

August 24, 2023

Conor Butkus 760 SW Ninth Avenue, Suite 3000 Portland, OR 97205 D. (503) 294-9389 onor.butkus@stoel.com

State Environmental Commission State of Nevada 901 South Stewart Street, Suite 4001 Carson City, Nevada 89701-5249

# Re: Notice of Alleged Air Quality Violation and Order Nos. 3045 and 3046 Class II Air Quality Operating Permit AP3324-1253.03

Dear State Environmental Commission:

We represent and are advising PCC Structurals ("PCC") in response to Notices of Alleged Violation ("NOAV") Nos. 3045, 3046, 3047, and 3048 concerning air permit compliance at PCC's Carson City, Nevada facility ("Facility"). Per my colleague Geoff Tichenor's discussion with Sheryl Fontaine, Frederick Perdomo, Dan P. Nubel, and Ziwei Zheng on August 9, 2023, we are providing this submission to request a reduced penalty assessment for NOAVs Nos. 3045 and 3046 that is set forth in those notices.

PCC is committed to compliance with its air permit and has worked hard to quickly address the NOAVs. Likewise, PCC remains dedicated to working collaboratively with the Nevada Division of Environmental Protect ("NDEP"). This letter provides an update on PCC's work to address each NOAV, including the two notices issued as warnings. In addition to this letter, PCC will have three representatives present at SEC's September 7, 2023 penalty assessment meeting to provide testimony. These representatives will be Bryan McCampbell, Division Environmental Manager at PCC, David Leavitt, Facilities/EHS Manager for PCC's Carson City, NV facility, and Conor Butkus from Stoel Rives.

#### NOAV No. 3045 - Opacity Compliance Demonstration

NOAV No. 3045 states that the Facility failed to conduct an Opacity Compliance Demonstration as required by its Class II Air Quality Operating Permit AP3324-1253.03, Section IV.A. This violation was discovered after the NDEP inspections of the Facility in February and March 2023. Upon verifying that the opacity demonstration had not occurred, PCC acted quickly to resolve the issue. The requisite testing was completed on April 28, 2023. A final report of this testing, which PCC completed before the NOAV was issued, was submitted to NDEP on July 21, 2023. That final report is included here as Exhibit A.

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#### NOAV No. 3046 - Initial Performance Testing

NOAV No. 3046 states that the Facility failed to conduct Initial Performance Testing as required by its Class II Air Quality Operating Permit AP3324-1253.03, Section IV.A. This violation was discovered and resolved in the same manner and at the same time as NOAV No. 3045 described above. The final report of the performance testing that PCC completed to address this NOAV is included here as Exhibit A.

#### Warning NOAVs

NOAVs Nos. 3047 and 3048 were issued as warnings and as a result we understand SEC will not issue penalties for either. Still, PCC asked that we address these NOAVs here because PCC took both warnings seriously, investigated both, and has resolved the underlying issues, as described below.

NOAV No. 3047 identifies that Bader Grinders 1 and 2 at the Facility were not routed to dust collectors during NDEP's inspection. PCC addressed this issue by ensuring that these grinders (which operate very infrequently) are connected to the existing dust collector system, as demonstrated in the photos attached in Exhibit B.

NOAV No. 3048 concerns the Facility's reported exceedances of its maximum permitted throughput through various equipment. The previously reported exceedances were erroneous; they resulted from labor coding and throughput calculation errors that occurred within PCC's internal tracking system. The system calculates throughput by examining labor hours for the departments that generate emissions. Since workers were not properly inputting their time, the throughput calculations showed higher than actual throughput.

To redress this issue, PCC updated the method used in the tracking system to calculate throughput and is now cross-referencing labor code inputs with timecards and supervisor estimates. Therefore, the system no longer relies exclusively on specific time codes that were being improperly inputted. Future throughput reports will catch discrepancies between labor coding and work completed in departments that generate emissions. To add another layer of authentication, the Facility also informed the engineering company it uses to assist with throughput calculations, and it will now assist with cross-referencing labor codes with the other documentation mentioned above. PCC is confident these measures will ensure that future reports will accurately reflect the throughputs for the Facility's equipment that has permit conditioned throughput maximums.

#### Conclusion

PCC appreciates the opportunity to provide this information. We are hopeful that when the State Environmental Commission ("SEC") is determining the penalty to assess for NOAV Nos. 3045 and 3046, it will consider this information and PCC's resolve to attain and remain in compliance

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with its air permit. We respectfully request that SEC assess a lower penalty for those NOAVs than was recommended by NDEP.

Very truly yours,

n

Conor Butkus

Enclosures

Exhibit A – Compliance Emissions Test Report Exhibit B – Photographs of Bader Grinders 1 and 2 with dust collection installed

# Exhibit A

# Compliance Emissions Test Report

# Compliance Emissions Test Report

Prepared on behalf of PCC Structurals, Inc. Carson City Facility

2727 Lockheed Way Carson City, Nevada 89706

Facility ID No. A0528 Permit No. AP3324-1253.03 Project No. M231408 April 25 through 27, 2023 att N N **0**日



**Compliance Emissions Test Report** 

Prepared on behalf of PCC Structurals, Inc. Carson City Facility 2727 Lockheed Way, Carson City, Nevada 89706 Facility ID No. A0528 Permit No. AP3324-1253.03 Project No. M213902 April 25 through 27, 2023

> Report Submittal Date July 18, 2023

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# Project No. M231408

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

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# **1.0 EXECUTIVE SUMMARY**

Mostardi Platt conducted a compliance emissions test program for PCC Structurals, Inc. at their Carson City Facility located at 2727 Lockheed Way, Carson City, Nevada 89706. Testing was performed in order to demonstrate the facility met the initial and continued compliance as described in Permit No. AP3324-1253.03. Emissions from Systems 1 through 5, System 7, and System 9 are summarized in this report.

The test program demonstrated compliance with Permit No. AP3324-1253.03 following the guidelines set forth in Title 40, *Code of Federal Regulations*, Part 60 (40CFR60), and 40CFR63. Each of the below listed sources meet their emission limits.

TEST INFORMATION				
Test Locations	Test Dates	Test Parameter		
System 1	4/26/2023	Volatile Organic Compounds (VOC) and Visual Emissions (VE)		
System 2	4/25/2023	Carbon Monoxide (CO), Sulfur Dioxide (SO <sub>2</sub> ), Nitrogen Oxides (NO <sub>x</sub> ), particulate matter less than 2.5 microns (PM <sub>2.5</sub> ), particulate matter less than 10 microns (PM <sub>10</sub> ), VE, VOC		
System 3	4/25/2023 & 4/26/2023	Particulate Matter (PM), PM <sub>2.5</sub> , PM <sub>10</sub> , VE		
System 5	4/27/2023	PM, PM <sub>2.5</sub> , PM <sub>10</sub> , VE		
System 7	4/27/2023	PM, PM <sub>2.5</sub> , PM <sub>10</sub> , VE		
System 9	4/26/2023	PM, PM <sub>2.5</sub> , PM <sub>10</sub> , VE		

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

# 2.0 FACILITY DESCRIPTION

PCC Structurals, Inc. – Carson City Facility located at 2727 Lockheed Way, Carson City, NV 89706

#### 2.1 Project Contact Information

Location	Address	Contact
Test Facility	PCC Structurals, Inc. Carson City Facility 2727 Lockheed Way Carson City, NV 89706	Randy Anderson (775) 883-3800 Randy.Anderson@pccstructurals.com
Testing Company Representative	Mostardi Platt 7715 Commercial Way, Suite 155 Henderson, NV 89014	Kyle Jones Project Manager (702) 425-2274 kjones@mp-mail.com

The test crew consisted of Messrs. R. Sollars, A. Sorce, T. Magana, R. Bocanegra, and K. Jones of Mostardi Platt.

# **3.0 COMPLIANCE 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 Structurals, Inc. and is found in Appendix M.

#### 3.1 System 1 – S2.001 Melco Steel Autoclave

Measured Parameter Emission Limit		Emission Results
VOC	1.73 lb/hr	0.004 lb/hr
VOC	6.34 ton/yr	0.015 ton/yr
VE	20% opacity	0%

#### 3.2 System 2 – S2.002 through S2.005 Mold Burnout Furnaces<sup>1</sup>

Measured Parameter	Emission Limit	Emission Results	
PM <sub>2.5</sub> , PM <sub>10</sub>	0.088 lb/hr 0.193 ton/yr	0.023 lb/hr <sup>2</sup> 0.082 ton/yr	
SO <sub>2</sub>	0.0025 lb/hr 0.0088 ton/yr	0.002 ton/yr 0.0014 lb/hr 0.0050 ton/yr	
NOx	0.41 lb/hr 1.47 ton/yr	0.363 lb/hr 1.293 ton/yr	
со	2.32 lb/hr 4.10 ton/yr	0.055 lb/hr 0.196 ton/yr	
VOC	2.553 lb/hr 4.041 ton/yr	0.005 lb/hr 0.017 ton/yr	
VE	20% opacity	0%	

#### 3.3 System 3 – S2.006 through S2.009 Air Furnaces

Measured Parameter	Emission Limit	Emission Results	
PM, PM <sub>2.5</sub> , PM <sub>10</sub>	0.18 lb/hr	0.029 lb/hr <sup>2</sup>	
	0.62 ton/yr	0.103 ton/yr	
VE	20% opacity	0%	

#### 3.4 System 4 – S2.011, S2.012, S2.014, S2.017, S2.018 Part Removal

Measured Parameter	Emission Limit	Emission Results
PM, PM <sub>2.5</sub> , PM <sub>10</sub>	0.21 lb/hr	0.132 lb/hr <sup>3</sup>
	0.74 ton/yr	0.471 ton/yr
VE	20% opacity	0%

<sup>&</sup>lt;sup>1</sup> S2.003 – Pacific Kiln Mold Burnout Furnace 1 – 4.2 MMbtu was tested for the compliance demonstration

<sup>&</sup>lt;sup>2</sup> All particulate captured in the combined Method 5/202 sample train was considered PM2.5 for determination of compliance.

<sup>&</sup>lt;sup>3</sup> All particulate captured in the Method 5 sample train was considered PM2.5 for determination of compliance

# 3.5 System 5 – S2.020-S2.027, S2.033, S2.037, S2.044 Sand Blast Cleaning Equipment

Measured Parameter	Emission Limit	Emission Results
PM, PM <sub>2.5</sub> , PM <sub>10</sub>	0.18 lb/hr	0.057 lb/hr <sup>3</sup>
	0.65 ton/yr	0.203 ton/yr
VE	20% opacity	0%

# 3.6 System 7 – S2.029-S2.031 and S2.038-S2.042 Gate Removal Equipment

Measured Parameter	Emission Limit	Emission Results
PM, PM2.5, PM10	0.18 lb/hr 0.65 ton/yr	0.069 lb/hr <sup>3</sup> 0.246ton/yr
VE	20% opacity	0%

#### 3.7 System 9 – S2.034 and S2.043 Ingot Cutoff Saw

Measured Parameter	Emission Limit	Emission Results
PM, PM <sub>2.5</sub> , PM <sub>10</sub>	0.18 lb/hr	0.138 lb/hr <sup>3</sup>
	0.65 ton/yr	0.492 ton/yr
VE	20% opacity	0%

# 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 D. The computerized reference method test data is included in Appendix E.

The following methodologies were used during the test program:

#### 4.1 Methods 1 and 2 Volumetric Flowrate Determination

Gas velocity and volumetric flowrate are determined at the stack test location using Reference Methods 1 and 2.

Velocity pressures were determined by traversing the test location with an S-type pitot tube either as a stand-alone system or as an integrated portion of the Method 5 sampling trains. Temperatures are measured using K-type thermocouples with calibrated digital temperature indicators. The molecular weight and moisture content of the gases are determined to permit the calculation of the volumetric flowrate. Sampling points utilized are determined using Method 1, 40CFR60, following the table below. Oxygen and carbon dioxide concentrations were determined per section 8.6 of USEPA Method 2 – "for processes emitting essentially air, an analysis need not be conducted; use a dry molecular weight of 29.0" – the oxygen and carbon dioxide concentrations was assumed to be ambient. The following table summarizes the test section information and the number of points sampled.

Test Location	Stack Dimensions	Stack Area (square feet)	Test Parameters	Number of Sampling Points
System 1	0.25' diameter	0.05	VOC	16
System 2	2' x 2'	4.00	TPM. SO2, NOx, CO, VOC	25
System 3	0.5' diameter	0.196	ТРМ	24
System 4	2.5' diameter	4.909	FPM	24
System 5	2.5' diameter	4.909	FPM	24
System 7	1.416' x 2.083'	2.950	FPM	25
System 9	1.0' diameter	0.785	FPM	12

Cyclonic flow checks were performed prior to testing at each location and were all found to be without cyclonic flow.

#### 4.2 Method 3A Oxygen and Carbon Dioxide Determination

Stack gas  $O_2$  and  $CO_2$  concentrations and emission rates were determined in accordance with USEPA Method 3A, 40CFR60, Appendix A. A Servomex analyzer was used to determine the  $O_2$  and  $CO_2$  concentrations in the manner specified in the Method. The instrument has a paramagnetic detector and operates in the nominal range of 0% to 25% for  $O_2$  with the specific range determined by the high-level calibration gas. The instrument has a nondispersive infrared-based detector and operates in the nominal range of 0% to 80% for  $CO_2$  with the specific range determined by the high-level calibration gas.

High- and mid-range calibrations were performed using USEPA Protocol gas. Zero nitrogen (a low ppm pollutant in balance nitrogen calibration gases) was introduced during other instrument calibrations to check instrument zero. High- and a mid-range % O<sub>2</sub> and CO<sub>2</sub> levels in balance nitrogen were also introduced. Zero and mid-range calibrations were performed using USEPA Protocol gas. Calibration data are presented in Appendix H. Copies of the gas cylinder certifications are found in Appendix I. This testing met the performance specifications as outlined in the Method.

#### 4.3 Method 5 Filterable Particulate Matter Determination

Stack gas FPM concentrations and emission rates were determined in accordance with USEPA Method 5, 40CFR60, Appendix A. An Environmental Supply Company, Inc. sampling train was used to sample stack gas at an isokinetic rate with the probe and filter maintained at 248 +/- 25 degrees Fahrenheit, as specified in the Method. Four impingers were utilized in accordance with either USEPA Method 5 or 202 procedures. The impingers were weighed prior to and after each test run in order to determine moisture content of the stack gas. A minimum of 1.7 dscm were collected for each test run.

Particulate matter in the sample probe was recovered utilizing acetone; three passes of the probe brush through the entire probe were performed, followed by a visual inspection of the acetone exiting the probe. If the acetone solution was clear, the wash was considered complete. If the wash was not clear, additional passes of the probe brush were completed until the sample was clear. The nozzle will then be removed from the probe and cleaned in a similar manner, utilizing an appropriately sized nozzle brush. The filter and filter housing were recovered in a clean area. The filter housing was washed a minimum of three times with acetone and inspected for cleanliness, and the filter was placed in its corresponding petri dish. The acetone wash and the filter were labeled and marked, with final analysis performed at the Mostardi Platt laboratory in accordance with Method 5 procedures.

#### 4.4 Method 6C Sulfur Dioxide Determination

Stack gas sulfur dioxide concentrations and emission rates were determined in accordance with USEPA Method 6C, 40CFR60, Appendix A. A Thermo Scientific sulfur dioxide analyzer was used to determine sulfur dioxide concentrations, in the manner specified in the Method.

Stack gas was delivered to the analyzer via a Teflon<sup>®</sup> sampling line, heated to a minimum temperature of 250°F. Excess moisture in the stack gas was removed using a refrigerated condenser. The entire system was calibrated in accordance with the Method, using certified calibration gases introduced at the probe, before and after each test run.

Calibration data are presented in Appendix H. Copies of the gas cylinder certifications are found in Appendix I.

#### 4.5 Method 7E Nitrogen Oxides Determination

Stack gas NO<sub>X</sub> concentrations and emission rates were determined in accordance with USEPA Method 7E, 40CFR60, Appendix A. A Thermo Scientific Model 42i-HL Chemiluminescence Nitrogen Oxides Analyzer was used to determine nitrogen oxides concentrations, in the manner specified in the Method. The instrument operated in the nominal range of 0 ppm to 100 ppm with the specific range determined by the high-level span calibration gas.

The Model 42i operates on the principle that nitric oxide (NO) and ozone ( $O_3$ ) react to produce a characteristic luminescence with an intensity linearly proportional to the NO concentration. Infrared light emission results when electronically excited NO<sub>2</sub> molecules decay to lower energy states. Specifically,

#### $NO+O_3 \rightarrow NO_2+O_2+hv$

Nitrogen dioxide (NO<sub>2</sub>) must first be transformed into NO before it can be measured using the chemiluminescent reaction. NO<sub>2</sub> is converted to NO by a stainless steel NO<sub>2</sub>-to-NO converter heated to about 638°C. The flue gas sample is drawn into the Model 42*i* through the sample bulkhead. The sample flows through a capillary, and then to the mode solenoid valve. The solenoid valve routes the sample either straight to the reaction chamber (NO mode) or through the NO<sub>2</sub>-to-NO converter and then to the reaction chamber (NO<sub>X</sub> mode). A flow sensor prior to the reaction chamber measures the sample flow. Dry air enters the Model 42*i* through the dry air bulkhead, passes through a flow switch, and then through a silent discharge ozonator. The ozonator generates the ozone needed for the chemiluminescent reaction. At the reaction chamber, the ozone reacts with the NO in the sample to produce excited NO<sub>2</sub> molecules. A photomultiplier tube (PMT) housed in a thermoelectric cooler detects the luminescence generated during this reaction. From the reaction chamber, the exhaust travels through the ozone (O<sub>3</sub>) converter to the pump and is released through the vent.

The NO and NO<sub>X</sub> concentrations calculated in the NO and NO<sub>X</sub> modes are stored in memory. The difference between the concentrations is used to calculate the NO<sub>2</sub> concentration. The Model 42i outputs NO, NO<sub>2</sub>, and NO<sub>X</sub> concentrations to the front panel display, the analog outputs, and also makes the data available over the serial or ethernet connection.

Stack gas was delivered to the analyzer via a Teflon<sup>®</sup> sampling line, heated to a minimum temperature of 250°F. Excess moisture in the stack gas was removed using a refrigerated condenser. The entire system was calibrated in accordance with the Method, using USEPA Protocol gases introduced at the probe, before and after each test run. This testing met the performance specifications as outlined in the Method.

A list of calibration gases used and the results of all calibration and other required quality assurance checks are found in Appendix H. Copies of the gas cylinder certifications are found in Appendix I. The  $NO_2$  to NO converter test can be found in Appendix J. This testing met the performance specifications as outlined in the Method.

#### 4.6 Method 9 Visible Emissions Determination

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

Opacity observations were made at the point of greatest opacity in the portion of the plume where condensed water vapor was not present. Observations were made to the nearest 5 percent at 15-second intervals for the duration of the test run.

Visible emissions observations were performed by certified visual emissions observers. Visible emissions data and copies of the reader certifications are presented in Appendix G.

#### 4.7 Method 10 Carbon Monoxide Determination

Stack gas CO concentrations and emission rates were determined in accordance with USEPA Method 10, 40CFR60, Appendix A on System 23 only. A Thermo Scientific Model 48i Gas Filter Correlation Analyzer was used to determine carbon monoxide concentrations, in the manner specified in the Method. The instrument operated in the nominal range of 0 ppm to 100 ppm with the specific range determined by the high-level span calibration gas.

The Model 48i is based on the principle that CO absorbs infrared radiation at a wavelength of 4.6 microns. Because infrared absorption is a nonlinear measurement technique, it is necessary for the instrument electronics to transform the basic analyzer signal into a linear output. The Model 48i uses an exact calibration curve to accurately linearize the instrument output over any range up to a concentration of 10,000 ppm. The sample is drawn into the analyzer through the sample bulkhead. The sample flows through the optical bench. Radiation from an infrared source is chopped and then passed through a gas filter alternating between CO and N2. The radiation then passes through a narrow bandpass interference filter and enters the optical bench where absorption by the sample gas occurs. The infrared radiation then exits the optical bench and falls on an infrared detector. The CO gas filter acts to produce a reference beam which cannot be further attenuated by CO in the sample cell. The N<sub>2</sub> side of the filter wheel is transparent to the infrared radiation and therefore produces a measure beam which can be absorbed by CO in the cell. The chopped detector signal is modulated by the alternation between the two gas filters with an amplitude related to the concentration of CO in the sample cell. Other gases do not cause modulation of the detector signal since they absorb the reference and measure beams equally. Thus, the GFC system responds specifically to CO. The Model 48i outputs the CO concentration to the front panel display and the analog outputs.

Stack gas was delivered to the analyzer via a Teflon<sup>®</sup> sampling line, heated to a minimum temperature of 250°F. Excess moisture in the stack gas was removed using a refrigerated condenser. The entire system was calibrated in accordance with the Method, using USEPA protocol gases introduced at the probe, before and after each test run.

A list of calibration gases used and the results of all calibration and other required quality assurance checks are found in Appendix H. Copies of the gas cylinder certifications are found in Appendix I. This testing met the performance specifications as outlined in the Method

#### 4.8 Method 25A Total Hydrocarbons Determination

Total Hydrocarbon (THC) concentrations and emission rates were determined in accordance with Method 25A on System 23 only. The flame ionization detector (FID) used during this program, was a Thermo 51i High-Temperature Total Hydrocarbon Analyzers. It is a highly sensitive FID that provides a direct reading of total organic vapor concentrations with linear ranges of 0-10, 100, 1000, and 10,000 ppm by volume. Stack gas was delivered to the system via a Teflon® sampling line, heated to a minimum temperature of 250°F.

The system was calibrated before and after each test run using certified calibration gases of propane. Calibration data are presented in Appendix H. Gas cylinder certifications are included in Appendix I. This testing met the performance specifications as outlined in the Method.

#### 4.9 Method 202 Condensable Particulate Matter Determination

Stack gas CPM concentrations and emission rates were determined in accordance with U.S. EPA Method 202, in conjunction with Method 5 FPM sampling at each stack. This method applies to the determination of CPM emissions from stationary sources. It is intended to represent condensable matter as material that condenses after passing through a filter and as measured by this method.

CPM was collected in the water dropout, modified Greenburg Smith impinger and ambient filter portion of the sampling train as described in this Method. The impinger contents were purged with nitrogen ( $N_2$ ) immediately after sample collection to remove dissolved sulfur dioxide (SO<sub>2</sub>) gases from the impingers. The impinger solution was then extracted with DI water, acetone, and hexane. The organic and aqueous fractions were dried and the residues weighed. The total of the aqueous, organic, and ambient filter fractions represents the CPM. A field blank was also collected and analyzed.

All sample recovery was performed at the test site by the test crew. Mostardi Platt personnel at the laboratory in Elmhurst, Illinois, performed all final PM sample analyses. All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix H.

