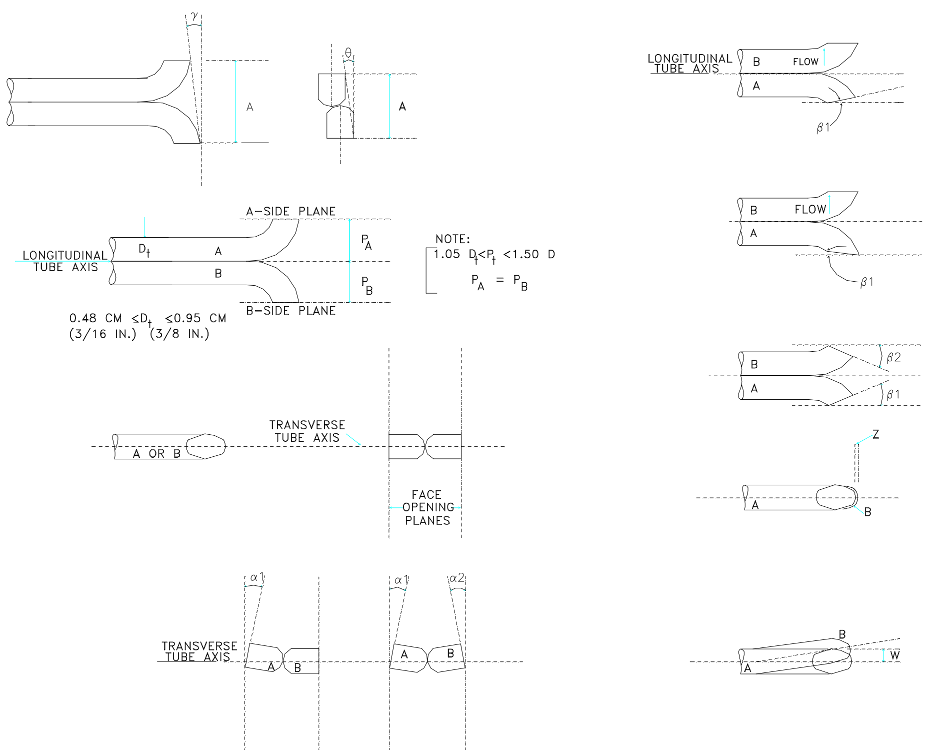
S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 290 Date: 6/14/2023 Inspectors Name: JLH

Type of Probe: (mark one)

M2	M5	M17
	X	

Probe Length: 4 ft.



Pitot tube assembly level? X yes ____ no

Pitot tube openings damaged? ____ yes (explain below) X no

a_1 = 0 ° (≤10°) a_2 = 0 ° (≤10°) z = A sin γ = **0.000** (in.); (≤0.125 in.)

b_1 = 0 ° (≤5°) b_2 = 0 ° (≤5°) w = A sin θ = **0.00000** (in.); (≤0.03125 in.)

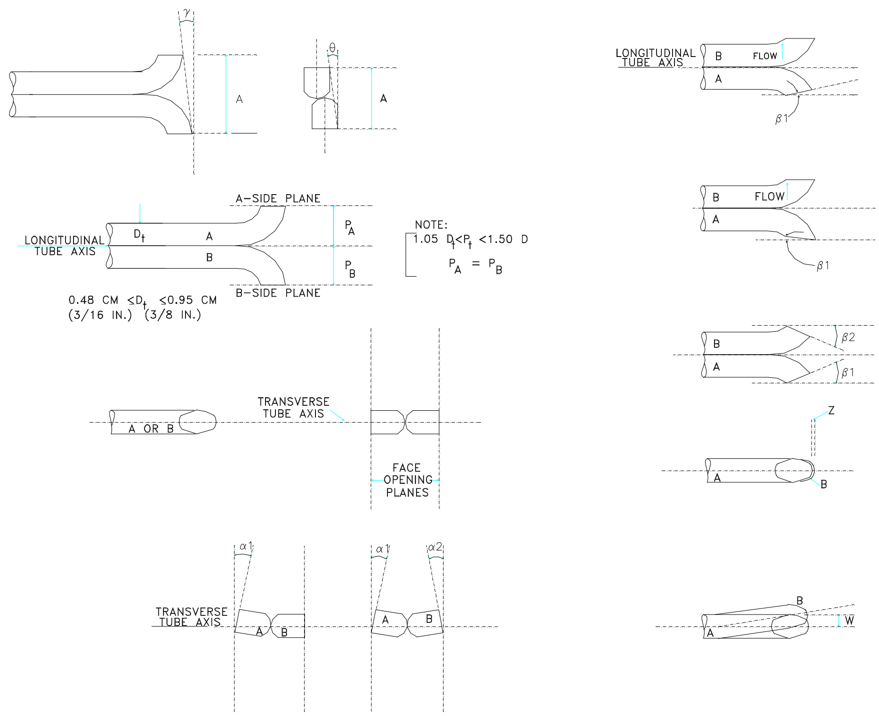
γ = 0 ° θ = 0 ° A = 0.955 (in.) P_A = 0.487 (in.), P_B = 0.487 (in.), D_t = 0.375 (in.)

Calibration required? ____ yes **X** no

S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 290 Date: 7/13/2023 Inspectors Name: JTM

Type of Probe: (circle one) M2 M5 M17 Probe Length: 4 ft.



Pitot tube assembly level? x yes ____ no

Pitot tube openings damaged? ____ yes (explain below) x no

a_1 = 5 ° (<10°), a_2 = 3 ° (<10°) z = A sin g = 0.000 (in.); (<0.125 in.)

b_1 = 0 ° (<5°), b_2 = 0 ° (<5°) w = A sin q = 0.000 (in.); (<0.03125 in.)

γ = 0 °, θ = 0 °,A = 0.930 (in.) P_A = 0.465 (in.), P_B = 0.465 (in.), D_t = 0.375 (in.)

Calibration required? ____ yes x no

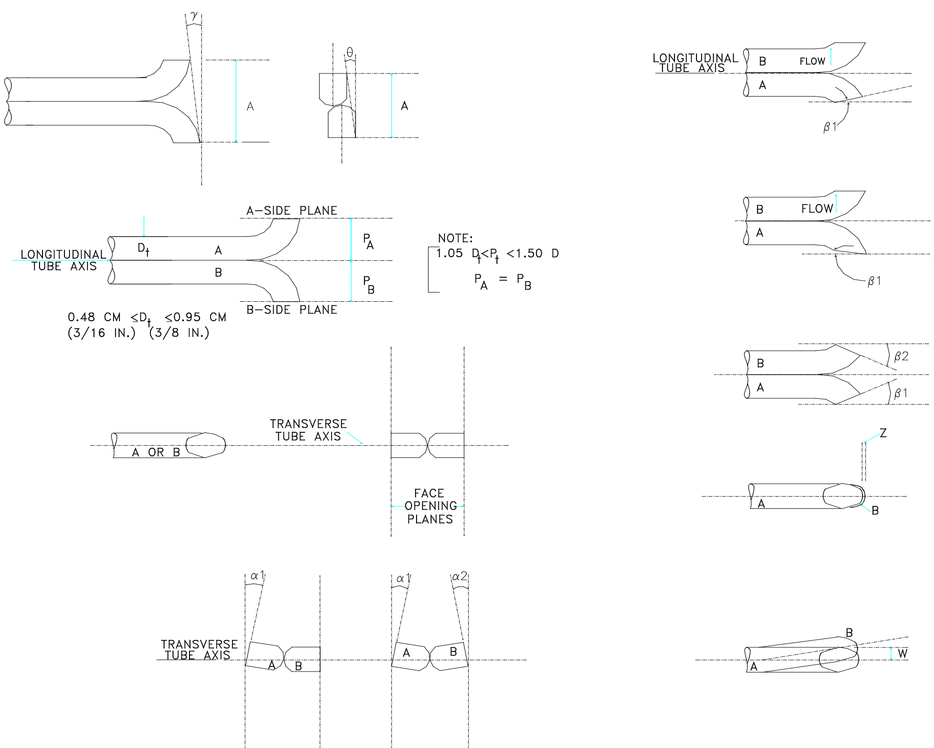
S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 316   Date: 6/13/2023   Inspectors Name: CST

Type of Probe: (circle one)

M2	M5	M17
	X	

Probe Length: 4 ft.



Pitot tube assembly level?   X yes   ____ no

Pitot tube openings damaged?   ____ yes (explain below)   X no

a_1 = 3.5 ^{o} (≤10^o) a_2 = 0.5 ^{o} (≤10^o)   z = A sin γ = **0.025** (in.); (≤0.125 in.)

b_1 = 1.5 ^{o} (≤5^o) b_2 = 1.5 ^{o} (≤5^o)   w = A sin θ = **0.02510** (in.); (≤0.03125 in.)

γ = 1.5 ^{o} θ = 1.5 ^{o} A = 0.959 (in.) P_A = 0.480 (in.), P_B = 0.480 (in.), D_t = 0.375 (in.)

Calibration required?   ____ yes   **X** no

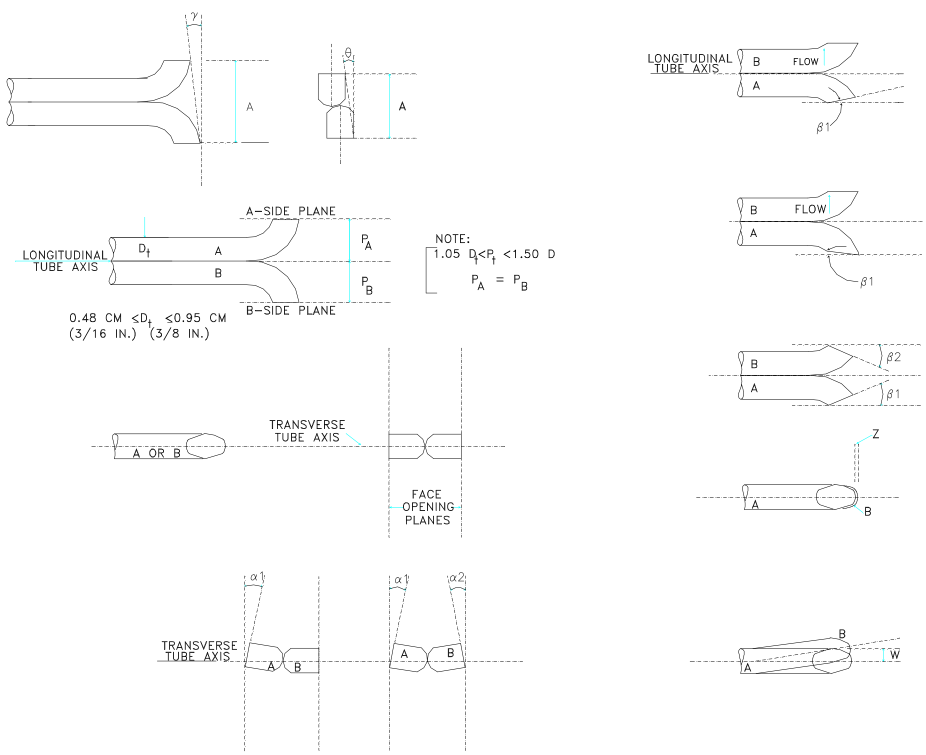
S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 316 Date: 7/19/2023 Inspectors Name: JAM

Type of Probe: (mark one)

M2	M5	M17
	X	

Probe Length: 4 ft.



Pitot tube assembly level? X yes ___ no

Pitot tube openings damaged? ___ yes (explain below) X no

a_1 = 3 ^{o} ($\leq 10^o$) a_2 = 0.5 ^{o} ($\leq 10^o$) $z = A \sin \gamma$ = **0.033** (in.); ($\leq$0.125 in.)

b_1 = 0.5 ^{o} ($\leq 5^o$) b_2 = 1.5 ^{o} ($\leq 5^o$) $w = A \sin \theta$ = **0.00000** (in.); ($\leq$0.03125 in.)

γ = 2 ^{o} θ = 0 ^{o} A = 0.949 (in.) P_A = 0.475 (in.), P_B = 0.475 (in.), D_t = 0.375 (in.)

Calibration required? ___ yes ___ no

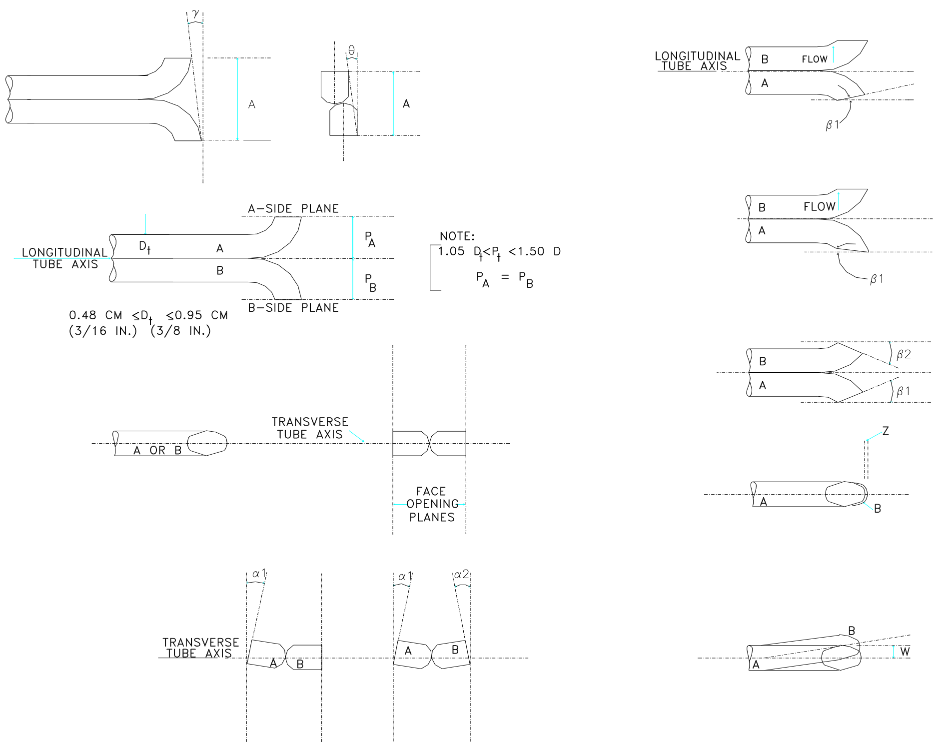
S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 312 Date: 5/31/2022 Inspectors Name: BWL

Type of Probe: (mark one)

M2	M5	M17
	x	

Probe Length: 5 ft.



Pitot tube assembly level? x yes ______ no

Pitot tube openings damaged? ______ yes (explain below) x no

a_1 = 3 ^{o} (≤10^o) a_2 = 0 ^{o} (≤10^o) z = A sin γ = **0.049** (in.); (≤0.125 in.)

b_1 = 4 ^{o} (≤5^o) b_2 = 3 ^{o} (≤5^o) w = A sin θ = **0.00000** (in.); (≤0.03125 in.)

γ = 3 ^{o} θ = 0 ^{o} A = 0.940 (in.) P_A = 0.470 (in.), P_B = 0.470 (in.), D_t = 0.375 (in.)

Calibration required? ______ yes **x** no

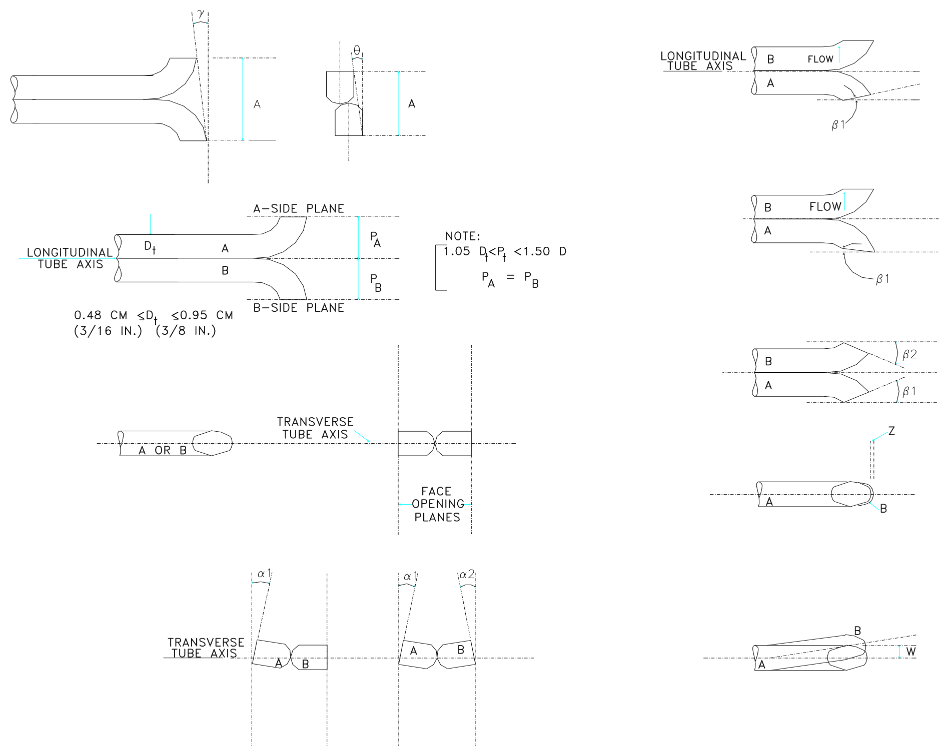
S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 312 Date: 8/9/2023 Inspectors Name: JAM

Type of Probe: (mark one)

M2	M5	M17
	X	

Probe Length: 4 ft.



Pitot tube assembly level? X yes ____ no

Pitot tube openings damaged? ____ yes (explain below) X no

a_1 = 3 ° (≤10°) a_2 = 1.5 ° (≤10°) z = A sin γ = **0.025** (in.); (≤0.125 in.)

b_1 = 3 ° (≤5°) b_2 = 1.5 ° (≤5°) w = A sin θ = **0.00823** (in.); (≤0.03125 in.)

γ = 1.5 ° θ = 0.5 ° A = 0.943 (in.) P_A = 0.472 (in.), P_B = 0.472 (in.), D_t = 0.375 (in.)

Calibration required? ____ yes **X** no

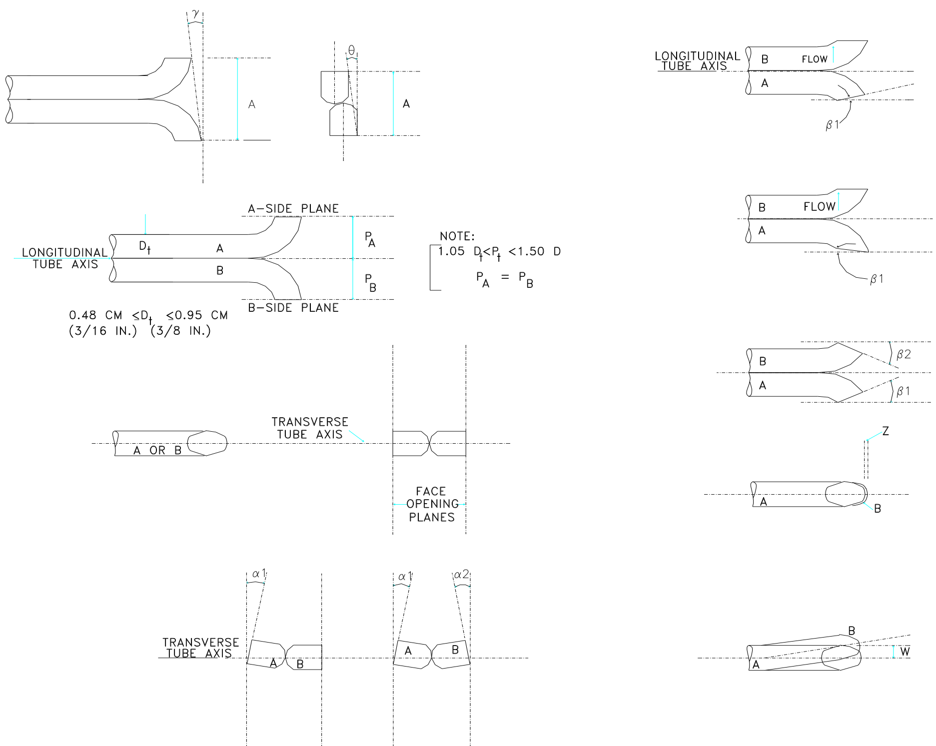
S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 835 Date: 8/10/2022 Inspectors Name: JLH

Type of Probe: (circle one)

M2	M5	M17
	X	

Probe Length: 3 ft.



Pitot tube assembly level? x yes ____ no

Pitot tube openings damaged? ____ yes (explain below) x no

a_1 = 2 ° (≤10°) a_2 = 5 ° (≤10°) z = A sin γ = **0.050** (in.); (≤0.125 in.)

b_1 = 1 ° (≤5°) b_2 = 3 ° (≤5°) w = A sin θ = **0.01651** (in.); (≤0.03125 in.)

γ = 3 ° θ = 1 ° A = 0.946 (in.) P_A = 0.473 (in.), P_B = 0.473 (in.), D_t = 0.375 (in.)

Calibration required? ____ yes **X** no

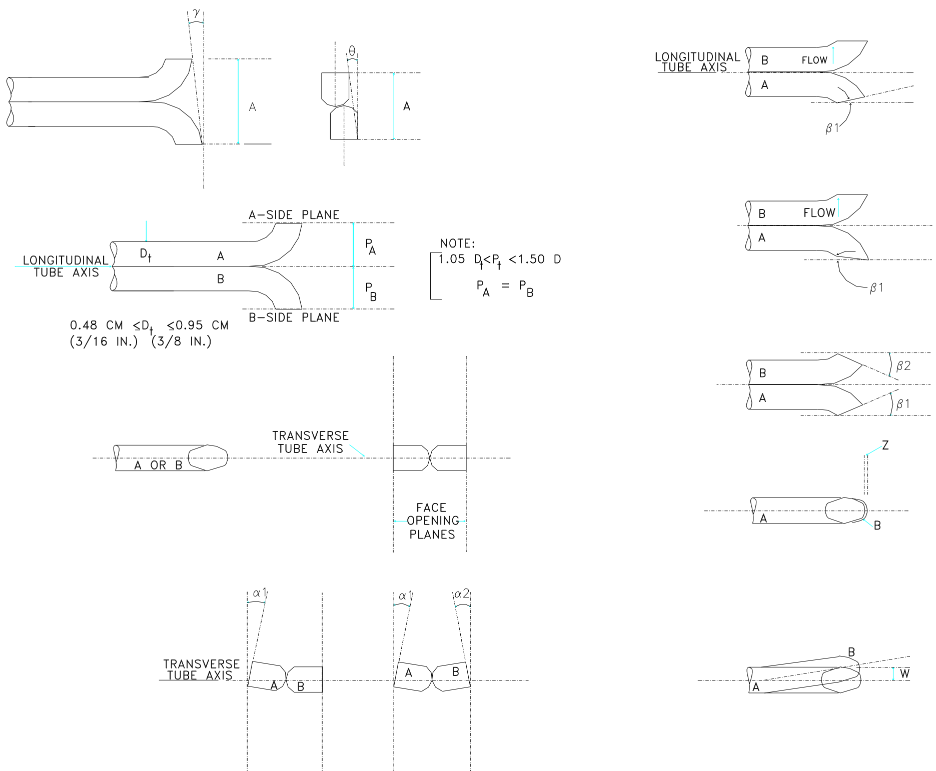
S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 4037 Date: 6/29/2022 Inspectors Name: TWM

Type of Probe: (circle one)

M2	M5	M17
	X	

Probe Length: 8 ft.