# **3.0 TEST RESULT SUMMARIES**

Client:PCC StructuralsFacility:Carson City FacilityTest Location:System 1 - AutoclaveTest Method:M25A

Source Condition Date Start Time End Time	Normal 4/26/23 6:44 7:44 Run 1	Normal 4/26/23 7:59 8:59 Run 2	Normal 4/26/23 9:14 10:14 Run 3	Average
Stack Cond	ditions			
Average Gas Temperature, °F	215.3	214.7	213.8	214.6
Flue Gas Moisture, percent by volume	13.6%	12.7%	12.6%	13.0%
Average Flue Pressure, in. Hg	25.34	25.34	25.34	25.34
Gas Volumetric Flow Rate, dscfm	46	44	48	46
Gas Volumetric Flow Rate, scfm	53	51	55	53
Average %CO <sub>2</sub> by volume, dry basis	0.2	0.1	0.0	0.1
Average %O <sub>2</sub> by volume, dry basis	20.7	21.3	21.0	21.0
Yearly Operating Hours	7117.5	7117.5	7117.5	7,117.5
Gaseous Summary				
THC ppm as C <sub>3</sub> H <sub>8</sub> (wet)	7.7	14.2	13.2	11.7
THC ppm as C <sub>3</sub> H <sub>8</sub> (dry)	8.9	16.3	15.1	13.4
THC lb/hr as C <sub>3</sub> H <sub>8</sub>	0.003	0.005	0.005	0.004
THC ton/yr as C <sub>3</sub> H <sub>8</sub>	0.010	0.018	0.018	0.015

Client:	PCC Structurals
Facility:	Carson City Facility
Test Location:	System 2 - Mold Burnout
Test Method:	6C, 7E, 10, 25A

Source Condition Date Start Time End Time	Normal 4/25/23 3:40 5:39 Run 1	Normal 4/25/23 6:05 8:00 Run 2	Normal 4/25/23 8:35 10:30 Run 3	Average
Stack Cond	ditions			
Average Gas Temperature, °F	1211.4	1221.6	1158.8	1197.3
Flue Gas Moisture, percent by volume	7.1%	7.0%	7.1%	7.1%
Average Flue Pressure, in. Hg	25.22	25.22	25.22	25.22
Gas Volumetric Flow Rate, dscfm	2,112	2,087	2,115	2,105
Gas Volumetric Flow Rate, scfm	2,274	2,245	2,277	2,265
Average %CO <sub>2</sub> by volume, dry basis	4.7	5.0	4.3	4.7
Average %O <sub>2</sub> by volume, dry basis	13.1	12.5	13.8	13.1
Yearly Operating Hours	7117.5	7117.5	7117.5	7,117.5
Gaseous Su	mmary			
THC ppm as C <sub>3</sub> H <sub>8</sub> (wet)	0.3	0.4	0.2	0.3
THC ppm as C <sub>3</sub> H <sub>8</sub> (dry)	0.3	0.4	0.2	0.3
THC lb/hr as C <sub>3</sub> H <sub>8</sub>	0.005	0.006	0.003	0.005
THC ton/yr as C <sub>3</sub> H <sub>8</sub>	0.017	0.022	0.011	0.017
NO <sub>x</sub> ppmvd	23.6	25.4	23.3	24.1
NO <sub>x</sub> lb/hr	0.357	0.380	0.353	0.363
NO <sub>x</sub> ton/yr	1.271	1.352	1.256	1.293
CO ppmvd	7.2	6.0	4.8	6.0
CO lb/hr	0.066	0.055	0.044	0.055
CO ton/yr	0.236	0.194	0.158	0.196
SO <sub>2</sub> ppmvd	0.000	0.100	0.100	0.067
SO <sub>2</sub> lb/hr	0.0000	0.0021	0.0021	0.0014
SO <sub>2</sub> ton/yr	0.0000	0.0074	0.0075	0.0050

Client:	PCC Structurals, Inc.
Facility:	Carson City Facility
Test Location:	System 2 - Mold Burnout
Test Method:	5/202

Source Condition Date Start Time End Time	Normal 4/25/23 3:40 5:40	Normal 4/25/23 6:05 8:01	Normal 4/25/23 8:35 10:31	
	Run 1	Run 2	Run 3	Average
Stack Con				
Average Gas Temperature, °F	1211.4	1221.6	1158.8	1197.3
Flue Gas Moisture, percent by volume	7.1%	7.0%	7.1%	7.1%
Average Flue Pressure, in. Hg	25.22	25.22	25.22	25.22
Gas Sample Volume, dscf	72.426	71.514	72.153	72.031
Average Gas Velocity, ft/sec	35.590	35.341	34.517	35.149
Gas Volumetric Flow Rate, acfm	8,542	8,482	8,284	8,436
Gas Volumetric Flow Rate, dscfm	2,112	2,087	2,115	2,105
Gas Volumetric Flow Rate, scfm	2,274	2,245	2,277	2,265
Average %CO <sub>2</sub> by volume, dry basis	4.7	5.0	4.3	4.7
Average %O <sub>2</sub> by volume, dry basis	13.1	12.5	13.8	13.1
Isokinetic Variance	102.7	102.6	102.2	102.5
Yearly Operating Hours	7117.5	7117.5	7117.5	7,117.5
Filterable Particulate	Matter (Me	thod 5)		
grams collected	0.00334	0.00377	0.00184	0.00299
grains/acf	0.0002	0.0002	0.0001	0.0002
grains/dscf	0.0007	0.0008	0.0004	0.0006
lb/hr	0.013	0.015	0.007	0.012
ton/yr	0.046	0.053	0.025	0.042
Condensable Particulate	Matter (Me	ethod 202)		
grams collected	0.00206	0.00253	0.00425	0.00295
grains/acf	0.0001	0.0001	0.0002	0.0001
grains/dscf	0.0004	0.0005	0.0009	0.0006
lb/hr	0.008	0.010	0.016	0.011
ton/yr	0.028	0.036	0.057	0.040
Total Particulate	Matter (5/20	02)		
grams collected	0.00540	0.00630	0.00609	0.00593
grains/acf	0.0003	0.0003	0.0003	0.0003
grains/dscf	0.0011	0.0013	0.0013	0.0012
lb/hr	0.021	0.025	0.023	0.023
ton/yr	0.075	0.089	0.082	0.082
-				

Client:	PCC Structurals
Facility:	Carson City Facility
Test Location:	System 3 - Air Furnaces
Test Method:	5/202

Source Condition	Normal	Normal	Normal	
Date	4/25/23	4/25/23	4/25/23	
Start Time	3:40	5:55	8:00	
End Time	5:23	7:38	9:42	
	Run 1	Run 2	Run 3	Average
Stack Con	ditions			
Average Gas Temperature, °F	82.2	83.9	89.3	85.1
Flue Gas Moisture, percent by volume	0.7%	0.2%	0.0%	0.3%
Average Flue Pressure, in. Hg	25.27	25.27	25.27	25.27
Gas Sample Volume, dscf	68.729	74.71	74.053	72.497
Average Gas Velocity, ft/sec	103.666	103.510	103.214	103.463
Gas Volumetric Flow Rate, acfm	1,221	1,219	1,216	1,219
Gas Volumetric Flow Rate, dscfm	997	998	987	994
Gas Volumetric Flow Rate, scfm	1,004	1,000	987	997
Isokinetic Variance	93.9	102.0	102.2	99.4
Yearly Operating Hours	7117.5	7117.5	7117.5	7,117.5
Filterable Particulate	Matter (Me	thod 5)		
grams collected	0.01476	0.01517	0.01402	0.01465
grains/acf	0.0027	0.0026	0.0024	0.0026
grains/dscf	0.0033	0.0031	0.0029	0.0031
lb/hr	0.028	0.027	0.025	0.027
ton/yr	0.100	0.096	0.089	0.095
Condensable Particulate	Matter (Me	ethod 202)		
grams collected	0.00165	0.00127	0.00103	0.00132
grains/acf	0.0003	0.0002	0.0002	0.0002
grains/dscf	0.0004	0.0003	0.0002	0.0003
lb/hr	0.003	0.002	0.002	0.002
ton/yr	0.011	0.007	0.007	0.008
Total Particulate	Matter (5/20			
grams collected	0.01641	0.01644	0.01505	0.01597
grains/acf	0.0030	0.0028	0.0026	0.0028
grains/dscf	0.0037	0.0034	0.0031	0.0034
lb/hr	0.031	0.029	0.027	0.029
ton/yr	0.110	0.103	0.096	0.103

Client:	PCC Structurals
Facility:	<b>Carson City Facility</b>
Test Location:	System 4
Test Method:	5

Source Condition Date Start Time End Time Stack Cond	Normal 4/26/23 7:00 8:46 Run 1	Normal 4/26/23 9:15 10:56 Run 2	Normal 4/26/23 11:15 12:56 Run 3	Average
Average Gas Temperature, °F	69.3	72.9	78.4	73.5
Flue Gas Moisture, percent by volume	-1.6%	0.5%	0.4%	-0.2%
Average Flue Pressure, in. Hg	25.39	25.39	25.39	25.39
Gas Sample Volume, dscf	65.87	65.997	72.332	68.066
Average Gas Velocity, ft/sec	34.982	35.952	39.743	36.892
Gas Volumetric Flow Rate, acfm	10,303	10,589	11,705	10,866
Gas Volumetric Flow Rate, dscfm	8,859	8,862	9,708	9,143
Gas Volumetric Flow Rate, scfm	8,721	8,904	9,742	9,122
Isokinetic Variance	101.6	101.8	101.8	101.7
Yearly Operating Hours	7117.5	7117.5	7117.5	7,117.5
Filterable Particulate	Matter (Me	thod 5)		
grams collected	0.01172	0.00632	0.00429	0.00745
grains/acf	0.0024	0.0012	0.0008	0.0015
grains/dscf	0.0027	0.0015	0.0009	0.0017
lb/hr	0.209	0.112	0.076	0.132
ton/yr	0.744	0.399	0.270	0.471

Client:	PCC Structurals
Facility:	<b>Carson City Facility</b>
Test Location:	System 5
Test Method:	5

Source Condition Date Start Time End Time	Normal 4/27/23 7:10 8:50 Run 1	Normal 4/27/23 9:12 10:58 Run 2	Normal 4/27/23 11:20 13:06 Run 3	Average
Average Gas Temperature, °F	75.6	80.3	85.4	80.4
Flue Gas Moisture, percent by volume	0.8%	0.9%	0.9%	0.9%
Average Flue Pressure, in. Hg	25.35	25.35	25.35	25.35
Gas Sample Volume, dscf	80.788	89.572	82.758	84.373
Average Gas Velocity, ft/sec	23.997	26.752	24.944	25.231
Gas Volumetric Flow Rate, acfm	7,068	7,879	7,347	7,431
Gas Volumetric Flow Rate, dscfm	5,857	6,463	5,970	6,097
Gas Volumetric Flow Rate, scfm	5,903	6,524	6,026	6,151
Isokinetic Variance	101.5	102.0	102.0	101.8
Yearly Operating Hours	7117.5	7117.5	7117.5	7,117.5
Filterable Particulate	Matter (Me			
grams collected	0.00886	0.00518	0.00386	0.00597
grains/acf	0.0014	0.0007	0.0006	0.0009
grains/dscf	0.0017	0.0009	0.0007	0.0011
lb/hr	0.085	0.049	0.037	0.057
ton/yr	0.302	0.174	0.132	0.203

Client:	PCC Structurals
Facility:	<b>Carson City Facility</b>
Test Location:	System 7
Test Method:	5/202

Source Condition Date Start Time End Time Stack Cond	Normal 4/27/23 6:20 8:05 Run 1	Normal 4/27/23 8:28 10:12 Run 2	Normal 4/27/23 10:30 12:14 Run 3	Average
Average Gas Temperature, °F	66.8	75.7	85.1	75.9
Flue Gas Moisture, percent by volume	2.2%	2.2%	2.1%	2.2%
Average Flue Pressure, in. Hg	25.31	25.31	25.31	25.31
Gas Sample Volume, dscf	75.958	75.229	74.682	75.290
Average Gas Velocity, ft/sec	23.082	23.242	23.477	23.267
Gas Volumetric Flow Rate, acfm	4,085	4,113	4,155	4,118
Gas Volumetric Flow Rate, dscfm	3,385	3,354	3,331	3,357
Gas Volumetric Flow Rate, scfm	3,463	3,429	3,404	3,432
Isokinetic Variance	102.0	102.0	101.9	102.0
Yearly Operating Hours	7117.5	7117.5	7117.5	7,117.5
Filterable Particulate	Matter (Me	thod 5)		
grams collected	0.03182	0.00173	0.00155	0.01170
grains/acf	0.0054	0.0003	0.0003	0.0020
grains/dscf	0.0065	0.0004	0.0003	0.0024
lb/hr	0.188	0.010	0.009	0.069
ton/yr	0.669	0.036	0.032	0.246

Client:	PCC Structurals
Facility:	<b>Carson City Facility</b>
Test Location:	System 9
Test Method:	5/202

Source Condition Date Start Time End Time	Normal 4/26/23 6:45 8:25 Run 1	Normal 4/26/23 8:40 10:20 Run 2	Normal 4/26/23 10:35 12:15 Run 3	Average	
Average Gas Temperature, °F	88.7	93.5	95.8	92.7	
Flue Gas Moisture, percent by volume	2.5%	93.5 2.3%	95.8 2.3%	92.7 2.4%	
Average Flue Pressure, in. Hg	25.34	25.34	25.34	25.34	
Gas Sample Volume, dscf	82.372	81.849	79.76	81.327	
Average Gas Velocity, ft/sec	13.660	13.728	13.397	13.595	
Gas Volumetric Flow Rate, acfm	644	647	631	641	
Gas Volumetric Flow Rate, dscfm	512	511	496	506	
Gas Volumetric Flow Rate, scfm	525	523	508	519	
Isokinetic Variance	102.3	101.9	102.1	102.1	
Yearly Operating Hours	7117.5	7117.5	7117.5	7,117.5	
Filterable Particulate Matter (Method 5)					
grams collected	0.20682	0.17563	0.12157	0.16801	
grains/acf	0.0308	0.0261	0.0185	0.0251	
grains/dscf	0.0387	0.0331	0.0235	0.0318	
lb/hr	0.170	0.145	0.100	0.138	
ton/yr	0.605	0.516	0.356	0.492	

### **4.0 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

**Program Manager** 

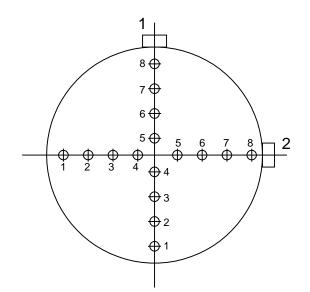
**Quality Assurance** 

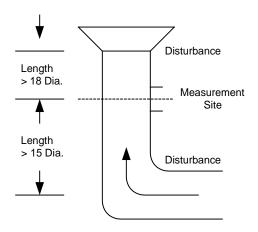
Kyle L. Jones

Richard J. Sollars III

### APPENDICES

#### Appendix A - Test Section Diagram



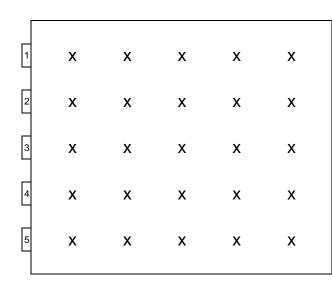


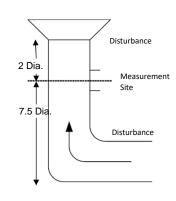
Job:	PCC Structurals		
	Carson City Facility		

- Date: April 26, 2023
- Test Location: System 1
- Stack Diameter (Feet): 0.25
- Stack Area (Square Feet): 0.05
- No. Sample Points Across Diameter: 8
  - No. of Ports: 2
  - Port Length (Inches): 3.00

Distance from inside wall at port to traverse point:

- 1. 3.096 Feet (96.8 % of diameter)
- 2. 3.315 Feet (89.5 % of diameter)
- 3. 3.582 Feet (80.6 % of diameter)
- 4. 3.969 Feet (67.7 % of diameter)
- 5. 5.031 Feet (32.3 % of diameter)
- 6. 5.418 Feet (19.4 % of diameter)
- 7. 5.686 Feet (10.5 % of diameter)
- 8. 5.904 Feet (3.2 % of diameter)





Client: PCC Structurals

Facility: Carson City Facility

Test Location: System 2 - Mold Burnout

Date: 04/25/23

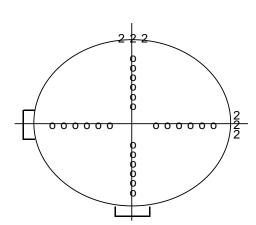
Diameter (Feet): 4.000

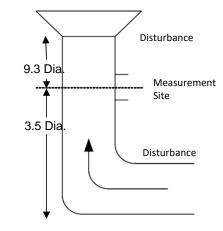
Port Length (In): 6.00

Ports Sampled: 5

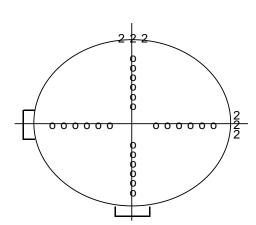
Points/Port: 5

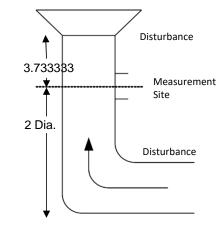
	Point Markings					
	From inside wall (in.) % of Duct Length					
1	2.4	10.00				
2	7.2	30.00				
3	12	50.00				
4	16.8	70.00				
5	21.6	90.00				



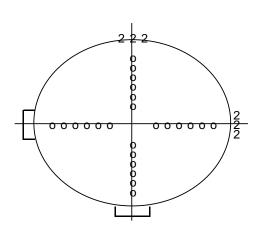


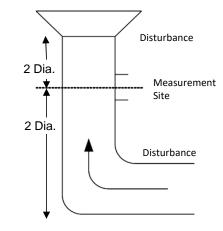
Client: PCC Structurals		Point Markings		
		From inside wall (in.)	% of Diameter	
Facility: Carson City Facility	1	0.13	2.10	
	2	0.40	6.70	
Test Location: System 3 - Air Furnaces	3	0.71	11.80	
	4	1.06	17.70	
Date: 04/25/23	5	1.50	25.00	
	6	2.14	35.60	
Diameter (Feet): 0.196	7	3.86	64.40	
	8	4.50	75.00	
Port Length (In): 0.00	9	4.94	82.30	
	10	5.29	88.20	
Ports Sampled: 2	11	5.60	93.30	
	12	5.87	97.90	
Points/Port: 12				



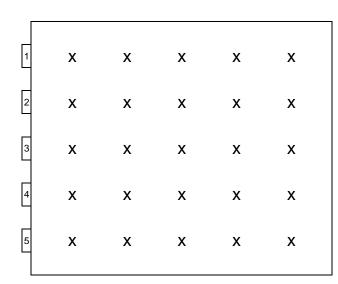


Client: PCC Structurals			Point Markings		
			From inside wall (in.)	% of Diameter	
Facility:	Carson City Facility	1	0.63	2.10	
		2	2.01	6.70	
Test Location:	System 4	3	3.54	11.80	
		4	5.31	17.70	
Date:	04/26/23	5	7.50	25.00	
		6	10.68	35.60	
Diameter (Feet):	4.909	7	19.32	64.40	
		8	22.50	75.00	
Port Length (In):	0.00	9	24.69	82.30	
		10	26.46	88.20	
Ports Sampled:	2	11	27.99	93.30	
		12	29.37	97.90	
Points/Port:	12				





Client: PCC Structurals			Point Markings		
			From inside wall (in.)	% of Diameter	
Facility:	Carson City Facility	1	0.63	2.10	
		2	2.01	6.70	
Test Location:	System 5	3	3.54	11.80	
		4	5.31	17.70	
Date:	04/27/23	5	7.50	25.00	
		6	10.68	35.60	
Diameter (Feet):	4.909	7	19.32	64.40	
		8	22.50	75.00	
Port Length (In):	0.00	9	24.69	82.30	
		10	26.46	88.20	
Ports Sampled:	2	11	27.99	93.30	
		12	29.37	97.90	
Points/Port:	12				



Client: PCC Structurals

Facility: Carson City Facility

Test Location: System 7

Date: 04/27/23

Diameter (Feet): 2.950

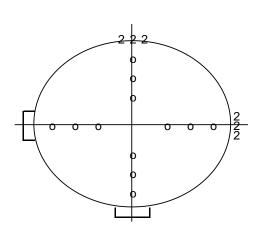
Port Length (In): 0.00

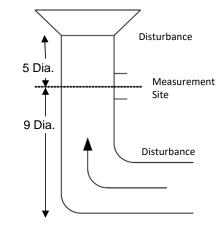
Ports Sampled: 5

Points/Port: 5

#### Point Markings

	From inside wall (in.)	% of Duct Length			
1	1.6992	10.00			
2	5.0976	30.00			
3	8.496	50.00			
4	11.8944	70.00			
5	15.2928	90.00			





Client: PCC Structurals	Point Markings		
	Fro	om inside wall (in.)	% of Diameter
Facility: Carson City Facility	1	0.53	4.40
	2	1.75	14.60
Test Location: System 9	3	3.55	29.60
	4	8.45	70.40
Date: 04/26/23	5	10.25	85.40
	6	11.47	95.60
Diameter (Feet): 0.785			

Project No. M231408 Multiple Test Locations

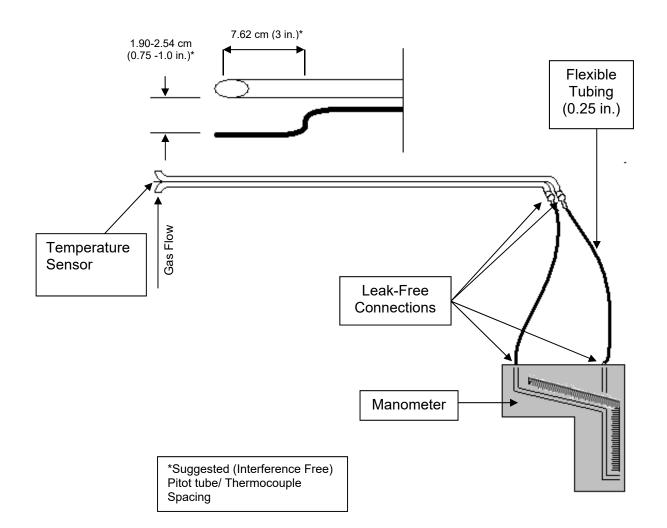
Port Length (In): 0.00

Points/Port: 6

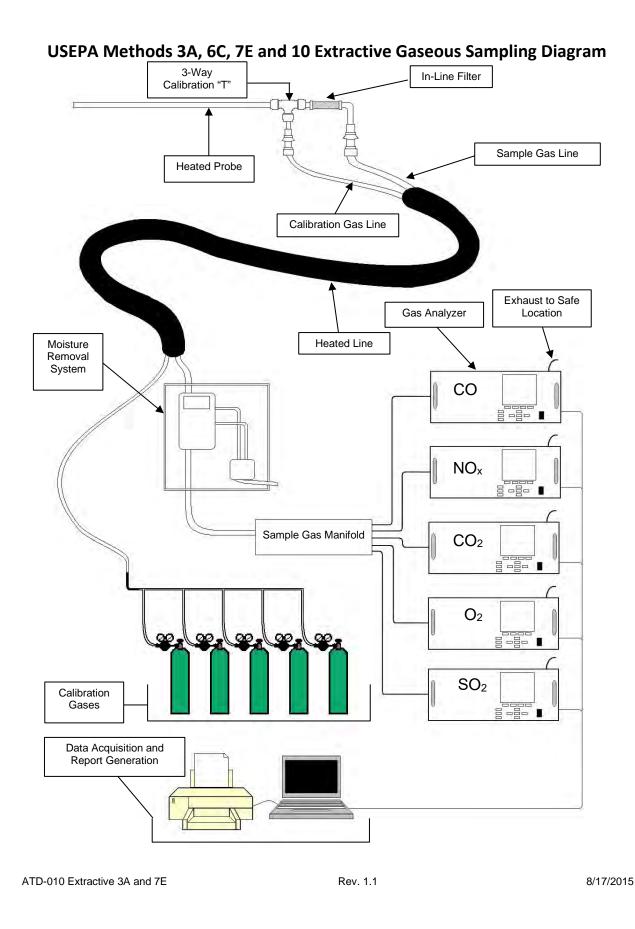
Ports Sampled: 2

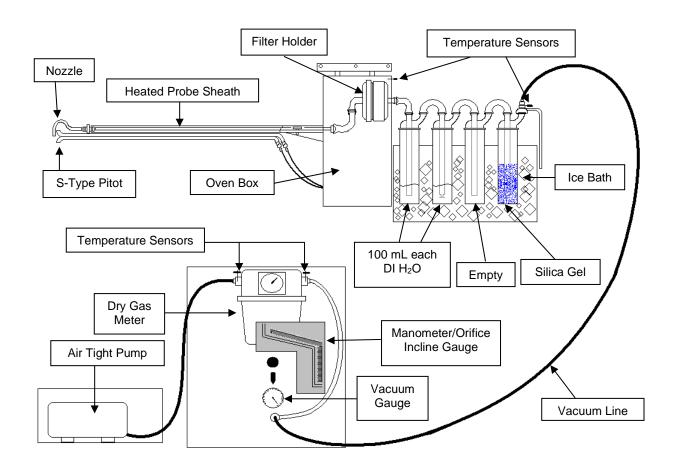
#### AET-014 ISO Template V26 1-16-23.xls ©Mostardi Platt