Pitot tube assembly level? X yes ____ no

Pitot tube openings damaged? ____ yes (explain below) X no

$a_1 =$ 2 ^{o} (≤10^o) $a_2 =$ 4 ^{o} (≤10^o) $z = A \sin \gamma =$ **0.017** (in.); (≤0.125 in.)

$b_1 =$ 1 ^{o} (≤5^o) $b_2 =$ 0 ^{o} (≤5^o) $w = A \sin \theta =$ **0.00000** (in.); (≤0.03125 in.)

$\gamma =$ 1 ^{o} $\theta =$ 0 ^{o} A = 0.956 (in.) $P_A =$ 0.478 (in.), $P_B =$ 0.478 (in.), $D_t =$ 0.375 (in.)

Calibration required? ____ yes **X** no

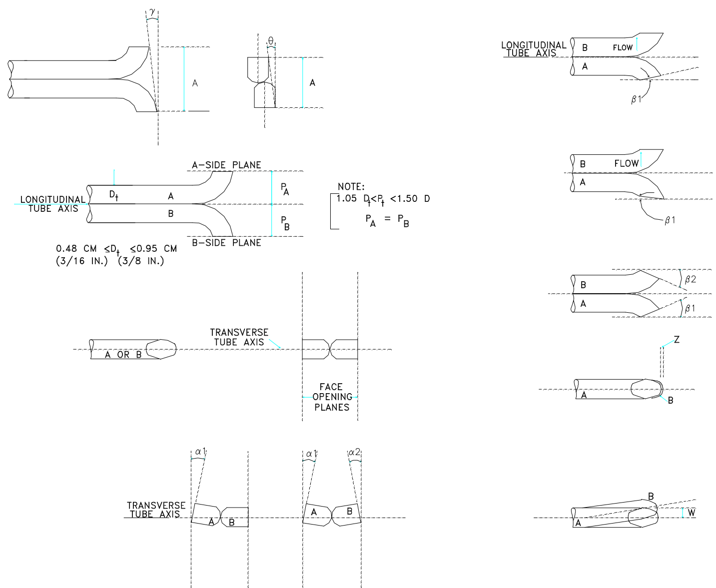
S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 4037   Date: 7/1/2021   Inspectors Name: AMS

Type of Probe: (circle one)

M2	M5	M17
	X	

Probe Length: 8 ft.



γ

Pitot tube assembly level? X yes ____ no

Pitot tube openings damaged? ____ yes (explain below) X no

a_1 = 2 ° (≤10°) a_2 = 4 ° (≤10°)   z = A sin γ = **0.017** (in.); (≤0.125 in.)

b_1 = 1 ° (≤5°) b_2 = 0 ° (≤5°)   w = A sin θ = **0.00000** (in.); (≤0.03125 in.)

γ = 1 °   θ = 0 °   A = 0.956 (in.) P_A = 0.478 (in.), P_B = 0.478 (in.), D_t = 0.375 (in.)

Calibration required? ____ yes **X** no

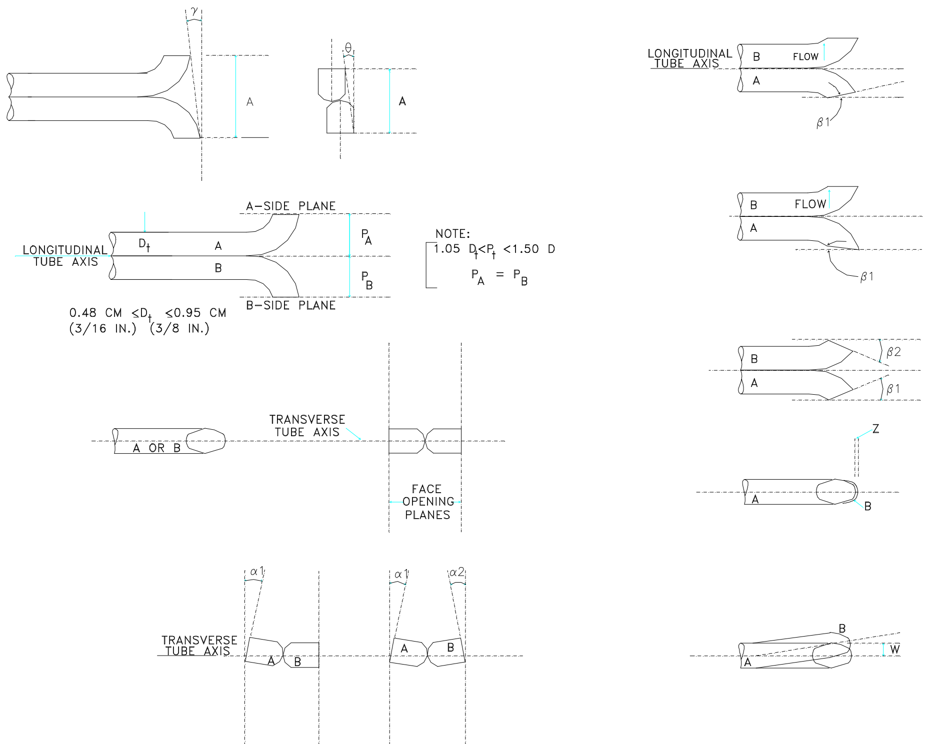
S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 1037   Date: 3/7/2023   Inspectors Name: JAM

Type of Probe: (circle one)

M2	M5	M17
	X	

Probe Length: 3 ft.



Pitot tube assembly level?   X yes   ____ no

Pitot tube openings damaged?   ____ yes (explain below)   X no

a_1 = 0.5 ° (≤10°) a_2 = 3 ° (≤10°)   z = A sin γ = **0.058** (in.); (≤0.125 in.)

b_1 = 2.5 ° (≤5°) b_2 = 1.5 ° (≤5°)   w = A sin θ = **0.00000** (in.); (≤0.03125 in.)

γ = 3.5 °   θ = 0 °   A = 0.947 (in.) P_A = 0.474 (in.), P_B = 0.474 (in.), D_t = 0.375 (in.)

Calibration required?   ____ yes   **X** no

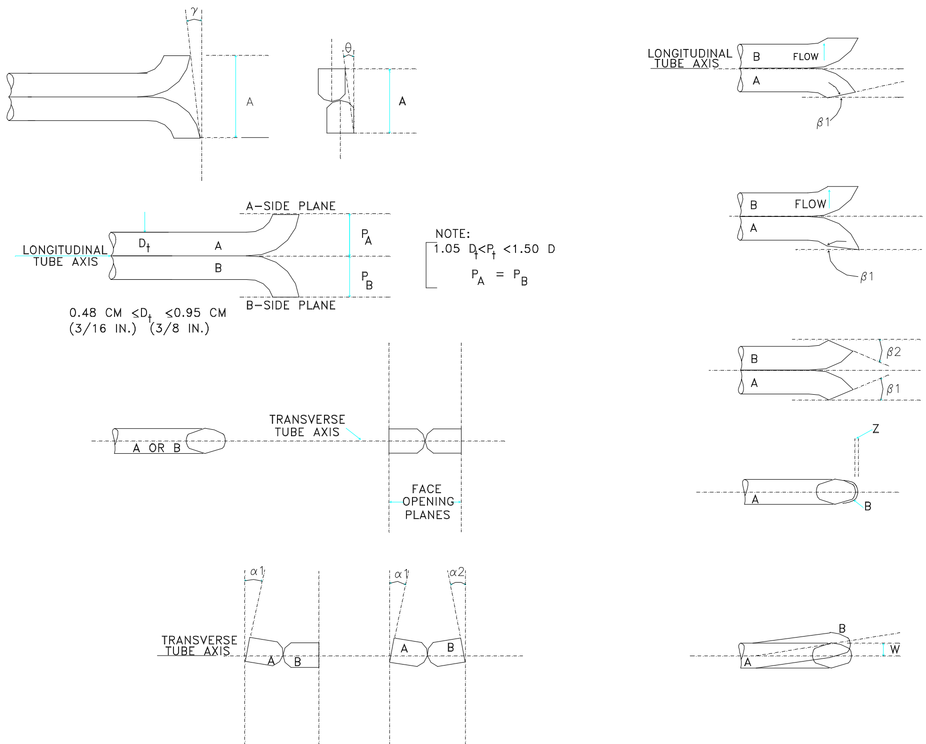
S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 1037　　　Date: 8/9/2023　　　Inspectors Name: JAM

Type of Probe: (mark one)

M2	M5	M17
	X	

Probe Length: 3 ft.



Pitot tube assembly level?　　X yes　　_____ no

Pitot tube openings damaged?　　_____ yes (explain below)　　X no

$a_1 =$ 1.5 ^{o} ($\leq 10^o$)　　$a_2 =$ 2.5 ^{o} ($\leq 10^o$)　　$z = A \sin \gamma =$ **0.066** (in.); ($\leq$0.125 in.)

$b_1 =$ 3.5 ^{o} ($\leq 5^o$)　　$b_2 =$ 3.5 ^{o} ($\leq 5^o$)　　$w = A \sin \theta =$ **0.00829** (in.); ($\leq$0.03125 in.)

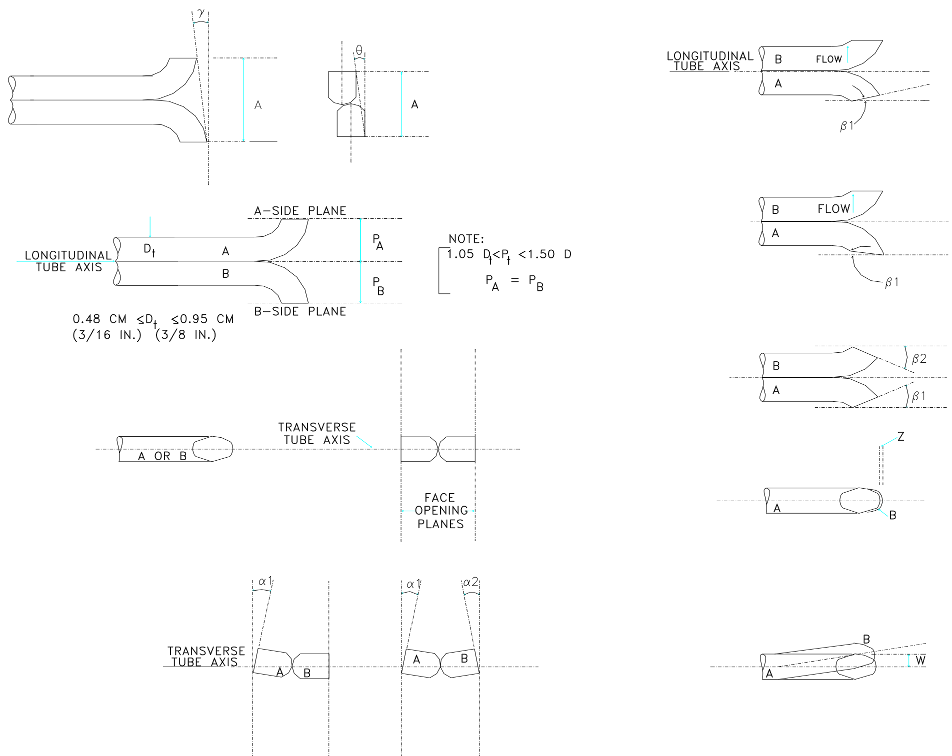
$\gamma =$ 4 ^{o}　　$\theta =$ 0.5 ^{o}　　A = 0.950 (in.)　　$P_A =$ 0.475 (in.), $P_B =$ 0.475 (in.), $D_t =$ 0.375 (in.)

Calibration required?　　_____ yes　　**X** no

S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 961   Date: 5/14/2021   Inspectors Name: JAM

Type of Probe: (circle one)   M2 $\boxed{\text{M5}}$ M17   Probe Length: 10 ft.



Pitot tube assembly level?   x yes   ____ no

Pitot tube openings damaged?   ____ yes (explain below)   x no

a_1 = 1 ^{o} (<10^o), a_2 = 0.5 ^{o} (<10^o)   z = A sin g = 0.033 (in.); (<0.125 in.)

b_1 = 1 ^{o} (<5^o), b_2 = 1.5 ^{o} (<5^o)   w = A sin q = 0.025 (in.); (<0.03125 in.)

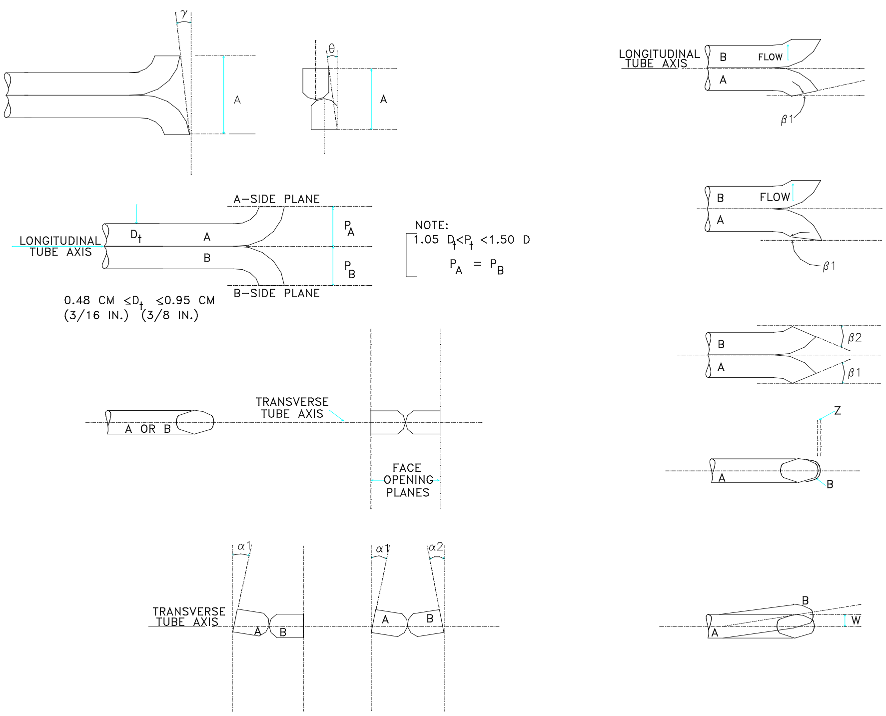
γ = 2 ^{o}, θ = 1.5 ^{o}, A = 0.940 (in.) P_A = 0.470 (in.), P_B = 0.470 (in.), D_t = 0.375 (in.)

Calibration required?   ____ yes   x no

S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 961 Date: 7/14/2023 Inspectors Name: JAM

Type of Probe: (circle one) $\boxed{\text{M2}}$ M5 M17 Probe Length: 7 ft.



Pitot tube assembly level? x yes ____ no

Pitot tube openings damaged? ____ yes (explain below) x no

a_1 = 1 ° (<10°), a_2 = 1 ° (<10°) z = A sin g = 0.033 (in.); (<0.125 in.)

b_1 = 1 ° (<5°), b_2 = 1 ° (<5°) w = A sin q = 0.016 (in.); (<0.03125 in.)

γ = 2 °, θ = 1 °, A = 0.940 (in.) P_A = 0.470 (in.), P_B = 0.470 (in.), D_t = 0.375 (in.)

Calibration required? ____ yes x no

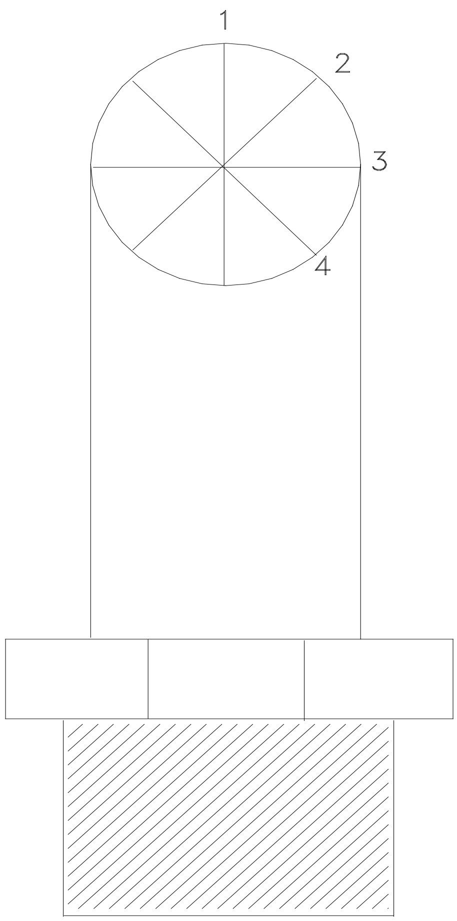
Nozzle Calibration

Date: 1/27/2020

Analyst: DPP

Nozzle ID No.: 888

Material/Type: Glass



0.200	1
0.199	2
0.199	3
0.198	4

Valid Data

Average
0.199

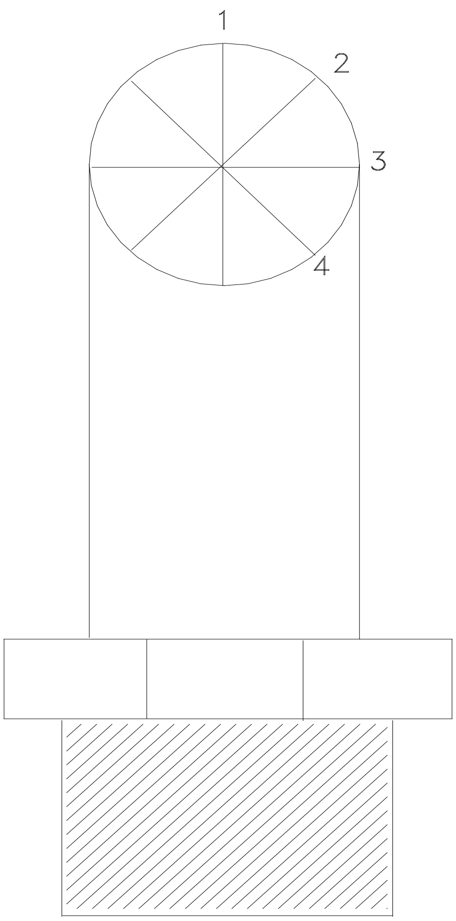
Nozzle Calibration

Date: 1/5/2020

Analyst: RNS

Nozzle ID No.: 935

Material/Type: Glass



0.196	1
0.196	2
0.196	3
0.195	4

Valid Data

Average
0.196

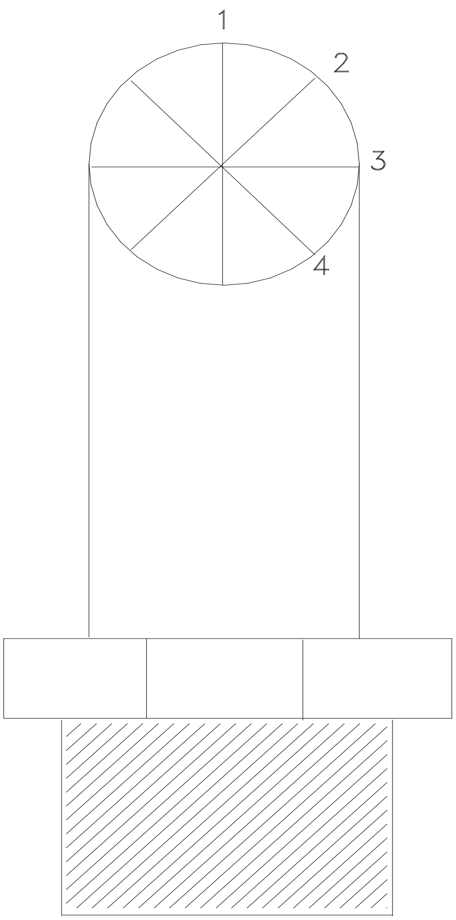
Nozzle Calibration

Date: 4/13/2022

Analyst: AH1

Nozzle ID No.: 71T-C

Material/Type: Teflon



Measurement	Point
0.200	1
0.201	2
0.200	3
0.200	4

Valid Data

Average
0.200

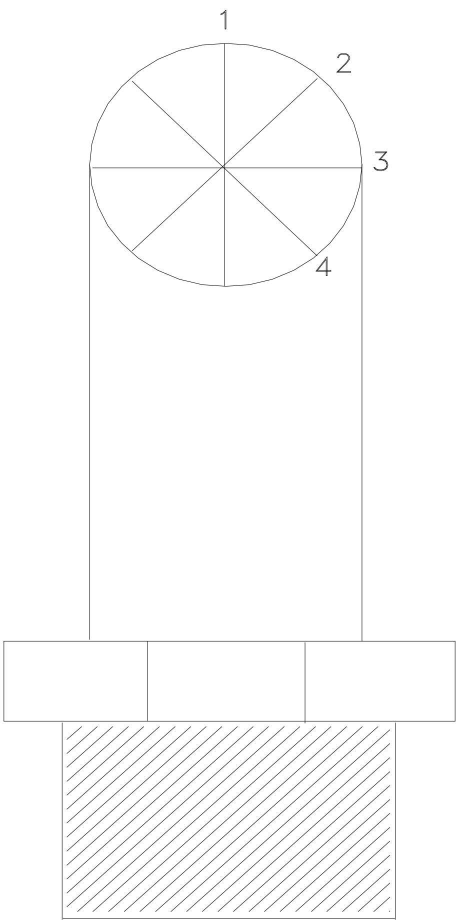
Nozzle Calibration

Date: 6/29/2018

Nozzle ID No.: #7

Analyst: EJP

Material/Type: Teflon



0.210	1
0.209	2
0.210	3
0.210	4

Valid Data

Average
0.210

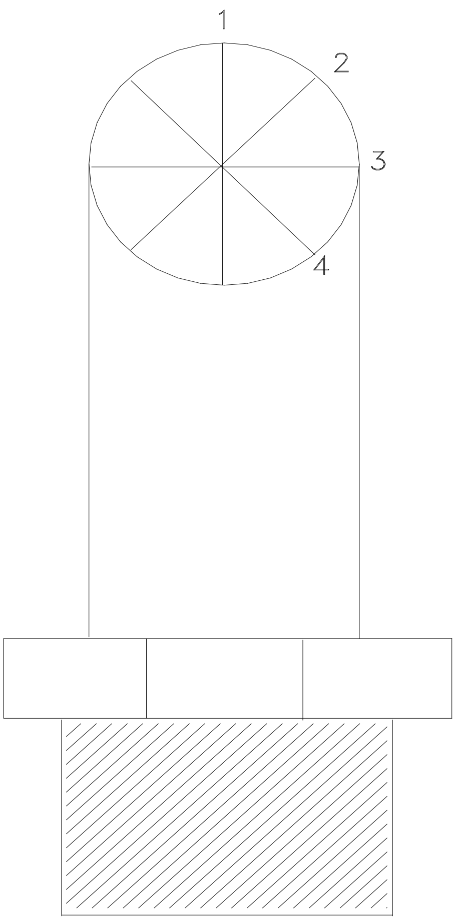
Nozzle Calibration

Date: 4/13/2022

Analyst: AH1

Nozzle ID No.: 71T-C

Material/Type: Teflon



0.200	1
0.201	2
0.200	3
0.200	4

Valid Data

Average
0.200

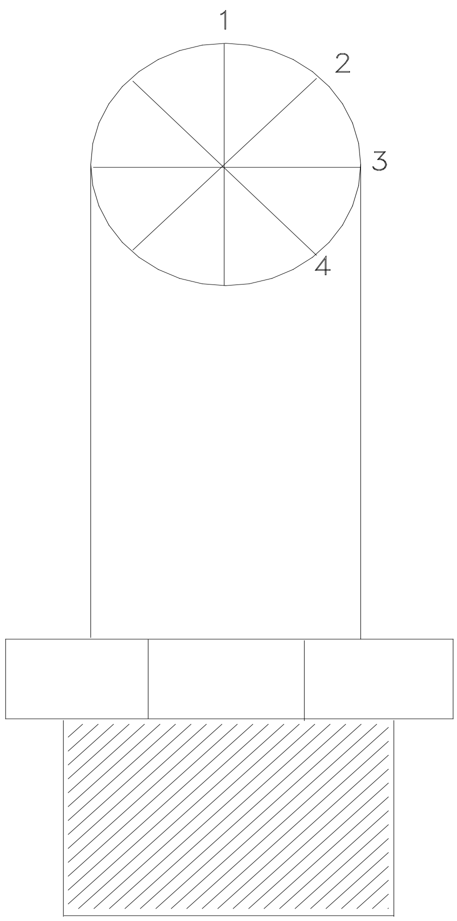
Nozzle Calibration

Date: 3/24/2021

Analyst: RNS

Nozzle ID No.: 916

Material/Type: Glass



0.215	1
0.215	2
0.215	3
0.216	4

Valid Data

Average
0.215

Appendix H - Laboratory Sample Analysis

MOSTARDI PLATT

PROJECT: M232604
PCC STRUCTURALS
LPC – MILWAUKIE, OR

CLIENT # M050
REPORT # 23-351

SUBMITTED BY:
CHESTER LabNet
12242 S.W. GARDEN PLACE
TIGARD, OR 97223
(503)624-2183/FAX (503)624-2653
www.ChesterLab.Net

CHESTER LabNet

12242 SW Garden Place ❖ Tigard, OR 97223-8246 ❖ USA
Telephone 503-624-2183 ❖ Fax 503-624-2653 ❖ www.chesterlab.net

Case Narrative

Date: August 24, 2023

General Information

Client:	Mostardi Platt
Client Number:	M050
Report Number:	23-351
Sample Description:	Impinger Trains
Sample Numbers:	23-S1834 – 23-S1949

Analysis

Analytes: Al, Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, P, Se, Ag, Tl, V, Zn, Hexavalent Chromium

Analytical Protocols: EPA Method 29 (8/2/17 version)
SW-846 Method 0061 (revision 0, December 1996)

Analytical Notes: The petri dish for 23-S1904 contained a large amount of loose deposit. The filter and loose particulate were digested in separate vessels and then combined as one sample. That sample has more acid than the rest of the front half samples. The Co result for that samples was overscale using ICP-MS, but it matched the results as measured on the ICP-OES. The results for 23-S1904 may not be the most reliable because of the nature of the sample.