Appendix B - Sample Train Diagrams

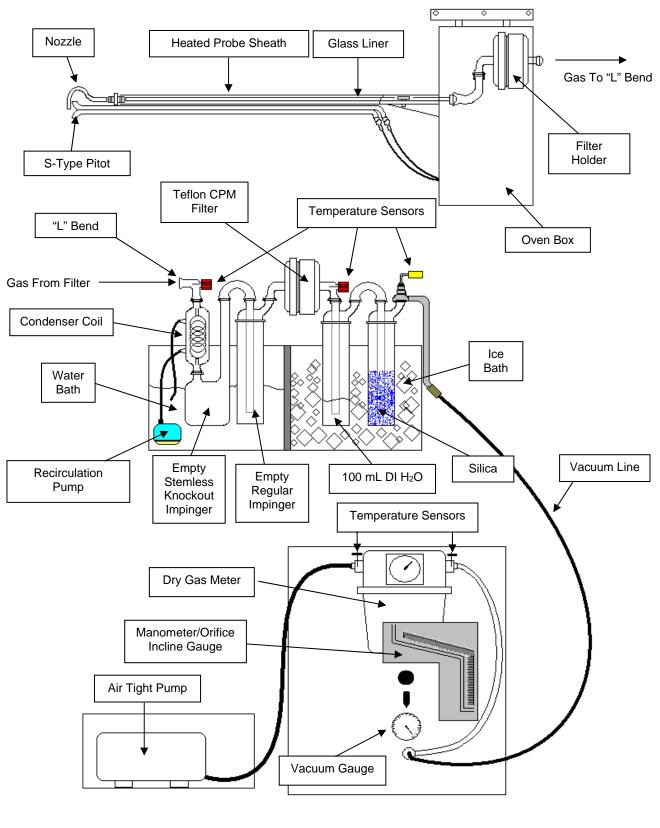


### **USEPA Method 2 – Type S Pitot Tube Manometer Assembly**





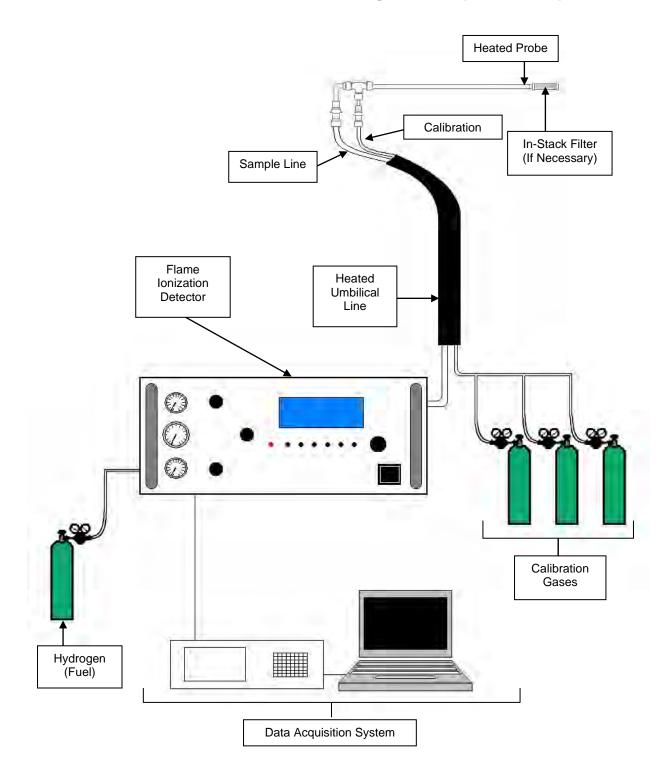
#### **USEPA Method 5- Particulate Matter Sample Train Diagram**



## **USEPA Method 5/202- Filterable/Condensable Particulate Matter**

ATD-042 USEPA Method 5/202

Rev. 1.3



# USEPA Method 25A – Total Gaseous Organic Compound Sample Train

ATD-063 USEPA Method 25A

Rev. 1.2

## Appendix C - Calculation Nomenclature and Formulas

Client: PCC Structurals Facility: Carson Facility Project #: M231408 Location: System 1 - Autoclave Date: 4/26/23

## Sample Calculations

## 02 % (dry)

( 20.6 ppm - -0.1 ppm) x <u>11.1 ppm</u> = 20.70 % 11.0 ppm - -0.1 ppm **CO2 % (dry)** 

( 0.2 ppm -  0.0 ppm)  x	11.2 ppm	= 0.20 %
	11.0 ppm - 0.0 ppm	= 0.20 %

$$C_{gas} = (C - C_o) \underline{x} \underline{C_{ma}}$$

$$C_m - C_o$$

where:

 $C_{gas}$  = Effluent gas concentration, dry basis, ppm

C = Average gas concentration indicated by gas analyzer, dry basis, ppm

C<sub>o</sub> = Average of initial and final system calibration bias check responses for the zero gas, ppm

C<sub>m</sub> = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm

 $C_{ma}$  = Actual concentration of the upscale calibration gas, ppm

#### **Volumetric Flow Rate Example Calculations**

Client:PCC StructuralsFacility:Carson City FacilityTest Location:System 1Run:Pre 1Test Date:4/26/2023

#### **Moisture Content**

$$\begin{split} & \text{Bws} = \frac{\text{e'} - \text{AP}(\text{t-t'})}{\text{P}} \\ & \text{where: e'} = \text{saturated vapor pressure of water, in. Hg,} \\ & \text{at the wet bulb temperature, t'} \\ & \text{A} = 3.67 \times 10^{-4}(1+0.0064 (\text{t'}-32)) \\ & \text{P} = \text{absolute pressure, in. Hg, in the duct} \\ & \text{t} = \text{dry bulb temperature, }^{\text{P}} \\ & \text{t'} = \text{wet bulb temperature, }^{\text{P}} \\ & \text{t'} = \text{wet bulb temperature, }^{\text{P}} \\ & \text{Bws} = \underline{\textbf{0.136}} \\ & \text{Bws} = \underline{\textbf{0.136}} \\ & \text{Bws} = V_{wc(std)} + V_{wsg(std)} \\ & \overline{V_{wc(std)} + V_{wsg(std)} + V_{m(std)}} \\ & \text{where: } V_{wc(std)} = \text{Volume of condensed water vapor corrected to standard conditions} \\ & V_{wsg(std)} = \text{Volume of water vapor collected in silica gel,} \\ & \text{corrected to standard conditions} \\ & V_{m(std)} = \text{Dry gas volume measured by dry gas meter,} \\ & \text{corrected to standard conditions} \\ \end{array}$$

#### **Dry Molecular Weight**

Md = 28.90

Wet Molecular Weight

Ms = Md x (1-Bws) + (18.0 x Bws)Md = <u>28.90</u> Bws = <u>0.136</u>Ms = <u>27.42</u>

Average Duct Velocity

 $Vs = 85.49 \text{ x Cp x Sqrt } \Delta P \text{ (avg) x (Ts (avg) + 460/ (Ps x Ms))}^{1/2}$   $Cp = \underbrace{0.990}_{Ps} \text{Ts (avg)} = \underbrace{25.3}_{Ms} \text{Sqrt } \Delta P \text{ avg:} \underbrace{0.387}_{0.387}$   $Ps = \underbrace{25.35}_{Vs} \text{Ms} = \underbrace{27.42}_{0.387}$ 

#### **Volumetric Flow Rate**

Qs (Standard Basis) = 17.647 x Q x 
$$Ps$$
  
 $460 + Ts (avg)$   
Q = 97 Ps = 25.35 Ts (avg) = 25.3  
Qs = 64 scfm  
Qs (Standard Basis) = scfm x 60 min/hr  
Qs = 3845 scfh

FT-004 MP Pitot Project No. M231408 Multiple Test Locations Client: PCC Structurals Facility: Carson City Facility Project #: M231408 Location: System 2 - Mold Burnout Date: 4/25/23

## **Sample Calculations**

#### NOx ppmvd

( 23.6 ppm - 0.1 ppm) x	18.1 ppm 18.1 ppm - 0.1 ppm	= 23.6 ppm
( 12.9 ppm - 0.1 ppm) x	<b>O2 % (dry)</b> <u>11.1 ppm</u> 10.9 ppm - 0.1 ppm	= 13.10 %
( 4.7 ppm - 0.0 ppm) x	CO2 % (dry) 11.2 ppm 11.1 ppm - 0.0 ppm	= 4.70 %
( 7.3 ppm - 0.3 ppm) x	CO ppmvd 50.7 ppm 49.8 ppm - 0.3 ppm	= 7.2 ppm
( 0.1 ppm - 0.1 ppm) x	<b>SO2 ppmvd</b> 20.0 ppm 20.3 ppm - 0.1 ppm	= 0.0 ppm

$$C_{gas} = (C - C_o) \underline{x} \underline{C_{ma}}$$

$$C_m - C_o$$

where:

 $C_{gas}$  = Effluent gas concentration, dry basis, ppm

C = Average gas concentration indicated by gas analyzer, dry basis, ppm

 $C_o$  = Average of initial and final system calibration bias check responses for the zero gas, ppm

C<sub>m</sub> = Average of initital and final system calibration bias check responses for the upscale calibration gas, ppm

 $C_{ma}$  = Actual concentration of the upscale calibration gas, ppm

Client:	PCC Structurals
Facility:	Carson City Facility
Test Location:	System 2 - Mold Burnout
Run:	1
Date:	4/25/2023
Method:	5/202
Source Condition:	Normal

**Dry Molecular Weight** 

 $Md = 0.44 x (\%CO_2) + 0.32 x (\%O_2) + 0.28 x \%N_2$ 

%CO <sub>2</sub> =	4.7	%O <sub>2</sub> =	13.1	%N <sub>2</sub> =	82.2
Md =	29.276				

Wet Molecular Weight

Ms = Md x (1-Bws) + (18.0 x Bws)				
Md =	29.276	Bws =	0.071	
Ms =	28.470			

Meter Volume at Standard Conditions

	Vm(std) =	17.647 x Y x Vm x	-	<u>(Pbar +DH/13.6)</u> Tm		
	Y =		Vm =	83.231	Pbar =	25.22
	DH =	1.88	Tm =	513.7		
	Vm(std) =	72.426				
Volume of Water Vapor	Condensed					
	Vw(std) =	e 0.0471 x (ne	et H <sub>2</sub> O gain)			
	Net H <sub>2</sub> O =	118.4				
	Vw(std) =	5.577				
Moisture Content						
	Bws =	Vw(std) Vw(std) + Vm(	(std)			
	Vw(std) =	5.577	Vm(std) =	72.426		
	Bws =	0.071				

Client:	PCC Structurals
Facility:	Carson City Facility
Test Location:	System 2 - Mold Burnout
Run:	1
Date:	4/25/2023
Method:	5/202
Source Condition:	Normal

Average Duct Velocity

	Vs = 85.49 x Cp x Sc	rt DP (avg) x	(Ts (avg) +	460/ (Ps x Ms)) <sup>1/2</sup>	
	Cp = 0.840	Ts (avg) =	1211.4	Sqrt DP (avg):	0.325
	Ps = 25.22	Ms =			
	Vs = <u>35.590</u>	_			
Volumetric Flow Rate (Actu	ial Basis)				
	Q = Vs x A x 60				
	Vs = 35.590	A =	4.000	_	
	Q =8,542	-			
Volumetric Flow Rate (Stan	ndard Basis)				
	Qstd = 17.647 x Q x	Ps Ts (avg) + 4	460		
	Q = <u>8,542</u>	Ps = _	25.22	Ts (avg) =	1211.4
	Qstd =2,274	_			
Volumetric Flow Rate (Stan	ndard Dry Basis)				
	Qstd(dry) = Qstd x (1-Bws)				
	Qstd =2,274	Bws =	0.071	_	
	Qstd(dry) =2,112	-			
Isokinetic Variation:					
	%ISO = <u>0.0945 x (Ts +46</u> Vs x θ x An x P	0) x Vm(std) s x (1-Bws)			
	Ts = 1211.4	Vm(std) =			35.590
	An = 0.0013364	θ =	100	Ps =	25.22
	Bws = 0.071	-			
	%ISO = 102.7	_			

Client:	PCC Structurals
Facility:	Carson City Facility
Test Location:	System 2 - Mold Burnout
Run:	1
Date:	4/25/2023
Method:	5/202
Source Condition:	Normal

#### **PM Concentration:**

This example represents the filterable fraction. For other fractions, use the obtained mn for that particulate fraction.

 $Co = \frac{m_n \times 15.43}{Vm(std)}$   $m_n (g) = \frac{0.00334}{Co} Vm(std) = \frac{72.426}{gr/dscf}$ 

PM Emission Rate:

Emission Rate lb/hr = <u>Co</u> x Qstd(dry) x 60 7,000 Co = <u>0.0007</u> Qstd(dry) = <u>2,112</u> Emission Rate lb/hr = <u>0.013</u> lb/hr

## **Volumetric Flow Rate Example Calculations**

Client:PCC StructuralsFacility:Carson City FacilityTest Location:System 1Run:Pre 1Test Date:4/26/2023

#### **Moisture Content**

 $Bws = V_{wc(std)} + V_{wsg(std)}$ 

 $V_{wc(std)} + V_{wsg(std)} + V_{m(std)}$ 

where:  $V_{wc(std)} =$  Volume of condensed water vapor corrected to standard conditions  $V_{wsg(std)} =$  Volume of water vapor collected in silica gel, corrected to standard conditions  $V_{m(std)} =$  Dry gas volume measured by dry gas meter, corrected to standard conditions

**Dry Molecular Weight** 

Wet Molecular Weight

$$Ms = Md x (1-Bws) + (18.0 x Bws)$$
$$Md = 28.90 Bws = 0.136$$
$$Ms = 27.42$$

Average Duct Velocity

$$Vs = 85.49 \text{ x Cp x Sqrt } \Delta P \text{ (avg) x (Ts (avg) + 460/ (Ps x Ms))}^{1/2}$$

$$Cp = \underbrace{0.990}_{Ps = 25.35} \text{Ts (avg)} = \underbrace{25.3}_{Ms = 27.42} \text{Sqrt } \Delta P \text{ avg: } \underbrace{0.387}_{0.387}$$

$$Vs = \underbrace{32.30}_{Vs = 32.30}$$

**Volumetric Flow Rate** 

Qs (Standard Basis) = 17.647 x Q x Ps  

$$460 + Ts (avg)$$
  
Q = 97 Ps = 25.35 Ts (avg) = 25.3  
Qs = 64 scfm  
Qs (Standard Basis) = scfm x 60 min/hr  
Qs = 3845 scfh

FT-004 MP Pitot Project No. M231408 Multiple Test Locations

## **Volumetric Flow Nomenclature**

- A = Cross-sectional area of stack or duct,  $ft^2$
- B<sub>ws</sub> = Water vapor in gas stream, proportion by volume
- $C_p$  = Pitot tube coefficient, dimensionless
- M<sub>d</sub> = Dry molecular weight of gas, lb/lb-mole
- Ms = Molecular weight of gas, wet basis, lb/lb-mole
- M<sub>w</sub> = Molecular weight of water, 18.0 lb/lb-mole
- P<sub>bar</sub> = Barometric pressure at testing site, in. Hg
- $P_g$  = Static pressure of gas, in. Hg (in. H<sub>2</sub>O/13.6)
- $P_s$  = Absolute pressure of gas, in. Hg =  $P_{bar}$  +  $P_g$
- P<sub>std</sub> = Standard absolute pressure, 29.92 in. Hg
- Q<sub>acfm</sub> = Actual volumetric gas flow rate, acfm
- Q<sub>sd</sub> = Dry volumetric gas flow rate corrected to standard conditions, dscf/hr
  - R = Ideal gas constant, 21.85 in. Hg-ft<sup>3</sup>/°R-lb-mole
  - T<sub>s</sub> = Absolute gas temperature, °R
- T<sub>std</sub> = Standard absolute temperature, 528°R
- vs = Gas velocity, ft/sec
- V<sub>w(std)</sub> = Volume of water vapor in gas sample, corrected to standard conditions, scf
  - Y = Dry gas meter calibration factor
  - $\Delta p =$  Velocity head of gas, in. H<sub>2</sub>O
  - $K_1 = 17.647 \ ^{\circ}R/in. Hg$
- %EA = Percent excess air
- %CO<sub>2</sub> = 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<sub>2</sub> to N<sub>2</sub> in air, v/v
- 0.28 = Molecular weight of N<sub>2</sub> or CO, divided by 100
- 0.32 = Molecular weight of O<sub>2</sub> divided by 100
- 0.44 = Molecular weight of CO<sub>2</sub> divided by 100
- 13.6 = Specific gravity of mercury (Hg)

## Volumetric Air Flow Calculations (Wet Bulb/ Dry Bulb)

$$\mathsf{Bws} = \left[\frac{\mathsf{e}' - \mathsf{AP}(\mathsf{t} - \mathsf{t}')}{\mathsf{P}}\right]$$

e' = saturated vapor presssure of water, in.Hg, at the wet bulb temperature, t'  $A = 3.67 \times 10^{-4} [1 + 0.00064 (t' - 32)]$ P = pressure, inches mercury, in the duct t = dry bulb temperature, °F t' = wet bulb temperature, °F Bws = water vapor in gas stream proportion by volume

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

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

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

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

$$\mathsf{Dscfm} = \mathsf{Acfm} \times 17.647 \times \left[\frac{\mathsf{Ps}}{(460 + \mathsf{Ts})}\right] \times (1 - \mathsf{Bws})$$

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

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

acfm = actual cubic feet per minute dscfm = dry standard cubic feet per minute scfm = standard cubic feet per minute scfh = standard cubic feet per hour Cp = pitot tube correction factor Ps = absolute flue gas pressure Ms = molecular weight of gas (lb/lb mole)

Md = dry molecular weight of gas (lb/lb mole)

#### **Isokinetic Nomenclature**

- A = Cross-sectional area of stack or duct, square feet
- An = Cross-sectional area of nozzle, square feet
- B<sub>ws</sub> = Water vapor in gas stream, by volume
- C<sub>a</sub> = Acetone blank residue concentration, g/g
- Cact = Concentration of particulate matter in gas stream at actual conditions, gr/acf
- $C_p$  = Pitot tube coefficient
- C<sub>s</sub> = Concentration of particulate matter in gas stream, dry basis, corrected to standard conditions, gr/dscf
- IKV = Isokinetic sampling variance, must be 90.0  $\% \le$  IKV  $\le$  110.0%
- $M_d$  = Dry molecular weight of gas, lb/lb-mole
- M<sub>s</sub> = Molecular weight of gas, wet basis, lb/lb-mole
- M<sub>w</sub> = Molecular weight of water, 18.0 lb/lb-mole
- $m_a$  = Mass of residue of acetone after evaporation, grams
- P<sub>bar</sub> = Barometric pressure at testing site, inches mercury
- $P_{q}$  = Static pressure of gas, inches mercury (inches water/13.6)
- $P_s = Absolute pressure of gas, inches mercury = P_{bar} + P_g$
- P<sub>std</sub> = Standard absolute pressure, 29.92 inches mercury
- Q<sub>acfm</sub> = Actual volumetric gas flow rate, acfm
- Q<sub>sd</sub> = Dry volumetric gas flow rate corrected to standard conditions, dscfh
- R = Ideal gas constant, 21.85 inches mercury cubic foot/°R-lb-mole
- T<sub>m</sub> = Dry gas meter temperature, °R
- T<sub>s</sub> = Gas temperature, °R
- $T_{std}$  = Absolute temperature, 528°R
- Va = Volume of acetone blank, ml
- Vaw = Volume of acetone used in wash, ml
- W<sub>a</sub> = Weight of residue in acetone wash, grams
- $m_n$  = Total amount of particulate matter collected, grams
- V<sub>1c</sub> = 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<sub>m(std)</sub> = Volume of gas sample measured by dry gas meter, corrected to standard conditions, dscf  $v_s = Gas velocity, ft/sec$
- V<sub>w(std)</sub> = Volume of water vapor in gas sample, corrected to standard conditions, scf
  - Y = Dry gas meter calibration factor
  - $\Delta H = Average pressure differential across the orifice meter, inches water$
  - $\Delta p$  = Velocity head of gas, inches water
  - $\rho_a$  = Density of acetone, 0.7855 g/ml (average)
  - $\rho_{W}$  = Density of water, 0.002201 lb/ml
  - $\theta$  = Total sampling time, minutes
  - K<sub>1</sub> = 17.647 °R/in. Ha
  - $K_2 = 0.04707 \text{ ft}^3/\text{ml}$
  - $K_4 = 0.09450/100 = 0.000945$
  - $K_{p}$  = Pitot tube constant, 85.49  $\frac{ft}{(lb/lb-mole)(in. Hg)} \Big|^{1/2}$

$$\frac{11512111, 85.49}{sec} (°R)(in. H_2 0)$$

- %EA = Percent excess air
- $%CO_2 =$  Percent carbon dioxide by volume, dry basis
- %O<sub>2</sub> = Percent oxygen by volume, dry basis
- %CO = Percent carbon monoxide by volume, dry basis
- %N<sub>2</sub> = Percent nitrogen by volume, dry basis
- 0.264 = Ratio of O<sub>2</sub> to N<sub>2</sub> in air, v/v
  - 28 = Molecular weight of N<sub>2</sub> or CO
  - 32 = Molecular weight of O<sub>2</sub>
  - 44 = Molecular weight of CO<sub>2</sub>
- 13.6 = Specific gravity of mercury (Hg)

## **Isokinetic Calculation Formulas**

$$\begin{aligned} 1. \ V_{w(std)} &= V_{lc} \left( \frac{\rho_{w}}{M_{w}} \right) \left( \frac{RT_{std}}{P_{std}} \right) = K_{2}V_{lc} \\ 2. \ V_{m(std)} &= V_{m}Y \left( \frac{T_{std}}{T_{m}} \right) \left( \frac{(P_{bar} + (\frac{\Delta H}{13.6}))}{P_{std}} \right) = K_{1} V_{m} Y \frac{(P_{bar} + (\frac{\Delta H}{13.6}))}{T_{m}} \\ 3. \ B_{ws} &= \frac{V_{w(std)}}{(V_{m(std)} + V_{w(std)})} \\ 4. \ M_{d} &= 0.44(\%CO_{2}) + 0.32(\%O_{2}) + 0.28(\%N_{2}) \\ 5. \ M_{s} &= M_{d}(1 - B_{ws}) + 18.0(B_{ws}) \\ 6. \ C_{a} &= \frac{m_{a}}{V_{a}\rho_{a}} \\ 7. \ W_{a} &= C_{a}V_{aw}\rho_{a} \\ 8. \ C_{acf} &= 15.43K_{i} \left( \frac{m_{n}P_{s}}{V_{w(std)} + V_{m(std)} T_{s}} \right) \\ 9. \ C_{S} &= (15.43 \ grains/gram) (m_{n}/V_{m(std)}) \\ 10. \ v_{s} &= K_{p}C_{p}\sqrt{\frac{\Delta P T_{s}}{P_{s}M_{s}}} \\ 11. \ Q_{acfm} &= v_{s}A(60_{sec/min}) \\ 12. \ Q_{sd} &= (3600_{sec/mr})(1 - B_{ws}) v_{s} \left( \frac{T_{std}P_{s}}{T_{s}P_{std}} \right) A \\ 13. \ E (emission rate, lbs/hr) &= Q_{std}(C_{s}/7000 \ grains/lb) \\ 14. \ IKV &= \frac{T_{s}V_{m(std)}P_{std}}{T_{std}v_{s}\partial A_{n}P_{s}60(1 - B_{ws})} = K_{4} \frac{T_{s}V_{m(std)}}{P_{s}v_{s}A_{n}\partial(1 - B_{ws})} \end{aligned}$$

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

Project No. M231408 Multiple Test Locations

# ppm Conversion Calculations and Factors

## ppm to lbs/scf

(ppm X) x (conversion factor X) = X lbs/scf

## Ibs/scf to Ibs/hr

Dry ppm's with dry flow, and wet ppm's with wet flow.

(X lbs/scf) x (airflow scf/min) x (60 min/hr) = X lbs/hr

## Ibs/scf to Ibs/mmBtu

Dry ppm's with dry diluent, and wet ppm's with wet diluent.