A low level LCS on one mercury run wasn't spiked because of an analyst error. The samples that were analyzed with that LL-LCS were the front half fractions for the second half samples starting with 23-S1874.

No problems were encountered during the Cr VI analysis. Results are not blank corrected.

QA/QC Review: All the data have been reviewed by the analysts performing the analyses and the project manager. All of the quality control and sample-specific information in this package is complete and meets or exceeds t. minimum requirements for acceptability.

Comments: If you have any questions or concerns regarding this analysis, please feel free to contact the project manager.

Disclaimer: This report shall not be reproduced, except in full, without the written approval of the laboratory. The results only represent that of the samples as received into the laboratory. All data are reported to the detection limit. Results <5x DL must be considered to have a higher degree of uncertainty associated with them. Due to the statistical process of detection limit determination, data in this report should not be used for statistical analysis as the data has been censored in such a manner as to bias statistical analyses high.

Paul Duda 8/24/23

Project Manager Date
Paul Duda

Lab ID: 23-S1834
Client ID: 9203 N Inlet #1 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Inlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Aluminum, ICP	736.	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	21.4	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	1.26	0.050	µg/sample
Chromium, ICP	892.	0.200	µg/sample
Cobalt, ICP-MS	208.	0.125	µg/sample
Copper, ICP-MS	320.	0.250	µg/sample
Lead, ICP-MS	2.47	0.125	µg/sample
Manganese, ICP	16.5	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	6,520	0.750	µg/sample
Phosphorus, ICP	110.	5.00	µg/sample
Selenium, ICP-MS	1.05	0.500	µg/sample
Silver, ICP	1.14	0.500	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	2.53	0.075	µg/sample
Zinc, ICP	109.	0.750	µg/sample

Lab ID: 23-S1835
Client ID: 9203 N Inlet #1 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Inlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Aluminum, ICP	55.8	4.71	µg/sample
Antimony, ICP-MS	< DL	0.628	µg/sample
Arsenic, ICP	< DL	1.10	µg/sample
Barium, ICP	4.45	0.078	µg/sample
Beryllium, ICP	< DL	0.031	µg/sample
Cadmium, ICP-MS	0.413	0.031	µg/sample
Chromium, ICP	12.6	0.126	µg/sample
Cobalt, ICP-MS	0.571	0.078	µg/sample
Copper, ICP	18.2	0.785	µg/sample
Lead, ICP	< DL	0.785	µg/sample
Manganese, ICP	13.3	0.047	µg/sample
Mercury, CVAA	0.336	0.0444	µg/sample
Nickel, ICP	18.0	0.471	µg/sample
Phosphorus, ICP	19.4	3.14	µg/sample
Selenium, ICP	11.7	2.36	µg/sample
Silver, ICP	0.812	0.314	µg/sample
Thallium, ICP	< DL	1.57	µg/sample
Vanadium, ICP	0.282	0.157	µg/sample
Zinc, ICP	44.0	0.471	µg/sample

Lab ID: 23-S1836
Client ID: 9203 N Inlet #1 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Inlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.00805	µg/sample

Lab ID: 23-S1837
Client ID: 9203 N Inlet #1 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Inlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Mercury, CVAA	0.196	0.0233	µg/sample

Lab ID: 23-S1838
Client ID: 9203 N Inlet #1 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Inlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Mercury, CVAA	0.102	0.0192	µg/sample

Lab ID: 23-S1839
Client ID: 9203 N Inlet #2 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Inlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Aluminum, ICP	764.	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	6.66	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	0.265	0.050	µg/sample
Chromium, ICP	1,290	0.200	µg/sample
Cobalt, ICP-MS	315.	0.125	µg/sample
Copper, ICP-MS	396.	0.250	µg/sample
Lead, ICP-MS	1.15	0.125	µg/sample
Manganese, ICP	17.7	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	10,100	0.750	µg/sample
Phosphorus, ICP	109.	5.00	µg/sample
Selenium, ICP-MS	< DL	0.500	µg/sample
Silver, ICP	0.845	0.500	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	2.07	0.075	µg/sample
Zinc, ICP	141.	0.750	µg/sample

Lab ID: 23-S1840
Client ID: 9203 N Inlet #2 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Inlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Aluminum, ICP	42.2	4.14	µg/sample
Antimony, ICP-MS	< DL	0.552	µg/sample
Arsenic, ICP	< DL	0.966	µg/sample
Barium, ICP	4.29	0.069	µg/sample
Beryllium, ICP	< DL	0.028	µg/sample
Cadmium, ICP-MS	0.328	0.028	µg/sample
Chromium, ICP	4.44	0.110	µg/sample
Cobalt, ICP-MS	0.600	0.069	µg/sample
Copper, ICP	2.99	0.690	µg/sample
Lead, ICP	0.882	0.690	µg/sample
Manganese, ICP	30.5	0.041	µg/sample
Mercury, CVAA	0.392	0.0315	µg/sample
Nickel, ICP	14.6	0.414	µg/sample
Phosphorus, ICP	19.4	2.76	µg/sample
Selenium, ICP	< DL	2.07	µg/sample
Silver, ICP	0.391	0.276	µg/sample
Thallium, ICP	< DL	1.38	µg/sample
Vanadium, ICP	0.161	0.138	µg/sample
Zinc, ICP	26.2	0.414	µg/sample

Lab ID: 23-S1841
Client ID: 9203 N Inlet #2 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Inlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.00814	µg/sample

Lab ID: 23-S1842
Client ID: 9204 N Inlet #2 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Inlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	0.104	0.0214	µg/sample

Lab ID: 23-S1843
Client ID: 9203 N Inlet #2 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Inlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.0194	µg/sample

Lab ID: 23-S1844
Client ID: 9203 C Inlet #1 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 Center Inlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Aluminum, ICP	783.	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	53.4	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	2.75	0.050	µg/sample
Chromium, ICP	670.	0.200	µg/sample
Cobalt, ICP-MS	136.	0.125	µg/sample
Copper, ICP-MS	324.	0.250	µg/sample
Lead, ICP-MS	1.94	0.125	µg/sample
Manganese, ICP	49.5	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	4,650	0.750	µg/sample
Phosphorus, ICP	147.	5.00	µg/sample
Selenium, ICP-MS	< DL	0.500	µg/sample
Silver, ICP	5.87	0.500	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	2.35	0.075	µg/sample
Zinc, ICP	642.	0.750	µg/sample

Lab ID: 23-S1845
Client ID: 9203 C Inlet #1 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 Center Inlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Aluminum, ICP	42.6	3.39	µg/sample
Antimony, ICP-MS	< DL	0.452	µg/sample
Arsenic, ICP	< DL	0.791	µg/sample
Barium, ICP	4.41	0.056	µg/sample
Beryllium, ICP	< DL	0.023	µg/sample
Cadmium, ICP-MS	0.130	0.023	µg/sample
Chromium, ICP	73.4	0.090	µg/sample
Cobalt, ICP-MS	1.94	0.056	µg/sample
Copper, ICP	85.1	0.565	µg/sample
Lead, ICP	1.65	0.565	µg/sample
Manganese, ICP	69.1	0.034	µg/sample
Mercury, CVAA	0.217	0.0298	µg/sample
Nickel, ICP	211.	0.339	µg/sample
Phosphorus, ICP	22.6	2.26	µg/sample
Selenium, ICP	< DL	1.70	µg/sample
Silver, ICP	0.406	0.226	µg/sample
Thallium, ICP	< DL	1.13	µg/sample
Vanadium, ICP	0.526	0.113	µg/sample
Zinc, ICP	22.2	0.339	µg/sample

Lab ID: 23-S1846
Client ID: 9203 C Inlet #1 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 Center Inlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.00827	µg/sample

Lab ID: 23-S1847
Client ID: 9203 C Inlet #1 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 Center Inlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Mercury, CVAA	0.163	0.0248	µg/sample

Lab ID: 23-S1848
Client ID: 9203 C Inlet #1 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 Center Inlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.0192	µg/sample

Lab ID: 23-S1849
Client ID: 9203 C Inlet #2 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 Center Inlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Aluminum, ICP	899.	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	7.10	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	0.994	0.050	µg/sample
Chromium, ICP	1,360	0.200	µg/sample
Cobalt, ICP-MS	44.6	0.125	µg/sample
Copper, ICP-MS	776.	0.250	µg/sample
Lead, ICP-MS	1.33	0.125	µg/sample
Manganese, ICP	80.3	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	7,850	0.750	µg/sample
Phosphorus, ICP	112.	5.00	µg/sample
Selenium, ICP-MS	< DL	0.500	µg/sample
Silver, ICP	1.23	0.500	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	3.87	0.075	µg/sample
Zinc, ICP	155.	0.750	µg/sample

Lab ID: 23-S1850
Client ID: 9203 C Inlet #2 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 Center Inlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Aluminum, ICP	37.5	4.32	µg/sample
Antimony, ICP-MS	< DL	0.576	µg/sample
Arsenic, ICP	< DL	1.01	µg/sample
Barium, ICP	5.55	0.072	µg/sample
Beryllium, ICP	< DL	0.029	µg/sample
Cadmium, ICP-MS	0.177	0.029	µg/sample
Chromium, ICP	2.33	0.115	µg/sample
Cobalt, ICP-MS	0.763	0.072	µg/sample
Copper, ICP	3.37	0.720	µg/sample
Lead, ICP	< DL	0.720	µg/sample
Manganese, ICP	49.9	0.043	µg/sample
Mercury, CVAA	0.570	0.0341	µg/sample
Nickel, ICP	11.1	0.432	µg/sample
Phosphorus, ICP	19.0	2.88	µg/sample
Selenium, ICP	< DL	2.16	µg/sample
Silver, ICP	1.35	0.288	µg/sample
Thallium, ICP	< DL	1.44	µg/sample
Vanadium, ICP	0.184	0.144	µg/sample
Zinc, ICP	34.4	0.432	µg/sample

Lab ID: 23-S1851
Client ID: 9203 C Inlet #2 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 Center Inlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.00866	µg/sample

Lab ID: 23-S1852
Client ID: 9203 C Inlet #2 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 Center Inlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	0.236	0.0240	µg/sample

Lab ID: 23-S1853
Client ID: 9203 C Inlet #2 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 Center Inlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.0196	µg/sample

Lab ID: 23-S1854
Client ID: 9203 S Inlet #1 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Inlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Aluminum, ICP	828.	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	3.61	2.50	µg/sample
Barium, ICP	43.4	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	5.84	0.050	µg/sample
Chromium, ICP	2,640	0.200	µg/sample
Cobalt, ICP-MS	44.4	0.125	µg/sample
Copper, ICP-MS	292.	0.250	µg/sample
Lead, ICP-MS	1.18	0.125	µg/sample
Manganese, ICP	30.2	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	8,120	0.750	µg/sample
Phosphorus, ICP	108.	5.00	µg/sample
Selenium, ICP-MS	< DL	0.500	µg/sample
Silver, ICP	3.77	0.500	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	5.46	0.075	µg/sample
Zinc, ICP	109.	0.750	µg/sample

Lab ID: 23-S1855
Client ID: 9203 S Inlet #1 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Inlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Aluminum, ICP	31.6	3.81	µg/sample
Antimony, ICP-MS	< DL	0.508	µg/sample
Arsenic, ICP	< DL	0.889	µg/sample
Barium, ICP	3.74	0.064	µg/sample
Beryllium, ICP	< DL	0.025	µg/sample
Cadmium, ICP-MS	0.241	0.025	µg/sample
Chromium, ICP	1.25	0.102	µg/sample
Cobalt, ICP-MS	0.234	0.064	µg/sample
Copper, ICP	1.23	0.635	µg/sample
Lead, ICP	< DL	0.635	µg/sample
Manganese, ICP	22.3	0.038	µg/sample
Mercury, CVAA	0.305	0.0328	µg/sample
Nickel, ICP	1.41	0.381	µg/sample
Phosphorus, ICP	19.2	2.54	µg/sample
Selenium, ICP	< DL	1.90	µg/sample
Silver, ICP	0.269	0.254	µg/sample
Thallium, ICP	< DL	1.27	µg/sample
Vanadium, ICP	< DL	0.127	µg/sample
Zinc, ICP	79.1	0.381	µg/sample

Lab ID: 23-S1856
Client ID: 9203 S Inlet #1 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Inlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.00814	µg/sample

Lab ID: 23-S1857
Client ID: 9203 S Inlet #1 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Inlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Mercury, CVAA	0.106	0.0232	µg/sample

Lab ID: 23-S1858
Client ID: 9203 S Inlet #1 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Inlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.0191	µg/sample

Lab ID: 23-S1859
Client ID: 9203 S Inlet #2 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Inlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Aluminum, ICP	1,160	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	10.5	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	6.72	0.050	µg/sample
Chromium, ICP	4,890	0.200	µg/sample
Cobalt, ICP-MS	54.9	0.125	µg/sample
Copper, ICP-MS	680.	0.250	µg/sample
Lead, ICP-MS	1.14	0.125	µg/sample
Manganese, ICP	106.	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	20,400	0.750	µg/sample
Phosphorus, ICP	124.	5.00	µg/sample
Selenium, ICP-MS	< DL	0.500	µg/sample
Silver, ICP	2.69	0.500	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	6.64	0.075	µg/sample
Zinc, ICP	275.	0.750	µg/sample

Lab ID: 23-S1860
Client ID: 9203 S Inlet #2 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Inlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Aluminum, ICP	34.2	3.36	µg/sample
Antimony, ICP-MS	0.636	0.448	µg/sample
Arsenic, ICP	< DL	0.784	µg/sample
Barium, ICP	5.13	0.056	µg/sample
Beryllium, ICP	< DL	0.022	µg/sample
Cadmium, ICP-MS	0.093	0.022	µg/sample
Chromium, ICP	3.37	0.090	µg/sample
Cobalt, ICP-MS	0.881	0.056	µg/sample
Copper, ICP	1.99	0.560	µg/sample
Lead, ICP	0.968	0.560	µg/sample
Manganese, ICP	167.	0.034	µg/sample
Mercury, CVAA	0.318	0.0332	µg/sample
Nickel, ICP	15.8	0.336	µg/sample
Phosphorus, ICP	20.2	2.24	µg/sample
Selenium, ICP	< DL	1.68	µg/sample
Silver, ICP	< DL	0.224	µg/sample
Thallium, ICP	< DL	1.12	µg/sample
Vanadium, ICP	0.395	0.112	µg/sample
Zinc, ICP	26.7	0.336	µg/sample

Lab ID: 23-S1861
Client ID: 9203 S Inlet #2 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Inlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.00792	µg/sample

Lab ID: 23-S1862
Client ID: 9203 S Inlet #2 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Inlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	0.167	0.0156	µg/sample

Lab ID: 23-S1863
Client ID: 9203 S Inlet #2 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Inlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.0196	µg/sample

Lab ID: 23-S1864
Client ID: 9203 N Outlet #1 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Outlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Aluminum, ICP	506.	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	5.52	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	0.270	0.050	µg/sample
Chromium, ICP	5.57	0.200	µg/sample
Cobalt, ICP-MS	0.689	0.125	µg/sample
Copper, ICP-MS	1.54	0.250	µg/sample
Lead, ICP-MS	0.328	0.125	µg/sample
Manganese, ICP	4.80	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	33.4	0.750	µg/sample
Phosphorus, ICP	86.4	5.00	µg/sample
Selenium, ICP-MS	< DL	0.500	µg/sample
Silver, ICP	< DL	0.500	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	0.110	0.075	µg/sample
Zinc, ICP	10.6	0.750	µg/sample

Lab ID: 23-S1865
Client ID: 9203 N Outlet #1 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Outlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Aluminum, ICP	61.1	3.48	µg/sample
Antimony, ICP-MS	< DL	0.464	µg/sample
Arsenic, ICP	< DL	0.812	µg/sample
Barium, ICP	4.45	0.058	µg/sample
Beryllium, ICP	< DL	0.023	µg/sample
Cadmium, ICP-MS	0.126	0.023	µg/sample
Chromium, ICP	0.945	0.093	µg/sample
Cobalt, ICP-MS	0.201	0.058	µg/sample
Copper, ICP	2.15	0.580	µg/sample
Lead, ICP	1.53	0.580	µg/sample
Manganese, ICP	47.2	0.035	µg/sample
Mercury, CVAA	0.712	0.0258	µg/sample
Nickel, ICP	1.01	0.348	µg/sample
Phosphorus, ICP	18.6	2.32	µg/sample
Selenium, ICP	< DL	1.74	µg/sample
Silver, ICP	< DL	0.232	µg/sample
Thallium, ICP	< DL	1.16	µg/sample
Vanadium, ICP	< DL	0.116	µg/sample
Zinc, ICP	12.7	0.348	µg/sample

Lab ID: 23-S1866
Client ID: 9203 N Outlet #1 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Outlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.00790	µg/sample

Lab ID: 23-S1867
Client ID: 9203 N Outlet #1 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Outlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Mercury, CVAA	0.816	0.0237	µg/sample

Lab ID: 23-S1868
Client ID: 9203 N Outlet #1 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Outlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Mercury, CVAA	0.0801	0.0193	µg/sample

Lab ID: 23-S1869
Client ID: 9203 N Outlet #2 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Outlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Aluminum, ICP	508.	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	2.92	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	0.210	0.050	µg/sample
Chromium, ICP	13.8	0.200	µg/sample
Cobalt, ICP-MS	6.87	0.125	µg/sample
Copper, ICP-MS	1.50	0.250	µg/sample
Lead, ICP-MS	0.318	0.125	µg/sample
Manganese, ICP	2.74	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	43.8	0.750	µg/sample
Phosphorus, ICP	80.0	5.00	µg/sample
Selenium, ICP-MS	< DL	0.500	µg/sample
Silver, ICP	< DL	0.500	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	0.090	0.075	µg/sample
Zinc, ICP	11.4	0.750	µg/sample

Lab ID: 23-S1870
Client ID: 9203 N Outlet #2 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Outlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Aluminum, ICP	24.2	3.54	µg/sample
Antimony, ICP-MS	< DL	0.472	µg/sample
Arsenic, ICP	< DL	0.826	µg/sample
Barium, ICP	3.49	0.059	µg/sample
Beryllium, ICP	< DL	0.024	µg/sample
Cadmium, ICP-MS	0.028	0.024	µg/sample
Chromium, ICP	1.62	0.094	µg/sample
Cobalt, ICP-MS	0.696	0.059	µg/sample
Copper, ICP	< DL	0.590	µg/sample
Lead, ICP	< DL	0.590	µg/sample
Manganese, ICP	19.2	0.035	µg/sample
Mercury, CVAA	0.535	0.0233	µg/sample
Nickel, ICP	4.09	0.354	µg/sample
Phosphorus, ICP	21.4	2.36	µg/sample
Selenium, ICP	< DL	1.77	µg/sample
Silver, ICP	< DL	0.236	µg/sample
Thallium, ICP	< DL	1.18	µg/sample
Vanadium, ICP	< DL	0.118	µg/sample
Zinc, ICP	5.06	0.354	µg/sample

Lab ID: 23-S1871
Client ID: 9203 N Outlet #2 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Outlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	0.0222	0.00971	µg/sample

Lab ID: 23-S1872
Client ID: 9203 N Outlet #2 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Outlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	0.275	0.0256	µg/sample

Lab ID: 23-S1873
Client ID: 9203 N Outlet #2 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 North Outlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.0200	µg/sample

Lab ID: 23-S1874
Client ID: 9203 S Outlet #1 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Outlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Aluminum, ICP	535.	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	12.2	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	0.474	0.050	µg/sample
Chromium, ICP	3.02	0.200	µg/sample
Cobalt, ICP-MS	0.322	0.125	µg/sample
Copper, ICP-MS	1.58	0.250	µg/sample
Lead, ICP-MS	0.494	0.125	µg/sample
Manganese, ICP	2.64	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	6.35	0.750	µg/sample
Phosphorus, ICP	84.0	5.00	µg/sample
Selenium, ICP-MS	< DL	0.500	µg/sample
Silver, ICP	< DL	0.500	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	0.142	0.075	µg/sample
Zinc, ICP	15.6	0.750	µg/sample