 $CO_2 - (X \text{ lbs/scf}) \times (F_c) \times (100/CO_2) = X \text{ lbs/mmBtu}$ 

**O<sub>2</sub>** – (X lbs/scf) x (F<sub>d</sub>) x (20.9/(20.9-O<sub>2</sub>)) = X lbs/mmBtu

## **Conversion Factors**

- NO<sub>x</sub> 1.19396 x 10<sup>-7</sup>
- SO<sub>2</sub> 1.6625 x 10<sup>-7</sup>
- CO 7.2664 x 10<sup>-8</sup>

CH<sub>4</sub> - 4.1637 x 10<sup>-8</sup>

 $C_3H_8 - 1.1419 \times 10^{-7}$ 

# **Moisture Calculations**

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

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

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

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

Where:

B<sub>ws</sub> = Water vapor in gas stream, proportion by volume

M<sub>w</sub> = Molecular weight of water, 18.015 lb/lb-mole

P<sub>bar</sub> = Barometric pressure at the testing site, in. Hg

P<sub>std</sub> = Standard absolute pressure, 29.92 in. Hg

$$V_f$$
 = Final volume of condenser water, ml

$$V_i$$
 = Initial volume of condenser water, ml

V<sub>m</sub> = Dry gas volume measured by dry gas meter, dcf

- $W_f$  = Final weight of silica gel, g
- W<sub>i</sub> = Initial weight of silica gel, g
- Y = Dry gas meter calibration factor

$$\Delta H =$$
 Average pressure exerted on dry gas meter outlet by gas sample bag, in. H<sub>2</sub>O

 $\rho_w$  = Density of water, 0.9982 g/ml

$$17.64 = T_{std}/P_{std}$$

$$0.04707 = ft^3/ml$$
  $0.04715 = ft^3/g$ 

CN&F-021 Moisture Calculations

1/1/2021

# Derivation of Factors Used in Sulfur Dioxide and Nitrogen Oxides Calculations

Factors for calculating concentration as pounds per dry standard cubic feet:

 $Factor \text{ for } C_{SO_2} = \frac{64.0628 \text{ gram - mole}}{2\frac{\text{gram - equivalents}}{\text{gram - mole}} \times 1000 \frac{\text{gram - milliquivalents}}{\text{gram - equivalent}} \times 453.592 \frac{\text{grams}}{\text{lb}}}{\text{lb}}$  $= 7.061721 \times 10^{-5} \text{ lb/g - meqUse } 7.0617 \times 10^{-5}}$  $Factor \text{ for } C_{NO_2} \text{ as } NO_2 = \frac{28316.846 \text{ ml/scf}}{4.53592 \times 10^8 \mu \text{g/lb}} = 6.242801 \times 10^{-5} \frac{\text{lb/scf}}{\mu \text{g/ml}} \frac{\text{Use } 6.2428 \times 10^{-5}}{\mu \text{g/ml}}$ 

Factors for calculating from parts per million to lb/dscf:

Using 22.414 liters of gas per gram-mole at 0°C and 1 atmosphere pressure,

One pound-mole of gas is contained in 359.04765 ft<sup>3</sup> at 32°F and 29.92 in. Hg, or 385.31943 ft<sup>3</sup> at 68°F and 29.92 in. Hg

ppm x  $\frac{Mwlb/lb-mole}{385.31943 dscf/lb-mole \times 10^6} = lb/dscf$ 

Where

Mw = pollutant molecular weight

SO<sub>2</sub> = 64.0628 lb/lb-mole

 $NO_2 = 46.0055 \text{ lb/lb-mole}$ 

Factor for ppm SO<sub>2</sub> = 
$$\frac{1}{64.06 \times 2.5952 \times 10^{-9}}$$
 = 6.0151 × 10<sup>6</sup> dscf/lb

Use 6.0151×10<sup>6</sup>

Factor for ppm NO<sub>x</sub> =  $\frac{1}{46.0055 \times 2.5952494 \times 10^{-9}}$  = 8.3755 × 10<sup>6</sup> dscf/lb

<u>Use 8.3755  $\times 10^{6}$ </u>

CN&F-008 Derivation of Factors NOx SO2

# **Derivation of Factors Used In Carbon Monoxide Calculations**

Factors for calculating concentration as pounds per dry standard cubic feet:

Factor for  $C_{CO} = \frac{28.01 \text{ grams/gram - mole}}{2 \frac{\text{gram - equivalents}}{\text{gram - mole}} \times 1000 \frac{\text{gram - milliquivalents}}{\text{gram - equivalent}} \times 453.592 \frac{\text{grams}}{\text{lb}}$ 

 $= 3.087577 \times 10^{-5}$  lb/g - meqUse  $3.0876 \times 10^{-5}$ 

Factors for calculating from lb/dscf to parts per million:

Using 22.414 liters of gas per gram-mole at 0°C and 1 atmosphere pressure,

One pound-mole of gas is contained in 359.04765 ft<sup>3</sup> at 32°F and 29.92 in. Hg, or 385.31943 ft<sup>3</sup> at 68°F and 29.92 in. Hg

 $ppm = \frac{\text{Mlb/lb-mole}}{385.31943 \text{ dscf/lb-mole} \times 10^6} = 2.5952494 \times 10^{-9} \text{ M lb/dscf}$ 

Where M = pollutant molecular weight; CO = 28.01 lb/lb-mole

Factor for ppm CO =  $\frac{1}{28.01 \times 2.5952 \times 10^{-9}}$  = 1.3762 × 10<sup>7</sup> dscf/lb

Appendix D - Laboratory Sample Analysis

Client:	PCC Structurals
Facility:	Carson City Facility
Project Number:	M231408
Test Location:	System 2 - Mold Burnout
Test Method:	5/202
Filterable Analysis Date:	5/10/2023
Condensable Analysis Date:	5/10/2023

Filter Drying Temp °F:220Analyst:TWMAnalyst:TWM

Desc	ription	Sample Date	ID#	vol. (ml)	Initial Weight (grams)	Final Weight (grams)	Net Weight Gain (grams)
		Filte	rable Part	iculate			
Run 1		4/25/2023					
Source Condition:	Normal						
M5 Filter			6538		0.46963	0.47061	0.00098
Acetone Wash (M5 Pans)			6708	80 mL	4.95054	4.95327	0.00273
Acetone Blank							0.00037
Total Filterable Weight							0.00334
		Conde	ensable Pa				
Acetone/Hexane Wash			6660	185 mL	21.06682	21.06773	0.00091
DI Wash			6663	265 mL	21.27373	21.27670	0.00297
Field Blank							0.00182
Total Condensable Weight							0.00206
Total Particulate Weight							0.00540
			rable Part	iculate			1
Run 2	Nerral	4/25/2023					
Source Condition:	Normal						
M5 Filter			6539	75 1	0.46294	0.46394	0.00100
Acetone Wash (M5 Pans)			6709	75 mL	4.97720	4.98032	0.00312
Acetone Blank							0.00035
Total Filterable Weight		Canda	nachla Da	rtioulate			0.00377
Acetone/Hexane Wash		Conde	nsable Pa 6661	195 mL	21.06321	21.06469	0.00148
DI Wash			6664	245 mL	21.00321	21.31492	0.00148
Field Blank			0004	245 ML	21.31205	21.31492	0.00287
Total Condensable Weight							0.00182
Total Particulate Weight							0.00233
Total Tarticulate Weight		Filte	rable Parti	iculate			0.00030
Run 3		4/25/2023	and i ait	Juliuto			
Source Condition:	Normal						
M5 Filter			6556		0.46666	0.46687	0.00021
Acetone Wash (M5 Pans)			6710	75 mL	4.96976	4.97174	0.00198
Acetone Blank				-			0.00035
Total Filterable Weight							0.00184
		Conde	ensable Pa	rticulate			
Acetone/Hexane Wash			6662	190 mL	21.25033	21.25444	0.00411
DI Wash			6665	275 mL	21.29404	21.29600	0.00196
Field Blank							0.00182
Total Condensable Weight							0.00425
Total Particulate Weight							0.00609
		Field Tr	ain Blank				
Acetone/Hexane Wash			6680	95 mL	21.17322	21.17403	0.00081
DI Wash			6679	150 mL	21.06559	21.06660	0.00101
Total Field Train Blank			at Diaul. 2				0.00182
DI Wash		Reage	nt Blank S		21 05724	21 05742	≤ 0.00025
DI wash Hexane Wash			6667 6668	100 mL 100 mL	21.05731 21.12544	21.05742 21.12563	≤ 0.00025 ≤ 0.00025
				100 mL 100 mL			
Acetone Wash (M5 Pans)			6727 /MDL Sun		4.97722	4.97768	0.00046
Media		MDL, grams	JUDE SUN	iniai y		RDL, grams	
		-				-	
M5 Filter Acetone Wash (M5 Pans)		0.00005				0.00015	
Acetone Wash (M5 Pans) Sample Vials (M202)		0.00008				0.00025	
Sample viais (IVIZUZ)		0.00008				0.00025	

Client:	PCC Structurals
Facility:	Carson City Facility
Project Number:	M231408
Test Location:	System 3 - Air Furnaces
Test Method:	5/202
Filterable Analysis Date:	5/10/2023
Condensable Analysis Date:	5/10/2023

Filter Drying Temp °F:220Analyst:TWMAnalyst:TWM

Desc	ription	Sample Date	ID#	vol. (ml)	Initial Weight (grams)	Final Weight (grams)	Net Weight Gain (grams)
		Filte	rable Parti	iculate	(grams)	(gruno)	
Run 1		4/25/2023		oulate			
Source Condition:	Normal						
M5 Filter			6781		0.46808	0.47921	0.01113
Acetone Wash (M5 Pans)			6715	60 mL	4.98983	4.99374	0.00391
Acetone Blank							0.00028
Total Filterable Weight							0.01476
		Conde	ensable Pa	rticulate			
Acetone/Hexane Wash			6669	210 mL	21.21718	21.21900	0.00182
DI Wash			6606	215 mL	21.35454	21.35619	0.00165
Field Blank							0.00182
Total Condensable Weight							0.00165
Total Particulate Weight							0.01641
		Filte	rable Parti	iculate			
Run 2		4/25/2023					
Source Condition:	Normal						
M5 Filter			6780		0.46824	0.48180	0.01356
Acetone Wash (M5 Pans)			6719	55 mL	4.96550	4.96736	0.00186
Acetone Blank							0.00025
Total Filterable Weight							0.01517
		Conde	ensable Pa		-		
Acetone/Hexane Wash			6670	190 mL	21.32432	21.32580	0.00148
DI Wash			6607	225 mL	21.33283	21.33444	0.00161
Field Blank							0.00182
Total Condensable Weight							0.00127
Total Particulate Weight							0.01644
			rable Parti	iculate	-		-
Run 3		4/25/2023					
Source Condition:	Normal						
M5 Filter			6782		0.46946	0.48255	0.01309
Acetone Wash (M5 Pans)			6711	55 mL	4.97034	4.97152	0.00118
Acetone Blank							0.00025
Total Filterable Weight							0.01402
		Conde	ensable Pa	rticulate			
Acetone/Hexane Wash			6671	195 mL	21.02220	21.02347	0.00127
DI Wash			6608	230 mL	21.33098	21.33256	0.00158
Field Blank							0.00182
Total Condensable Weight							0.00103
Total Particulate Weight							0.01505
		Field Tr	ain Blank				
Acetone/Hexane Wash			6680	95 mL	21.17322	21.17403	0.00081
DI Wash			6679	150 mL	21.06559	21.06660	0.00101
Total Field Train Blank							0.00182
			oof Blank				
		Reage	nt Blank S		A. A		
DI Wash			6667	100 mL	21.05731	21.05742	≤ 0.00025
Hexane Wash			6668	100 mL	21.12544	21.12563	≤ 0.00025
Acetone Wash (M5 Pans)			6727	100 mL	4.97722	4.97768	0.00046
	1		/MDL Sun	nmary			
Media		MDL, grams				RDL, grams	6
M5 Filter		0.00005				0.00015	
Acetone Wash (M5 Pans)		0.00008				0.00025	
Sample Vials (M202)		0.00008			1	0.00025	

Client:	PCC Structurals
Facility:	Carson City Facility
Project Number:	M231408
Test Location:	System 4
Test Method:	5
Filterable Analysis Date:	5/10/2023

#### Filter Drying Temp <sup>o</sup>F: 220 Analyst:

De	scription	Sample Date	ID#	vol. (ml)	Initial Weight (grams)	Final Weight (grams)	Net Weight Gain (grams)
			rable Part	iculate			•
Run 1		4/26/2023					
Source Condition:	Normal						
M5 Filter			6554		0.46788	0.47661	0.00873
Acetone Wash (M5 Pans)			6724	60 mL	4.94326	4.94653	0.00327
Acetone Blank							0.00028
Total Filterable Weight							0.01172
		Filte	rable Part	iculate			
Run 2 Source Condition:	Normal	4/26/2023					
M5 Filter			6779		0.46811	0.47151	0.00340
Acetone Wash (M5 Pans)			6725	65 mL	4.94466	4.94788	0.00322
Acetone Blank							0.00030
Total Filterable Weight							0.00632
			rable Part	iculate		1	1
Run 3 Source Condition:	Normal	4/26/2023					
M5 Filter			6563		0.46605	0.46647	0.00042
Acetone Wash (M5 Pans)			6726	75 mL	4.94671	4.95093	0.00422
Acetone Blank							0.00035
Total Filterable Weight							0.00429
		Reage	nt Blank S				
Acetone Wash (M5 Pans)			-	100 mL	4.97722	4.97768	0.00046
Media			./MDL Sur	nmary			
		MDL, grams				RDL, grams	5
M5 Filter		0.00005				0.00015	
Acetone Wash (M5 Pans)		0.00008				0.00025	
Sample Vials (M202)		0.00008				0.00025	

Client:	PCC Structurals
Facility:	Carson City Facility
Project Number:	M231408
Test Location:	System 5
Test Method:	5
Filterable Analysis Date:	5/10/2023

Filter Drying Temp °F: 220 Analyst: TWM

Desc	ription	Sample Date	ID#	vol. (ml)	Initial Weight	Final Weight	Net Weight Gain (grams)
Desc	inption				(grams)	(grams)	
			rable Part	iculate			
Run 1		4/27/2023					
Source Condition:	Normal						
M5 Filter			6555		0.46347	0.46585	0.00238
Acetone Wash (M5 Pans)			6712	55 mL	4.97665	4.98338	0.00673
Acetone Blank							0.00025
Total Filterable Weight							0.00886
			rable Part	iculate			
Run 2		4/27/2023					
Source Condition:	Normal						
M5 Filter			8385		0.44546	0.44788	0.00242
Acetone Wash (M5 Pans)			6713	60 mL	4.97791	4.98095	0.00304
Acetone Blank							0.00028
Total Filterable Weight							0.00518
			rable Part	iculate	r		
Run 3		4/27/2023					
Source Condition:	Normal						
M5 Filter			8373		0.44560	0.44683	0.00123
Acetone Wash (M5 Pans)			6714	70 mL	4.97741	4.98036	0.00295
Acetone Blank							0.00032
Total Filterable Weight							0.00386
		Reage	nt Blank S				
Acetone Wash (M5 Pans)				100 mL	4.97722	4.97768	0.00046
	I		/MDL Sun	nmary			
Media		MDL, grams				RDL, grams	
M5 Filter		0.00005				0.00015	
Acetone Wash (M5 Pans)		0.00008				0.00025	
Sample Vials (M202)		0.00008				0.00025	

Client:	PCC Structurals
Facility:	Carson City Facility
Project Number:	M231408
Test Location:	System 7
Test Method:	5/202
Filterable Analysis Date:	5/10/2023

Filter Drying Temp °F: 220 Analyst: TWM

		Sample Date	ID#	vol. (ml)	Initial Weight	Final Weight	Net Weight Gain (grams)
Des	scription				(grams)	(grams)	
		Filte	rable Part	iculate			
Run 1		4/27/2023					
Source Condition:	Normal						
M5 Filter			8386		0.44483	0.46147	0.01664
Acetone Wash (M5 Pans)			6716	85 mL	4.97602	4.99159	0.01557
Acetone Blank							0.00039
Total Filterable Weight							0.03182
			rable Part	iculate			•
Run 2		4/27/2023					
Source Condition:	Normal						
M5 Filter			8375		0.44624	0.44684	0.00060
Acetone Wash (M5 Pans)			6717	80 mL	4.99247	4.99397	0.00150
Acetone Blank							0.00037
Total Filterable Weight							0.00173
		Filte	rable Part	iculate			-
Run 3		4/27/2023					
Source Condition:	Normal						
M5 Filter			8372		0.44053	0.44100	0.00047
Acetone Wash (M5 Pans)			6718	80 mL	4.99458	4.99603	0.00145
Acetone Blank							0.00037
Total Filterable Weight							0.00155
		Reage	nt Blank S	Summary		•	•
Acetone Wash (M5 Pans)		-	6727	100 mL	4.97722	4.97768	0.00046
		RDL	/MDL Sur	nmary			
Media		MDL, grams				RDL, grams	
M5 Filter		0.00005				0.00015	
Acetone Wash (M5 Pans)		0.00008				0.00025	
Sample Vials (M202)		0.00008				0.00025	

Client:	PCC Structurals
Facility:	Carson City Facility
Project Number:	M231408
Test Location:	System 9
Test Method:	5/202
Filterable Analysis Date:	5/10/2023

Filter Drying Temp °F: 220 Analyst: TWM

Des	scription	Sample Date	ID#	vol. (ml)	Initial Weight	Final Weight	Net Weight Gain (grams)
Des	scription				(grams)	(grams)	
			rable Parti	iculate	-		
Run 1		4/26/2023					
Source Condition:	Normal						
M5 Filter			6769		0.46865	0.59536	0.12671
Acetone Wash (M5 Pans)			4700	70 mL	4.98962	5.07005	0.08043
Acetone Blank							0.00032
Total Filterable Weight							0.20682
		Filte	rable Parti	iculate			
Run 2		4/26/2023					
Source Condition:	Normal						
M5 Filter			6761		0.46629	0.58115	0.11486
Acetone Wash (M5 Pans)			4701	80 mL	4.95623	5.01737	0.06114
Acetone Blank			4701	00 IIIL	4.93023	5.01757	0.00037
Total Filterable Weight							0.17563
Total Thiterable Weight		Filte	rable Parti	iculate			0.17505
Run 3		4/26/2023					
Source Condition:	Normal						
M5 Filter			6773		0.46592	0.53638	0.07046
Acetone Wash (M5 Pans)			4702	85 mL	4.95399	5.00549	0.05150
Acetone Blank							0.00039
Total Filterable Weight							0.12157
		Reage	nt Blank S				
Acetone Wash (M5 Pans)			6727	100 mL	4.97722	4.97768	0.00046
			/MDL Sun	nmary			
Media		MDL, grams				RDL, grams	
M5 Filter		0.00005				0.00015	
Acetone Wash (M5 Pans)		0.00008				0.00025	
Sample Vials (M202)		0.00008				0.00025	

## Appendix E - Reference Method Test Data

	<b>DOO 0</b> (1)		
Client:	PCC Stru		
Facility:	Carson Cit		
Test Location:	Syste		
Project #:	M231		
Test Method:	2		
Test Engineer:	Roc		
Test Technician:	AM		
Temp ID:	CM		
Meter ID:	CM		
Pitot ID:	Stand		
Pitot Type:	Stand		
Pitot Tube Coefficient:	0.9		
Probe Length:	1.(		ft
Sample Plane:	Horizo		
Port Length:	3.0		in.
Port Size (diameter):	2.0	0	in.
Port Type:	Nipp		
Duct Shape:	Circu		
Diameter:	0.2		ft
Duct Area:	0.0	5	Sq. Ft.
Upstream Diameters:	18.0	00	
Downstream Diameters:	15.0	00	
Number of Ports Sampled:	2		
Number of Points per Port:	8		
Total Number of Traverse Points:	16	6	
Operating Level:	Norr	nal	
Point Markings (including port length):	Point #	Inches	
	1	3.096	
	2	3.315	
	3	3.582	
	4	3.969	
	5	5.031	
	6	5.418	
	7	5.685	
	•	<b>F</b> 004	

8

5.904

#### Method 1 and 2 Cyclonic Flow Check Data

Projec Client Facilit Locati Pitot I Pitot C Probe	: on: D: Coeffi	icient:	M231408 PCC Struct Carson Cit System 1 Standard 0.990 1					Source Co Run No.: Date: Start Time: End Time: RM Testers Port Lengt	5:	on:	Normal 1 4/26/2023 6:25 6:40 Rods/AMS 3.00				
		DP	Sqrt.	Temp	Yaw		Velocity			DP	Sqrt.	Temp	Yaw		Velocity
Port F	Point	(in. H <sub>2</sub> O)	DP	(°F)	(0)		(V)	Port Point		(in. H <sub>2</sub> O)	DP	(°F)	(o)		(V)
Α	1	0.10	0.3162	215.0	0.0	0.0	26.38	в	1	0.09	0.3000	215.0	0.0	0.0	25.02
Α	2	0.10	0.3162	215.0	1.0	1.0	26.38	в	2	0.12	0.3464	215.0	0.0	0.0	28.89
Α	3	0.11	0.3317	216.0	0.0	0.0	27.68	в	3	0.11	0.3317	216.0	1.0	1.0	27.68
Α	4	0.15	0.3873	217.0	0.0	0.0	32.35	в	4	0.15	0.3873	216.0	2.0	2.0	32.33
Α	5	0.17	0.4123	217.0	2.0	2.0	34.44	в	5	0.17	0.4123	216.0	1.0	1.0	34.42
Α	6	0.19	0.4359	217.0	0.0	0.0	36.41	в	6	0.17	0.4123	217.0	0.0	0.0	34.44
Α	7	0.20	0.4472	217.0	1.0	1.0	37.36	в	7	0.19	0.4359	217.0	2.0	2.0	36.41
Α	8	0.21	0.4583	217.0	2.0	2.0	38.28	В	8	0.21	0.4583	217.0	3.0	3.0	38.28

Average Yaw Angle

0.9 °

Project Number:	M231408	Operating Level:	Normal		
Client:	PCC Structurals	Run No.:	Pre 1		
Facility:	Carson City Facility	Test Date:	4/26/2023		
Test Location:	System 1	Start Time:	6:25		
Pitot ID:	Standard	End Time:	6:40		
Pitot Coefficient:	0.990	Test Engineer:	Rods	Test Tech:	AMS
Probe Length, Feet:	1	Port Length, Inches:	3		

		DP	Sqrt.	Temp	Velocity			DP	Sqrt.	Temp	Velocity
Port	Point	(in. H <sub>2</sub> O)	DP	(°F)	(V)	Port Po	oint	(in. H <sub>2</sub> O)	DP	(°F)	(V)
Α	. 1	0.10	0.3162	215.0	26.38	В	1	0.09	0.3000	215.0	25.02
Α	2	0.10	0.3162	215.0	26.38	В	2	0.12	0.3464	215.0	28.89
Α	3	0.11	0.3317	216.0	27.68	В	3	0.11	0.3317	216.0	27.68
Α	4	0.15	0.3873	217.0	32.35	В	4	0.15	0.3873	216.0	32.33
Α	5	0.17	0.4123	217.0	34.44	В	5	0.17	0.4123	216.0	34.42
Α	6	0.19	0.4359	217.0	36.41	В	6	0.17	0.4123	217.0	34.44
Α	7	0.20	0.4472	217.0	37.36	В	7	0.19	0.4359	217.0	36.41
Α	. 8	0.21	0.4583	217.0	38.28	В	8	0.21	0.4583	217.0	38.28

Test Parameters				
P <sub>bar</sub> - Barometric pressure, inches Hg	25.34	% CO <sub>2</sub>	0.50	
P <sub>g</sub> - Stack Pressure, inches of H <sub>2</sub> O	0.10	% O <sub>2</sub>	20.50	
P <sub>s</sub> - Absolute stack pressure, inches Hg	25.35	% N <sub>2</sub>	79.00	
$t_s$ - Average stack temperature, $^{\circ}F$	216.3	Md - dry basis lb/lb mole	28.90	
Duct Shape:	Circular	Ms - wet basis lb/lb mole	27.418	
Diameter, Feet	0.25			
		Bws - Moisture content fi	raction	0.136
Cross Sectional Area of Stack, Ft <sup>2</sup>	0.05	Moisture determined by wh	o/db?	Ν
Method 2 Results				
Average DP	0.1525	Q - ACFM	97	
Average Sqrt DP	0.3868	Qsd - DSCFM	55	
Average Velocity Vs (ft/sec)	32.295	Qs - SCFM	64	
		Qs - SCFH	3,845	

Project Number:	M231408	Operating Level:	Normal		
Client:	PCC Structurals	Run No.:	Post 1/Pre	2	
Facility:	Carson City Facility	Test Date:	4/26/2023		
Test Location:	System 1	Start Time:	7:46		
Pitot ID:	Standard	End Time:	7:49		
Pitot Coefficient:	0.990	Test Engineer:	Rods	Test Tech:	AMS
Probe Length, Feet:	1	Port Length, Inches:	3		
		-			

		DP	Sqrt.	Temp	Velocity			DP	Sqrt.	Temp	Velocity
Port	Point	(in. H <sub>2</sub> O)	DP	(°F)	(V)	Port Po	oint	(in. H₂O)	DP	(°F)	(V)
Α	. 1	0.05	0.2236	214.0	18.64	В	1	0.04	0.2000	214.0	16.67
Α	2	0.05	0.2236	214.0	18.64	В	2	0.05	0.2236	214.0	18.64
Α	3	0.07	0.2646	215.0	22.07	В	3	0.05	0.2236	214.0	18.64
Α	4	0.07	0.2646	214.0	22.05	В	4	0.05	0.2236	214.0	18.64
Α	5	0.08	0.2828	214.0	23.58	В	5	0.06	0.2449	215.0	20.43
Α	6	0.07	0.2646	214.0	22.05	В	6	0.07	0.2646	215.0	22.07
Α	7	0.08	0.2828	214.0	23.58	В	7	0.08	0.2828	215.0	23.60
Α	8	0.09	0.3000	214.0	25.01	В	8	0.08	0.2828	215.0	23.60

Test Parameters				
P <sub>bar</sub> - Barometric pressure, inches Hg	25.34	% CO <sub>2</sub>	0.50	
Pg - Stack Pressure, inches of H2O	0.01	% O <sub>2</sub>	20.50	
Ps - Absolute stack pressure, inches Hg	25.34	% N <sub>2</sub>	79.00	
$t_s$ - Average stack temperature, $^{\circ}F$	214.3	Md - dry basis lb/lb mole	28.90	
Duct Shape:	Circular	Ms - wet basis lb/lb mole	27.418	
Diameter, Feet	0.25			
		Bws - Moisture content fi	raction	0.136
Cross Sectional Area of Stack, Ft <sup>2</sup>	0.05	Moisture determined by wh	o/db?	Ν
Method 2 Results				
Average DP	0.0650	Q - ACFM	63	
Average Sqrt DP	0.2533	Qsd - DSCFM	36	
Average Velocity Vs (ft/sec)	21.119	Qs - SCFM	42	
		Qs - SCFH	2,521	

Project Number:	M231408	Operating Level:	Normal		
Client:	PCC Structurals	Run No.:	Post 2/Pre	3	
Facility:	Carson City Facility	Test Date:	4/26/2023		
Test Location:	System 1	Start Time:	9:01		
Pitot ID:	Standard	End Time:	9:14		
Pitot Coefficient:	0.990	Test Engineer:	Rods	Test Tech:	AMS
Probe Length, Feet:	1	Port Length, Inches:	3		

		DP	Sqrt.	Temp	Velocity			DP	Sqrt.	Temp	Velocity
Port	Point	(in. H <sub>2</sub> O)	DP	(°F)	(V)	Port P	oint	(in. H <sub>2</sub> O)	DP	(°F)	(V)
Α	. 1	0.10	0.3162	214.0	26.31	В	1	0.11	0.3317	214.0	27.59
Α	2	0.10	0.3162	214.0	26.31	В	2	0.13	0.3606	214.0	30.00
Α	3	0.11	0.3317	214.0	27.59	В	3	0.15	0.3873	214.0	32.22
Α	4	0.12	0.3464	215.0	28.84	В	4	0.14	0.3742	214.0	31.13
Α	5	0.14	0.3742	215.0	31.15	В	5	0.14	0.3742	215.0	31.15
Α	6	0.14	0.3742	216.0	31.18	В	6	0.14	0.3742	215.0	31.15
Α	7	0.15	0.3873	217.0	32.29	В	7	0.13	0.3606	216.0	30.04
Α	8	0.15	0.3873	217.0	32.29	В	8	0.14	0.3742	216.0	31.18

Test Parameters				
P <sub>bar</sub> - Barometric pressure, inches Hg	25.34	% CO <sub>2</sub>	0.50	
$P_g$ - Stack Pressure, inches of $H_2O$	0.10	% O <sub>2</sub>	20.50	
P <sub>s</sub> - Absolute stack pressure, inches Hg	25.35	% N <sub>2</sub>	79.00	
$t_s$ - Average stack temperature, $^{\circ}F$	215.0	Md - dry basis lb/lb mole	28.90	
Duct Shape:	Circular	Ms - wet basis lb/lb mole	27.516	
Diameter, Feet	0.25			
Cross Sectional Area of Stack, Ft <sup>2</sup>	0.05	Bws - Moisture content for Moisture determined by wb		<b>0.127</b> N
Cross Sectional Area of Stack, Ft <sup>2</sup>	0.05			
	0.05 0.1306			
Method 2 Results		Moisture determined by w	o/db?	
Method 2 Results Average DP	0.1306	Moisture determined by wb	90	

Project Number:	M231408	Operating Level:	Normal		
Client:	PCC Structurals	Run No.:	Post 3		
Facility:	Carson City Facility	Test Date:	4/26/2023		
Test Location:	System 1	Start Time:	10:16		
Pitot ID:	Standard	End Time:	10:30		
Pitot Coefficient:	0.990	Test Engineer:	Rods	Test Tech:	AMS
Probe Length, Feet:	1	Port Length, Inches:	3		
•		•			

		DP	Sqrt.	Temp	Velocity			DP	Sqrt.	Temp	Velocity
Port	Point	(in. H <sub>2</sub> O)	DP	(°F)	(V)	Port Po	oint	(in. H <sub>2</sub> O)	DP	(°F)	(V)
Α	. 1	0.08	0.2828	212.0	23.49	В	1	0.07	0.2646	212.0	21.98
Α	2	0.08	0.2828	212.0	23.49	В	2	0.08	0.2828	212.0	23.49
Α	3	0.08	0.2828	212.0	23.49	В	3	0.07	0.2646	212.0	21.98
Α	4	0.09	0.3000	212.0	24.92	В	4	0.07	0.2646	212.0	21.98
Α	5	0.10	0.3162	212.0	26.27	В	5	0.09	0.3000	212.0	24.92
Α	6	0.10	0.3162	213.0	26.29	В	6	0.11	0.3317	213.0	27.57
Α	7	0.10	0.3162	214.0	26.30	В	7	0.12	0.3464	213.0	28.79
Α	8	0.09	0.3000	214.0	24.96	В	8	0.11	0.3317	213.0	27.57

Test Parameters				
P <sub>bar</sub> - Barometric pressure, inches Hg	25.34	% CO <sub>2</sub>	0.50	
$P_g$ - Stack Pressure, inches of $H_2O$	0.10	% O <sub>2</sub>	20.50	
P <sub>s</sub> - Absolute stack pressure, inches Hg	25.35	% N <sub>2</sub>	79.00	
$t_s$ - Average stack temperature, $^{\circ}F$	212.5	Md - dry basis lb/lb mole	28.90	
Duct Shape:	Circular	Ms - wet basis lb/lb mole	27.527	
Diameter, Feet	0.25			
		Bws - Moisture content fi	raction	0.126
Cross Sectional Area of Stack, Ft <sup>2</sup>	0.05	Moisture determined by wh	o/db?	Ν
Method 2 Results				
Average DP	0.0900	Q - ACFM	75	
Average Sqrt DP	0.2990	Qsd - DSCFM	43	
Average Velocity Vs (ft/sec)	24.842	Qs - SCFM	50	
		Qs - SCFH	2,974	

## **METHOD 4 MOISTURE DETERMINATION**

Project Number	: M231408		Run Number:	1	
Client:	PCC Structur	als	Operating Level:	Normal	
Facility:	Carson City F	Facility	Time: S	tart- 6:45	<b>End-</b> 7:45
Test Location:	System 1		Test Engineer:	Rods	
Fest Date:	4/26/2023		Test Tech:	AMS	
Pressure, Baron	netric(Hg"):	25.34	Meter Calibration (Y):	0.999	
Pressure, Static	(H <sub>2</sub> O"):	0.10	Meter Delta H (dH):	1.687	
Pressure, Stack	(Hg"):	25.35	Sample Delta H (dH):	1.700	
Temperature, St	ack (°F):	220	Initial Wt:	922.5	
Meter Initial Vol	ume:	30.008	Final Wt:	935.8	
Meter Final Volu	ıme:	76.778	Initial Volume:	2085.7	
Meter Temperat	ure:	60.60	Final Volume:	2207.0	
Meter Volume d	scf:	40.331	Water Vapor in Flue Gas (Bw	s): 0.136	
Project Number	• M231408		Run Number:	2	
Client:	PCC Structur	als	Operating Level:	Normal	
Facility:	Carson City F			tart- 8:00	<b>End-</b> 9:00
Test Location:	System 1		Test Engineer:	Rods	<b></b> 0.00
Test Date:	4/26/2023		Test Tech:	AMS	
Pressure, Baron	netric(Hg"):	25.34	Meter Calibration (Y):	0.999	
Pressure, Static	(H₂O"):	0.10	Meter Delta H (dH):	1.687	
Pressure, Stack	(Hg"):	25.35	Sample Delta H (dH):	1.700	
Temperature, St	ack (°F):	220	Initial Wt:	909.7	
Meter Initial Volu	ume:	77.757	Final Wt:	924.4	
Meter Final Volu	ime:	124.059	Initial Volume:	2126.4	
Meter Temperat	ure:	71.50	Final Volume:	2232.9	
Meter Volume d	scf:	39.109	Water Vapor in Flue Gas (Bw	s): 0.127	
Project Number	• M231408		Run Number:	3	
Client:	PCC Structur	als	Operating Level:	3 Normal	
Facility:	Carson City F			tart- 9:15	<b>End-</b> 10:15
est Location:	System 1	aomy	Test Engineer:	Rods	LIIU- 10.10
Fest Date:	4/26/2023		Test Tech:	AMS	
Pressure, Baron	netric(Hg"):	25.34	Meter Calibration (Y):	0.999	
Pressure, Static	(H₂O"):	0.10	Meter Delta H (dH):	1.687	
Pressure, Stack	(Hg"):	25.35	Sample Delta H (dH):	1.700	
Temperature, St		214	Initial Wt:	912.7	
Meter Initial Vol		125.784	Final Wt:	927.8	
Meter Final Volu		174.734	Initial Volume:	2077.7	
Meter Temperat		81.20	Final Volume:	2187.5	
Weler remberan					

## PCC Structurals Carson City Facility System 1 Volumetric Flow Data - Normal Load

Test Run	Test Date	Pre Flow SCFM	Post Flow SCFM	Average Reference Method Flow SCFM
Pre 1/Post 1	04/26/23	64	42	53
Pre 2/Post 2	04/26/23	42	60	51
Pre 3/Post 3	04/26/23	60	50	55

Test Run	Test Date	Pre Flow DSCFM	Post Flow DSCFM	Average Reference Method Flow DSCFM
Pre 1/Post 1	04/26/23	55	36	46
Pre 2/Post 2	04/26/23	36	52	44
Pre 3/Post 3	04/26/23	52	43	48

Client: PCC Structurals Facility: Carson Facility Project #: M231408 Test Location: System 1 - Autoclave Operating Condition: Normal Date: 4/26/23 Run 1

Time	<u>O2 % (dry)</u>	<u>CO2 % (dry)</u>	THC ppmv
6:44	20.76	0.13	4.05
6:45	20.78	0.13	4.15
6:46	20.80	0.13	4.17
6:47	20.82	0.12	4.12
6:48	20.83	0.12	4.44
6:49	20.84	0.13	4.86
6:50	20.83	0.15	5.68
6:51	20.52	0.09	6.27
6:52	20.93	0.08	5.47
6:53	20.60	0.31	6.65
6:54	20.64	0.34	4.58
6:55	20.62	0.33	4.16
6:56	20.59	0.35	4.46
6:57	20.60	0.30	5.44
6:58	20.64	0.25	4.35
6:59 7:00	20.66	0.22 0.19	3.60 3.13
7:00	20.67 20.70	0.19	2.62
7:02	20.70	0.13	2.02
7:02	20.72	0.13	1.71
7:04	20.75	0.12	1.60
7:05	20.77	0.12	1.62
7:06	20.79	0.12	1.85
7:07	20.81	0.12	1.85
7:08	20.83	0.12	1.89
7:09	20.83	0.12	2.02
7:10	20.84	0.11	1.68
7:11	20.85	0.11	1.63
7:12	20.85	0.11	1.74
7:13	20.80	0.24	15.29
7:15	20.95	0.06	8.46
7:16	20.69	0.24	18.02
7:17	20.67	0.28	23.74
7:18	20.65	0.29	17.59
7:19	20.62	0.30	14.65
7:20	20.59	0.30	15.67
7:21	20.57	0.30	16.34
7:22	20.54	0.30	16.94
7:23 7:24	20.52	0.30 0.29	16.70 16.24
7:24	20.49 20.47	0.29	15.40
7:26	20.47	0.29	14.68
7:20	20.45	0.29	14.61
7:28	20.44	0.29	13.80
7:29	20.41	0.29	13.15
7:30	20.40	0.29	12.37
7:31	20.39	0.29	11.78
7:32	20.38	0.29	11.11
7:33	20.38	0.28	10.37
7:34	20.37	0.28	9.81
7:35	20.36	0.28	8.73
7:36	20.36	0.28	8.62
7:37	20.36	0.28	7.98
7:38	20.36	0.26	6.64
7:39	20.40	0.21	4.94
7:40	20.43	0.19	4.04
7:41	20.43	0.18	3.38
7:42	20.39	0.23	3.84
7:43	20.42	0.18	3.89
7:44	20.43	0.17	3.20
Average Min	<b>20.61</b> 20.36	<b>0.21</b> 0.06	<b>7.70</b> 1.60
Max	20.36	0.06	23.74
Max	20.00	0.00	20.14

# Client: PCC Structurals Facility: Carson Facility Project #: M231408 Test Location: System 1 - Autoclave Operating Condition: Normal Date: 4/26/23 Run 2

Time	<u>O2 % (dry)</u>	<u>CO2 % (dry)</u>	THC ppmv
7:59	20.84	0.02	4.58
8:00	20.99	0.04	3.34
8:01	20.92	0.19	92.01
8:02	21.12	0.04	64.61
8:03	21.15	0.04	24.52
8:04	21.00	0.03	24.87
8:05	21.08	0.04	19.89
8:06	21.07	0.04	14.02
8:07	21.06	0.04	10.93
8:08	21.04	0.04	9.14
8:09	21.02	0.03	8.32
8:10	21.00	0.02	6.66
8:11	20.99	0.02	5.41
8:12	20.99	0.02	4.65
8:13	20.99	0.02	4.17
8:14	20.97	0.04	7.17
8:15	21.01	0.03	5.56
8:16	21.03	0.02	4.17
8:17	21.05	0.02	3.48
8:18	21.07	0.02	3.30
8:19	21.08	0.02	2.69
8:20	21.10	0.02	2.22
8:21	21.11	0.02	2.05
8:22	21.13	0.02	1.90
8:23	21.14	0.02	1.86
8:24 8:25	21.15	0.02	1.77
8:26	21.15 21.16	0.02 0.02	1.93 1.69
8:20	21.16	0.02	1.69
8:28	21.16	0.02	1.94
8:30	21.18	0.03	1.50
8:31	21.18	0.02	1.45
8:32	21.18	0.02	1.73
8:33	21.18	0.03	2.10
8:34	21.17	0.03	1.82
8:35	21.16	0.03	1.93
8:36	21.04	0.17	89.34
8:37	21.19	0.04	45.45
8:38	21.19	0.03	15.22
8:39	21.18	0.04	23.54
8:40	21.07	0.04	46.12
8:41	20.97	0.04	43.28
8:42	20.94	0.04	33.44
8:43	20.73	0.04	24.87
8:44	20.81	0.04	19.91
8:45	20.77	0.03	17.18
8:46	20.75	0.03	15.31
8:47	20.71	0.04	13.58
8:48	20.69	0.04	11.32
8:49	20.67	0.04	11.30
8:50	20.65	0.04	10.69
8:51	20.64	0.03	10.19
8:52	20.64	0.03	9.74
8:53	20.63	0.03	8.96
8:54	20.63	0.03	8.39
8:55	20.62	0.03	8.21
8:56	20.62	0.04	8.39
8:57	20.61	0.03	7.86
8:58	20.61	0.03	7.28
8:59	20.61	0.01	8.90
Average	20.96	0.03	14.20
Min	20.61	0.01	1.45
Max	21.19	0.19	92.01

# Client: PCC Structurals Facility: Carson Facility Project #: M231408 Test Location: System 1 - Autoclave Operating Condition: Normal Date: 4/26/23 Run 3

<u>Time</u> 9:14	<u>O2 % (dry)</u> 20.59	<u>CO2 % (dry)</u> 0.02	<u>THC ppmv</u> 2.40
9:15	20.59	0.02	2.43
9:16	20.59	0.02	2.55
9:17	20.60	0.02	2.47
9:18	20.46	0.02	86.71
9:19	20.63	0.04	69.01
9:20	20.62	0.03	21.81
9:21	20.62	0.03	17.94
9:22	20.62	0.03	18.81
9:23	20.50	0.03	23.35
9:24	20.58	0.03	27.87
9:25	20.58	0.03	25.65
9:26	20.59	0.03	22.61
9:27	20.62	0.03	21.35
9:28	20.63	0.03	20.31
9:29	20.62	0.03	20.80
9:30	20.62	0.03	22.14
9:31	20.61	0.03	22.69
9:32	20.61	0.03	21.90
9:33	20.61	0.03	20.34
9:34	20.60	0.03	19.70
9:35	20.60	0.03	19.50
9:36	20.59	0.02	18.83
9:37	20.60	0.03	18.42
9:38	20.59	0.03	17.50
9:39	20.59	0.02	17.03
9:40	20.58	0.02	15.08
9:41	20.58	0.02	10.51
9:42	20.58	0.02	9.47
9:43	20.58	0.01	9.07
9:45	20.57	0.02	8.42
9:46	20.57	0.02	7.81
9:47	20.57	0.02	8.27
9:48	20.57	0.02	8.06
9:49	20.56	0.02	7.58
9:50	20.57	0.02	6.90
9:51	20.57	0.02	6.70
9:52 9:53	20.56	0.02 0.03	6.93
9:54	20.56 20.55	0.03	7.57 7.19
9:55	20.55	0.02	6.12
9:56	20.57	0.02	5.49
9:57	20.55	0.02	7.91
9:58	20.57	0.00	8.29
9:59	20.56	0.01	6.64
10:00	20.56	0.01	5.67
10:00	20.57	0.01	5.37
10:02	20.58	0.01	4.25
10:03	20.57	0.01	3.84
10:04	20.57	0.01	3.54
10:05	20.56	0.01	3.55
10:06	20.57	0.01	3.29
10:07	20.56	0.02	3.18
10:08	20.57	0.01	3.01
10:09	20.57	0.01	3.27
10:10	20.57	0.01	3.15
10:11	20.57	0.01	2.81
10:12	20.57	0.01	2.71
10:13	20.57	0.01	2.84
10:14	20.57	0.01	2.65
Average	20.58	0.02	13.20
Min Max	20.46	0.01 0.16	2.40 86.71
IVIDA	20.63	0.10	00.71

Projec Client: Facility Locati Pitot II Pitot C Probe	y: on: D: Coeff	icient:	M231408 PCC Struc Carson Cit System 2 - 4039 0.840 6		ut			Source Col Run No.: Date: Start Time: End Time: RM Testers Port Lengt	::	on:	Normal 1 4/25/2023 3:05 3:20 AMS/RB 6.00				
		DP	Sqrt.	Temp	Yaw		Velocity			DP	Sqrt.	Temp	Yaw		Velocity
Port P	oint	(in. H <sub>2</sub> O)	DP	(°F)	(o)		(V)	Port Point		(in. H₂O)	DP	(°F)	(o)		(V)
Α	1	0.10	0.3162	1200.0	0.0	0.0	33.80	с	5	0.10	0.3162	1210.0	1.0	1.0	33.90
Α	2	0.11	0.3317	1209.0	1.0	1.0	35.55								
Α	3	0.11	0.3317	1210.0	2.0	2.0	35.56	D	1	0.10	0.3162	1211.0	3.0	3.0	33.91
Α	4	0.11	0.3317	1210.0	0.0	0.0	35.56	D	2	0.11	0.3317	1211.0	3.0	3.0	35.57
Α	5	0.10	0.3162	1211.0	2.0	2.0	33.91	D	3	0.11	0.3317	1211.0	1.0	1.0	35.57
								D	4	0.11	0.3317	1211.0	1.0	1.0	35.57
в	1	0.10	0.3162	1211.0	0.0	0.0	33.91	D	5	0.10	0.3162	1212.0	1.0	1.0	33.92
в	2	0.11	0.3317	1210.0	1.0	1.0	35.56								
в	3	0.12	0.3464	1210.0	1.0	1.0	37.14	E	1	0.10	0.3162	1212.0	2.0	2.0	33.92
в	4	0.11	0.3317	1211.0	2.0	2.0	35.57	E	2	0.10	0.3162	1213.0	2.0	2.0	33.93
в	5	0.10	0.3162	1211.0	0.0	0.0	33.91	E	3	0.11	0.3317	1213.0	3.0	3.0	35.59
								E	4	0.10	0.3162	1214.0	1.0	1.0	33.94
С	1	0.10	0.3162	1211.0	1.0	1.0	33.91	E	5	0.10	0.3162	1215.0	1.0	1.0	33.95
С	2	0.11	0.3317	1210.0	2.0	2.0	35.56								
С	3	0.13	0.3606	1210.0	1.0	1.0	38.66								
С	4	0.12	0.3464	1210.0	2.0	2.0	37.14								

Average Yaw Angle

1.4 °

Project No. M231408 Multiple Test Locations

				Run 1	- Method	1 5/202					
	Facility: Location:	PCC Struc Carson Cit System 2 -	y Facility					Date: Start Time: End Time:	3:	5/23 40 40	
Source	Condition:										
	DF	RY GAS METER		in 11.0				STACK CONDITIO		in ILO	=
	Meter Tem	∆H: perature, Tm:	1.88 53.7	in. H₂O °F			Fli	Static Pressure ue Pressure (Ps):		in. H <sub>2</sub> O in. Hg. abs.	
	Motor Fon	Sqrt ∆P:	0.325	in. H₂O				Carbon Dioxide:		%	
	Stack Ter	nperature, Ts:	1211.4	°F				Oxygen:	13.10	%	
	Meter	r Volume, Vm:	83.231	ft <sup>3</sup>				Nitrogen:	82.20	%	
		olume, Vmstd:	72.426	dscf				s Weight dry, Md:		lb/lb mole	
		olume, Vwstd:	5.577	wscf			Gas	Weight wet, Ms:		lb/lb mole	
	Isokin	netic Variance:	102.7	%I				Excess Air: Gas Velocity, Vs:		% fps	
		Test Length:	100.00	in mins.				Volumetric Flow:		acfm	
	No	zzle Diameter:	0.495	in inches				Volumetric Flow:		dscfm	
		etric Pressure:	25.22	in Hg				Volumetric Flow:		scfm	
				MOIST		ERMINATION	J				
	Initial Imp	inger Content:	1828.7	ml			ilica Initial Wt.	890.8	grams		=
		inger Content:	1929.2	ml			Silica Final Wt.	908.7	grams		
		ger Difference:	100.5	ml		Sili	ca Difference:	17.9	grams		
	Tett		110.4				0.074				
	TOTA	al Water Gain:	118.4		IV	loisture, Bws:	0.071				
		Velocity	Orifice	Actual	Stack	Meter	Temp	Probe	Filter	Impinger	CPM Filter
Port-	Clock	Head $\Delta \mathbf{p}$	$\Delta \mathbf{H}$	Meter Vol.	Temp	Inlet	Outlet	Temp	Exit Temp	Exit Temp	Exit Temp
Point No.	Time	in. H2O	in. H2O	ft <sup>3</sup>	°F	°F	°F	°F	°F	°F	°F
1-1	3:40:00 3:44:00	0.10	1.78 1.95	72.588 76.750	1208 1207	52 52	52 52	250 249	250 248	54 54	71 72
1-3	3:48:00	0.11	1.95	79.220	1208	52	52	248	247	54	72
1-4	3:52:00	0.10	1.78	82.610	1209	52	52	249	248	54	72
1-5	3:56:00	0.10	1.78	85.845	1210	52	52	250	249	54	72
	4:00:00			89.069							
2-1	4:05:00	0.10	1.78	89.069	1211	52	52	250	250	54	72
2-2 2-3	4:09:00 4:13:00	0.11	1.95 2.13	92.305 95.675	1212 1212	52 53	52 53	251 251	251 252	54 54	72 72
2-3	4:17:00	0.12	1.78	99.235	1212	53	53	251	252	54	72
2-5	4:21:00	0.10	1.78	102.475	1212	53	53	251	249	54	72
	4:25:00			105.707							
3-1	4:30:00	0.10	1.78	105.707	1213	53	53	252	248	54	72
3-2	4:34:00	0.11	1.95	108.950	1214	53	53	254	251	54	72
3-3	4:38:00	0.12	2.13	112.335	1215	54	54	253	250	54	72
3-4	4:42:00	0.11	1.95	115.900	1218	54	54	252	250	54	72
3-5	4:46:00 4:50:00	0.10	1.78	119.275 122.522	1219	55	55	252	251	54	72
4-1	4:55:00	0.10	1.78	122.522	1214	55	55	251	250	55	73
4-2	4:59:00	0.11	1.95	125.775	1213	55	55	249	252	55	73
4-3	5:03:00	0.11	1.95	129.185	1203	55	55	249	249	55	73
4-4	5:07:00	0.11	1.95	132.595	1203	55	55	250	251	55	73
4-5	5:11:00 5:15:00	0.10	1.78	136.010 139.264	1202	55	55	250	250	55	73
5-1	5:15:00	0.10	1.78	139.264	1216	55	55	248	249	55	73
5-2	5:24:00	0.10	1.78	142.515	1214	55	55	249	250	56	74
5-3	5:28:00	0.11	1.95	145.765	1214	55	55	250	250	56	74
5-4	5:32:00	0.11	1.95	149.175	1212	55	55	252	251	56	74
5-5	5:36:00	0.10	1.78	152.575	1212	55	55	251	252	56	74
Tetel	5:40:00			155.819			50 -				<u> </u>
Total Average	1:40:00		1.88	83.231	1211.4	53.7 53.7	53.7				
Average Min			1.88		1211.4	53.7					
Max			2.13		1219.0	55.0					

Client:	PCC Structurals, Inc.	Scale Calibration Check Date:	4/25/2023
Facility:	Carson City Facility	Scale Calibration Check (see QS-	6.05C for procedure)
Test Location:	System 2 - Mold Burnout	must be within ± 0.5g of c	ertified mass
Project #:	M231408	Certified Weight, grams	Result, grams
Date:	4/25/2023	200	200.0
Test Method:	5/202		
Weighed/Measured By:	KLJ	500	500.0
Balance ID:	LV4		
		700	700.1

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS
Empty	433.1	432.2	0.9
Empty	643.1	639.5	3.6
DI Water	853.0	757.0	96.0
Silica Gel	908.7	890.8	17.9

1,9	29.2	1,828.7	100.5
Liqui	d Final	Liquid Initial	Liquid Gain
90	8.7	890.8	17.9
Silica	Final	Silica Initial	Silica Gain