Lab ID: 23-S1875
Client ID: 9203 S Outlet #1 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Outlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Aluminum, ICP	17.4	4.29	µg/sample
Antimony, ICP-MS	< DL	0.572	µg/sample
Arsenic, ICP	< DL	1.00	µg/sample
Barium, ICP	4.13	0.072	µg/sample
Beryllium, ICP	< DL	0.029	µg/sample
Cadmium, ICP-MS	0.089	0.029	µg/sample
Chromium, ICP	1.23	0.114	µg/sample
Cobalt, ICP-MS	0.172	0.072	µg/sample
Copper, ICP	13.6	0.715	µg/sample
Lead, ICP	< DL	0.715	µg/sample
Manganese, ICP	1.62	0.043	µg/sample
Mercury, CVAA	0.283	0.0233	µg/sample
Nickel, ICP	0.593	0.429	µg/sample
Phosphorus, ICP	17.6	2.86	µg/sample
Selenium, ICP	3.51	2.14	µg/sample
Silver, ICP	< DL	0.286	µg/sample
Thallium, ICP	< DL	1.43	µg/sample
Vanadium, ICP	< DL	0.143	µg/sample
Zinc, ICP	16.7	0.429	µg/sample

Lab ID: 23-S1876
Client ID: 9203 S Outlet #1 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Outlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.00828	µg/sample

Lab ID: 23-S1877
Client ID: 9203 S Outlet #1 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Outlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Mercury, CVAA	0.145	0.0275	µg/sample

Lab ID: 23-S1878
Client ID: 9203 S Outlet #1 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Outlet
Sample Date: 6/27/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.0192	µg/sample

Lab ID: 23-S1879
Client ID: 9203 S Outlet #2 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Outlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Aluminum, ICP	521.	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	4.11	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	0.076	0.050	µg/sample
Chromium, ICP	32.3	0.200	µg/sample
Cobalt, ICP-MS	13.4	0.125	µg/sample
Copper, ICP-MS	1.66	0.250	µg/sample
Lead, ICP-MS	0.328	0.125	µg/sample
Manganese, ICP	2.59	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	82.1	0.750	µg/sample
Phosphorus, ICP	88.8	5.00	µg/sample
Selenium, ICP-MS	< DL	0.500	µg/sample
Silver, ICP	< DL	0.500	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	0.121	0.075	µg/sample
Zinc, ICP	14.8	0.750	µg/sample

Lab ID: 23-S1880
Client ID: 9203 S Outlet #2 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Outlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Aluminum, ICP	27.7	3.78	µg/sample
Antimony, ICP-MS	0.540	0.504	µg/sample
Arsenic, ICP	< DL	0.882	µg/sample
Barium, ICP	4.03	0.063	µg/sample
Beryllium, ICP	< DL	0.025	µg/sample
Cadmium, ICP-MS	0.077	0.025	µg/sample
Chromium, ICP	1.32	0.101	µg/sample
Cobalt, ICP-MS	0.315	0.063	µg/sample
Copper, ICP	0.841	0.630	µg/sample
Lead, ICP	< DL	0.630	µg/sample
Manganese, ICP	90.6	0.038	µg/sample
Mercury, CVAA	0.489	0.0257	µg/sample
Nickel, ICP	2.31	0.378	µg/sample
Phosphorus, ICP	20.6	2.52	µg/sample
Selenium, ICP	2.60	1.89	µg/sample
Silver, ICP	< DL	0.252	µg/sample
Thallium, ICP	< DL	1.26	µg/sample
Vanadium, ICP	< DL	0.126	µg/sample
Zinc, ICP	14.7	0.378	µg/sample

Lab ID: 23-S1881
Client ID: 9203 S Outlet #2 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Outlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.0107	µg/sample

Lab ID: 23-S1882
Client ID: 9203 S Outlet #2 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Outlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	0.110	0.0154	µg/sample

Lab ID: 23-S1883
Client ID: 9203 S Outlet #2 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 9203 South Outlet
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.0161	µg/sample

Lab ID: 23-S1884
Client ID: 9256 Inlet #1 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Inlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Aluminum, ICP	3,090	7.50	µg/sample
Antimony, ICP-MS	1.07	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	7.90	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	0.111	0.050	µg/sample
Chromium, ICP	88.7	0.200	µg/sample
Cobalt, ICP-MS	2.60	0.125	µg/sample
Copper, ICP-MS	329.	0.250	µg/sample
Lead, ICP-MS	8.79	0.125	µg/sample
Manganese, ICP	748.	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	121.	0.750	µg/sample
Phosphorus, ICP	93.5	5.00	µg/sample
Selenium, ICP-MS	0.634	0.500	µg/sample
Silver, ICP	0.733	0.500	µg/sample
Thallium, ICP-MS	0.102	0.100	µg/sample
Vanadium, ICP-MS	1.18	0.075	µg/sample
Zinc, ICP	109.	0.750	µg/sample

Lab ID: 23-S1885
Client ID: 9256 Inlet #1 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Inlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Aluminum, ICP	61.1	3.72	µg/sample
Antimony, ICP-MS	< DL	0.496	µg/sample
Arsenic, ICP	< DL	0.868	µg/sample
Barium, ICP	10.7	0.062	µg/sample
Beryllium, ICP	< DL	0.025	µg/sample
Cadmium, ICP-MS	0.124	0.025	µg/sample
Chromium, ICP	10.3	0.099	µg/sample
Cobalt, ICP-MS	0.956	0.062	µg/sample
Copper, ICP	11.4	0.620	µg/sample
Lead, ICP	< DL	0.620	µg/sample
Manganese, ICP	43.3	0.037	µg/sample
Mercury, CVAA	0.543	0.0359	µg/sample
Nickel, ICP	60.7	0.372	µg/sample
Phosphorus, ICP	27.7	2.48	µg/sample
Selenium, ICP	< DL	1.86	µg/sample
Silver, ICP	0.345	0.248	µg/sample
Thallium, ICP	< DL	1.24	µg/sample
Vanadium, ICP	< DL	0.124	µg/sample
Zinc, ICP	11.4	0.372	µg/sample

Lab ID: 23-S1886
Client ID: 9256 Inlet #1 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Inlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.00818	µg/sample

Lab ID: 23-S1887
Client ID: 9256 Inlet #1 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Inlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Mercury, CVAA	0.778	0.0234	µg/sample

Lab ID: 23-S1888
Client ID: 9256 Inlet #1 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Inlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Mercury, CVAA	0.0532	0.0196	µg/sample

Lab ID: 23-S1889
Client ID: 9256 Inlet #2 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Inlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Aluminum, ICP	3,010	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	21.0	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	0.484	0.050	µg/sample
Chromium, ICP	103.	0.200	µg/sample
Cobalt, ICP-MS	4.02	0.125	µg/sample
Copper, ICP-MS	417.	0.250	µg/sample
Lead, ICP-MS	4.92	0.125	µg/sample
Manganese, ICP	411.	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	211.	0.750	µg/sample
Phosphorus, ICP	102.	5.00	µg/sample
Selenium, ICP-MS	< DL	0.500	µg/sample
Silver, ICP	1.14	0.500	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	1.71	0.075	µg/sample
Zinc, ICP	96.8	0.750	µg/sample

Lab ID: 23-S1890
Client ID: 9256 Inlet #2 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Inlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Aluminum, ICP	57.6	3.33	µg/sample
Antimony, ICP-MS	0.543	0.444	µg/sample
Arsenic, ICP	< DL	0.777	µg/sample
Barium, ICP	9.83	0.056	µg/sample
Beryllium, ICP	< DL	0.022	µg/sample
Cadmium, ICP-MS	0.105	0.022	µg/sample
Chromium, ICP	3.70	0.089	µg/sample
Cobalt, ICP-MS	0.463	0.056	µg/sample
Copper, ICP	1.92	0.555	µg/sample
Lead, ICP	< DL	0.555	µg/sample
Manganese, ICP	24.0	0.033	µg/sample
Mercury, CVAA	0.334	0.0354	µg/sample
Nickel, ICP	21.1	0.333	µg/sample
Phosphorus, ICP	23.2	2.22	µg/sample
Selenium, ICP	< DL	1.66	µg/sample
Silver, ICP	< DL	0.222	µg/sample
Thallium, ICP	< DL	1.11	µg/sample
Vanadium, ICP	< DL	0.111	µg/sample
Zinc, ICP	31.3	0.333	µg/sample

Lab ID: 23-S1891
Client ID: 9256 Inlet #2 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Inlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.00809	µg/sample

Lab ID: 23-S1892
Client ID: 9256 Inlet #2 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Inlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Mercury, CVAA	0.164	0.0229	µg/sample

Lab ID: 23-S1893
Client ID: 9256 Inlet #2 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Inlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.0198	µg/sample

Lab ID: 23-S1894
Client ID: 9256 Outlet #1 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Outlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Aluminum, ICP	516.	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	10.3	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	0.620	0.050	µg/sample
Chromium, ICP	1.92	0.200	µg/sample
Cobalt, ICP-MS	0.566	0.125	µg/sample
Copper, ICP-MS	0.994	0.250	µg/sample
Lead, ICP-MS	0.328	0.125	µg/sample
Manganese, ICP	1.57	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	12.1	0.750	µg/sample
Phosphorus, ICP	83.6	5.00	µg/sample
Selenium, ICP-MS	< DL	0.500	µg/sample
Silver, ICP	< DL	0.500	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	0.122	0.075	µg/sample
Zinc, ICP	13.5	0.750	µg/sample

Lab ID: 23-S1895
Client ID: 9256 Outlet #1 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Outlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Aluminum, ICP	22.3	3.42	µg/sample
Antimony, ICP-MS	< DL	0.456	µg/sample
Arsenic, ICP	< DL	0.798	µg/sample
Barium, ICP	5.53	0.057	µg/sample
Beryllium, ICP	< DL	0.023	µg/sample
Cadmium, ICP-MS	0.105	0.023	µg/sample
Chromium, ICP	2.30	0.091	µg/sample
Cobalt, ICP-MS	0.145	0.057	µg/sample
Copper, ICP	4.28	0.570	µg/sample
Lead, ICP	< DL	0.570	µg/sample
Manganese, ICP	7.49	0.034	µg/sample
Mercury, CVAA	0.488	0.0284	µg/sample
Nickel, ICP	1.42	0.342	µg/sample
Phosphorus, ICP	28.3	2.28	µg/sample
Selenium, ICP	2.55	1.71	µg/sample
Silver, ICP	< DL	0.228	µg/sample
Thallium, ICP	< DL	1.14	µg/sample
Vanadium, ICP	< DL	0.114	µg/sample
Zinc, ICP	21.2	0.342	µg/sample

Client: M050 - Mostardi Platt
Report Number: 23-351

Lab ID: 23-S1896
Client ID: 9256 Outlet #1 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Outlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.00822	µg/sample

Lab ID: 23-S1897
Client ID: 9256 Outlet #1 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Outlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Mercury, CVAA	0.160	0.0267	µg/sample

Lab ID: 23-S1898
Client ID: 9256 Outlet #1 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Outlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.0196	µg/sample

Lab ID: 23-S1899
Client ID: 9256 Outlet #2 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Outlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Aluminum, ICP	528.	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	4.61	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	1.01	0.050	µg/sample
Chromium, ICP	26.9	0.200	µg/sample
Cobalt, ICP-MS	7.77	0.125	µg/sample
Copper, ICP-MS	1.95	0.250	µg/sample
Lead, ICP-MS	0.553	0.125	µg/sample
Manganese, ICP	2.29	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	99.5	0.750	µg/sample
Phosphorus, ICP	86.3	5.00	µg/sample
Selenium, ICP-MS	< DL	0.500	µg/sample
Silver, ICP	< DL	1.00	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	0.140	0.075	µg/sample
Zinc, ICP	8.92	0.750	µg/sample

Lab ID: 23-S1900
Client ID: 9256 Outlet #2 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Outlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Aluminum, ICP	31.8	3.99	µg/sample
Antimony, ICP-MS	< DL	0.532	µg/sample
Arsenic, ICP	< DL	0.931	µg/sample
Barium, ICP	4.43	0.066	µg/sample
Beryllium, ICP	< DL	0.027	µg/sample
Cadmium, ICP-MS	0.035	0.027	µg/sample
Chromium, ICP	5.41	0.106	µg/sample
Cobalt, ICP-MS	0.374	0.066	µg/sample
Copper, ICP	4.29	0.665	µg/sample
Lead, ICP	< DL	0.665	µg/sample
Manganese, ICP	24.7	0.040	µg/sample
Mercury, CVAA	0.424	0.0280	µg/sample
Nickel, ICP	31.0	0.399	µg/sample
Phosphorus, ICP	22.1	2.66	µg/sample
Selenium, ICP	< DL	2.00	µg/sample
Silver, ICP	< DL	0.266	µg/sample
Thallium, ICP	< DL	1.33	µg/sample
Vanadium, ICP	< DL	0.133	µg/sample
Zinc, ICP	12.3	0.399	µg/sample

Lab ID: 23-S1901
Client ID: 9256 Outlet #2 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Outlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.00836	µg/sample

Lab ID: 23-S1902
Client ID: 9256 Outlet #2 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Outlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Mercury, CVAA	0.158	0.0251	µg/sample

Lab ID: 23-S1903
Client ID: 9256 Outlet #2 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 9256 Outlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.0194	µg/sample

Lab ID: 23-S1904
Client ID: 8901 Inlet #1 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Inlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Aluminum, ICP	9,940	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	8.92	2.50	µg/sample
Barium, ICP	50.9	0.125	µg/sample
Beryllium, ICP-MS	0.226	0.050	µg/sample
Cadmium, ICP-MS	2.68	0.050	µg/sample
Chromium, ICP	145,000	0.200	µg/sample
Cobalt, ICP-MS	80,800	0.125	µg/sample
Copper, ICP-MS	48.8	0.250	µg/sample
Lead, ICP-MS	7.13	0.125	µg/sample
Manganese, ICP	78.6	0.075	µg/sample
Mercury, CVAA	0.0281	0.0219	µg/sample
Nickel, ICP	341,000	0.750	µg/sample
Phosphorus, ICP	368.	5.00	µg/sample
Selenium, ICP-MS	2.07	0.500	µg/sample
Silver, ICP	85.8	1.00	µg/sample
Thallium, ICP-MS	0.101	0.100	µg/sample
Vanadium, ICP-MS	70.6	0.075	µg/sample
Zinc, ICP	2,470	0.750	µg/sample

Lab ID: 23-S1905
Client ID: 8901 Inlet #1 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Inlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Aluminum, ICP	58.3	3.30	µg/sample
Antimony, ICP-MS	< DL	0.440	µg/sample
Arsenic, ICP	< DL	0.770	µg/sample
Barium, ICP	5.54	0.055	µg/sample
Beryllium, ICP	< DL	0.022	µg/sample
Cadmium, ICP-MS	0.114	0.022	µg/sample
Chromium, ICP	5.86	0.088	µg/sample
Cobalt, ICP-MS	2.90	0.055	µg/sample
Copper, ICP	2.01	0.550	µg/sample
Lead, ICP	1.14	0.550	µg/sample
Manganese, ICP	59.5	0.033	µg/sample
Mercury, CVAA	0.407	0.0385	µg/sample
Nickel, ICP	20.1	0.330	µg/sample
Phosphorus, ICP	24.8	2.20	µg/sample
Selenium, ICP	1.97	1.65	µg/sample
Silver, ICP	0.426	0.220	µg/sample
Thallium, ICP	< DL	1.10	µg/sample
Vanadium, ICP	< DL	0.110	µg/sample
Zinc, ICP	28.8	0.330	µg/sample

Lab ID: 23-S1906
Client ID: 8901 Inlet #1 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Inlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.00853	µg/sample

Lab ID: 23-S1907
Client ID: 8901 Inlet #1 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Inlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Mercury, CVAA	0.191	0.0178	µg/sample

Lab ID: 23-S1908
Client ID: 8901 Inlet #1 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Inlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.0196	µg/sample

Lab ID: 23-S1909
Client ID: 8901 Inlet #2 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Inlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Aluminum, ICP	1,370	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	10.5	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	0.348	0.050	µg/sample
Chromium, ICP	2,840	0.200	µg/sample
Cobalt, ICP-MS	1,150	0.125	µg/sample
Copper, ICP-MS	4.94	0.250	µg/sample
Lead, ICP-MS	1.21	0.125	µg/sample
Manganese, ICP	25.8	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	8,120	0.750	µg/sample
Phosphorus, ICP	98.1	5.00	µg/sample
Selenium, ICP-MS	< DL	0.500	µg/sample
Silver, ICP	4.77	1.00	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	3.84	0.075	µg/sample
Zinc, ICP	83.1	0.750	µg/sample

Lab ID: 23-S1910
Client ID: 8901 Inlet #2 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Inlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Aluminum, ICP	27.9	3.33	µg/sample
Antimony, ICP-MS	< DL	0.444	µg/sample
Arsenic, ICP	< DL	0.777	µg/sample
Barium, ICP	6.58	0.056	µg/sample
Beryllium, ICP	< DL	0.022	µg/sample
Cadmium, ICP-MS	0.068	0.022	µg/sample
Chromium, ICP	3.43	0.089	µg/sample
Cobalt, ICP-MS	1.20	0.056	µg/sample
Copper, ICP	1.05	0.555	µg/sample
Lead, ICP	1.25	0.555	µg/sample
Manganese, ICP	296.	0.033	µg/sample
Mercury, CVAA	0.332	0.0341	µg/sample
Nickel, ICP	8.23	0.333	µg/sample
Phosphorus, ICP	22.2	2.22	µg/sample
Selenium, ICP	< DL	1.66	µg/sample
Silver, ICP	< DL	0.222	µg/sample
Thallium, ICP	< DL	1.11	µg/sample
Vanadium, ICP	< DL	0.111	µg/sample
Zinc, ICP	16.2	0.333	µg/sample

Lab ID: 23-S1911
Client ID: 8901 Inlet #2 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Inlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.00814	µg/sample

Lab ID: 23-S1912
Client ID: 8901 Inlet #2 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Inlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Mercury, CVAA	0.210	0.0258	µg/sample

Lab ID: 23-S1913
Client ID: 8901 Inlet #2 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Inlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.0195	µg/sample

Lab ID: 23-S1914
Client ID: 8901 Outlet #1 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Outlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Aluminum, ICP	555.	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	6.83	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	1.03	0.050	µg/sample
Chromium, ICP	117.	0.200	µg/sample
Cobalt, ICP-MS	3.55	0.125	µg/sample
Copper, ICP-MS	5.01	0.250	µg/sample
Lead, ICP-MS	0.822	0.125	µg/sample
Manganese, ICP	9.89	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	104.	0.750	µg/sample
Phosphorus, ICP	88.4	5.00	µg/sample
Selenium, ICP-MS	2.17	0.500	µg/sample
Silver, ICP	13.1	1.00	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	0.812	0.075	µg/sample
Zinc, ICP	16.2	0.750	µg/sample

Lab ID: 23-S1915
Client ID: 8901 Outlet #1 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Outlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Aluminum, ICP	21.5	4.05	µg/sample
Antimony, ICP-MS	< DL	0.540	µg/sample
Arsenic, ICP	< DL	0.945	µg/sample
Barium, ICP	3.51	0.068	µg/sample
Beryllium, ICP	< DL	0.027	µg/sample
Cadmium, ICP-MS	0.071	0.027	µg/sample
Chromium, ICP	1.82	0.108	µg/sample
Cobalt, ICP-MS	0.276	0.068	µg/sample
Copper, ICP	1.36	0.675	µg/sample
Lead, ICP	0.709	0.675	µg/sample
Manganese, ICP	25.8	0.040	µg/sample
Mercury, CVAA	0.240	0.0271	µg/sample
Nickel, ICP	2.14	0.405	µg/sample
Phosphorus, ICP	26.5	2.70	µg/sample
Selenium, ICP	< DL	2.02	µg/sample
Silver, ICP	< DL	0.270	µg/sample
Thallium, ICP	< DL	1.35	µg/sample
Vanadium, ICP	< DL	0.135	µg/sample
Zinc, ICP	22.1	0.405	µg/sample

Lab ID: 23-S1916
Client ID: 8901 Outlet #1 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Outlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.00822	µg/sample

Lab ID: 23-S1917
Client ID: 8901 Outlet #1 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Outlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Mercury, CVAA	0.160	0.0254	µg/sample

Lab ID: 23-S1918
Client ID: 8901 Outlet #1 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Outlet
Sample Date: 6/28/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.0194	µg/sample

Lab ID: 23-S1919
Client ID: 8901 Outlet #2 Filter & Probe
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Outlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Aluminum, ICP	534.	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	4.18	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	0.068	0.050	µg/sample
Chromium, ICP	8.93	0.200	µg/sample
Cobalt, ICP-MS	1.53	0.125	µg/sample
Copper, ICP-MS	3.14	0.250	µg/sample
Lead, ICP-MS	0.369	0.125	µg/sample
Manganese, ICP	4.18	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	26.7	0.750	µg/sample
Phosphorus, ICP	86.8	5.00	µg/sample
Selenium, ICP-MS	< DL	0.500	µg/sample
Silver, ICP	< DL	1.00	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	0.104	0.075	µg/sample
Zinc, ICP	14.2	0.750	µg/sample

Lab ID: 23-S1920
Client ID: 8901 Outlet #2 HNO3/H2O2
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Outlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Aluminum, ICP	36.0	3.99	µg/sample
Antimony, ICP-MS	< DL	0.532	µg/sample
Arsenic, ICP	< DL	0.931	µg/sample
Barium, ICP	3.37	0.066	µg/sample
Beryllium, ICP	< DL	0.027	µg/sample
Cadmium, ICP-MS	0.093	0.027	µg/sample
Chromium, ICP	2.03	0.106	µg/sample
Cobalt, ICP-MS	0.530	0.066	µg/sample
Copper, ICP	1.96	0.665	µg/sample
Lead, ICP	< DL	0.665	µg/sample
Manganese, ICP	31.4	0.040	µg/sample
Mercury, CVAA	0.266	0.0282	µg/sample
Nickel, ICP	2.36	0.399	µg/sample
Phosphorus, ICP	21.0	2.66	µg/sample
Selenium, ICP	< DL	2.00	µg/sample
Silver, ICP	< DL	0.266	µg/sample
Thallium, ICP	< DL	1.33	µg/sample
Vanadium, ICP	< DL	0.133	µg/sample
Zinc, ICP	21.3	0.399	µg/sample

Lab ID: 23-S1921
Client ID: 8901 Outlet #2 Empty Imp
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Outlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.00814	µg/sample

Lab ID: 23-S1922
Client ID: 8901 Outlet #2 KMnO4
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Outlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Mercury, CVAA	0.173	0.0253	µg/sample

Lab ID: 23-S1923
Client ID: 8901 Outlet #2 HCl Rinse
Site: PCC Structurals: LPC-Milwaukie
Source: 8901 Outlet
Sample Date: 6/29/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.0194	µg/sample

Lab ID: 23-S1924
Client ID: Filter Blank
Site: PCC Structurals: LPC-Milwaukie
Sample Date: 6/30/23

Analyte	Result	DL	Units
Aluminum, ICP	495.	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	3.75	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	< DL	0.050	µg/sample
Chromium, ICP	1.06	0.200	µg/sample
Cobalt, ICP-MS	0.445	0.125	µg/sample
Copper, ICP-MS	< DL	0.250	µg/sample
Lead, ICP-MS	0.150	0.125	µg/sample
Manganese, ICP	0.870	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	1.58	0.750	µg/sample
Phosphorus, ICP	79.2	5.00	µg/sample
Selenium, ICP-MS	< DL	0.500	µg/sample
Silver, ICP	< DL	1.00	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	< DL	0.075	µg/sample
Zinc, ICP	4.29	0.750	µg/sample

Lab ID: 23-S1925
Client ID: 0.1N HNO3 Blank
Site: PCC Structurals: LPC-Milwaukie
Sample Date: 6/30/23

Analyte	Result	DL	Units
Aluminum, ICP	< DL	7.50	µg/sample
Antimony, ICP-MS	< DL	1.00	µg/sample
Arsenic, ICP-MS	< DL	2.50	µg/sample
Barium, ICP	1.09	0.125	µg/sample
Beryllium, ICP-MS	< DL	0.050	µg/sample
Cadmium, ICP-MS	< DL	0.050	µg/sample
Chromium, ICP	< DL	0.200	µg/sample
Cobalt, ICP-MS	0.412	0.125	µg/sample
Copper, ICP-MS	< DL	0.250	µg/sample
Lead, ICP-MS	< DL	0.125	µg/sample
Manganese, ICP	0.428	0.075	µg/sample
Mercury, CVAA	< DL	0.0219	µg/sample
Nickel, ICP	< DL	0.750	µg/sample
Phosphorus, ICP	< DL	5.00	µg/sample
Selenium, ICP-MS	< DL	0.500	µg/sample
Silver, ICP	< DL	1.00	µg/sample
Thallium, ICP-MS	< DL	0.100	µg/sample
Vanadium, ICP-MS	< DL	0.075	µg/sample
Zinc, ICP	< DL	0.750	µg/sample

Lab ID: 23-S1926
Client ID: HNO3/H2O2 Blank
Site: PCC Structurals: LPC-Milwaukie
Sample Date: 6/30/23

Analyte	Result	DL	Units
Aluminum, ICP	12.1	3.78	µg/sample
Antimony, ICP-MS	< DL	0.504	µg/sample
Arsenic, ICP	< DL	0.882	µg/sample
Barium, ICP	4.59	0.063	µg/sample
Beryllium, ICP	< DL	0.025	µg/sample
Cadmium, ICP-MS	< DL	0.025	µg/sample
Chromium, ICP	0.375	0.101	µg/sample
Cobalt, ICP-MS	0.086	0.063	µg/sample
Copper, ICP	< DL	0.630	µg/sample
Lead, ICP	< DL	0.630	µg/sample
Manganese, ICP	0.735	0.038	µg/sample
Mercury, CVAA	0.274	0.0172	µg/sample
Nickel, ICP	< DL	0.378	µg/sample
Phosphorus, ICP	21.3	2.52	µg/sample
Selenium, ICP	< DL	1.89	µg/sample
Silver, ICP	< DL	0.252	µg/sample
Thallium, ICP	< DL	1.26	µg/sample
Vanadium, ICP	< DL	0.126	µg/sample
Zinc, ICP	0.929	0.378	µg/sample

Lab ID: 23-S1927
Client ID: DI Water Blank
Site: PCC Structurals: LPC-Milwaukie
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.00849	µg/sample

Lab ID: 23-S1928
Client ID: KMnO4/H2SO4 Blank
Site: PCC Structurals: LPC-Milwaukie
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	0.0430	0.00836	µg/sample

Lab ID: 23-S1929
Client ID: 8N HCl Blank
Site: PCC Structurals: LPC-Milwaukie
Sample Date: 6/30/23

Analyte	Result	DL	Units
Mercury, CVAA	< DL	0.0192	µg/sample

Lab ID: 23-S1930
Client ID: 9203 N Inlet #1 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 9203 North Inlet
Sample Date: 6/27/23
Sample Volume: 315. mL

	µg/L		µg/sample	
Analyte	Conc.	DL	Conc.	DL
Cr VI	261.	0.010	82.3	0.0032

Lab ID: 23-S1931
Client ID: 9203 N Inlet #2 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 9203 North Inlet
Sample Date: 6/30/23
Sample Volume: 285. mL

	µg/L		µg/sample	
Analyte	Conc.	DL	Conc.	DL
Cr VI	348.	0.010	99.2	0.0028

Lab ID: 23-S1932
Client ID: 9203 C Inlet #1 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 9203 Center Inlet
Sample Date: 6/27/23
Sample Volume: 320. mL

	µg/L		µg/sample	
Analyte	Conc.	DL	Conc.	DL
Cr VI	638.	0.010	204.	0.0032

Lab ID: 23-S1933
Client ID: 9203 C Inlet #2 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 9203 Center Inlet
Sample Date: 6/30/23
Sample Volume: 310. mL

	µg/L		µg/sample	
Analyte	Conc.	DL	Conc.	DL
Cr VI	303.	0.010	94.0	0.0031

Lab ID: 23-S1934
Client ID: 9203 S Inlet #1 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 9203 South Inlet
Sample Date: 6/27/23
Sample Volume: 360. mL

	µg/L		µg/sample	
Analyte	Conc.	DL	Conc.	DL
Cr VI	136.	0.010	49.1	0.0036

Lab ID: 23-S1935
Client ID: 9203 S Inlet #2 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 9203 South Inlet
Sample Date: 6/30/23
Sample Volume: 275. mL

Analyte	μg/L Conc.	μg/L DL	μg/sample Conc.	μg/sample DL
Cr VI	97.1	0.010	26.7	0.0028

Lab ID: 23-S1936
Client ID: 9203 N Outlet #1 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 9203 North Outlet
Sample Date: 6/27/23
Sample Volume: 430. mL

Analyte	μg/L Conc.	μg/L DL	μg/sample Conc.	μg/sample DL
Cr VI	2.19	0.010	0.941	0.0043

Lab ID: 23-S1937
Client ID: 9203 N Outlet #2 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 9203 North Outlet
Sample Date: 6/30/23
Sample Volume: 590. mL

Analyte	μg/L Conc.	μg/L DL	μg/sample Conc.	μg/sample DL
Cr VI	7.82	0.010	4.61	0.0059

Lab ID: 23-S1938
Client ID: 9203 S Outlet #1 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 9203 South Outlet
Sample Date: 6/27/23
Sample Volume: 520. mL

Analyte	μg/L Conc.	μg/L DL	μg/sample Conc.	μg/sample DL
Cr VI	3.79	0.010	1.97	0.0052

Lab ID: 23-S1939
Client ID: 9203 S Outlet #2 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 9203 South Outlet
Sample Date: 6/30/23
Sample Volume: 445. mL

Analyte	μg/L Conc.	μg/L DL	μg/sample Conc.	μg/sample DL
Cr VI	5.14	0.010	2.29	0.0044

Lab ID: 23-S1940
Client ID: 9256 Inlet #1 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 9256 Inlet
Sample Date: 6/28/23
Sample Volume: 300. mL

Analyte	µg/L Conc.	µg/L DL	µg/sample Conc.	µg/sample DL
Cr VI	5.87	0.010	1.76	0.0030

Lab ID: 23-S1941
Client ID: 9256 Inlet #2 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 9256 Inlet
Sample Date: 6/29/23
Sample Volume: 365. mL

Analyte	µg/L Conc.	µg/L DL	µg/sample Conc.	µg/sample DL
Cr VI	4.72	0.010	1.72	0.0036

Lab ID: 23-S1942
Client ID: 9256 Outlet #1 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 9256 Outlet
Sample Date: 6/28/23
Sample Volume: 375. mL

Analyte	µg/L Conc.	µg/L DL	µg/sample Conc.	µg/sample DL
Cr VI	17.1	0.010	6.40	0.0038

Lab ID: 23-S1943
Client ID: 9256 Outlet #2 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 9256 Outlet
Sample Date: 6/29/23
Sample Volume: 335. mL

Analyte	µg/L Conc.	µg/L DL	µg/sample Conc.	µg/sample DL
Cr VI	2.49	0.010	0.834	0.0034

Lab ID: 23-S1944
Client ID: 8901 Inlet #1 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 8901 Inlet
Sample Date: 6/28/23
Sample Volume: 350. mL

Analyte	µg/L Conc.	µg/L DL	µg/sample Conc.	µg/sample DL
Cr VI	43.2	0.010	15.1	0.0035

Lab ID: 23-S1945
Client ID: 8901 Inlet #2 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 8901 Inlet
Sample Date: 6/29/23
Sample Volume: 290. mL

Analyte	µg/L Conc.	µg/L DL	µg/sample Conc.	µg/sample DL
Cr VI	4.40	0.010	1.28	0.0029

Lab ID: 23-S1946
Client ID: 8901 Outlet #1 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 8901 Outlet
Sample Date: 6/28/23
Sample Volume: 355. mL

Analyte	µg/L Conc.	µg/L DL	µg/sample Conc.	µg/sample DL
Cr VI	20.0	0.010	7.11	0.0036

Lab ID: 23-S1947
Client ID: 8901 Outlet #2 0061
Site: PCC Structurals: LPC - Milwaukie
Source: 8901 Outlet
Sample Date: 6/29/23
Sample Volume: 325. mL

Analyte	µg/L Conc.	µg/L DL	µg/sample Conc.	µg/sample DL
Cr VI	9.50	0.010	3.09	0.0032

Lab ID: 23-S1948
Client ID: 0.5M KOH Reagent Blank
Site: PCC Structurals: LPC - Milwaukie
Sample Date: 6/30/23
Sample Volume: 295. mL

Analyte	µg/L Conc.	µg/L DL	µg/sample Conc.	µg/sample DL
Cr VI	0.432	0.010	0.127	0.0030

Lab ID: 23-S1949
Client ID: DI Reagent Blank
Site: PCC Structurals: LPC - Milwaukie
Sample Date: 6/30/23
Sample Volume: 103. mL

Analyte	µg/L Conc.	µg/L DL	µg/sample Conc.	µg/sample DL
Cr VI	0.0250	0.010	0.0026	0.0010

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: ICP-OES
Instrument: Perkin Elmer Optima 8300
Sample Description: EPA Method 29 Front Half
Report Number: 23-351

Blank Data

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Ag	ICB	< DL	2.00
Ag	Meth_Blk	< DL	2.00
Ag	CCB	< DL	2.00
Ag	CCB	< DL	2.00
Ag	ICB	< DL	2.00
Ag	CCB	< DL	2.00
Al	ICB	< DL	30.0
Al	Meth_Blk	< DL	30.0
Al	CCB	< DL	30.0
Al	CCB	< DL	30.0
Al	CCB	< DL	30.0
Al	CCB	< DL	30.0
Ba	ICB	< DL	0.500
Ba	Meth_Blk	< DL	0.500
Ba	CCB	< DL	0.500
Ba	CCB	< DL	0.500
Ba	CCB	< DL	0.500
Cr	ICB	< DL	0.800
Cr	Meth_Blk	< DL	0.800
Cr	CCB	< DL	0.800
Cr	CCB	< DL	0.800
Cr	CCB	< DL	0.800
Cr	ICB	< DL	0.800
Cr	CCB	< DL	0.800
Cr	CCB	< DL	0.800
Cr	CCB	< DL	0.800
Mn	ICB	< DL	0.300
Mn	Meth_Blk	< DL	0.300
Mn	CCB	< DL	0.300
Mn	CCB	< DL	0.300
Mn	CCB	< DL	0.300
Ni	ICB	< DL	3.00
Ni	Meth_Blk	< DL	3.00
Ni	CCB	< DL	3.00
Ni	CCB	< DL	3.00
Ni	CCB	< DL	3.00
Ni	ICB	< DL	3.00
Ni	CCB	< DL	3.00
Ni	CCB	< DL	3.00

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank
*: Sample Media Blank (SM_Blk) concentration in µg/filter
Method Blank is in control if Method Blank results are <10% of sample results

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: ICP-OES
Instrument: Perkin Elmer Optima 8300
Sample Description: EPA Method 29 Front Half
Report Number: 23-351

Blank Data (continued)

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Ni	CCB	< DL	3.00
P	ICB	< DL	20.0
P	Meth_Blk	< DL	20.0
P	CCB	< DL	20.0
P	CCB	< DL	20.0
P	CCB	< DL	20.0
Zn	ICB	< DL	3.00
Zn	Meth_Blk	< DL	3.00
Zn	CCB	< DL	3.00
Zn	CCB	< DL	3.00
Zn	CCB	< DL	3.00
Zn	ICB	< DL	3.00
Zn	CCB	< DL	3.00
Zn	CCB	< DL	3.00
Zn	CCB	< DL	3.00

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank
*: Sample Media Blank (SM_Blk) concentration in µg/filter
Method Blank is in control if Method Blank results are <10% of sample results

Calibration QC

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Ag	ICV	2500.	2518.	100.7
Ag	LL-CCV	10.00	9.283	92.8
Ag	LL-LCS	9.000	9.376	104.2
Ag	CCV	2500.	2363.	94.5
Ag	CCV	2500.	2292.	91.7
Ag	ICV	2500.	2516.	100.6
Ag	LL-CCV	10.00	7.793	77.9
Ag	CCV	2500.	2472.	98.9
Al	ICV	2500.	2501.	100.0
Al	LL-CCV	150.0	149.3	99.5
Al	LL-LCS	75.00	87.87	117.2
Al	CCV	2500.	2609.	104.4
Al	CCV	2500.	2616.	104.6
Al	CCV	2500.	2589.	103.6

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-CCV Limits: 60% - 140% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: ICP-OES
Instrument: Perkin Elmer Optima 8300
Sample Description: EPA Method 29 Front Half
Report Number: 23-351

Calibration QC (continued)

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Al	CCV	2500.	2581.	103.2
Ba	ICV	2500.	2529.	101.2
Ba	LL-CCV	2.500	2.871	114.8
Ba	LL-LCS	1.500	1.725	115.0
Ba	CCV	2500.	2600.	104.0
Ba	CCV	2500.	2607.	104.3
Ba	CCV	2500.	2572.	102.9
Cr	ICV	2500.	2476.	99.0
Cr	LL-CCV	4.000	4.566	114.2
Cr	LL-LCS	2.000	2.208	110.4
Cr	CCV	2500.	2542.	101.7
Cr	CCV	2500.	2509.	100.4
Cr	CCV	2500.	2499.	100.0
Cr	ICV	2500.	2459.	98.4
Cr	LL-CCV	4.000	4.661	116.5
Cr	CCV	2500.	2449.	98.0
Cr	CCV	2500.	2449.	98.0
Cr	CCV	2500.	2469.	98.8
Mn	ICV	2500.	2552.	102.1
Mn	LL-CCV	1.500	1.698	113.2
Mn	LL-LCS	1.000	1.114	111.4
Mn	CCV	2500.	2623.	104.9
Mn	CCV	2500.	2591.	103.6
Mn	CCV	2500.	2572.	102.9
Ni	ICV	2500.	2426.	97.0
Ni	LL-CCV	15.00	15.34	102.3
Ni	LL-LCS	6.000	5.478	91.3
Ni	CCV	2500.	2476.	99.0
Ni	CCV	2500.	2430.	97.2
Ni	CCV	2500.	2435.	97.4
Ni	ICV	2500.	2396.	95.8
Ni	LL-CCV	15.00	14.94	99.6
Ni	CCV	2500.	2419.	96.8
Ni	CCV	2500.	2419.	96.8
Ni	CCV	2500.	2419.	96.8
P	ICV	2500.	2508.	100.3
P	LL-CCV	100.0	108.7	108.7

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-CCV Limits: 60% - 140% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: ICP-OES
Instrument: Perkin Elmer Optima 8300
Sample Description: EPA Method 29 Front Half
Report Number: 23-351

Calibration QC (continued)

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
P	LL-LCS	75.00	70.68	94.2
P	CCV	2500.	2548.	101.9
P	CCV	2500.	2550.	102.0
P	CCV	2500.	2569.	102.8
Zn	ICV	2500.	2517.	100.7
Zn	LL-CCV	15.00	16.53	110.2
Zn	LL-LCS	6.000	6.847	114.1
Zn	CCV	2500.	2582.	103.3
Zn	CCV	2500.	2545.	101.8
Zn	CCV	2500.	2537.	101.5
Zn	ICV	2500.	2501.	100.0
Zn	LL-CCV	15.00	17.60	117.3
Zn	CCV	2500.	2482.	99.3
Zn	CCV	2500.	2484.	99.4
Zn	CCV	2500.	2509.	100.4

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-CCV Limits: 60% - 140% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

Replicate Data

Analyte	Sample ID	Sample Conc. µg/L	Replicate Conc. µg/L	RPD
Ag	23-S1834	4.58	3.13	37.6 *
Al	23-S1834	2940	3020	2.65
Ba	23-S1834	85.4	85.1	0.43
Cr	23-S1834	3570	3560	0.28
Mn	23-S1834	65.9	65.6	0.46
Ni	23-S1834	26100	26200	0.42
P	23-S1834	441.	440.	0.16
Zn	23-S1834	435.	434.	0.07

RPD = {(sample-replicate)/[(sample+replicate)/2]}x100
N/C: RPD is not calculated when sample or replicate is below detection limit
Replicate Limit: 20% RPD
*: per EPA CLP protocol, control limits do not apply if sample and/or replicate concentration is less than 5x the detection limit

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: ICP-OES
Instrument: Perkin Elmer Optima 8300
Sample Description: EPA Method 29 Front Half
Report Number: 23-351

Laboratory Control Sample/Matrix Post Spike Analysis

Analyte	Sample ID	Sample Conc. µg/L	Spike Conc. µg/L	Spike Amount µg/L	Percent Recovery
Ag	LCS	< 2	2550.	2500	102.
Ag	LCS-Duplicate	< 2	2579.	2500	103.
Ag	23-S1839	3.379	2536.	2500	101.
Al	kv:LL-CCV	149.3	2677.	2500	101.
Al	kv:LL-CCV	149.3	2697.	2500	102.
Al	23-S1839	3054.	8240.	5000	104.
Ba	LCS	< 0.5	2506.	2500	100.
Ba	LCS-Duplicate	< 0.5	2532.	2500	101.
Ba	23-S1839	26.65	2493.	2500	98.7
Cr	LCS	< 0.8	2572.	2500	103.
Cr	LCS-Duplicate	< 0.8	2562.	2500	102.
Cr	23-S1839	5172.	9513.	5000	86.8
Mn	LCS	< 0.3	2640.	2500	106.
Mn	LCS-Duplicate	< 0.3	2629.	2500	105.
Mn	23-S1839	70.99	2550.	2500	99.2
Ni	LCS	< 3	2575.	2500	103.
Ni	LCS-Duplicate	< 3	2597.	2500	104.
Ni	23-S1839	40250	84290	50000	88.1
P	LCS	< 20	2693.	2500	108.
P	LCS-Duplicate	< 20	2678.	2500	107.
P	23-S1839	437.3	3008.	2500	103.
Zn	LCS	< 3	2746.	2500	110.
Zn	LCS-Duplicate	< 3	2726.	2500	109.
Zn	23-S1839	565.9	3120.	2500	102.

LCS Limit: 80% - 120% Recovery   Spike Limit: 75% - 125% Recovery

LCS Duplicate Data

Analyte	Sample ID	Original Conc. µg/L	Replicate Conc. µg/L	RPD
Ag	LCS-Duplicate	2550.	2579.	1.13
Al	LCS-Duplicate	2677.	2697.	0.74
Ba	LCS-Duplicate	2506.	2532.	1.03
Cr	LCS-Duplicate	2572.	2562.	0.39
Mn	LCS-Duplicate	2640.	2629.	0.42
Ni	LCS-Duplicate	2575.	2597.	0.85
P	LCS-Duplicate	2693.	2678.	0.56
Zn	LCS-Duplicate	2746.	2726.	0.73

RPD = {(sample-duplicate)/[(sample+duplicate)/2]}x100   Duplicate Limit: 20% RPD

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: ICP-MS
Instrument: Agilent 7850
Sample Description: EPA Method 29 Front Half
Report Number: 23-351

Blank Data

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
As	ICB	< DL	1.00
As	CCB	< DL	1.00
As	Meth_Blk	< 10	1.00
As	CCB	< DL	1.00
As	CCB	< DL	1.00
As	CCB	< DL	1.00
As	CCB	< DL	1.00
Be	ICB	< DL	0.020
Be	CCB	< DL	0.020
Be	Meth_Blk	< 0.2	0.020
Be	CCB	< DL	0.020
Be	CCB	< DL	0.020
Be	CCB	< DL	0.020
Be	CCB	< DL	0.020
Cd	ICB	< DL	0.020
Cd	CCB	< DL	0.020
Cd	Meth_Blk	< 0.2	0.020
Cd	CCB	< DL	0.020
Cd	CCB	< DL	0.020
Cd	CCB	< DL	0.020
Cd	CCB	< DL	0.020
Co	ICB	< DL	0.050
Co	CCB	< DL	0.050
Co	Meth_Blk	0.923	0.050
Co	CCB	< DL	0.050
Co	CCB	< DL	0.050
Co	CCB	< DL	0.050
Co	CCB	< DL	0.050
Cu	ICB	< DL	0.100
Cu	CCB	< DL	0.100
Cu	Meth_Blk	< 1	0.100
Cu	CCB	< DL	0.100
Cu	CCB	< DL	0.100
Cu	CCB	< DL	0.100
Cu	CCB	< DL	0.100
Pb	ICB	< DL	0.050
Pb	CCB	< DL	0.050
Pb	Meth_Blk	< 0.5	0.050
Pb	CCB	< DL	0.050

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank
*: Sample Media Blank (SM_Blk) concentration in µg/filter
Method Blank is in control if Method Blank results are <10% of sample results

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: ICP-MS
Instrument: Agilent 7850
Sample Description: EPA Method 29 Front Half
Report Number: 23-351

Blank Data (continued)

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Pb	CCB	< DL	0.050
Pb	CCB	< DL	0.050
Pb	CCB	< DL	0.050
Sb	ICB	< DL	0.400
Sb	CCB	< DL	0.400
Sb	Meth_Blk	< 4	0.400
Sb	CCB	< DL	0.400
Sb	CCB	< DL	0.400
Sb	CCB	< DL	0.400
Sb	CCB	< DL	0.400
Se	ICB	< DL	0.200
Se	CCB	< DL	0.200
Se	Meth_Blk	< 2	0.200
Se	CCB	< DL	0.200
Se	CCB	< DL	0.200
Se	CCB	< DL	0.200
Se	CCB	< DL	0.200
Tl	ICB	< DL	0.040
Tl	CCB	< DL	0.040
Tl	Meth_Blk	< 0.4	0.040
Tl	CCB	< DL	0.040
Tl	CCB	< DL	0.040
Tl	CCB	< DL	0.040
Tl	CCB	< DL	0.040
V	ICB	< DL	0.030
V	CCB	< DL	0.030
V	Meth_Blk	< 0.3	0.030
V	CCB	< DL	0.030
V	CCB	< DL	0.030
V	CCB	< DL	0.030
V	CCB	< DL	0.030

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank
*: Sample Media Blank (SM_Blk) concentration in µg/filter
Method Blank is in control if Method Blank results are <10% of sample results

QA/QC Report

Client Name:	Mostardi Platt
Project Number:	M050
Analytical Technique:	ICP-MS
Instrument:	Agilent 7850
Sample Description:	EPA Method 29 Front Half
Report Number:	23-351