					- Metho	d 5/202					
		PCC Struc	,					Date:	4/25		
_	-	Carson Cit						Start Time:	6:0		
		System 2 -	• Mold Bur	nout				End Time:	8:0	01	
Source	Condition:	Normal RY GAS METER	CONDITIONS					STACK CONDITIO	NS		
			1.84	In. H <sub>2</sub> O				Static Pressure		in. H <sub>2</sub> O	:
	Meter Terr	perature, Tm:	56.7	°F			Flu	ue Pressure (Ps):		in. Hg. abs.	
		Sqrt ∆P:	0.322	In. H <sub>2</sub> O				Carbon Dioxide:	5.00	%	
	Stack Ter	nperature, Ts:	1221.6	°F				Oxygen:	12.50	%	
	Meter	r Volume, Vm:	82.678	ft <sup>3</sup>				Nitrogen:	82.5	%	
	Meter Vo	olume, Vmstd:	71.514	dscf				s Weight dry, Md:	29.300	lb/lb mole	
		olume, Vwstd:	5.384	wscf			Gas	s Weight wet, Ms:		lb/lb mole	
	Isokin	etic Variance:	102.6	%I				Excess Air:		%	
		Teet Leveth.	100.00	in mine				Gas Velocity, Vs:		fps	
	No	Test Length: zzle Diameter:	100.00 0.495	in mins.				Volumetric Flow: Volumetric Flow:		acfm dscfm	
		etric Pressure:	0.495 25.22	in inches in Hg				Volumetric Flow:	,	scfm	
	Baronie	enic Flessule.	20.22	inny				volumente riow.	2,245	SCIIII	
				MOIST	URE DET	ERMINATION	I				
	Initial Imp	inger Content:	1847.5	ml		S	ilica Initial Wt.	906.5	grams		
	Final Imp	inger Content:	1950.5	ml		5	Silica Final Wt.	917.8	grams		
	Imping	ger Difference:	103.0	ml		Sili	ca Difference:	11.3	grams		
	Tota	al Water Gain:	114.3		Ν	loisture, Bws:	0.070				
		Velocity	Orifice	Actual	Stack	Meter	Temp	Probe	Filter	Impinger	CPM Filter
Port-	Clock	Head ∆p	$\Delta \mathbf{H}$	Meter Vol.	Temp	Inlet	Outlet	Temp	Exit Temp	Exit Temp	Exit Temp
Point No.	Time	in. H2O	in. H2O	ft <sup>3</sup>	°F	۴F	۴F	°F	°F	°F	°F
1-1	6:05:00	0.10	1.78	60.544	1215	53	53	248	249	45	73
1-2	6:09:00	0.10	1.78	63.780	1218	53	53	249	251	46	73
<u>1-3</u> 1-4	6:13:00 6:17:00	0.11	1.95 1.95	67.010 70.400	1223 1232	54 54	54 54	250 250	252 250	46 47	74 74
1-4	6:21:00	0.10	1.93	73.775	1232	55	55	252	230	47	74
	6:25:00			77.007							
2-1	6:29:00	0.10	1.78	77.007	1245	55	55	251	250	47	74
2-2	6:33:00	0.11	1.95	80.225	1249	55	55	250	250	48	74
2-3	6:37:00	0.11	1.95	83.600	1245	56	56	250	250	48	74
2-4	6:41:00	0.11	1.95	86.975	1195	56	56	252	249	47	74
2-5	6:45:00	0.10	1.78	90.415	1201	57	57	249	253	48	74
2.4	6:49:00	0.40	4 70	93.678	4000	<b>F7</b>	57	250	054	40	74
3-1 3-2	6:53:00 6:57:00	0.10	1.78 1.78	93.678 96.885	1262 1254	57 57	57 57	250 250	254 252	48	74 74
3-3	7:01:00	0.10	1.95	100.100	1236	58	58	249	250	48	74
3-4	7:05:00	0.11	1.95	103.480	1232	58	58	252	252	48	74
3-5	7:09:00	0.10	1.78	106.900	1239	59	59	250	250	50	74
	7:13:00			110.166							
4-1	7:17:00	0.10	1.78	110.166	1217	59	59	249	249	51	74
4-2	7:21:00	0.10	1.78	113.445	1208	60	60	247	250	52	76
4-3	7:25:00	0.10	1.78	116.720	1207	60	60	248	251	53	76
4-4	7:29:00	0.11	1.95	120.000	1203	59	59	252	250	54	74
4-5	7:33:00 7:37:00	0.11	1.95	123.450 126.888	1199	58	58	252	249	56	74
5-1	7:41:00	0.10	1.78	126.888	1206	57	57	251	251	56	73
5-2	7:45:00	0.10	1.78	130.150	1213	57	57	250	250	57	72
5-3	7:49:00	0.10	1.78	133.420	1207	57	57	252	250	58	71
5-4	7:53:00	0.10	1.78	136.670	1203	57	57	250	250	59	72
5-5	7:57:00	0.10	1.78	139.950 143.222	1197	57	57	250	251	60	73
Total	8:01:00 1:40:00	I		143.222 82.678		56.7	56.7	<u> </u>	1	1	l
Average	1.40.00		1.84		1221.6	56.7	50.7				
Min			1.78		1195.0	53.0					
Max			1.95	5	1262.0	60.0					

Client:	PCC Structurals, Inc.	Scale Calibration Check Date:	4/25/2023
Facility:	Carson City Facility	Scale Calibration Check (see QS-	6.05C for procedure)
Test Location:	System 2 - Mold Burnout	must be within ± 0.5g of c	ertified mass
Project #:	M231408	Certified Weight, grams	Result, grams
Date:	4/25/2023	200	200.0
Test Method:	5/202		
Weighed/Measured By:	KLJ	500	500.0
Balance ID:	LV4		
		700	700.1

MLS / GRAMS	MLS / GRAMS	MIC COAMC
		MLS / GRAMS
430.1	429.4	0.7
653.9	639.7	14.2
866.5	778.4	88.1
917.8	906.5	11.3
	653.9 866.5	653.9 639.7 866.5 778.4

1,950.5	1,847.5	103.0
Liquid Final	Liquid Initial	Liquid Gain
917.8	906.5	11.3
Silica Final	Silica Initial	Silica Gain

				Run 3	- Metho	d 5/202					
		PCC Struc						Date:	4/25		
Tee	-	Carson Cit						Start Time:	8:3		
		System 2 -	· Mold Bur	nout				End Time:	10:	31	
Source	Condition:	NORMAI RY GAS METER	CONDITIONS					STACK CONDITIO	ONS		
		ΔH:	1.82	In. H <sub>2</sub> O				Static Pressure		in. H <sub>2</sub> O	
	Meter Terr	nperature, Tm:	60.1	°F			Flu	ue Pressure (Ps):	25.22	in. Hg. abs.	
		Sqrt ∆P:	0.320	In. H <sub>2</sub> O				Carbon Dioxide:	4.30	%	
	Stack Ter	mperature, Ts:	1158.8	°F				Oxygen:	13.80	%	
	Meter	r Volume, Vm:	83.965	ft <sup>3</sup>				Nitrogen:	81.9	%	
		olume, Vmstd:	72.153	dscf				s Weight dry, Md:	29.240	lb/lb mole	
		olume, Vwstd:	5.530	wscf			Gas	s Weight wet, Ms:		lb/lb mole	
	Isokin	netic Variance:	102.2	%I				Excess Air:		%	
		Toot Longth:	100.00	in mins.				Gas Velocity, Vs: Volumetric Flow:		fps acfm	
	No	Test Length: zzle Diameter:	0.495	in inches				Volumetric Flow:		dscfm	
		etric Pressure:	25.22	in Hg				Volumetric Flow:		scfm	
	Daronic		20.22	innig				volumente ritow.	2,211	30111	
				MOIST	URE DET	ERMINATION	4				
	Initial Imp	inger Content:	1831.4	ml		S	Silica Initial Wt.	894.9	grams		-
	Final Imp	inger Content:	1940.1	ml		5	Silica Final Wt.	903.6	grams		
	Imping	ger Difference:	108.7	ml		Sili	ca Difference:	8.7	grams		
	Tota	al Water Gain:	117.4		Ν	Aoisture, Bws:	0.071				
		Velocity	Orifice	Actual	Stack	Meter	Temp	Probe	Filter	Impinger	CPM Filter
Port-	Clock	Head ∆p	$\Delta \mathbf{H}$	Meter Vol.	Temp	Inlet	Outlet	Temp	Exit Temp	Exit Temp	Exit Temp
Point No.	Time	in. H2O	in. H2O	ft <sup>3</sup>	°F	°F	°F	°F	°F	°F	°F
1-1	8:35:00	0.10	1.78	44.996	1199	59	59	251	246	64	83
1-2	8:39:00	0.11	1.95	48.290	1202	59	59	251	249	50	71
1-3	8:43:00	0.11	1.95	51.725	1192	59	59	250	251	52	71
1-4 1-5	8:47:00 8:51:00	0.10	1.78 1.78	55.180 58.520	1151 1159	59 59	59 59	250 251	251 251	51 52	71 70
1-5	8:55:00	0.10	1.70	61.846	1159	39	39	251	231	52	70
2-1	8:59:00	0.10	1.78	61.846	1165	59	59	251	250	53	71
2-2	9:03:00	0.10	1.78	65.170	1171	60	60	250	250	54	72
2-3	9:07:00	0.10	1.78	68.495	1159	60	60	250	249	56	74
2-4	9:11:00	0.11	1.95	71.820	1169	59	59	251	250	57	74
2-5	9:15:00	0.10	1.78	75.300	1151	60	60	250	250	58	74
	9:19:00			78.639							
3-1	9:23:00	0.10	1.78	78.639	1117	60	60	250	249	58	74
3-2	9:27:00	0.11	1.95	82.025	1163	59	59	251	250	58	75 75
3-3 3-4	9:31:00 9:35:00	0.11 0.10	1.95 1.78	85.500 88.640	1154 1155	60 60	60 60	250 250	251 250	59 59	75
3-5	9:39:00	0.10	1.78	91.975	1161	60	60	250	250	58	75
	9:43:00			95.309	-						
4-1	9:47:00	0.10	1.78	95.309	1167	60	60	250	250	58	76
4-2	9:51:00	0.10	1.78	98.635	1132	61	61	250	250	58	77
4-3	9:55:00	0.11	1.95	102.005	1138	61	61	250	250	59	77
4-4	9:59:00	0.10	1.78	105.540	1154	61	61	250	251	59	77
4-5	10:03:00 10:07:00	0.10	1.78	108.875 112.211	1159	61	61	251	251	59	77
5-1	10:07:00	0.10	1.78	112.211	1162	61	61	249	249	59	77
5-2	10:15:00	0.10	1.78	115.550	1163	61	61	250	251	59	78
5-3	10:19:00	0.10	1.78	118.890	1130	61	61	248	249	60	78
5-4	10:23:00	0.10	1.78	122.250	1141	61	61	251	249	60	78
5-5	10:27:00	0.10	1.78	125.615	1156	62	62	250	250	61	78
	10:31:00			128.961							
Total	1:40:00			83.965		60.1	60.1				
Average			1.82 1.78		1158.8	60.1 59.0					
Min Max			1.78		1117.0 1202.0	59.0 62.0					
					00	02.0					

Client:	PCC Structurals, Inc.	Scale Calibration Check Date:	4/25/2023
Facility:	Carson City Facility	Scale Calibration Check (see QS-	6.05C for procedure)
Test Location:	System 2 - Mold Burnout	must be within ± 0.5g of c	ertified mass
Project #:	M231408	Certified Weight, grams	Result, grams
Date:	4/25/2023	200	200.0
Test Method:	5/202		
Weighed/Measured By:	KLJ	500	500.0
Balance ID:	LV4		
		700	700.1

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS
Empty	433.3	431.9	1.4
Empty	655.7	640.4	15.3
DI Water	851.1	759.1	92.0
Silica Gel	903.6	894.9	8.7

1,940.1	1,831.4	108.7
Liquid Final	Liquid Initial	Liquid Gain
903.6	894.9	8.7
Silica Final	Silica Initial	Silica Gain

Client: Facility: Test Location: Project #: Test Method: Test Engineer: Test Technician:	Sy <u>Run 1</u>	PCC Structurals Carson City Facility /stem 3 - Air Furnac M231408 5/202 TWM RODS <u>Run 2</u>	es <u>Run 3</u>	
Meter ID: Pitot ID:	CM13 3002	CM13 3002	CM13 3002	
Filter ID:	6781	6780	6782	
Filter Pre-Weight (grams):	0.46808	0.46824	0.46946	
Nozzle Diameter (Inches):	0.166	0.166	0.166	
Meter Calibration Date:	4/18/2023	4/18/2023	4/18/2023	
Meter Calibration Factor (Y):	0.992	0.992	0.992	
Meter Orifice Setting (Delta H):	1.520	1.520	1.520	
Nozzle Kit ID Number and Material:	Quarts 6 (123)	Quarts 6 (123)	Quarts 6 (123)	
Pitot Tube Coefficient:		0.840		
Probe Length (Feet):		3.0		
Probe Liner Material:		Quartz		
Sample Plane:		Horizontal		
Port Length (Inches):		0.00		
Port Size (Diameter, Inches): Port Type:		4.00 Hole in duct		
Duct Shape:		Circular		
Diameter (Feet):		0.5		
Duct Area (Square Feet): Upstream Diameters: Downstream Diameters: Number of Ports Sampled: Number of Points per Port: Minutes per Point: Minutes per Reading: Total Number of Traverse Points: Test Length (Minutes): Train Type: Source Condition:	: 0.196 9.3 3.5 2 12 12 4.0 24 96 Anderson Box			
Moisture Balance ID: # of Runs		LV4 3		

Projec Client Facilit Locati Pitot I Pitot ( Probe	: y: on: D: Coeffi	cient:	M231408 PCC Struct Carson City System 3 - 3002 0.840 3		es			Source C Run No.: Date: Start Tim End Time RM Teste Port Len	ne: e: ers:	on:	Normal 1 4/25/2023 3:05 3:20 TWM 0.00				
		DP	Sqrt.	Temp	Yaw		Velocity			DP	Sqrt.	Temp	Yaw		Velocity
Port F	Point	(in. H <sub>2</sub> O)	DP	(°F)	(o)		(V)	Port Poir	nt	(in. H <sub>2</sub> O)	DP	(°F)	(o)		(V)
Α	1	3.10	1.7607	86.0	2.0	2.0	109.49	В	1	3.10	1.7607	86.0	1.0	1.0	109.49
Α	2	3.10	1.7607	86.0	1.0	1.0	109.49	В	2	3.10	1.7607	86.0	1.0	1.0	109.49
Α	3	3.00	1.7321	86.0	1.0	1.0	107.71	В	3	3.00	1.7321	86.0	1.0	1.0	107.71
Α	4	3.00	1.7321	86.0	2.0	2.0	107.71	в	4	3.00	1.7321	86.0	2.0	2.0	107.71
Α	5	3.00	1.7321	86.0	1.0	1.0	107.71	в	5	2.80	1.6733	86.0	1.0	1.0	104.06
Α	6	3.00	1.7321	86.0	1.0	1.0	107.71	в	6	2.80	1.6733	86.0	2.0	2.0	104.06
Α	7	2.80	1.6733	85.0	2.0	2.0	103.96	в	7	2.70	1.6432	86.0	1.0	1.0	102.18
Α	8	2.80	1.6733	85.0	1.0	1.0	103.96	в	8	2.70	1.6432	85.0	1.0	1.0	102.09
Α	9	2.70	1.6432	85.0	2.0	2.0	102.09	в	9	2.60	1.6125	85.0	1.0	1.0	100.18
Α	10	2.60	1.6125	85.0	1.0	1.0	100.18	в	10	2.60	1.6125	85.0	2.0	2.0	100.18
Α	11	2.60	1.6125	85.0	2.0	2.0	100.18	в	11	2.50	1.5811	85.0	2.0	2.0	98.24
Α	12	2.50	1.5811	85.0	1.0	1.0	98.24	В	12	2.50	1.5811	85.0	1.0	1.0	98.24