Calibration QC

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
As	ICV	100.0	100.3	100.3
As	CCV	100.0	97.45	97.4
As	LL-LCS	20.00	25.02	125.1
As	CCV	100.0	95.55	95.6
As	CCV	100.0	94.68	94.7
As	CCV	100.0	95.66	95.7
As	CCV	100.0	95.83	95.8
Be	ICV	100.0	98.34	98.3
Be	CCV	100.0	95.78	95.8
Be	LL-LCS	0.500	0.505	101.0
Be	CCV	100.0	100.3	100.3
Be	CCV	100.0	102.2	102.2
Be	CCV	100.0	103.6	103.6
Be	CCV	100.0	101.1	101.1
Cd	ICV	100.0	98.99	99.0
Cd	CCV	100.0	96.14	96.1
Cd	LL-LCS	1.500	1.411	94.1
Cd	CCV	100.0	96.66	96.7
Cd	CCV	100.0	98.84	98.8
Cd	CCV	100.0	97.83	97.8
Cd	CCV	100.0	96.16	96.2
Co	ICV	100.0	99.22	99.2
Co	CCV	100.0	97.70	97.7
Co	LL-LCS	1.500	2.519	167.9
Co	CCV	100.0	99.13	99.1
Co	CCV	100.0	100.1	100.1
Co	CCV	100.0	100.1	100.1
Co	CCV	100.0	97.19	97.2
Cu	ICV	100.0	101.9	101.9
Cu	CCV	100.0	99.80	99.8
Cu	LL-LCS	15.00	15.26	101.7
Cu	CCV	100.0	100.2	100.2
Cu	CCV	100.0	101.4	101.4
Cu	CCV	100.0	102.1	102.1
Cu	CCV	100.0	98.39	98.4
Pb	ICV	100.0	100.8	100.8
Pb	CCV	100.0	98.03	98.0

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-CCV Limits: 60% - 140% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: ICP-MS
Instrument: Agilent 7850
Sample Description: EPA Method 29 Front Half
Report Number: 23-351

Calibration QC (continued)

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Pb	LL-LCS	15.00	14.19	94.6
Pb	CCV	100.0	96.09	96.1
Pb	CCV	100.0	97.32	97.3
Pb	CCV	100.0	95.65	95.6
Pb	CCV	100.0	95.43	95.4
Sb	ICV	100.0	99.17	99.2
Sb	CCV	100.0	95.90	95.9
Sb	LL-LCS	15.00	14.77	98.5
Sb	CCV	100.0	94.52	94.5
Sb	CCV	100.0	94.60	94.6
Sb	CCV	100.0	94.14	94.1
Sb	CCV	100.0	93.52	93.5
Se	ICV	100.0	99.65	99.6
Se	CCV	100.0	94.86	94.9
Se	LL-LCS	25.00	26.62	106.5
Se	CCV	100.0	93.45	93.4
Se	CCV	100.0	91.20	91.2
Se	CCV	100.0	91.73	91.7
Se	CCV	100.0	93.50	93.5
Tl	ICV	100.0	100.8	100.8
Tl	CCV	100.0	98.70	98.7
Tl	LL-LCS	30.00	28.87	96.2
Tl	CCV	100.0	96.86	96.9
Tl	CCV	100.0	99.48	99.5
Tl	CCV	100.0	97.49	97.5
Tl	CCV	100.0	97.72	97.7
V	ICV	100.0	100.3	100.3
V	CCV	100.0	98.62	98.6
V	LL-LCS	3.000	3.019	100.6
V	CCV	100.0	97.61	97.6
V	CCV	100.0	98.39	98.4
V	CCV	100.0	98.43	98.4
V	CCV	100.0	97.36	97.4

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-CCV Limits: 60% - 140% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: ICP-MS
Instrument: Agilent 7850
Sample Description: EPA Method 29 Front Half
Report Number: 23-351

Replicate Data

Analyte	Sample ID	Sample Conc. µg/L	Replicate Conc. µg/L	RPD
As	23-S1834	< 10	< 10	N/C *
Be	23-S1834	< 0.2	< 0.2	N/C *
Cd	23-S1834	5.03	4.84	3.83
Co	23-S1834	834.	813.	2.48
Cu	23-S1834	1280	1260	1.81
Pb	23-S1834	9.87	9.78	0.97
Sb	23-S1834	< 4	< 4	N/C *
Se	23-S1834	4.18	3.88	7.39
Tl	23-S1834	< 0.4	< 0.4	N/C *
V	23-S1834	10.1	9.69	4.20

RPD = {(sample-replicate)/[(sample+replicate)/2]}x100
N/C: RPD is not calculated when sample or replicate is below detection limit
Replicate Limit: 20% RPD
*: per EPA CLP protocol, control limits do not apply if sample and/or replicate concentration is less than 5x the detection limit

Laboratory Control Sample/Matrix Post Spike Analysis

Analyte	Sample ID	Sample Conc. µg/L	Spike Conc. µg/L	Spike Amount µg/L	Percent Recovery
As	LCS	< 10	2339.	2500	93.6
As	LCS-Duplicate	< 10	2353.	2500	94.1
As	23-S1839	< 10	904.5	1000	90.4
Be	LCS	< 0.2	2422.	2500	96.9
Be	LCS-Duplicate	< 0.2	2418.	2500	96.7
Be	23-S1839	< 0.2	932.9	1000	93.3
Cd	LCS	< 0.2	2401.	2500	96.0
Cd	LCS-Duplicate	< 0.2	2396.	2500	95.8
Cd	23-S1839	1.060	941.9	1000	94.1
Co	LCS	0.923	2531.	2500	101.
Co	LCS-Duplicate	0.923	2497.	2500	99.8
Co	23-S1839	1259.	2208.	1000	94.9
Cu	LCS	< 1	2557.	2500	102.
Cu	LCS-Duplicate	< 1	2514.	2500	101.
Cu	23-S1839	1582.	2539.	1000	95.7
Pb	LCS	< 0.5	2436.	2500	97.4
Pb	LCS-Duplicate	< 0.5	2432.	2500	97.3
Pb	23-S1839	4.594	930.3	1000	92.6

LCS Limit: 80% - 120% Recovery   Spike Limit: 75% - 125% Recovery

QA/QC Report

Client Name:	Mostardi Platt
Project Number:	M050
Analytical Technique:	ICP-MS
Instrument:	Agilent 7850
Sample Description:	EPA Method 29 Front Half
Report Number:	23-351

Laboratory Control Sample/Matrix Post Spike Analysis (continued)

Analyte	Sample ID	Sample Conc. µg/L	Spike Conc. µg/L	Spike Amount µg/L	Percent Recovery
Sb	LCS	< 4	2333.	2500	93.3
Sb	LCS-Duplicate	< 4	2331.	2500	93.2
Sb	23-S1839	< 4	900.3	1000	90.0
Se	LCS	< 2	2337.	2500	93.5
Se	LCS-Duplicate	< 2	2328.	2500	93.1
Se	23-S1839	< 2	872.8	1000	87.3
Tl	LCS	< 0.4	2445.	2500	97.8
Tl	LCS-Duplicate	< 0.4	2430.	2500	97.2
Tl	23-S1839	< 0.4	945.1	1000	94.5
V	LCS	< 0.3	2417.	2500	96.7
V	LCS-Duplicate	< 0.3	2408.	2500	96.3
V	23-S1839	8.290	958.2	1000	95.0

LCS Limit: 80% - 120% Recovery   Spike Limit: 75% - 125% Recovery

LCS Duplicate Data

Analyte	Sample ID	Original Conc. µg/L	Replicate Conc. µg/L	RPD
As	LCS-Duplicate	2339.	2353.	0.60
Be	LCS-Duplicate	2422.	2418.	0.17
Cd	LCS-Duplicate	2401.	2396.	0.21
Co	LCS-Duplicate	2531.	2497.	1.35
Cu	LCS-Duplicate	2557.	2514.	1.70
Pb	LCS-Duplicate	2436.	2432.	0.16
Sb	LCS-Duplicate	2333.	2331.	0.09
Se	LCS-Duplicate	2337.	2328.	0.39
Tl	LCS-Duplicate	2445.	2430.	0.62
V	LCS-Duplicate	2417.	2408.	0.37

RPD = {(sample-duplicate)/[(sample+duplicate)/2]}x100   Duplicate Limit: 20% RPD

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: ICP-OES
Instrument: Perkin Elmer Optima 8300
Sample Description: EPA Method 29 Back Half
Report Number: 23-351

Blank Data

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Ag	ICB	< DL	2.00
Ag	Meth_Blk	< DL	2.00
Ag	CCB	< DL	2.00
Ag	CCB	< DL	2.00
Ag	CCB	< DL	2.00
Al	ICB	< DL	30.0
Al	Meth_Blk	< DL	30.0
Al	CCB	< DL	30.0
Al	CCB	< DL	30.0
Al	CCB	< DL	30.0
As	ICB	< DL	7.00
As	Meth_Blk	< DL	7.00
As	CCB	< DL	7.00
As	CCB	< DL	7.00
As	CCB	< DL	7.00
Ba	ICB	< DL	0.500
Ba	Meth_Blk	< DL	0.500
Ba	CCB	< DL	0.500
Ba	CCB	< DL	0.500
Ba	CCB	< DL	0.500
Be	ICB	< DL	0.200
Be	Meth_Blk	< DL	0.200
Be	CCB	< DL	0.200
Be	CCB	< DL	0.200
Be	CCB	< DL	0.200
Cr	ICB	< DL	0.800
Cr	Meth_Blk	< DL	0.800
Cr	CCB	< DL	0.800
Cr	CCB	< DL	0.800
Cr	CCB	< DL	0.800
Cu	ICB	< DL	5.00
Cu	Meth_Blk	< DL	5.00
Cu	CCB	< DL	5.00
Cu	CCB	< DL	5.00
Cu	CCB	< DL	5.00
Mn	ICB	< DL	0.300
Mn	Meth_Blk	< DL	0.300
Mn	CCB	< DL	0.300
Mn	CCB	< DL	0.300

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank
*: Sample Media Blank (SM_Blk) concentration in µg/filter
Method Blank is in control if Method Blank results are <10% of sample results

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: ICP-OES
Instrument: Perkin Elmer Optima 8300
Sample Description: EPA Method 29 Back Half
Report Number: 23-351

Blank Data (continued)

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Mn	CCB	< DL	0.300
Ni	ICB	< DL	3.00
Ni	Meth_Blk	< DL	3.00
Ni	CCB	< DL	3.00
Ni	CCB	< DL	3.00
Ni	CCB	< DL	3.00
P	ICB	< DL	20.0
P	Meth_Blk	< DL	20.0
P	CCB	< DL	20.0
P	CCB	< DL	20.0
P	CCB	< DL	20.0
Pb	ICB	< DL	5.00
Pb	Meth_Blk	< DL	5.00
Pb	CCB	< DL	5.00
Pb	CCB	< DL	5.00
Pb	CCB	< DL	5.00
Se	ICB	< DL	15.0
Se	Meth_Blk	< DL	15.0
Se	CCB	< DL	15.0
Se	CCB	< DL	15.0
Se	CCB	< DL	15.0
Tl	ICB	< DL	10.0
Tl	Meth_Blk	< DL	10.0
Tl	CCB	< DL	10.0
Tl	CCB	< DL	10.0
Tl	CCB	< DL	10.0
V	ICB	< DL	1.00
V	Meth_Blk	< DL	1.00
V	CCB	< DL	1.00
V	CCB	< DL	1.00
V	CCB	< DL	1.00
Zn	ICB	< DL	3.00
Zn	Meth_Blk	3.39	3.00
Zn	CCB	< DL	3.00
Zn	CCB	< DL	3.00
Zn	CCB	< DL	3.00

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank
*: Sample Media Blank (SM_Blk) concentration in µg/filter
Method Blank is in control if Method Blank results are <10% of sample results

QA/QC Report

Client Name:	Mostardi Platt
Project Number:	M050
Analytical Technique:	ICP-OES
Instrument:	Perkin Elmer Optima 8300
Sample Description:	EPA Method 29 Back Half
Report Number:	23-351

Calibration QC

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Ag	ICV	2500.	2496.	99.8
Ag	LL-CCV	10.00	9.577	95.8
Ag	LL-LCS	9.000	8.402	93.4
Ag	CCV	2500.	2469.	98.8
Ag	CCV	2500.	2416.	96.6
Ag	CCV	2500.	2277.	91.1
Al	ICV	2500.	2555.	102.2
Al	LL-CCV	150.0	152.2	101.5
Al	LL-LCS	75.00	142.9	190.5
Al	CCV	2500.	2550.	102.0
Al	CCV	2500.	2511.	100.4
Al	CCV	2500.	2515.	100.6
As	ICV	2500.	2513.	100.5
As	LL-CCV	35.00	32.90	94.0
As	LL-LCS	20.00	17.68	88.4
As	CCV	2500.	2525.	101.0
As	CCV	2500.	2546.	101.8
As	CCV	2500.	2550.	102.0
Ba	ICV	2500.	2557.	102.3
Ba	LL-CCV	2.500	2.669	106.8
Ba	LL-LCS	1.500	1.598	106.5
Ba	CCV	2500.	2540.	101.6
Ba	CCV	2500.	2531.	101.2
Ba	CCV	2500.	2552.	102.1
Be	ICV	2500.	2527.	101.1
Be	LL-CCV	1.000	1.006	100.6
Be	LL-LCS	0.500	0.372	74.4
Be	CCV	2500.	2523.	100.9
Be	CCV	2500.	2509.	100.4
Be	CCV	2500.	2498.	99.9
Cr	ICV	2500.	2488.	99.5
Cr	LL-CCV	4.000	4.593	114.8
Cr	LL-LCS	2.000	1.992	99.6
Cr	CCV	2500.	2505.	100.2
Cr	CCV	2500.	2508.	100.3
Cr	CCV	2500.	2538.	101.5
Cu	ICV	2500.	2392.	95.7

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-CCV Limits: 60% - 140% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10X LL-LCS concentration

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: ICP-OES
Instrument: Perkin Elmer Optima 8300
Sample Description: EPA Method 29 Back Half
Report Number: 23-351

Calibration QC (continued)

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Cu	LL-CCV	25.00	27.31	109.2
Cu	LL-LCS	15.00	15.24	101.6
Cu	CCV	2500.	2416.	96.6
Cu	CCV	2500.	2416.	96.6
Cu	CCV	2500.	2457.	98.3
Mn	ICV	2500.	2566.	102.6
Mn	LL-CCV	1.500	1.721	114.7
Mn	LL-LCS	1.000	1.383	138.3
Mn	CCV	2500.	2586.	103.4
Mn	CCV	2500.	2586.	103.4
Mn	CCV	2500.	2621.	104.8
Ni	ICV	2500.	2443.	97.7
Ni	LL-CCV	15.00	15.68	104.5
Ni	LL-LCS	6.000	5.931	98.8
Ni	CCV	2500.	2450.	98.0
Ni	CCV	2500.	2456.	98.2
Ni	CCV	2500.	2461.	98.4
P	ICV	2500.	2527.	101.1
P	LL-CCV	100.0	105.7	105.7
P	LL-LCS	75.00	66.59	88.8
P	CCV	2500.	2510.	100.4
P	CCV	2500.	2462.	98.5
P	CCV	2500.	2460.	98.4
Pb	ICV	2500.	2455.	98.2
Pb	LL-CCV	25.00	26.88	107.5
Pb	LL-LCS	15.00	14.07	93.8
Pb	CCV	2500.	2415.	96.6
Pb	CCV	2500.	2418.	96.7
Pb	CCV	2500.	2415.	96.6
Se	ICV	2500.	2475.	99.0
Se	LL-CCV	75.00	81.05	108.1
Se	LL-LCS	30.00	32.14	107.1
Se	CCV	2500.	2460.	98.4
Se	CCV	2500.	2427.	97.1
Se	CCV	2500.	2400.	96.0
Tl	ICV	2500.	2472.	98.9
Tl	LL-CCV	50.00	53.14	106.3

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-CCV Limits: 60% - 140% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS may be insignificant if sample results are >10x LL-LCS concentration

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: ICP-OES
Instrument: Perkin Elmer Optima 8300
Sample Description: EPA Method 29 Back Half
Report Number: 23-351

Calibration QC (continued)

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Tl	LL-LCS	30.00	29.80	99.3
Tl	CCV	2500.	2491.	99.6
Tl	CCV	2500.	2498.	99.9
Tl	CCV	2500.	2498.	99.9
V	ICV	2500.	2465.	98.6
V	LL-CCV	5.000	4.878	97.6
V	LL-LCS	3.000	2.567	85.6
V	CCV	2500.	2417.	96.7
V	CCV	2500.	2417.	96.7
V	CCV	2500.	2442.	97.7
Zn	ICV	2500.	2530.	101.2
Zn	LL-CCV	15.00	16.58	110.5
Zn	LL-LCS	6.000	8.323	138.7
Zn	CCV	2500.	2551.	102.0
Zn	CCV	2500.	2546.	101.8
Zn	CCV	2500.	2582.	103.3

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-CCV Limits: 60% - 140% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

Replicate Data

Analyte	Sample ID	Sample Conc. µg/L	Replicate Conc. µg/L	RPD
Ag	23-S1835	5.17	4.54	13.0 *
Al	23-S1835	355.	362.	1.95
As	23-S1835	< 7	< 7	N/C *
Ba	23-S1835	28.3	28.4	0.11
Be	23-S1835	< 0.2	< 0.2	N/C *
Cr	23-S1835	80.0	80.6	0.73
Cu	23-S1835	116.	115.	0.78
Mn	23-S1835	84.4	84.8	0.50
Ni	23-S1835	115.	114.	0.79
P	23-S1835	123.	126.	1.93
Pb	23-S1835	< 5	< 5	N/C *
Se	23-S1835	74.3	82.9	10.9 *
Tl	23-S1835	< 10	< 10	N/C *

RPD = {(sample-replicate)/[(sample+replicate)/2]}x100
N/C: RPD is not calculated when sample or replicate is below detection limit
Replicate Limit: 20% RPD
*: per EPA CLP protocol, control limits do not apply if sample and/or replicate concentration is less than 5x the detection limit

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: ICP-OES
Instrument: Perkin Elmer Optima 8300
Sample Description: EPA Method 29 Back Half
Report Number: 23-351

Replicate Data (continued)

Analyte	Sample ID	Sample Conc. µg/L	Replicate Conc. µg/L	RPD
V	23-S1835	1.80	1.80	0.28 *
Zn	23-S1835	280.	266.	5.13

RPD = {(sample-replicate)/[(sample+replicate)/2]}x100
N/C: RPD is not calculated when sample or replicate is below detection limit
Replicate Limit: 20% RPD
*: per EPA CLP protocol, control limits do not apply if sample and/or replicate concentration is less than 5x the detection limit

Laboratory Control Sample/Matrix Post Spike Analysis

Analyte	Sample ID	Sample Conc. µg/L	Spike Conc. µg/L	Spike Amount µg/L	Percent Recovery
Ag	LCS	< 2	2285.	2500	91.4
Ag	LCS-Duplicate	< 2	2285.	2500	91.4
Ag	23-S1840	2.831	2214.	2500	88.4
Al	kv:LL-CCV	152.2	2566.	2500	96.6
Al	kv:LL-CCV	152.2	2395.	2500	89.7
Al	23-S1840	305.7	2536.	2500	89.2
As	LCS	< 7	2377.	2500	95.1
As	LCS-Duplicate	< 7	2403.	2500	96.1
As	23-S1840	< 7	2274.	2500	91.0
Ba	LCS	< 0.5	2462.	2500	98.5
Ba	LCS-Duplicate	< 0.5	2461.	2500	98.4
Ba	23-S1840	31.12	2373.	2500	93.7
Be	LCS	< 0.2	2398.	2500	95.9
Be	LCS-Duplicate	< 0.2	2449.	2500	98.0
Be	23-S1840	< 0.2	2290.	2500	91.6
Cr	LCS	< 0.8	2419.	2500	96.8
Cr	LCS-Duplicate	< 0.8	2428.	2500	97.1
Cr	23-S1840	32.21	2354.	2500	92.9
Cu	LCS	< 5	2322.	2500	92.9
Cu	LCS-Duplicate	< 5	2324.	2500	93.0
Cu	23-S1840	21.66	2253.	2500	89.3
Mn	LCS	< 0.3	2479.	2500	99.2
Mn	LCS-Duplicate	< 0.3	2488.	2500	99.5
Mn	23-S1840	221.1	2584.	2500	94.5
Ni	LCS	< 3	2352.	2500	94.1
Ni	LCS-Duplicate	< 3	2385.	2500	95.4

LCS Limit: 80% - 120% Recovery Spike Limit: 75% - 125% Recovery

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: ICP-OES
Instrument: Perkin Elmer Optima 8300
Sample Description: EPA Method 29 Back Half
Report Number: 23-351

Laboratory Control Sample/Matrix Post Spike Analysis (continued)

Analyte	Sample ID	Sample Conc. µg/L	Spike Conc. µg/L	Spike Amount µg/L	Percent Recovery
Ni	23-S1840	105.8	2362.	2500	90.2
P	LCS	< 20	2367.	2500	94.7
P	LCS-Duplicate	< 20	2382.	2500	95.3
P	23-S1840	140.6	2378.	2500	89.5
Pb	LCS	< 5	2314.	2500	92.6
Pb	LCS-Duplicate	< 5	2361.	2500	94.4
Pb	23-S1840	6.394	2208.	2500	88.1
Se	LCS	< 15	2385.	2500	95.4
Se	LCS-Duplicate	< 15	2420.	2500	96.8
Se	23-S1840	< 15	2238.	2500	89.5
Tl	LCS	< 10	2354.	2500	94.2
Tl	LCS-Duplicate	< 10	2395.	2500	95.8
Tl	23-S1840	< 10	2233.	2500	89.3
V	LCS	< 1	2366.	2500	94.6
V	LCS-Duplicate	< 1	2423.	2500	96.9
V	23-S1840	1.165	2313.	2500	92.5
Zn	LCS	3.387	2414.	2500	96.4
Zn	LCS-Duplicate	3.387	2452.	2500	97.9
Zn	23-S1840	190.1	2477.	2500	91.5

LCS Limit: 80% - 120% Recovery   Spike Limit: 75% - 125% Recovery

LCS Duplicate Data

Analyte	Sample ID	Original Conc. µg/L	Replicate Conc. µg/L	RPD
Ag	LCS-Duplicate	2285.	2285.	0.00
Al	LCS-Duplicate	2566.	2395.	6.89
As	LCS-Duplicate	2377.	2403.	1.09
Ba	LCS-Duplicate	2462.	2461.	0.04
Be	LCS-Duplicate	2398.	2449.	2.10
Cr	LCS-Duplicate	2419.	2428.	0.37
Cu	LCS-Duplicate	2322.	2324.	0.09
Mn	LCS-Duplicate	2479.	2488.	0.36
Ni	LCS-Duplicate	2352.	2385.	1.39
P	LCS-Duplicate	2367.	2382.	0.63
Pb	LCS-Duplicate	2314.	2361.	2.01
Se	LCS-Duplicate	2385.	2420.	1.46
Tl	LCS-Duplicate	2354.	2395.	1.73
V	LCS-Duplicate	2366.	2423.	2.38
Zn	LCS-Duplicate	2414.	2452.	1.56

RPD = {(sample-duplicate)/[(sample+duplicate)/2]}x100   Duplicate Limit: 20% RPD

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: ICP-MS
Instrument: Agilent 7850
Sample Description: EPA Method 29 Back Half
Report Number: 23-351

Blank Data

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Cd	ICB	< DL	0.020
Cd	Meth_Blk	< 0.2	0.020
Cd	CCB	< DL	0.020
Cd	CCB	< DL	0.020
Cd	CCB	< DL	0.020
Co	ICB	< DL	0.050
Co	Meth_Blk	1.51	0.050
Co	CCB	< DL	0.050
Co	CCB	< DL	0.050
Co	CCB	< DL	0.050
Sb	ICB	< DL	0.400
Sb	Meth_Blk	< 4	0.400
Sb	CCB	< DL	0.400
Sb	CCB	< DL	0.400
Sb	CCB	< DL	0.400

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank
*: Sample Media Blank (SM_Blk) concentration in µg/filter
Method Blank is in control if Method Blank results are <10% of sample results

Calibration QC

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Cd	ICV	100.0	98.99	99.0
Cd	LL-LCS	1.500	1.393	92.9
Cd	CCV	100.0	97.69	97.7
Cd	CCV	100.0	96.14	96.1
Cd	CCV	100.0	96.66	96.7
Co	ICV	100.0	99.22	99.2
Co	LL-LCS	1.500	2.933	195.5
Co	CCV	100.0	98.79	98.8
Co	CCV	100.0	97.70	97.7
Co	CCV	100.0	99.13	99.1
Sb	ICV	100.0	99.17	99.2
Sb	LL-LCS	15.00	13.90	92.7
Sb	CCV	100.0	97.78	97.8
Sb	CCV	100.0	95.90	95.9

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-CCV Limits: 60% - 140% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

QA/QC Report

Client Name:	Mostardi Platt
Project Number:	M050
Analytical Technique:	ICP-MS
Instrument:	Agilent 7850
Sample Description:	EPA Method 29 Back Half
Report Number:	23-351

Calibration QC (continued)

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Sb	CCV	100.0	94.52	94.5

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-CCV Limits: 60% - 140% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

Replicate Data

Analyte	Sample ID	Sample Conc. µg/L	Replicate Conc. µg/L	RPD
Cd	23-S1835	2.63	2.44	7.45
Co	23-S1835	3.64	3.55	2.53
Sb	23-S1835	< 4	< 4	N/C *

RPD = {(sample-replicate)/[(sample+replicate)/2]}x100
N/C: RPD is not calculated when sample or replicate is below detection limit
Replicate Limit: 20% RPD
*: per EPA CLP protocol, control limits do not apply if sample and/or replicate concentration is less than 5x the detection limit

Laboratory Control Sample/Matrix Post Spike Analysis

Analyte	Sample ID	Sample Conc. µg/L	Spike Conc. µg/L	Spike Amount µg/L	Percent Recovery
Cd	LCS	< 0.2	2422.	2500	96.9
Cd	LCS-Duplicate	< 0.2	2415.	2500	96.6
Cd	23-S1840	2.380	912.9	1000	91.1
Co	LCS	1.506	2430.	2500	97.1
Co	LCS-Duplicate	1.506	2455.	2500	98.1
Co	23-S1840	4.348	929.6	1000	92.5
Sb	LCS	< 4	2404.	2500	96.2
Sb	LCS-Duplicate	< 4	2338.	2500	93.5
Sb	23-S1840	< 4	916.5	1000	91.6

LCS Limit: 80% - 120% Recovery   Spike Limit: 75% - 125% Recovery

LCS Duplicate Data

Analyte	Sample ID	Original Conc. µg/L	Replicate Conc. µg/L	RPD
Cd	LCS-Duplicate	2422.	2415.	0.29
Co	LCS-Duplicate	2430.	2455.	1.02
Sb	LCS-Duplicate	2404.	2338.	2.78

RPD = {(sample-duplicate)/[(sample+duplicate)/2]}x100   Duplicate Limit: 20% RPD

QA/QC Report

Client Name:	Mostardi Platt
Project Number:	M050
Analytical Technique:	Cold Vapor Atomic Absorption
Instrument:	Nippon 3320A CVAA
Sample Description:	EPA Method 29
Report Number:	23-351

Blank Data

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Hg	ICB	< DL	0.007
Hg	MB_FH	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank
*: Sample Media Blank (SM_Blk) concentration in µg/filter
Method Blank is in control if Method Blank results are <10% of sample results

Calibration QC

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Hg	ICV	5.00	5.06	101.1
Hg	LL-LCS	0.020	0.023	115.0
Hg	LL-LCS	0.020	0.021	105.0
Hg	CCV	5.00	5.06	101.2
Hg	CCV	5.00	5.13	102.6
Hg	CCV	5.00	5.05	101.0
Hg	CCV	5.00	5.10	102.0
Hg	CCV	5.00	5.18	103.7
Hg	CCV	5.00	5.14	102.8

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

Duplicate Data

All samples analyzed in duplicate. The reported concentrations are the average of the two measurements.

Laboratory Control Sample/Matrix Spike Analysis

Analyte	Sample ID	Sample Conc. µg/L	Spike Conc. µg/L	Spike Amount µg/L	Percent Recovery
Hg	23-S1343	< 0.007	5.03	5.00	101.

LCS Limit: 80% - 120% Recovery   Spike Limit: 75% - 125% Recovery

QA/QC Report

Client Name:	Mostardi Platt
Project Number:	M050
Analytical Technique:	Cold Vapor Atomic Absorption
Instrument:	Nippon 3320A CVAA
Sample Description:	EPA Method 29
Report Number:	23-351

Blank Data

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Hg	ICB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank
*: Sample Media Blank (SM_Blk) concentration in µg/filter
Method Blank is in control if Method Blank results are <10% of sample results

Calibration QC

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Hg	ICV	5.00	5.23	104.6
Hg	LL-LCS	0.020	0.022	110.0
Hg	CCV	5.00	5.40	108.0
Hg	CCV	5.00	5.21	104.3
Hg	CCV	5.00	5.22	104.3
Hg	CCV	5.00	5.19	103.7
Hg	CCV	5.00	5.19	103.8
Hg	CCV	5.00	5.16	103.2

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

Duplicate Data

All samples analyzed in duplicate. The reported concentrations are the average of the two measurements.

Laboratory Control Sample/Matrix Spike Analysis

Analyte	Sample ID	Sample Conc. µg/L	Spike Conc. µg/L	Spike Amount µg/L	Percent Recovery
Hg	23-S1840	0.087	5.28	5.00	104.
Hg	23-S1880	0.133	5.24	5.00	102.

LCS Limit: 80% - 120% Recovery   Spike Limit: 75% - 125% Recovery

QA/QC Report

Client Name:	Mostardi Platt
Project Number:	M050
Analytical Technique:	Cold Vapor Atomic Absorption
Instrument:	Nippon 3320A CVAA
Sample Description:	EPA Method 29
Report Number:	23-351

Blank Data

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Hg	ICB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank
*: Sample Media Blank (SM_Blk) concentration in µg/filter
Method Blank is in control if Method Blank results are <10% of sample results

Calibration QC

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Hg	ICV	5.00	5.08	101.7
Hg	LL-LCS	0.020	0.018	90.0
Hg	CCV	5.00	5.02	100.5
Hg	CCV	5.00	5.02	100.4
Hg	CCV	5.00	5.05	101.0
Hg	CCV	5.00	5.22	104.3
Hg	CCV	5.00	5.05	101.0

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

Duplicate Data

All samples analyzed in duplicate. The reported concentrations are the average of the two measurements.

QA/QC Report

Client Name:	Mostardi Platt
Project Number:	M050
Analytical Technique:	Cold Vapor Atomic Absorption
Instrument:	Nippon 3320A CVAA
Sample Description:	EPA Method 29
Report Number:	23-351

Blank Data

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Hg	ICB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank
*: Sample Media Blank (SM_Blk) concentration in µg/filter
Method Blank is in control if Method Blank results are <10% of sample results

Calibration QC

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Hg	ICV	5.00	5.09	101.7
Hg	LL-LCS	0.020	0.023	115.0
Hg	CCV	5.00	5.07	101.4
Hg	CCV	5.00	5.06	101.1
Hg	CCV	5.00	5.06	101.3

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

Duplicate Data

All samples analyzed in duplicate. The reported concentrations are the average of the two measurements.

Laboratory Control Sample/Matrix Spike Analysis

Analyte	Sample ID	Sample Conc. µg/L	Spike Conc. µg/L	Spike Amount µg/L	Percent Recovery
Hg	23-S1872	0.075	5.20	5.00	103.

LCS Limit: 80% - 120% Recovery   Spike Limit: 75% - 125% Recovery

QA/QC Report

Client Name:	Mostardi Platt
Project Number:	M050
Analytical Technique:	Cold Vapor Atomic Absorption
Instrument:	Nippon 3320A CVAA
Sample Description:	EPA Method 29
Report Number:	23-351

Blank Data

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Hg	ICB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank
*: Sample Media Blank (SM_Blk) concentration in µg/filter
Method Blank is in control if Method Blank results are <10% of sample results

Calibration QC

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Hg	ICV	5.00	5.08	101.7
Hg	LL-LCS	0.020	0.018	90.0
Hg	CCV	5.00	5.16	103.1
Hg	CCV	5.00	5.15	103.0

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

Duplicate Data

All samples analyzed in duplicate. The reported concentrations are the average of the two measurements.

Laboratory Control Sample/Matrix Spike Analysis

Analyte	Sample ID	Sample Conc. µg/L	Spike Conc. µg/L	Spike Amount µg/L	Percent Recovery
Hg	23-S1907	0.075	5.13	5.00	101.

LCS Limit: 80% - 120% Recovery   Spike Limit: 75% - 125% Recovery

QA/QC Report

Client Name:	Mostardi Platt
Project Number:	M050
Analytical Technique:	Cold Vapor Atomic Absorption
Instrument:	Nippon 3320A CVAA
Sample Description:	EPA Method 29
Report Number:	23-351

Blank Data

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Hg	ICB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank
*: Sample Media Blank (SM_Blk) concentration in µg/filter
Method Blank is in control if Method Blank results are <10% of sample results

Calibration QC

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Hg	ICV	5.00	5.05	101.0
Hg	LL-LCS	0.020	0.021	105.0
Hg	CCV	5.00	4.97	99.4
Hg	CCV	5.00	4.94	98.8
Hg	CCV	5.00	4.97	99.4

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

Duplicate Data

All samples analyzed in duplicate. The reported concentrations are the average of the two measurements.

Laboratory Control Sample/Matrix Spike Analysis

Analyte	Sample ID	Sample Conc. µg/L	Spike Conc. µg/L	Spike Amount µg/L	Percent Recovery
Hg	23-S1886	< 0.007	4.99	5.00	99.8

LCS Limit: 80% - 120% Recovery   Spike Limit: 75% - 125% Recovery

QA/QC Report

Client Name:	Mostardi Platt
Project Number:	M050
Analytical Technique:	Cold Vapor Atomic Absorption
Instrument:	Nippon 3320A CVAA
Sample Description:	EPA Method 29
Report Number:	23-351

Blank Data

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Hg	ICB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank
*: Sample Media Blank (SM_Blk) concentration in µg/filter
Method Blank is in control if Method Blank results are <10% of sample results

Calibration QC

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Hg	ICV	5.00	5.01	100.3
Hg	LL-LCS	0.020	0.021	105.0
Hg	CCV	5.00	5.07	101.5
Hg	CCV	5.00	5.07	101.4

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

Duplicate Data

All samples analyzed in duplicate. The reported concentrations are the average of the two measurements.

Laboratory Control Sample/Matrix Spike Analysis

Analyte	Sample ID	Sample Conc. µg/L	Spike Conc. µg/L	Spike Amount µg/L	Percent Recovery
Hg	23-S1838	0.037	5.10	5.00	101.

LCS Limit: 80% - 120% Recovery   Spike Limit: 75% - 125% Recovery

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: Cold Vapor Atomic Absorption
Instrument: Nippon 3320A CVAA
Sample Description: EPA Method 29
Report Number: 23-351

Blank Data

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Hg	ICB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank
*: Sample Media Blank (SM_Blk) concentration in µg/filter
Method Blank is in control if Method Blank results are <10% of sample results

Calibration QC

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Hg	ICV	5.00	5.33	106.6
Hg	LL-LCS	0.020	0.024	120.0
Hg	CCV	5.00	5.27	105.4
Hg	CCV	5.00	5.31	106.2
Hg	CCV	5.00	5.20	104.0

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

Duplicate Data

All samples analyzed in duplicate. The reported concentrations are the average of the two measurements.

Laboratory Control Sample/Matrix Spike Analysis

Analyte	Sample ID	Sample Conc. µg/L	Spike Conc. µg/L	Spike Amount µg/L	Percent Recovery
Hg	23-S1888	0.019	5.31	5.00	106.

LCS Limit: 80% - 120% Recovery Spike Limit: 75% - 125% Recovery

QA/QC Report

Client Name:	Mostardi Platt
Project Number:	M050
Analytical Technique:	Cold Vapor Atomic Absorption
Instrument:	Nippon 3320A CVAA
Sample Description:	EPA Method 29
Report Number:	23-351

Blank Data

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Hg	ICB	< DL	0.007
Hg	MB_FH	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank
*: Sample Media Blank (SM_Blk) concentration in µg/filter
Method Blank is in control if Method Blank results are <10% of sample results

Calibration QC

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Hg	ICV	5.00	5.03	100.5
Hg	LL-LCS	0.020	0.014	70.0
Hg	CCV	5.00	5.08	101.5
Hg	CCV	5.00	5.08	101.7

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

Duplicate Data

All samples analyzed in duplicate. The reported concentrations are the average of the two measurements.

Laboratory Control Sample/Matrix Spike Analysis

Analyte	Sample ID	Sample Conc. µg/L	Spike Conc. µg/L	Spike Amount µg/L	Percent Recovery
Hg	LCS	< 0.007	4.61	5.00	92.2
Hg	LCS-Duplicate	< 0.007	4.58	5.00	91.6
Hg	23-S1834	< 0.007	5.11	5.00	102.

LCS Limit: 80% - 120% Recovery   Spike Limit: 75% - 125% Recovery

LCS Duplicate Data

Analyte	Sample ID	Original Conc. µg/L	Replicate Conc. µg/L	RPD
Hg	LCS-Duplicate	4.61	4.58	0.70

RPD = {(sample-duplicate)/[(sample+duplicate)/2]}x100   Duplicate Limit: 20% RPD

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: Cold Vapor Atomic Absorption
Instrument: Nippon 3320A CVAA
Sample Description: EPA Method 29
Report Number: 23-351

Blank Data

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Hg	ICB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007
Hg	CCB	< DL	0.007

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank
*: Sample Media Blank (SM_Blk) concentration in µg/filter
Method Blank is in control if Method Blank results are <10% of sample results

Calibration QC

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Hg	ICV	5.00	5.05	100.9
Hg	LL-LCS	0.020	< 0.007	N/C
Hg	CCV	5.00	5.06	101.2
Hg	CCV	5.00	5.06	101.3
Hg	CCV	5.00	5.39	107.8

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

Duplicate Data

All samples analyzed in duplicate. The reported concentrations are the average of the two measurements.

Laboratory Control Sample/Matrix Spike Analysis

Analyte	Sample ID	Sample Conc. µg/L	Spike Conc. µg/L	Spike Amount µg/L	Percent Recovery
Hg	23-S1874	< 0.007	5.17	5.00	103.

LCS Limit: 80% - 120% Recovery Spike Limit: 75% - 125% Recovery

QA/QC Report

Client Name: Mostardi Platt
Project Number: M050
Analytical Technique: Ion Chromatography-PCR
Instrument: Aquion Cr VI IC (1)
Sample Description: SW-846 Method 0061
Report Number: 23-351

Blank Data

Analyte	Sample ID	Measured Conc. µg/L	DL Conc. µg/L
Cr VI	ICB	< DL	0.010
Cr VI	CCB	< DL	0.010
Cr VI	CCB	< DL	0.010
Cr VI	CCB	< DL	0.010
Cr VI	CCB	< DL	0.010

ICB: Initial Calibration Blank CCB: Continuing Calibration Blank

Calibration QC

Analyte	Sample ID	Standard Conc. µg/L	Measured Conc. µg/L	Percent Recovery
Cr VI	ICV	0.500	0.529	105.8
Cr VI	LL-LCS	0.030	0.048	160.0
Cr VI	CCV	0.500	0.527	105.4
Cr VI	CCV	0.500	0.528	105.6
Cr VI	CCV	0.500	0.537	107.4
Cr VI	CCV	0.500	0.533	106.6

ICV: Initial Calibration Verification CCV: Continuing Calibration Verification
Calibration Verification Limits: 90% - 110% Recovery
Low Level-LCS Limits: 50% - 150% Recovery
LL-LCS results are insignificant if sample results are >10x LL-LCS concentration

Duplicate Data

Analyte	Sample ID	Sample Conc. µg/L	Duplicate Conc. µg/L	RPD
Cr VI	23-S1930	261.	266.	1.71

RPD = {(sample-duplicate)/[(sample+duplicate)/2]}x100   Duplicate Limit: 20% RPD
N/C: RPD is not calculated when sample or duplicate is below detection limit
*: per EPA CLP protocol, control limits do not apply if sample and/or duplicate concentration is less than 5x the detection limit

Laboratory Control Sample/Matrix Spike Analysis

Analyte	Sample ID	Sample Conc. µg/L	Spike Conc. µg/L	Spike Amount µg/L	Percent Recovery
Cr VI	23-S1931	348.	620.	250.	109.

LCS Limit: 80% - 120% Recovery   Spike Limit: 75% - 125% Recovery
*: per EPA CLP protocol, control limits do not apply if spike concentration is less than 25% of the sample concentration

CHESTER LABNET

SOURCE SAMPLE RECEIPT CHECKLIST

Client	Mostardi Platt	Date	6/30/2023
# Runs	18 + blanks	Report #	23-351

Package intact?	hand delivered	
Chain-of-Custody form inspected	✓	
CoC present with samples?	✓	
CoC indicates analytical methodology to be used? (eg M29, etc.)	EPA 29, 0061	!!
Has CoC been signed by client?	No	
Custody release date and time noted on CoC?	✓	
All sample containers inspected	✓	
Does number of samples match number on CoC form?	✓	!!
Do all sample ID numbers match those on the CoC form?	✓	!!
Did client mark sample volumes prior to shipment?	No	
Sample temperature recorded?	✓ for 0061	
Are the sample containers intact?	✓	!!
If present, Audit Sample intact?	n/a	!!
Are signs of leakage present?	No	*
Chain-of-Custody form signed and dated by CLN	✓	
Corrective actions		
Client contacted due to mismatching sample ID numbers	–	
Client contacted due to broken sample container(s)	–	
Client contacted due to leaking sample container(s)	–	
Client contacted for verification of methodology?	✓	
Corrective actions documented?	✓	
Corrective actions accomplished?	✓	

Items marked !! shall be addressed ***prior to any analytical work being started.***
*Items marked * shall be* ***noted in case narrative*** *upon reporting of results to client.*

Signed [signature]

Notes Called Eric to confirm analytes - CrVI only for 0061 samples. Cu should be on M29 list of metals.

23-351

mostardi platt

Chain-of-Custody Form

Project Number: M232604	Date Results Required:
Client: PCC Structurals	TAT Required:
Plant/Test Location: LPC – Milwaukie, OR	Project Supervisor: EE

Sample Number	Sample Date	Sample Point Identification	# of Conts	Sub Lab	Analysis Required	Volume, mls
001	6/27/23	9203 North Inlet #1 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	
002	6/27/23	9203 North Inlet #1 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
003	6/30/23	9203 North Inlet #2 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	
004	6/30/23	9203 North Inlet #2 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
005	6/27/23	9203 Center Inlet #1 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	
006	6/27/23	9203 Center Inlet #1 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
007	6/30/23	9203 Center Inlet #2 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	
008	6/30/23	9203 Center Inlet #2 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
009	6/27/23	9203 South Inlet #1 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	
010	6/27/23	9203 South Inlet #1 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
011	6/30/23	9203 South Inlet #2 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	
012	6/30/23	9203 South Inlet #2 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
013	6/27/23	9203 North Outlet #1 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	

014	6/27/23	9203 North Outlet #1 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
015	6/30/23	9203 North Outlet #2 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	
016	6/30/23	9203 North Outlet #2 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
017	6/27/23	9203 South Outlet #1 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	
018	6/27/23	9203 South Outlet #1 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
019	6/30/23	9203 South Outlet #2 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	
020	6/30/23	9203 South Outlet #2 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
021	6/28/23	9256 Inlet #1 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	
022	6/28/23	9256 Inlet #1 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
023	6/29/23	9256 Inlet #2 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	
024	6/29/23	9256 Outlet #2 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
025	6/28/23	9256 Outlet #1 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	
026	6/28/23	9256 Outlet #1 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
027	6/29/23	9256 Outlet #2 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	
028	6/29/23	9256 Outlet #2 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
029	6/28/23	8901 Inlet #1 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	

mostardi platt

030	6/28/23	8901 Inlet #1 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
031	6/29/23	8901 Inlet #2 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	
032	6/29/23	8901 Outlet #2 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
033	6/28/23	8901 Outlet #1 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	
034	6/28/23	8901 Outlet #1 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
035	6/29/23	8901 Outlet #2 M29 – Filter and 0.1N HNO3 probe wash	2		M29*	
036	6/29/23	8901 Outlet #2 M29 – HNO3/H2O2 imps, 0.1N Rinse of empty imp, KMnO4/H2SO4 Imps, HCl Rinse	4		M29*	
037	6/27/23	9203 North Inlet #1 0061 0.5M KOH	1		0061 23-5	1930
038	6/30/23	9203 North Inlet #2 0061 0.5M KOH	1		0061	1931
039	6/27/23	9203 Center Inlet #1 0061 0.5M KOH	1		0061	1932
040	6/30/23	9203 Center Inlet #2 0061 0.5M KOH	1		0061	1933
041	6/27/23	9203 South Inlet #1 0061 0.5M KOH	1		0061	1934
042	6/30/23	9203 South Inlet #2 0061 0.5M KOH	1		0061	1935
043	6/27/23	9203 North Outlet #1 0061 0.5M KOH	1		0061	1936
044	6/30/23	9203 North Outlet #2 0061 0.5M KOH	1		0061	1937
045	6/27/23	9203 South Outlet #1 0061 0.5M KOH	1		0061	1938
046	6/30/23	9203 South Outlet #2 0061 0.5M KOH	1		0061	1939
047	6/28/23	9256 Inlet #1 0061 0.5M KOH	1		0061	1940
048	6/29/23	9256 Inlet #2 0061 0.5M KOH	1		0061	1941
049	6/28/23	9256 Outlet #1 0061 0.5M KOH	1		0061	1942
050	6/29/23	9256 Outlet #2 0061 0.5M KOH	1		0061	1943
051	6/28/23	8901 Inlet #1 0061 0.5M KOH	1		0061	1944
052	6/29/23	8901 Inlet #2 0061 0.5M KOH	1		0061	1945

mostardi platt

053	6/28/23	8901 Outlet #1 0061 0.5M KOH	1		0061 23-S	1946
054	6/29/23	8901 Outlet #2 0061 0.5M OKH	1		0061	1947
055	6/30/23	0.1N HNO3 Reagent Blank	1		M29*	
056	6/30/23	DI Water Reagent Blank	1		M29*	
057	6/30/23	HNO3/H2O2 Reagent Blank	1		M29*	
058	6/30/23	KMnO4/H2SO4 Reagent Blank	1		M29*	
059	6/30/23	8N HCl Reagent Blank	1		M29*	
060	6/30/23	Filter Blank	3		M29*	
061	6/30/23	0.5M KOH Reagent Blank	1		0061 23-S	1948
062	6/30/23	DI Reagent Blank	1		0061	1949

Delivered to Lab by: Date/Time:	Received by: Date/Time: 6.30.23 @1815	Processed by: Date/Time:

Laboratory Notes: *M29 target metals include: Aluminum, Arsenic, Antimony, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Manganese, Mercury, Nickel, Phosphorous, Selenium, Silver, Thallium, Vanadium, Zinc.