Average Yaw Angle

1.375 °

		•	y Facility		- Method	d 5/202		Date: Start Time: End Time:	3:	5/23 40 23	
	DR	RY GAS METER	CONDITIONS					STACK CONDITIO	ONS		_
		ΔH:	1.63	in. H₂O				Static Pressure	0.70	in. H₂O	•
	Meter Tem	perature, Tm:	53.7	°F			FI	ue Pressure (Ps):	25.27	in. Hg. abs.	
		Sqrt ∆P:	1.676	in. H₂O				Carbon Dioxide:		%	
	Stack Ten	nperature, Ts:	82.2	°F				Oxygen:		%	
		Volume, Vm:	79.598	ft <sup>3</sup>				Nitrogen:	#VALUE!	%	
		olume, Vmstd:	68.729	dscf			Ga	s Weight dry, Md:	29.000	lb/lb mole	
		olume, Vwstd:	0.499	wscf				s Weight wet, Ms:	28.921	lb/lb mole	
		etic Variance:	93.9	%I			Cat	Excess Air:	#VALUE!	%	
	1001111		0010	/01				Gas Velocity, Vs:	103.666	fps	
		Test Length:	96.00	in mins.				Volumetric Flow:	1,221	acfm	
	No	zzle Diameter:	0.166	in inches				Volumetric Flow:	997	dscfm	
		etric Pressure:	25.22	in Hg				Volumetric Flow:	1,004	scfm	
	Daronie	enc Flessule.	20.22	in rig				volumente riow.	1,004	SCIII	
				MOIS	TURE DE	FERMINATION	ı				
	Initial Impi	inger Content:	1758.7	ml		S	ilica Initial Wt.	874.5	grams		-
	Final Impi	inger Content:	1749.5	ml		S	Silica Final Wt.	894.3	grams		
	Imping	er Difference:	-9.2	ml		Sili	ca Difference:	19.8	grams		
	Tota	al Water Gain:	10.6		Ν	Noisture, Bws:	0.007	Supersatura	ation Value, Bws	s: 0.044	
		Velocity	Orifice	Actual	Stack	Meter	Temp	Probe	Filter	Impinger	CPM Fil
Port-	Clock	Head ∆p	$\Delta \mathbf{H}$	Meter Vol.	Temp	Inlet	Outlet	Temp	Exit Temp	Exit Temp	Exit Ten
Point No.	Time	in. H2O	in. H2O	ft <sup>3</sup>	°F	°F	°F	°F	°F	°F	°F
1-1	3:40:00	3.10	1.80	69.233	87	50	48	252	247	45	72
1-2											
1-2	3:44:00	3.10	1.80	72.660	86	50	48	252	247	44	71
1-2	3:44:00 3:48:00	3.10 3.00	1.80 1.74	72.660 76.110	86 86	50 50	48 48	252 252	247 248	44 44	71 70
1-3	3:48:00	3.00	1.74	76.110	86	50	48	252	248	44	70
1-3 1-4	3:48:00 3:52:00	3.00 3.00	1.74 1.74	76.110 79.480	86 86	50 50	48 48	252 252	248 248	44 44	70 70
1-3 1-4 1-5	3:48:00 3:52:00 3:56:00	3.00 3.00 3.00	1.74 1.74 1.74	76.110 79.480 82.860	86 86 86	50 50 50	48 48 48	252 252 252	248 248 248	44 44 43	70 70 70
1-3 1-4 1-5 1-6	3:48:00 3:52:00 3:56:00 4:00:00	3.00 3.00 3.00 2.90	1.74 1.74 1.74 1.68	76.110 79.480 82.860 86.230	86 86 86 86	50 50 50 50	48 48 48 48	252 252 252 252 251	248 248 248 248 249	44 44 43 44	70 70 70 70
1-3 1-4 1-5 1-6 1-7	3:48:00 3:52:00 3:56:00 4:00:00 4:04:00	3.00 3.00 3.00 2.90 2.80	1.74 1.74 1.74 1.68 1.62	76.110 79.480 82.860 86.230 89.570	86 86 86 86 85	50 50 50 50 50 51	48 48 48 48 48 48	252 252 252 251 251 251	248 248 248 249 249	44 44 43 44 43 43	70 70 70 70 70 70
1-3 1-4 1-5 1-6 1-7 1-8	3:48:00 3:52:00 3:56:00 4:00:00 4:04:00 4:08:00	3.00 3.00 2.90 2.80 2.80	1.74 1.74 1.74 1.68 1.62 1.62	76.110 79.480 82.860 86.230 89.570 92.850	86 86 86 86 85 85	50 50 50 50 51 51	48 48 48 48 48 48 48	252 252 252 251 251 251 248	248 248 248 249 249 249 242	44 44 43 44 43 43 42	70 70 70 70 70 70 70
1-3 1-4 1-5 1-6 1-7 1-8 1-9	3:48:00 3:52:00 3:56:00 4:00:00 4:04:00 4:08:00 4:12:00	3.00 3.00 3.00 2.90 2.80 2.80 2.70	1.74 1.74 1.74 1.68 1.62 1.62 1.57	76.110 79.480 82.860 86.230 89.570 92.850 96.130	86 86 86 85 85 85 85	50 50 50 51 51 51 54	48 48 48 48 48 48 48 49	252 252 252 251 251 251 248 253	248 248 248 249 249 249 242 242 248	44 44 43 44 43 44 43 42 43	70 70 70 70 70 70 70 70
1-3 1-4 1-5 1-6 1-7 1-8 1-9 1-10	3:48:00           3:52:00           3:56:00           4:00:00           4:04:00           4:08:00           4:12:00           4:16:00	3.00 3.00 2.90 2.80 2.80 2.70 2.60	1.74 1.74 1.74 1.68 1.62 1.62 1.62 1.57 1.51	76.110 79.480 82.860 86.230 99.570 92.850 96.130 99.350	86 86 86 85 85 85 85 85 85	50 50 50 51 51 54 55	48 48 48 48 48 48 48 49 49	252 252 251 251 251 248 253 253 251	248 248 248 249 249 249 242 248 248 249	44 44 43 44 43 44 43 42 43 46	70 70 70 70 70 70 70 70 70 70
1-3 1-4 1-5 1-6 1-7 1-8 1-9 1-10 1-11	3:48:00           3:52:00           3:56:00           4:00:00           4:04:00           4:12:00           4:16:00           4:20:00	3.00 3.00 2.90 2.80 2.80 2.70 2.60 2.60	1.74 1.74 1.74 1.68 1.62 1.62 1.57 1.51 1.51	76.110 79.480 82.860 86.230 92.850 96.130 99.350 102.530	86 86 86 85 85 85 85 85 85	50 50 50 51 51 54 55 57	48 48 48 48 48 48 49 49 49 50	252 252 251 251 251 248 253 251 251 251	248 248 248 249 249 249 242 248 248 249 251	44 44 43 44 43 42 43 42 43 46 49	70 70 70 70 70 70 70 70 70 70 70
1-3 1-4 1-5 1-6 1-7 1-8 1-9 1-10 1-11	3:48:00         3:52:00         3:56:00         4:00:00         4:04:00         4:12:00         4:16:00         4:20:00         4:24:00	3.00 3.00 2.90 2.80 2.80 2.70 2.60 2.60	1.74 1.74 1.74 1.68 1.62 1.62 1.57 1.51 1.51	76.110 79.480 82.860 86.230 92.850 96.130 99.350 102.530 105.710	86 86 86 85 85 85 85 85 85	50 50 50 51 51 54 55 57	48 48 48 48 48 48 49 49 49 50	252 252 251 251 251 248 253 251 251 251	248 248 248 249 249 249 242 248 248 249 251	44 44 43 44 43 42 43 42 43 46 49	70 70 70 70 70 70 70 70 70 70
1-3 1-4 1-5 1-6 1-7 1-8 1-9 1-10 1-11 1-12	3:48:00           3:52:00           3:56:00           4:00:00           4:04:00           4:12:00           4:16:00           4:20:00           4:24:00           4:28:00	3.00 3.00 2.90 2.80 2.80 2.70 2.60 2.60 2.50	1.74 1.74 1.74 1.68 1.62 1.62 1.57 1.51 1.51 1.51 1.45	76.110 79.480 82.860 86.230 92.850 96.130 99.350 102.530 105.710 108.823	86 86 86 85 85 85 85 85 85 85 85	50 50 50 51 51 54 55 57 58	48 48 48 48 48 48 49 49 50 50	252 252 251 251 251 248 253 251 251 251 252	248 248 249 249 249 242 248 249 251 247	44 44 43 44 43 42 43 42 43 46 49 53	70 70 70 70 70 70 70 70 70 70
1-3 1-4 1-5 1-6 1-7 1-8 1-9 1-10 1-11 1-12 2-1	3:48:00           3:52:00           3:55:00           4:00:00           4:04:00           4:12:00           4:16:00           4:20:00           4:24:00           4:28:00           4:35:00	3.00 3.00 2.90 2.80 2.80 2.70 2.60 2.60 2.50 3.10	1.74 1.74 1.74 1.68 1.62 1.62 1.57 1.51 1.51 1.51 1.45	76.110 79.480 82.860 86.230 99.570 92.850 96.130 99.350 102.530 105.710 108.823 108.823	86 86 86 85 85 85 85 85 85 85 85 85 85 85 85	50 50 50 51 51 54 55 57 58 59	48 48 48 48 48 48 49 49 50 50 50 50	252 252 251 251 251 248 253 251 251 251 252 251	248 248 249 249 249 242 248 249 251 247 250	44 44 43 44 43 42 43 42 43 46 49 53 56	70 70 70 70 70 70 70 70 70 70 70 70 70
1-3 1-4 1-5 1-6 1-7 1-8 1-9 1-10 1-11 1-12 2-1 2-2	3:48:00           3:52:00           3:56:00           4:00:00           4:04:00           4:12:00           4:16:00           4:20:00           4:24:00           4:35:00           4:39:00	3.00 3.00 2.90 2.80 2.80 2.60 2.60 2.50 3.10 3.10	1.74 1.74 1.74 1.68 1.62 1.62 1.57 1.51 1.51 1.51 1.45 1.80 1.80	76.110 79.480 82.860 86.230 99.570 92.850 96.130 99.350 102.530 105.710 108.823 108.823 112.310	86 86 86 85 85 85 85 85 85 85 85 85 85 85 85 85	50 50 50 51 51 54 55 57 58 59 59	48 48 48 48 48 48 49 49 50 50 50 50 53 53	252 252 251 251 251 248 253 251 251 251 251 251 251	248 248 249 249 249 242 248 249 251 247 250 250	44           43           43           43           43           43           42           43           46           49           53           56           56	70 70 70 70 70 70 70 70 70 70 70 70 70 7
1-3 1-4 1-5 1-6 1-7 1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3	3:48:00         3:52:00         3:56:00         4:00:00         4:04:00         4:08:00         4:12:00         4:16:00         4:20:00         4:24:00         4:35:00         4:39:00         4:43:00	3.00 3.00 2.90 2.80 2.80 2.60 2.60 2.50 3.10 3.00	1.74 1.74 1.74 1.68 1.62 1.62 1.57 1.51 1.51 1.51 1.45 1.80 1.80 1.74	76.110 79.480 82.860 86.230 99.570 92.850 96.130 99.350 102.530 105.710 108.823 108.823 112.310 115.800	86 86 85 85 85 85 85 85 85 85 85 85 85 85 84 84 84	50 50 50 51 51 54 55 57 58 59 59 59 59	48 48 48 48 48 48 49 49 50 50 50 50 53 53 53	252 252 251 251 248 253 251 251 251 251 251 251 251	248 248 249 249 242 242 248 249 251 247 250 250 250 250	44           43           43           43           43           43           42           43           46           49           53           56           56           56	70 70 70 70 70 70 70 70 70 70 70 70 70 7
1-3 1-4 1-5 1-6 1-7 1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4	3:48:00           3:52:00           3:55:00           4:00:00           4:04:00           4:08:00           4:12:00           4:16:00           4:20:00           4:24:00           4:35:00           4:39:00           4:43:00           4:47:00	3.00 3.00 2.90 2.80 2.80 2.60 2.60 2.50 3.10 3.00 3.00	1.74 1.74 1.74 1.68 1.62 1.62 1.57 1.51 1.51 1.51 1.45 1.80 1.80 1.80 1.74	76.110 79.480 82.860 86.230 99.570 92.850 96.130 99.350 102.530 105.710 108.823 108.823 112.310 115.800 119.230	86 86 85 85 85 85 85 85 85 85 85 85 85 85 84 84 84 84 84 84	50 50 50 51 51 54 55 57 58 59 59 59 60	48 48 48 48 48 48 49 49 50 50 50 50 53 53 53 53 53 53	252 252 251 251 248 253 251 251 251 252 251 251 251 251 251 251	248 248 249 249 242 242 248 249 251 247 250 250 250 250 250 248	44           43           43           43           43           43           42           43           46           49           53           56           56           56           56           56           56	70 70 70 70 70 70 70 70 70 70 70 70 70 7
1-3         1-4         1-5         1-6         1-7         1-8         1-9         1-10         1-11         1-12         2-1         2-2         2-3         2-4         2-5	3:48:00           3:52:00           3:55:00           4:00:00           4:04:00           4:08:00           4:12:00           4:16:00           4:20:00           4:24:00           4:35:00           4:39:00           4:43:00           4:47:00           4:51:00	3.00 3.00 2.90 2.80 2.80 2.60 2.60 2.50 3.10 3.00 3.00 2.80	1.74 1.74 1.74 1.68 1.62 1.62 1.57 1.51 1.51 1.51 1.51 1.45 1.80 1.80 1.74 1.74 1.74	76.110 79.480 82.860 86.230 99.570 92.850 96.130 99.350 102.530 105.710 108.823 108.823 112.310 115.800 119.230 122.690	86         86           86         85           85         85           85         85           85         85           84         84           84         82           80         80	50 50 50 51 51 54 55 57 58 59 59 59 59 60 61	48 48 48 48 48 48 49 49 50 50 50 50 53 53 53 53 53 53 53 53 53	252 252 251 251 248 253 251 251 251 251 251 251 251 251 251 250 249	248 248 249 249 242 242 248 249 251 247 250 250 250 250 250 248 245	44           43           43           43           43           42           43           46           49           53           56           56           56           56           56           56           56           56           55	70 70 70 70 70 70 70 70 70 70 70 70 70 7
1-3         1-4         1-5         1-6         1-7         1-8         1-9         1-10         1-11         1-12         2-1         2-2         2-3         2-4         2-5         2-6	3:48:00           3:52:00           3:55:00           4:00:00           4:04:00           4:08:00           4:12:00           4:16:00           4:20:00           4:24:00           4:35:00           4:39:00           4:43:00           4:51:00           4:55:00	3.00 3.00 2.90 2.80 2.80 2.70 2.60 2.60 2.50 3.10 3.00 3.00 2.80 2.80	1.74 1.74 1.74 1.68 1.62 1.62 1.57 1.51 1.51 1.51 1.45 1.80 1.80 1.80 1.74 1.74 1.62 1.62	76.110           79.480           82.860           86.230           89.570           92.850           96.130           99.350           102.530           105.710           108.823           112.310           115.800           119.230           122.690           126.010	86         86           86         85           85         85           85         85           85         85           84         84           84         82           80         78	50 50 50 51 51 54 55 57 58 59 59 59 60 61 61	48 48 48 48 48 48 49 49 50 50 50 50 53 53 53 53 53 53 53 53 53 53 53 53	252 252 251 251 248 253 251 251 251 251 251 251 251 251 251 250 249 248	248 248 249 249 242 242 248 249 251 247 250 250 250 250 250 250 248 245 249	44           43           43           43           43           42           43           46           49           53           56           56           56           56           56           56           55	70 70 70 70 70 70 70 70 70 70 70 70 70 7
1-3         1-4         1-5         1-6         1-7         1-8         1-9         1-10         1-11         1-12         2-1         2-2         2-3         2-4         2-5         2-6         2-7	3:48:00           3:52:00           3:55:00           4:00:00           4:04:00           4:08:00           4:12:00           4:16:00           4:20:00           4:24:00           4:35:00           4:39:00           4:47:00           4:55:00           4:59:00	3.00 3.00 2.90 2.80 2.80 2.70 2.60 2.60 2.50 3.10 3.10 3.00 3.00 2.80 2.80 2.80 2.80 2.70	1.74 1.74 1.74 1.68 1.62 1.62 1.57 1.51 1.51 1.51 1.45 1.80 1.80 1.74 1.74 1.62 1.62 1.62	76.110           79.480           82.860           86.230           89.570           92.850           96.130           99.350           102.530           105.710           108.823           112.310           115.800           119.230           122.690           126.010           129.380	86         86           86         85           85         85           85         85           85         85           84         84           84         84           87         80           78         77	50 50 50 51 51 54 55 57 58 59 59 59 60 61 61 61	48 48 48 48 48 49 49 50 50 50 50 53 53 53 53 53 53 53 53 53 53 53 53 53	252 252 251 251 251 248 253 251 251 251 251 251 251 251 251 251 251	248 248 249 249 242 242 248 249 251 247 250 250 250 250 250 250 248 245 249 251	44           43           43           43           43           42           43           46           49           53           56           56           56           56           55           55	70 70 70 70 70 70 70 70 70 70 70 70 71 71 71 71 71 71
1-3         1-4         1-5         1-6         1-7         1-8         1-9         1-10         1-11         1-12         2-1         2-2         2-3         2-4         2-5         2-6         2-7         2-8	3:48:00           3:52:00           3:56:00           4:00:00           4:04:00           4:12:00           4:16:00           4:20:00           4:24:00           4:35:00           4:39:00           4:51:00           4:55:00           5:03:00	3.00 3.00 2.90 2.80 2.80 2.70 2.60 2.60 2.50 3.10 3.10 3.00 2.80 2.80 2.80 2.80 2.70 2.70	1.74 1.74 1.74 1.68 1.62 1.62 1.57 1.51 1.51 1.45 1.80 1.80 1.80 1.74 1.74 1.62 1.62 1.57 1.57	76.110           79.480           82.860           86.230           89.570           92.850           96.130           99.350           102.530           105.710           108.823           112.310           115.800           119.230           122.690           126.010           129.380           132.680	86         86           86         85           85         85           85         85           85         85           84         84           84         84           87         77           76         76	50 50 50 51 51 54 55 57 58 59 59 59 60 61 61 61 61	48 48 48 48 48 49 49 50 50 50 50 53 53 53 53 53 53 53 53 53 53 53 53 53	252 252 251 251 251 253 251 251 251 251 251 251 251 251 251 251	248 248 249 249 242 242 248 249 251 247 250 250 250 250 250 250 250 248 245 249 251 247	44           43           43           43           43           42           43           46           49           53           56           56           56           56           55           55           55           55           55           55           55           55           54	70 70 70 70 70 70 70 70 70 70 70 70 71 71 71 71 71 71 71
1-3         1-4         1-5         1-6         1-7         1-8         1-9         1-10         1-11         1-12         2-1         2-2         2-3         2-4         2-5         2-6         2-7         2-8         2-9	3:48:00           3:52:00           3:55:00           4:00:00           4:04:00           4:10:00           4:12:00           4:16:00           4:20:00           4:24:00           4:35:00           4:43:00           4:51:00           4:59:00           5:03:00           5:07:00           5:11:00	3.00 3.00 3.00 2.90 2.80 2.80 2.60 2.60 2.50 3.10 3.10 3.00 2.80 2.80 2.80 2.80 2.70 2.60	1.74 1.74 1.74 1.68 1.62 1.62 1.57 1.51 1.51 1.45 1.80 1.80 1.74 1.74 1.62 1.62 1.57 1.57 1.57	76.110           79.480           82.860           86.230           89.570           92.850           96.130           99.350           102.530           105.710           108.823           112.310           115.800           122.690           126.010           129.380           132.680           135.990	86         86           86         85           85         85           85         85           85         85           84         84           84         84           84         82           80         78           77         76           75         75	50           50           50           51           51           54           55           57           58           59           59           60           61           61           61           61	48 48 48 48 48 49 49 50 50 50 50 50 53 53 53 53 53 53 53 53 53 53 53 53 53	252 252 251 251 251 253 251 251 251 251 251 251 251 251 251 250 249 248 248 248 248	248 248 249 249 249 242 248 249 251 247 250 250 250 250 250 250 250 250 250 250	44           43           43           43           43           42           43           46           49           53           56           56           56           56           55           55           55           54	70 70 70 70 70 70 70 70 70 70 70 70 71 71 71 71 71 71 71 71
1-3         1-4         1-5         1-6         1-7         1-8         1-9         1-10         1-11         1-12         2-1         2-2         2-3         2-4         2-5         2-6         2-7         2-8         2-9         2-10         2-11	3:48:00           3:52:00           3:55:00           4:00:00           4:04:00           4:12:00           4:16:00           4:20:00           4:24:00           4:35:00           4:39:00           4:55:00           4:59:00           5:03:00           5:07:00           5:11:00	3.00 3.00 3.00 2.90 2.80 2.80 2.60 2.60 2.60 3.10 3.10 3.00 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.50	1.74 1.74 1.74 1.68 1.62 1.62 1.57 1.51 1.51 1.45 1.80 1.80 1.74 1.80 1.74 1.62 1.62 1.57 1.57 1.57 1.51 1.51 1.51 1.51	76.110           79.480           82.860           86.230           89.570           92.850           96.130           99.350           102.530           105.710           108.823           112.310           115.800           122.690           126.010           129.380           135.990           139.210           142.440	86         86           86         85           85         85           85         85           85         85           84         84           84         82           80         78           77         76           75         75           75         75	50           50           50           51           51           54           55           57           58           59           59           60           61           61           61           61           61           61           61           61           61           61           61           61           61           61           61	48         48         48         48         48         48         49         50         50         53         53         53         53         53         53         53         54         54         54         54         54         54         54         54         54         54	252 252 251 251 251 253 251 251 251 251 251 251 251 251 251 251	248 248 249 249 249 242 248 249 251 247 250 250 250 250 250 248 249 251 247 249 251 247 249 250	44           43           43           43           43           42           43           46           49           53           56           56           56           55           55           55           54           54	70           70           70           70           70           70           70           70           70           70           70           70           70           70           70           70           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71
1.3         1.4         1.5         1.6         1.7         1.8         1.9         1.10         1.11         1.12         2.1         2.2         2.3         2.4         2.5         2.6         2.7         2.8         2.9         2.10	3:48:00           3:52:00           3:55:00           4:00:00           4:04:00           4:12:00           4:16:00           4:20:00           4:24:00           4:35:00           4:39:00           4:55:00           4:55:00           5:03:00           5:07:00           5:15:00           5:19:00	3.00 3.00 3.00 2.90 2.80 2.80 2.60 2.60 2.50 3.10 3.10 3.00 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.60 2.50 2.60 2.50 2.60 2.60 2.60 2.50 2.60 2.50 2.50 2.60 2.50 2.60 2.50 2.50 2.50 2.60 2.50 2.60 2.50 2.60 2.60 2.50 2.60 2.60 2.60 2.50 2.60 2.60 2.60 2.60 2.60 2.50 2.60	1.74 1.74 1.74 1.68 1.62 1.62 1.57 1.51 1.51 1.45 1.80 1.80 1.74 1.74 1.62 1.62 1.57 1.57 1.57 1.51 1.51	76.110           79.480           82.860           86.230           89.570           92.850           96.130           99.350           102.530           105.710           108.823           112.310           115.800           122.690           126.010           129.380           135.990           139.210           142.440           145.610	86         86           86         85           85         85           85         85           85         85           84         84           84         84           87         77           76         75           75         75	50           50           50           51           51           54           55           57           58           59           59           60           61           61           61           61           61           61           61	48 48 48 48 48 49 49 50 50 50 50 50 53 53 53 53 53 53 53 53 53 53 53 53 53	252 252 251 251 251 253 251 251 251 251 251 251 251 251 251 251	248 248 249 249 249 242 248 249 251 247 250 250 250 250 250 250 250 250 250 250	44           43           43           43           43           42           43           46           49           53           56           56           56           55           55           55           54           54	70 70 70 70 70 70 70 70 70 70 70 71 71 71 71 71 71 71 71 71
1-3         1-4         1-5         1-6         1-7         1-8         1-9         1-10         1-11         1-12         2-1         2-2         2-3         2-4         2-5         2-6         2-7         2-8         2-9         2-10         2-12	3:48:00           3:52:00           3:55:00           4:00:00           4:04:00           4:10:00           4:12:00           4:16:00           4:20:00           4:24:00           4:35:00           4:39:00           4:51:00           4:59:00           5:03:00           5:11:00           5:15:00           5:19:00           5:23:00	3.00 3.00 3.00 2.90 2.80 2.80 2.60 2.60 2.60 3.10 3.10 3.00 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.50	1.74 1.74 1.74 1.68 1.62 1.62 1.57 1.51 1.51 1.45 1.80 1.80 1.74 1.80 1.74 1.62 1.62 1.57 1.57 1.57 1.51 1.51 1.51 1.51	76.110           79.480           82.860           86.230           89.570           92.850           96.130           99.350           102.530           105.710           108.823           112.310           115.800           122.690           126.010           129.380           135.990           139.210           142.440           148.831	86         86           86         85           85         85           85         85           85         85           84         84           84         82           80         78           77         76           75         75           76         75           76         75	50           50           50           51           51           54           55           57           58           59           59           60           61           61           61           61           61           61           61           61           61           61           61           61           61           61           61           60           60	48         48         48         48         48         48         49         50         50         53         53         53         53         53         53         53         54         54         54         54         54         54         54         54         54         54	252 252 251 251 251 253 251 251 251 251 251 251 251 251 251 251	248 248 249 249 249 242 248 249 251 247 250 250 250 250 250 248 249 251 247 249 251 247 249 250	44         43         43         43         42         43         42         43         42         53         56         56         56         55         55         55         54         54	70           70           70           70           70           70           70           70           70           70           70           70           70           70           70           70           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71
1-3         1-4         1-5         1-6         1-7         1-8         1-9         1-10         1-11         1-12         2-1         2-2         2-3         2-4         2-5         2-6         2-7         2-8         2-9         2-10         2-12	3:48:00           3:52:00           3:55:00           4:00:00           4:04:00           4:12:00           4:16:00           4:20:00           4:24:00           4:35:00           4:39:00           4:55:00           4:55:00           5:03:00           5:07:00           5:15:00           5:19:00	3.00 3.00 3.00 2.90 2.80 2.80 2.60 2.60 2.60 3.10 3.10 3.00 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.50	1.74 1.74 1.74 1.74 1.68 1.62 1.57 1.51 1.51 1.45 1.80 1.80 1.74 1.80 1.74 1.62 1.57 1.57 1.57 1.51 1.51 1.45 1.45	76.110           79.480           82.860           86.230           89.570           92.850           96.130           99.350           102.530           105.710           108.823           112.310           115.800           122.690           126.010           129.380           135.990           139.210           142.440           145.610           148.831           79.598	86         86           86         85           85         85           85         85           85         85           84         84           84         82           80         78           77         76           75         75           76         75           76         75	50           50           50           51           51           54           55           57           58           59           59           60           61           61           61           61           61           61           61           61           61           61           61           61           61           61           61           62           55.2	48 48 48 48 48 49 49 50 50 50 50 53 53 53 53 53 53 53 53 53 53 53 53 53	252 252 251 251 251 253 251 251 251 251 251 251 251 251 251 251	248 248 249 249 249 242 248 249 251 247 250 250 250 250 250 248 249 251 247 249 251 247 249 250	44         43         43         43         42         43         42         43         42         53         56         56         56         55         55         55         54         54	70           70           70           70           70           70           70           70           70           70           70           70           70           70           70           70           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71
1-3         1-4         1-5         1-6         1-7         1-8         1-9         1-10         1-11         1-12         2-1         2-2         2-3         2-4         2-5         2-6         2-7         2-8         2-9         2-10         2-12	3:48:00           3:52:00           3:55:00           4:00:00           4:04:00           4:10:00           4:12:00           4:16:00           4:20:00           4:24:00           4:35:00           4:39:00           4:51:00           4:59:00           5:03:00           5:11:00           5:15:00           5:19:00           5:23:00	3.00 3.00 3.00 2.90 2.80 2.80 2.60 2.60 2.60 3.10 3.10 3.00 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.50	1.74 1.74 1.74 1.68 1.62 1.62 1.57 1.51 1.51 1.45 1.80 1.80 1.74 1.80 1.74 1.62 1.62 1.57 1.57 1.57 1.51 1.51 1.51 1.51	76.110           79.480           82.860           86.230           89.570           92.850           96.130           99.350           102.530           105.710           108.823           112.310           115.800           122.690           126.010           129.380           132.690           135.990           139.210           142.440           145.610           148.831           79.598	86         86           86         85           85         85           85         85           85         85           84         84           84         82           80         78           77         76           75         75           76         75           76         75	50 50 50 51 51 54 55 57 58 59 59 59 60 61 61 61 61 61 61 61 61 61 61 56.2 53.7	48 48 48 48 48 49 49 50 50 50 50 53 53 53 53 53 53 53 53 53 53 53 53 53	252 252 251 251 251 253 251 251 251 251 251 251 251 251 251 251	248 248 249 249 249 242 248 249 251 247 250 250 250 250 250 248 249 251 247 249 251 247 249 250	44         43         43         43         42         43         42         43         42         53         56         56         56         55         55         55         54         54	70           70           70           70           70           70           70           70           70           70           70           70           70           70           70           70           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71

Client:	PCC Structurals	Scale Calibration Check Date:	4/25/2023
Facility:	Carson City Facility	Scale Calibration Check (see QS	6.05C for procedure)
Test Location:	System 3 - Air Furnaces	must be within ± 0.5g of o	ertified mass
Project #:	M231408	Certified Weight, grams	Result, grams
Date:	4/25/2023	200	200.0
Test Method:	5/202		
Weighed/Measured By:	тwм	500	500.0
Balance ID:	LV4		
		700	700.1

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS/GRAMS
Empty	413.6	413.1	0.5
Empty	647.6	646.6	1.0
DI Water	688.3	699.0	-10.7
			1
Silica Gel	894.3	874.5	19.8
		1	

1,749.5	1,758.7	-9.2
Liquid Final	Liquid Initial	Liquid Gain
894.3	874.5	19.8
Silica Final	Silica Initial	Silica Gain