0061 rec'd temp. 6°C

23-S1834	9203 N Inlet #1 Filter & Probe
23-S1835	9203 N Inlet #1 HNO3/H2O2
23-S1836	9203 N Inlet #1 Empty Imp
23-S1837	9203 N Inlet #1 KMnO4
23-S1838	9203 N Inlet #1 HCl Rinse
23-S1839	9203 N Inlet #2 Filter & Probe
23-S1840	9203 N Inlet #2 HNO3/H2O2
23-S1841	9203 N Inlet #2 Empty Imp
23-S1842	9204 N Inlet #2 KMnO4
23-S1843	9203 N Inlet #2 HCl Rinse
23-S1844	9203 C Inlet #1 Filter & Probe
23-S1845	9203 C Inlet #1 HNO3/H2O2
23-S1846	9203 C Inlet #1 Empty Imp
23-S1847	9203 C Inlet #1 KMnO4
23-S1848	9203 C Inlet #1 HCl Rinse
23-S1849	9203 C Inlet #2 Filter & Probe
23-S1850	9203 C Inlet #2 HNO3/H2O2
23-S1851	9203 C Inlet #2 Empty Imp
23-S1852	9203 C Inlet #2 KMnO4
23-S1853	9203 C Inlet #2 HCl Rinse
23-S1854	9203 S Inlet #1 Filter & Probe
23-S1855	9203 S Inlet #1 HNO3/H2O2
23-S1856	9203 S Inlet #1 Empty Imp
23-S1857	9203 S Inlet #1 KMnO4
23-S1858	9203 S Inlet #1 HCl Rinse
23-S1859	9203 S Inlet #2 Filter & Probe
23-S1860	9203 S Inlet #2 HNO3/H2O2
23-S1861	9203 S Inlet #2 Empty Imp
23-S1862	9203 S Inlet #2 KMnO4
23-S1863	9203 S Inlet #2 HCl Rinse
23-S1864	9203 N Outlet #1 Filter & Probe
23-S1865	9203 N Outlet #1 HNO3/H2O2
23-S1866	9203 N Outlet #1 Empty Imp
23-S1867	9203 N Outlet #1 KMnO4
23-S1868	9203 N Outlet #1 HCl Rinse
23-S1869	9203 N Outlet #2 Filter & Probe
23-S1870	9203 N Outlet #2 HNO3/H2O2
23-S1871	9203 N Outlet #2 Empty Imp
23-S1872	9203 N Outlet #2 KMnO4
23-S1873	9203 N Outlet #2 HCl Rinse
23-S1874	9203 S Outlet #1 Filter & Probe
23-S1875	9203 S Outlet #1 HNO3/H2O2
23-S1876	9203 S Outlet #1 Empty Imp
23-S1877	9203 S Outlet #1 KMnO4
23-S1878	9203 S Outlet #1 HCl Rinse
23-S1879	9203 S Outlet #2 Filter & Probe
23-S1880	9203 S Outlet #2 HNO3/H2O2
23-S1881	9203 S Outlet #2 Empty Imp
23-S1882	9203 S Outlet #2 KMnO4
23-S1883	9203 S Outlet #2 HCl Rinse
23-S1884	9256 Inlet #1 Filter & Probe
23-S1885	9256 Inlet #1 HNO3/H2O2
23-S1886	9256 Inlet #1 Empty Imp
23-S1887	9256 Inlet #1 KMnO4
23-S1888	9256 Inlet #1 HCl Rinse
23-S1889	9256 Inlet #2 Filter & Probe
23-S1890	9256 Inlet #2 HNO3/H2O2
23-S1891	9256 Inlet #2 Empty Imp
23-S1892	9256 Inlet #2 KMnO4
23-S1893	9256 Inlet #2 HCl Rinse
23-S1894	9256 Outlet #1 Filter & Probe
23-S1895	9256 Outlet #1 HNO3/H2O2
23-S1896	9256 Outlet #1 Empty Imp
23-S1897	9256 Outlet #1 KMnO4
23-S1898	9256 Outlet #1 HCl Rinse
23-S1899	9256 Outlet #2 Filter & Probe
23-S1900	9256 Outlet #2 HNO3/H2O2
23-S1901	9256 Outlet #2 Empty Imp
23-S1902	9256 Outlet #2 KMnO4
23-S1903	9256 Outlet #2 HCl Rinse
23-S1904	8901 Inlet #1 Filter & Probe
23-S1905	8901 Inlet #1 HNO3/H2O2
23-S1906	8901 Inlet #1 Empty Imp
23-S1907	8901 Inlet #1 KMnO4
23-S1908	8901 Inlet #1 HCl Rinse
23-S1909	8901 Inlet #2 Filter & Probe
23-S1910	8901 Inlet #2 HNO3/H2O2
23-S1911	8901 Inlet #2 Empty Imp
23-S1912	8901 Inlet #2 KMnO4
23-S1913	8901 Inlet #2 HCl Rinse
23-S1914	8901 Outlet #1 Filter & Probe
23-S1915	8901 Outlet #1 HNO3/H2O2
23-S1916	8901 Outlet #1 Empty Imp
23-S1917	8901 Outlet #1 KMnO4
23-S1918	8901 Outlet #1 HCl Rinse
23-S1919	8901 Outlet #2 Filter & Probe
23-S1920	8901 Outlet #2 HNO3/H2O2
23-S1921	8901 Outlet #2 Empty Imp
23-S1922	8901 Outlet #2 KMnO4
23-S1923	8901 Outlet #2 HCl Rinse
23-S1924	Filter Blank
23-S1925	0.1N HNO3 Blank
23-S1926	HNO3/H2O2 Blank
23-S1927	DI Water Blank
23-S1928	KMnO4/H2SO4 Blank
23-S1929	8N HCl Blank

RAW DATA

Available upon request

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet West
Test Method: 29
Source Condition:

		Batch Process	
		Run 1	**Run 2**
Identify Analyte:	Aluminum (Al)		
Molecular Weight:	26.98	ADL	ADL
ug (net) collected:		752.21	765.89
Identify Analyte:	Antimony (Sb)		
Molecular Weight:	121.76	BDL	BDL
ug (net) collected:		1.628	1.552
Identify Analyte:	Arsenic (As)		
Molecular Weight:	74.92	BDL	BDL
ug (net) collected:		3.6	3.496
Identify Analyte:	Barium (Ba)		
Molecular Weight:	137.33	ADL	ADL
ug (net) collected:		21.1	6.2
Identify Analyte:	Beryllium (Be)		
Molecular Weight:	9.01	BDL	BDL
ug (net) collected:		0.081	0.078
Identify Analyte:	Cadmium (Cd)		
Molecular Weight:	112.41	ADL	ADL
ug (net) collected:		1.673	0.593
Identify Analyte:	Chromium (Cr)		
Molecular Weight:	52	ADL	ADL
ug (net) collected:		903.165	1293
Identify Analyte:	Cobalt (Co)		
Molecular Weight:	58.93	ADL	ADL
ug (net) collected:		208.571	314.657
Identify Analyte:	Copper (Cu)		
Molecular Weight:	63.55	ADL	ADL
ug (net) collected:		338.2	398.99

Client: **PCC Structurals, Inc.**
Facility: **Large Parts Campus Facility - Milwaukie, OR**
Test Location: **BH9203 Inlet West**
Test Method: **29**
Source Condition:

		Batch Process	
		Run 1	**Run 2**
Identify Analyte:	Lead (Pb)		
Molecular Weight:	207.2	DLL	ADL
ug (net) collected:		3.105	1.882
Identify Analyte:	Manganese (Mn)		
Molecular Weight:	54.94	ADL	ADL
ug (net) collected:		27.767	46.167
Identify Analyte:	Mercury (Hg)		
Molecular Weight:	200.59	DLL	DLL
ug (net) collected:		0.66395	0.54544
Identify Analyte:	Nickel (Ni)		
Molecular Weight:	58.69	ADL	ADL
ug (net) collected:		6536.42	10113.2
Identify Analyte:	Phosphorus (P)		
Molecular Weight:	30.97	ADL	ADL
ug (net) collected:		116.75	115.75
Identify Analyte:	Selenium (Se)		
Molecular Weight:	78.96	ADL	BDL
ug (net) collected:		12.75	2.57
Identify Analyte:	Silver (Ag)		
Molecular Weight:	107.87	ADL	ADL
ug (net) collected:		1.952	1.236
Identify Analyte:	Thallium (Tl)		
Molecular Weight:	204.38	BDL	BDL
ug (net) collected:		1.67	1.48
Identify Analyte:	Vanadium (V)		
Molecular Weight:	50.94	ADL	ADL
ug (net) collected:		2.812	2.231
Identify Analyte:	Zinc (Zn)		
Molecular Weight:	65.38	ADL	ADL
ug (net) collected:		147.781	161.981

Client: **PCC Structurals, Inc.**
Facility: **Large Parts Campus Facility - Milwaukie, OR**
Test Location: **BH9203 Inlet Center**
Test Method: **29**
Source Condition: **Batch Process**

		Run 1	**Run 2**
Identify Analyte:	Aluminum (Al)		
Molecular Weight:	26.98	ADL	ADL
ug (net) collected:		784.32	889.675
Identify Analyte:	Antimony (Sb)		
Molecular Weight:	121.76	BDL	BDL
ug (net) collected:		1.452	1.576
Identify Analyte:	Arsenic (As)		
Molecular Weight:	74.92	BDL	BDL
ug (net) collected:		3.291	3.51
Identify Analyte:	Barium (Ba)		
Molecular Weight:	137.33	ADL	ADL
ug (net) collected:		53.06	7.9
Identify Analyte:	Beryllium (Be)		
Molecular Weight:	9.01	BDL	BDL
ug (net) collected:		0.073	0.079
Identify Analyte:	Cadmium (Cd)		
Molecular Weight:	112.41	ADL	ADL
ug (net) collected:		2.88	1.171
Identify Analyte:	Chromium (Cr)		
Molecular Weight:	52	ADL	ADL
ug (net) collected:		741.965	1360.895
Identify Analyte:	Cobalt (Co)		
Molecular Weight:	58.93	ADL	ADL
ug (net) collected:		136.997	44.42
Identify Analyte:	Copper (Cu)		
Molecular Weight:	63.55	ADL	ADL
ug (net) collected:		409.1	779.37

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet Center
Test Method: 29
Source Condition: Batch Process

		Run 1	Run 2
Identify Analyte:	Lead (Pb)		
Molecular Weight:	207.2	ADL	DLL
ug (net) collected:		3.44	1.87
Identify Analyte:	Manganese (Mn)		
Molecular Weight:	54.94	ADL	ADL
ug (net) collected:		116.567	128.167
Identify Analyte:	Mercury (Hg)		
Molecular Weight:	200.59	DLL	DLL
ug (net) collected:		0.42937	0.85616
Identify Analyte:	Nickel (Ni)		
Molecular Weight:	58.69	ADL	ADL
ug (net) collected:		4859.42	7859.52
Identify Analyte:	Phosphorus (P)		
Molecular Weight:	30.97	ADL	ADL
ug (net) collected:		156.82	118.35
Identify Analyte:	Selenium (Se)		
Molecular Weight:	78.96	BDL	BDL
ug (net) collected:		2.2	2.66
Identify Analyte:	Silver (Ag)		
Molecular Weight:	107.87	ADL	ADL
ug (net) collected:		6.276	2.58
Identify Analyte:	Thallium (Tl)		
Molecular Weight:	204.38	BDL	BDL
ug (net) collected:		1.23	1.54
Identify Analyte:	Vanadium (V)		
Molecular Weight:	50.94	ADL	ADL
ug (net) collected:		2.876	4.054
Identify Analyte:	Zinc (Zn)		
Molecular Weight:	65.38	ADL	ADL
ug (net) collected:		658.981	184.11

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet East
Test Method: 29

		Batch Process	
Source Condition:		**Run 1**	**Run 2**
Identify Analyte:	Aluminum (Al)		
Molecular Weight:	26.98	ADL	ADL
ug (net) collected:		816.62	1134.49
Identify Analyte:	Antimony (Sb)		
Molecular Weight:	121.76	BDL	DLL
ug (net) collected:		1.508	1.636
Identify Analyte:	Arsenic (As)		
Molecular Weight:	74.92	DLL	BDL
ug (net) collected:		4.499	3.284
Identify Analyte:	Barium (Ba)		
Molecular Weight:	137.33	ADL	ADL
ug (net) collected:		42.39	10.88
Identify Analyte:	Beryllium (Be)		
Molecular Weight:	9.01	BDL	BDL
ug (net) collected:		0.075	0.072
Identify Analyte:	Cadmium (Cd)		
Molecular Weight:	112.41	ADL	ADL
ug (net) collected:		6.081	6.813
Identify Analyte:	Chromium (Cr)		
Molecular Weight:	52	ADL	ADL
ug (net) collected:		2639.815	4891.935
Identify Analyte:	Cobalt (Co)		
Molecular Weight:	58.93	ADL	ADL
ug (net) collected:		43.777	54.838
Identify Analyte:	Copper (Cu)		
Molecular Weight:	63.55	ADL	ADL
ug (net) collected:		293.23	681.99

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Inlet East
Test Method: 29
Source Condition: Batch Process

		Run 1	Run 2
Identify Analyte:	Lead (Pb)		
Molecular Weight:	207.2	DLL	ADL
ug (net) collected:		1.665	1.958
Identify Analyte:	Manganese (Mn)		
Molecular Weight:	54.94	ADL	ADL
ug (net) collected:		50.467	270.967
Identify Analyte:	Mercury (Hg)		
Molecular Weight:	200.59	DLL	DLL
ug (net) collected:		0.46014	0.53442
Identify Analyte:	Nickel (Ni)		
Molecular Weight:	58.69	ADL	ADL
ug (net) collected:		8119.83	20414.22
Identify Analyte:	Phosphorus (P)		
Molecular Weight:	30.97	ADL	ADL
ug (net) collected:		114.55	131.54
Identify Analyte:	Selenium (Se)		
Molecular Weight:	78.96	BDL	BDL
ug (net) collected:		2.4	2.18
Identify Analyte:	Silver (Ag)		
Molecular Weight:	107.87	ADL	DLL
ug (net) collected:		4.039	2.914
Identify Analyte:	Thallium (Tl)		
Molecular Weight:	204.38	BDL	BDL
ug (net) collected:		1.37	1.22
Identify Analyte:	Vanadium (V)		
Molecular Weight:	50.94	ADL	ADL
ug (net) collected:		5.587	7.035
Identify Analyte:	Zinc (Zn)		
Molecular Weight:	65.38	ADL	ADL
ug (net) collected:		182.881	296.481

Client: PCC Structurals, Inc.
Facility: Large Parts Campus Facility - Milwaukie, OR
Test Location: BH9203 Outlet West
Test Method: 29

		Batch Process	
Source Condition:		**Run 1**	**Run 2**
Identify Analyte:	Aluminum (Al)		
Molecular Weight:	26.98	ADL	ADL
ug (net) collected:		538.745	505.59
Identify Analyte:	Antimony (Sb)		
Molecular Weight:	121.76	BDL	BDL
ug (net) collected:		1.464	1.472
Identify Analyte:	Arsenic (As)		
Molecular Weight:	74.92	BDL	BDL
ug (net) collected:		3.312	3.326
Identify Analyte:	Barium (Ba)		
Molecular Weight:	137.33	ADL	DDL
ug (net) collected:		5.22	2.62
Identify Analyte:	Beryllium (Be)		
Molecular Weight:	9.01	BDL	BDL
ug (net) collected:		0.073	0.074
Identify Analyte:	Cadmium (Cd)		
Molecular Weight:	112.41	ADL	ADL
ug (net) collected:		0.396	0.238
Identify Analyte:	Chromium (Cr)		
Molecular Weight:	52	ADL	ADL
ug (net) collected:		5.08	13.985
Identify Analyte:	Cobalt (Co)		
Molecular Weight:	58.93	BDL	ADL
ug (net) collected:		0.183	6.623
Identify Analyte:	Copper (Cu)		
Molecular Weight:	63.55	ADL	DLL
ug (net) collected:		3.69	2.09

Client: **PCC Structurals, Inc.**
Facility: **Large Parts Campus Facility - Milwaukie, OR**
Test Location: **BH9203 Outlet West**
Test Method: **29**
Source Condition:

		Batch Process	
		Run 1	**Run 2**
Identify Analyte:	Lead (Pb)		
Molecular Weight:	207.2	DLL	DLL
ug (net) collected:		1.708	0.758
Identify Analyte:	Manganese (Mn)		
Molecular Weight:	54.94	ADL	ADL
ug (net) collected:		49.967	19.907
Identify Analyte:	Mercury (Hg)		
Molecular Weight:	200.59	DLL	DLL
ug (net) collected:		1.6379	0.8741
Identify Analyte:	Nickel (Ni)		
Molecular Weight:	58.69	ADL	ADL
ug (net) collected:		32.86	46.31
Identify Analyte:	Phosphorus (P)		
Molecular Weight:	30.97	ADL	ADL
ug (net) collected:		92.35	88.68
Identify Analyte:	Selenium (Se)		
Molecular Weight:	78.96	BDL	BDL
ug (net) collected:		2.24	2.27
Identify Analyte:	Silver (Ag)		
Molecular Weight:	107.87	BDL	BDL
ug (net) collected:		0.732	0.736
Identify Analyte:	Thallium (Tl)		
Molecular Weight:	204.38	BDL	BDL
ug (net) collected:		1.26	1.28
Identify Analyte:	Vanadium (V)		
Molecular Weight:	50.94	DLL	DLL
ug (net) collected:		0.226	0.208
Identify Analyte:	Zinc (Zn)		
Molecular Weight:	65.38	ADL	ADL
ug (net) collected:		18.081	11.241

Client:	**PCC Structurals, Inc.**		
Facility:	**Large Parts Campus Facility - Milwaukie, OR**		
Test Location:	**BH9203 Outlet East**		
Test Method:	**29**		
Source Condition:		**Batch Process**	
		Run 1	**Run 2**
Identify Analyte:	Aluminum		
Molecular Weight:	26.98	ADL	ADL
ug (net) collected:		524.65	521.265
Identify Analyte:	Antimony (Sb)		
Molecular Weight:	121.76	BDL	DLL
ug (net) collected:		1.572	1.54
Identify Analyte:	Arsenic (As)		
Molecular Weight:	74.92	BDL	BDL
ug (net) collected:		3.5	3.382
Identify Analyte:	Barium (Ba)		
Molecular Weight:	137.33	ADL	DLL
ug (net) collected:		11.58	3.39
Identify Analyte:	Beryllium (Be)		
Molecular Weight:	9.01	BDL	BDL
ug (net) collected:		0.079	0.075
Identify Analyte:	Cadmium (Cd)		
Molecular Weight:	112.41	ADL	ADL
ug (net) collected:		0.563	0.153
Identify Analyte:	Chromium (Cr)		
Molecular Weight:	52	ADL	ADL
ug (net) collected:		2.815	32.165
Identify Analyte:	Cobalt (Co)		
Molecular Weight:	58.93	DLL	ADL
ug (net) collected:		0.211	12.772
Identify Analyte:	Copper (Cu)		
Molecular Weight:	63.55	ADL	ADL
ug (net) collected:		15.18	92.503

Client: **PCC Structurals, Inc.**
Facility: **Large Parts Campus Facility - Milwaukie, OR**
Test Location: **BH9203 Outlet East**
Test Method: **29**

Source Condition:		**Batch Process**	
		Run 1	**Run 2**
Identify Analyte:	Lead (Pb)		
Molecular Weight:	207.2	DLL	DLL
ug (net) collected:		1.059	0.808
Identify Analyte:	Manganese (Mn)		
Molecular Weight:	54.94	ADL	ADL
ug (net) collected:		2.227	91.157
Identify Analyte:	Mercury (Hg)		
Molecular Weight:	200.59	DLL	DLL
ug (net) collected:		0.21768	0.5531
Identify Analyte:	Nickel (Ni)		
Molecular Weight:	58.69	ADL	ADL
ug (net) collected:		5.363	82.83
Identify Analyte:	Phosphorus (P)		
Molecular Weight:	30.97	ADL	ADL
ug (net) collected:		88.95	96.72
Identify Analyte:	Selenium (Se)		
Molecular Weight:	78.96	DLL	DLL
ug (net) collected:		4.01	3.1
Identify Analyte:	Silver (Ag)		
Molecular Weight:	107.87	BDL	BDL
ug (net) collected:		0.786	0.752
Identify Analyte:	Thallium (Tl)		
Molecular Weight:	204.38	BDL	BDL
ug (net) collected:		1.53	1.36
Identify Analyte:	Vanadium (V)		
Molecular Weight:	50.94	DLL	DLL
ug (net) collected:		0.285	0.247
Identify Analyte:	Zinc (Zn)		
Molecular Weight:	65.38	DLL	DLL
ug (net) collected:		27.081	24.281

Client:	**PCC Structurals, Inc.**		
Facility:	**Large Parts Campus Facility - Milwaukie, OR**		
Test Location:	**BH9203 Inlet**		
Test Method:	**0061**		
Source Condition:		**Batch Process**	
		Run 1	**Run 2**
Identify Analyte:	Hexavalent Chromium (Cr+6)		
Molecular Weight:	52	ADL	ADL
ug (net) collected:		204	94

Client:	**PCC Structurals, Inc.**		
Facility:	**Large Parts Campus Facility - Milwaukie, OR**		
Test Location:	**BH9203 Inlet East**		
Test Method:	**0061**		
Source Condition:		**Batch Process**	
		Run 1	**Run 2**
Identify Analyte:	Hexavalent Chromium (Cr+6)		
Molecular Weight:	52	ADL	ADL
ug (net) collected:		49.1	26.7

Client:	**PCC Structurals, Inc.**		
Facility:	**Large Parts Campus Facility - Milwaukie, OR**		
Test Location:	**BH9203 Inlet West**		
Test Method:	**0061**		
Source Condition:		**Batch Process**	
		Run 1	**Run 2**
Identify Analyte:	Hexavalent Chromium (Cr+6)		
Molecular Weight:	52	ADL	ADL
ug (net) collected:		82.3	99.2

Client:	**PCC Structurals, Inc.**		
Facility:	**Large Parts Campus Facility - Milwaukie, OR**		
Test Location:	**BH9203 Outlet East**		
Test Method:	**0061**		
Source Condition:		**Batch Process**	
		Run 1	**Run 2**
Identify Analyte:	Hexavalent Chromium (Cr+6)		
Molecular Weight:	52	ADL	ADL
ug (net) collected:		1.97	2.29

Client:	**PCC Structurals, Inc.**		
Facility:	**Large Parts Campus Facility - Milwaukie, OR**		
Test Location:	**BH9203 Outlet West**		
Test Method:	**0061**		
Source Condition:		**Batch Process**	
		Run 1	**Run 2**
Identify Analyte:	Hexavalent Chromium (Cr+6)		
Molecular Weight:	52	ADL	ADL
ug (net) collected:		0.941	4.61

END OF THE REPORT