	5	4/25/ 5:5 7:3	Date: Start Time: End Time:			- Method		ty Facility	PCC Struc Carson Cit System 3 - Normal	Facility:	
		NS	STACK CONDITION					CONDITIONS	RY GAS METER	DF	
	in. H <sub>2</sub> O	0.70	Static Pressure				In. H₂O	1.93	ΔH:		
	in. Hg. abs.	25.27	e Pressure (Ps):	Flu			°F	59.0	perature, Tm:	Meter Tem	
	%		Carbon Dioxide:				In. H <sub>2</sub> O	1.672	Sqrt ∆P:		
	%		Oxygen:				°F	83.9	nperature, Ts:	Stack Ten	
	%	#VALUE!	Nitrogen:				ft <sup>3</sup>	87.337	Volume, Vm:	Meter	
	lb/lb mole	29.000	Weight dry, Md:	Gas			dscf	74.710	olume, Vmstd:	Meter Vo	
	lb/lb mole	28.978	Weight wet, Ms:	Gas			wscf	0.151	olume, Vwstd:	Meter Vo	
	%	#VALUE!	Excess Air:				%I	102.0	etic Variance:	Isokin	
	fps	103.510	Gas Velocity, Vs:	0							
	acfm	1,219	Volumetric Flow:				in mins.	96.00	Test Length:		
	dscfm	998	Volumetric Flow:	,			in inches	0.166	zzle Diameter:	Noz	
	scfm	1,000	Volumetric Flow:	,			in Hg	25.22	etric Pressure:	Barome	
							Molor				
:			004.0			UKE DEI		4740 5	n an a 1 a	Jer 141 - 1 1	
		grams		lica Initial Wt. ilica Final Wt.			ml	1746.5 1739.1	nger Content: nger Content:		
		grams grams		a Difference:			ml ml	-7.4	er Difference:		
	0.046	ion Value, Bws:	Supersaturat	0.002	loisture, Bws:	N		3.2	al Water Gain:	Tota	
CPM F	Impinger	Filter	Probe	Temp	Meter	Stack	Actual	Orifice	Velocity		
Exit Te	Exit Temp	Exit Temp	Temp	Outlet	Inlet	Temp	Meter Vol.	$\Delta \mathbf{H}$	Head ∆p	Clock	Port-
°F	°F	°F	°F	°F	۴F	۴F	ft <sup>3</sup>	in. H2O	in. H2O	Time	oint No.
70	46	243	252	53	53	83	49.445	2.14	3.10	5:55:00	1-1
70	45	252	252	53	57	82	53.240	2.14	3.10	5:59:00	1-2
70	46	250	249	53	59	84	56.830	2.07	3.00	6:03:00	1-3
70	48	249	248	53	61	84	60.720	2.07	3.00	6:07:00	1-4
70	48	252	253	54	61	84	64.560	2.00	2.90	6:11:00	1-5
70	49	251	251	55	61	83	68.030	2.00	2.90	6:15:00	1-6
70	49	247	248	55	62	84	71.650	1.93	2.80	6:19:00	1-7
70	49	251	245	55	62	85	75.590	1.93	2.80	6:23:00	1-8
70	49	247	252	55	62	85	79.220	1.86	2.70	6:27:00	1-9
70	50	251	253	55	62	85	82.770	1.86	2.70	6:31:00	1-10
70	50	249	247	55	62	83	86.350	1.79	2.60	6:35:00	1-11
	50	251	254	55	62	84	89.860	1.79	2.60	6:39:00	1-12
70							93.374			6:43:00	
70	40	250	254	56	57	07	02 274	2.07	2.00	6.50.00	2-1
70	49 48	250 249	254 253	56 57	57 62	87 85	93.374 97.130	2.07	3.00	6:50:00	2-1
70 70 70	48	249	253	57	62	85	97.130	2.07	3.00	6:54:00	2-2
70 70 70 70 70	48 48	249 249	253 253	57 57	62 63	85 86	97.130 100.620	2.07 2.00	3.00 2.90	6:54:00 6:58:00	2-2 2-3
70 70 70 70 70 70	48 48 48	249 249 248	253 253 252	57 57 58	62 63 65	85	97.130	2.07 2.00 2.00	3.00 2.90 2.90	6:54:00 6:58:00 7:02:00	2-2 2-3 2-4
70 70 70 70 70	48 48	249 249	253 253	57 57	62 63	85 86 88	97.130 100.620 104.590	2.07 2.00 2.00 1.93	3.00 2.90	6:54:00 6:58:00 7:02:00 7:06:00	2-2 2-3 2-4 2-5
70 70 70 70 70 70 70	48 48 48 48 48	249 249 248 248	253 253 252 249	57 57 58 58	62 63 65 65	85 86 88 88	97.130 100.620 104.590 108.220	2.07 2.00 2.00	3.00 2.90 2.90 2.80	6:54:00 6:58:00 7:02:00	2-2 2-3 2-4
70 70 70 70 70 70 70 70 70	48 48 48 48 48 48	249 249 248 248 248 248	253 253 252 249 250	57 57 58 58 58 58	62 63 65 65 66	85 86 88 88 88 87	97.130 100.620 104.590 108.220 111.640	2.07 2.00 2.00 1.93 1.93	3.00 2.90 2.90 2.80 2.80	6:54:00 6:58:00 7:02:00 7:06:00 7:10:00	2-2 2-3 2-4 2-5 2-6
70 70 70 70 70 70 70 70 70	48 48 48 48 48 48 48	249 249 248 248 248 248 248 248	253 253 252 249 250 248	57 57 58 58 58 58 59	62 63 65 65 66 66	85 86 88 88 87 85	97.130 100.620 104.590 108.220 111.640 115.020	2.07 2.00 2.00 1.93 1.93 1.86	3.00 2.90 2.80 2.80 2.80 2.70	6:54:00 6:58:00 7:02:00 7:06:00 7:10:00 7:14:00	2-2 2-3 2-4 2-5 2-6 2-7
70 70 70 70 70 70 70 70 70 70	48 48 48 48 48 48 48 48	249 249 248 248 248 248 248 248 248 249	253 253 252 249 250 248 249 249	57 57 58 58 58 58 59 59 59	62 63 65 65 66 66 64	85 86 88 88 87 85 82	97.130 100.620 104.590 108.220 111.640 115.020 119.160	2.07 2.00 2.00 1.93 1.93 1.86 1.86	3.00 2.90 2.80 2.80 2.80 2.70 2.70	6:54:00 6:58:00 7:02:00 7:06:00 7:10:00 7:14:00 7:18:00	2-2 2-3 2-4 2-5 2-6 2-7 2-8
70 70 70 70 70 70 70 70 70 70 70	48 48 48 48 48 48 48 48 48 48	249 248 248 248 248 248 248 249 249 249	253 253 252 249 250 248 249 250	57 57 58 58 58 58 59 59 59 59 59	62 63 65 65 66 66 64 63	85 86 88 88 87 85 85 82 81	97.130 100.620 104.590 1108.220 111.640 115.020 119.160 122.780	2.07 2.00 1.93 1.93 1.86 1.86 1.79	3.00 2.90 2.80 2.80 2.70 2.70 2.70 2.60	6:54:00 6:58:00 7:02:00 7:06:00 7:10:00 7:14:00 7:18:00 7:22:00	2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9
70 70 70 70 70 70 70 70 70 70 70 70	48 48 48 48 48 48 48 48 48 48 48 49	249 248 248 248 248 248 248 249 249 249 246	253 253 252 249 250 248 249 250 250 251	57 57 58 58 58 58 59 59 59 59 59 59 58	62 63 65 66 66 66 64 63 63	85 86 88 88 87 85 85 82 81 80	97.130 100.620 104.590 1108.220 111.640 115.020 119.160 122.780 126.310	2.07 2.00 1.93 1.93 1.86 1.86 1.79 1.79	3.00 2.90 2.80 2.80 2.70 2.70 2.60 2.60	6:54:00           6:58:00           7:02:00           7:06:00           7:10:00           7:14:00           7:18:00           7:22:00           7:26:00	2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10
700 700 700 700 700 700 700 700 700 700	48 48 48 48 48 48 48 48 48 48 49 49	249 248 248 248 248 248 248 249 249 249 246 246	253 253 252 249 250 248 249 250 251 251 251	57 57 58 58 58 58 59 59 59 59 59 58 58 58	62 63 65 66 66 66 64 63 63 63	85 86 88 87 85 82 81 80 79	97.130 100.620 104.590 108.220 111.640 115.020 119.160 122.780 126.310 129.840	2.07 2.00 1.93 1.93 1.86 1.86 1.79 1.79 1.79	3.00 2.90 2.80 2.80 2.70 2.70 2.60 2.60 2.50	6:54:00           6:58:00           7:02:00           7:06:00           7:10:00           7:14:00           7:18:00           7:22:00           7:30:00	2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11
700 700 700 700 700 700 700 700 700 700	48 48 48 48 48 48 48 48 48 48 49 49	249 248 248 248 248 248 248 249 249 249 246 246	253 253 252 249 250 248 249 250 251 251 251	57 57 58 58 58 58 59 59 59 59 59 58 58 58	62 63 65 66 66 66 64 63 63 63	85 86 88 87 85 82 81 80 79	97.130 100.620 104.590 111.640 111.640 115.020 119.160 122.780 126.310 129.840 133.320	2.07 2.00 1.93 1.93 1.86 1.86 1.79 1.79 1.79	3.00 2.90 2.80 2.80 2.70 2.70 2.60 2.60 2.50 2.50	6:54:00           6:58:00           7:02:00           7:06:00           7:10:00           7:14:00           7:18:00           7:22:00           7:30:00           7:34:00	2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-7 2-8 2-9 2-10 2-11 2-12
700 700 700 700 700 700 700 700 700 700	48 48 48 48 48 48 48 48 48 48 49 49	249 248 248 248 248 248 248 249 249 249 246 246	253 253 252 249 250 248 249 250 251 251 251	57 58 58 58 58 59 59 59 59 58 58 58 58 58 58	62 63 65 66 66 64 63 63 63 63	85 86 88 87 85 82 81 80 79	97.130 100.620 104.590 118.220 111.640 115.020 119.160 122.780 126.310 129.840 133.320 136.782 87.337	2.07 2.00 1.93 1.93 1.86 1.86 1.79 1.79 1.79	3.00 2.90 2.80 2.80 2.70 2.70 2.60 2.60 2.50 2.50	6:54:00           6:58:00           7:02:00           7:06:00           7:10:00           7:14:00           7:18:00           7:22:00           7:30:00           7:34:00           7:38:00	2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11

Client:	PCC Structurals	Scale Calibration Check Date:	4/25/2023
Facility:	Carson City Facility	Scale Calibration Check (see QS-	6.05C for procedure)
Test Location:	System 3 - Air Furnaces	must be within ± 0.5g of c	ertified mass
Project #:	M231408	Certified Weight, grams	Result, grams
Date:	4/25/2023	200	200.0
Test Method:	5/202		
Weighed/Measured By:	тwм	500	500.0
Balance ID:	LV4		
		700	700.1

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS
Empty	412.2	412.6	-0.4
			1
Empty	647.4	647.6	-0.2
		1	
DI Water	679.5	686.3	-6.8
Silica Gel	904.9	894.3	10.6

	1,739.1	1,746.5	-7.4
_	Liquid Final	Liquid Initial	Liquid Gain
	904.9	894.3	10.6
-	Silica Final	Silica Initial	Silica Gain

	Facility:	PCC Struc Carson Cit System 3 - Normal	y Facility		- Method	1 5/202		Date: Start Time: End Time:	8:	5/23 00 42	
		RY GAS METER	CONDITIONS					STACK CONDITIO	ONS		
		ΔH:	1.90	In. H <sub>2</sub> O				Static Pressure		in. H <sub>2</sub> O	
	Meter Tem	perature, Tm:	61.0	°F			Flu	ie Pressure (Ps):		in. Hg. abs.	
		Sqrt ∆P:	1.660	In. H <sub>2</sub> O				Carbon Dioxide:		%	
	Stack Ten	nperature, Ts:	89.3	°F				Oxygen:		%	
	Meter	Volume, Vm:	86.914	ft <sup>3</sup>				Nitrogen:	#VALUE!	%	
	Meter Vo	olume, Vmstd:	74.053	dscf			Gas	Weight dry, Md:	29.000	lb/lb mole	
	Meter Vo	olume, Vwstd:	0.024	wscf			Gas	Weight wet, Ms:	28.997	lb/lb mole	
	Isokin	etic Variance:	102.2	%I				Excess Air:	#VALUE!	%	
							(	Gas Velocity, Vs:	103.214	fps	
		Test Length:	96.00	in mins.				Volumetric Flow:	1,216	acfm	
	Noz	zzle Diameter:	0.166	in inches				Volumetric Flow:	987	dscfm	
	Barome	etric Pressure:	25.22	in Hg				Volumetric Flow:	987	scfm	
							_				
	1 10 11 1	0	1700 /		UKE DET			0010			:
		nger Content:	1739.1	ml			lica Initial Wt.	904.9	grams		
		nger Content:	1734.0	ml			ilica Final Wt.	910.5	grams		
	Imping	er Difference:	-5.1	ml		Silic	ca Difference:	5.6	grams		
	Tota	al Water Gain:	0.5		М	oisture, Bws:	0.000				
		Velocity	Orifice	Actual	Stack	Meter	Temp	Probe	Filter	Impinger	CPM Filt
Port-	Clock	Head ∆p	$\Delta \mathbf{H}$	Meter Vol.	Temp	Inlet	Outlet	Temp	Exit Temp	Exit Temp	Exit Tem
Point No.	Time	in. H2O	in. H2O	ft <sup>3</sup>	°F	°F	۴F	°F	°F	°F	°F
1-1	8:00:00	3.00	2.07	38.812	86	56	56	254	243	56	73
1-2	8:04:00	2.90	2.00	42.550	87	60	56	251	251	52	72
1-3	8:08:00	2.90	2.00	46.240	90	60	56	251	250	50	72
1-4	8:12:00	2.90	2.00	49.920	89	62	57	250	249	53	76
1-5	8:16:00	2.80	1.93	53.440	90	63	57	251	249	59	77
1-6	8:20:00	2.80	1.93	57.180	91	63	58	248	249	53	77
1-7	8:24:00	2.70	1.86	60.650	92	63	58	250	249	52	75
1-8	8:28:00	2.70	1.86	63.610	93	64	58	252	247	52	74
1-9	8:32:00	2.70	1.86	67.520	92	65	59	248	248	53	74
1-10	8:36:00	2.60	1.79	71.530	91	65	59	249	250	53	73
1-11	8:40:00	2.60	1.79	75.180	90	64	60	250	249	53	74
1-12	8:44:00	2.50	1.72	78.730	89	64	60	250	248	53	74
	8:48:00			82.015						_	
2-1	8:54:00	3.10	2.14	82.015	90	62	60	253	253	56	79
2-2	8:58:00	3.00	2.07	85.620	88	62	60	248	250	54	74
2-3	9:02:00	3.00	2.07	89.250	89	62	60	248	251	54	74
2-4	9:06:00	2.80	1.93	93.310	90	63	60	250	248	54	74
2-5	9:10:00 9:14:00	2.80 2.80	1.93 1.93	96.590 100.220	90 91	64 64	60 59	251 248	249 249	54	74 78
2-6 2-7	9:14:00	2.80	1.93	103.910	88	64	59 60	248	249	55 54	78
2-7	9:18:00	2.70	1.86	103.910	88	64 64	60	249	248	54	78
2-8	9:26:00	2.60	1.80	111.360	87	65	60	247	248	54	78
2-9	9:30:00	2.60	1.79	115.010	87	65	60	230	249	54	78
2-10	9:34:00	2.50	1.79	118.490	87	65	60	248	249	54	79
	9:38:00	2.50	1.72	121.960	87	65	60	248	249	54	79
2-12		2.00	1.12	125.726		00		270	2-73	0.1	15
2-12	9.42.00			.20.120					•		
	9:42:00 1:36:00			86 914		63.1	<u>58 q</u>			-	
2-12 tal	9:42:00 1:36:00		1.90	86.914	89.3	63.1 61.0	58.9				

Client:	PCC Structurals	Scale Calibration Check Date:	4/25/2023
Facility:	Carson City Facility	Scale Calibration Check (see QS-	6.05C for procedure)
Test Location:	System 3 - Air Furnaces	must be within ± 0.5g of c	ertified mass
Project #:	M231408	Certified Weight, grams	Result, grams
Date:	4/25/2023	250	250.0
Test Method:	5/202		
Weighed/Measured By:	тwм	500	500.0
Balance ID:	LV4		
		700	700.1

IMPINGER	FINAL	INITIAL	GAIN	
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS	
			- 1	
Empty	413.3	412.2	1.1	
· · ·			-	
Empty	647.7	647.4	0.3	
I I				
DI Water	673.0	679.5	-6.5	
II				
Silica Gel	910.5	904.9	5.6	

1,734.0	1,739.1	-5.1
Liquid Final	Liquid Initial	Liquid Gain
910.5	904.9	5.6
Silica Final	Silica Initial	Silica Gain

Client: Facility: Test Location: Project #: Test Method: Test Engineer: Test Technician: Meter ID:	<u>Run 1</u> CM46	PCC Structurals Carson City Facility System 4 M231408 5 TWM RB <u>Run 2</u> CM46	<u>Run 3</u> CM46
Pitot ID:	6969	6969	6969
Filter ID:	6554	6779	6563
Filter Pre-Weight (grams): Nozzle Diameter (Inches):	0.46788 0.262	0.46811 0.262	0.46605 0.262
Meter Calibration Date:	4/18/2023 1.001	4/18/2023 1.001	4/18/2023 1.001
Meter Calibration Factor (Y):	1.751	1.751	1.751
Meter Orifice Setting (Delta H): Nozzle Kit ID Number and Material:	Quartz 5	Quartz 5	Quartz 5
Pitot Tube Coefficient:	Quartz 5	0.840	Quartz 5
Probe Length (Feet):		5.0	
Probe Liner Material:		Glass	
Sample Plane: Port Length (Inches): Port Size (Diameter, Inches): Port Type: Duct Shape:		Horizontal 0.00 4.00 Hole in duct Circular	
Diameter (Feet):		2.5	
Duct Area (Square Feet):		4.909	
Upstream Diameters: Downstream Diameters: Number of Ports Sampled: Number of Points per Port: Minutes per Point: Minutes per Reading:		3.7 2.0 2 12 4.0 4.0	
Total Number of Traverse Points: Test Length (Minutes): Train Type: Source Condition: Moisture Balance ID: # of Runs		4.0 24 96 Hot Box Normal LV3 3	

Projec Client Facilit Locati Pitot I Pitot ( Probe	: y: ion: D: Coeffi	cient:	M231408 PCC Struct Carson Citt System 4 6969 0.840 5					Source Cc Run No.: Date: Start Time End Time: RM Tester Port Lengi	s:	on:	Normal 1 4/26/2023 6:30 6:45 TWM 0.00				
		DP	Sqrt.	Temp	Yaw		Velocity			DP	Sqrt.	Temp	Yaw		Velocity
Port F	Point	(in. H <sub>2</sub> O)	DP	(°F)	(o)		(V)	Port Point		(in. H <sub>2</sub> O)	DP	(°F)	(o)		(V)
Α	1	0.67	0.8185	65.0	2.0	2.0	49.91	в	1	0.73	0.8544	67.0	2.0	2.0	52.20
Α	2	0.40	0.6325	66.0	2.0	2.0	38.60	в	2	0.69	0.8307	68.0	2.0	2.0	50.80
Α	3	0.36	0.6000	67.0	2.0	2.0	36.66	в	3	0.44	0.6633	68.0	2.0	2.0	40.57
Α	4	0.33	0.5745	67.0	2.0	2.0	35.10	в	4	0.34	0.5831	68.0	2.0	2.0	35.66
Α	5	0.30	0.5477	67.0	2.0	2.0	33.46	в	5	0.33	0.5745	68.0	2.0	2.0	35.13
Α	6	0.26	0.5099	67.0	2.0	2.0	31.15	в	6	0.33	0.5745	68.0	2.0	2.0	35.13
Α	7	0.25	0.5000	67.0	2.0	2.0	30.55	в	7	0.34	0.5831	68.0	2.0	2.0	35.66
Α	8	0.25	0.5000	67.0	2.0	2.0	30.55	в	8	0.30	0.5477	68.0	2.0	2.0	33.50
Α	9	0.25	0.5000	67.0	2.0	2.0	30.55	в	9	0.26	0.5099	68.0	2.0	2.0	31.18
Α	10	0.25	0.5000	67.0	2.0	2.0	30.55	в	10	0.26	0.5099	68.0	2.0	2.0	31.18
Α	11	0.25	0.5000	67.0	2.0	2.0	30.55	в	11	0.32	0.5657	68.0	2.0	2.0	34.59
Α	12	0.25	0.5000	67.0	2.0	2.0	30.55	В	12	0.34	0.5831	68.0	2.0	2.0	35.66

Average Yaw Angle

2.0 °

#### Run 1 - Method 5

# Client: PCC Structurals Facility: Carson City Facility Test Location: System 4 Source Condition: Normal

Date:	4/26/23
Start Time:	7:00
End Time:	8:46

DRY GAS METER C	ONDITIONS	5	STACK CONDITIONS	STACK CONDITIONS				
ΔH:	1.80	in. H <sub>2</sub> O	Static Pressure	0.70	in. H₂O			
Meter Temperature, Tm:	57.8	°F	Flue Pressure (Ps):	25.39	in. Hg. abs.			
Sqrt ∆P:	0.576	in. H <sub>2</sub> O	Carbon Dioxide:		%			
Stack Temperature, Ts:	69.3	°F	Oxygen:		%			
Meter Volume, Vm:	75.794	ft <sup>3</sup>	Nitrogen: #	VALUE!	%			
Meter Volume, Vmstd:	65.870	dscf	Gas Weight dry, Md:	29.000	lb/lb mole			
Meter Volume, Vwstd:	-1.022	wscf	Gas Weight wet, Ms:	29.173	lb/lb mole			
Isokinetic Variance:	101.6	%I	Excess Air: #	VALUE!	%			
			Gas Velocity, Vs:	34.982	fps			
Test Length:	96.00	in mins.	Volumetric Flow:	10,303	acfm			
Nozzle Diameter:	0.262	in inches	Volumetric Flow:	8,859	dscfm			
Barometric Pressure:	25.34	in Hg	Volumetric Flow:	8,721	scfm			

	MOISTURE DETERMINATION											
Initial Impinger Content:	2124.4	ml	Silica Initial Wt.	785.0	grams							
Final Impinger Content:	2117.8	ml	Silica Final Wt.	769.9	grams							
Impinger Difference:	-6.6	ml	Silica Difference:	-15.1	grams							

Moisture, Bws:

-0.016

Total Water Gain:	-21.7
Total Water Gain.	-21.7

		Velocity	Orifice	Actual	Stack	Meter	Temp	Probe	Filter	Impinger
Port-	Clock	Head $\Delta \mathbf{p}$	$\Delta \mathbf{H}$	Meter Vol.	Temp	Inlet	Outlet	Temp	Exit Temp	Exit Temp
Point No.	Time	in. H2O	in. H2O	ft <sup>3</sup>	°F	°F	°F	°F	°F	°F
1-1	7:00:00	0.79	4.01	2.182	69	45	45	230	253	46
1-2	7:04:00	0.79	4.01	6.620	69	46	46	248	255	51
1-3	7:08:00	0.71	3.61	11.700	69	47	47	255	254	52
1-4	7:12:00	0.65	3.30	16.250	69	48	48	254	253	54
1-5	7:16:00	0.49	2.49	20.590	70	49	49	254	255	56
1-6	7:20:00	0.39	1.98	24.370	70	50	50	253	254	58
1-7	7:24:00	0.20	1.02	27.750	68	51	51	255	254	58
1-8	7:28:00	0.19	0.97	30.170	68	52	52	254	254	58
1-9	7:32:00	0.19	0.97	32.560	67	53	53	253	254	60
1-10	7:36:00	0.19	0.97	34.950	67	54	54	255	255	59
1-11	7:40:00	0.20	1.02	37.380	67	56	56	254	254	60
1-12	7:44:00	0.19	0.97	39.810	67	56	56	254	260	60
	7:48:00			42.208						
2-1	7:58:00	0.47	2.39	42.208	68	61	61	254	253	55
2-2	8:02:00	0.44	2.23	46.010	68	61	61	252	253	56
2-3	8:06:00	0.39	1.98	49.680	69	62	62	253	254	57
2-4	8:10:00	0.33	1.68	53.150	70	63	63	253	253	58
2-5	8:14:00	0.30	1.52	56.340	70	64	64	254	254	52
2-6	8:18:00	0.22	1.12	59.390	70	65	65	253	253	50
2-7	8:22:00	0.22	1.12	62.020	71	65	65	254	254	49
2-8	8:26:00	0.22	1.12	64.630	71	66	66	253	253	50
2-9	8:30:00	0.22	1.12	67.220	72	67	67	254	253	49
2-10	8:34:00	0.23	1.17	69.840	71	68	68	253	254	50
2-11	8:38:00	0.25	1.27	72.520	72	68	68	253	253	49
2-12	8:42:00	0.24	1.22	75.280	72	69	69	254	253	49
	8:46:00			77.976						
Total	1:36:00			75.794		57.8	57.8			
Average			1.80		69.3	57.8				
Min			0.97		67.0	45.0				
Max			4.01		72.0	69.0				

Client:	PCC Structurals	Scale Calibration Check Date:	4/26/2023
Facility:	Carson City Facility	Scale Calibration Check (see QS-	6.05C for procedure)
Test Location:	System 4	must be within ± 0.5g of c	ertified mass
Project #:	M231408	Certified Weight, grams	Result, grams
Date:	4/26/2023	200	199.9
Test Method:	5		
Weighed/Measured By:	тwм	500	499.8
Balance ID:	LV3		
		700	699.8

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS
DI Water	718.0	725.5	-7.5
DI Water	744.3	744.9	-0.6
Empty	655.5	654.0	1.5
			I
Silica Gel	769.9	785.0	-15.1

2,117.8	2,124.4	-6.6
Liquid Final	Liquid Initial	Liquid Gain
769.9	785.0	-15.1
Silica Final	Silica Initial	Silica Gain

	Facility: t Location: Condition:	•	y Facility	Run 2	- Metho	d 5		Date: Start Time: End Time:	9:15 10:5	5
	DF							STACK CONDITIO		
		ΔH:	1.79	In. H₂O				Static Pressure		in. H <sub>2</sub> O
	Meter I em	nperature, Tm:	78.7	°F			FI	ue Pressure (Ps):		in. Hg. ab
		Sqrt ∆P:	0.588	In. H <sub>2</sub> O				Carbon Dioxide:		%
		nperature, Ts:	72.9	°F ″³				Oxygen:		%
		r Volume, Vm:	79.009	ft <sup>3</sup>				Nitrogen:		%
		olume, Vmstd:	65.997	dscf				s Weight dry, Md:		lb/lb mole
		olume, Vwstd:	0.311	wscf			Gas	s Weight wet, Ms:		lb/lb mole
	Isokir	netic Variance:	101.8	%I				Excess Air:	-	%
		Testisesth	00.00					Gas Velocity, Vs:		fps
		Test Length:	96.00	in mins.				Volumetric Flow:	,	acfm
		zzle Diameter:	0.262	in inches				Volumetric Flow:	- /	dscfm
	Barome	etric Pressure:	25.34	in Hg				Volumetric Flow:	8,904	scfm
				MOIS	TURE DET	ERMINATION	I			
	Initial Imp	inger Content:	2117.8	ml		S	ilica Initial Wt.	796.9	grams	
	Final Imp	inger Content:	2112.5	ml		S	Silica Final Wt.	808.8	grams	
	Imping	ger Difference:	-5.3	ml		Sili	ica Difference:	11.9	grams	
	Tota	al Water Gain:	6.6		1	Moisture, Bws:	0.005	Supersatur	ation Value, Bws:	0.032
		Velocity	Orifice	Actual	Stack	Meter	Temp	Probe	Filter	Impinge
Port-	Clock	Head ∆p	$\Delta \mathbf{H}$	Meter Vol.	Temp	Inlet	Outlet	Temp	Exit Temp	Exit Terr
Point No.	Time	in. H2O	in. H2O	ft <sup>3</sup>	°F	۴F	°F	°F	°F	°F
1-1	9:15:00	0.52	2.56	78.817	75	72	72	253	260	51
1-2	9:19:00	0.48	2.48	82.750	74	72	72	252	258	49
1-3	9:23:00	0.43	2.22	86.780	74	74	74	252	254	52
1-4	9:27:00	0.36	1.86	90.480	73	73	73	252	252	54
1-5	9:31:00	0.34	1.75	93.930	72	74	74	252	252	54
1-6	9:35:00	0.29	1.50	97.260	72	75	75	253	253	54
				00.000	74		75	252	252	55
1-7	9:39:00	0.25	1.29	99.830	71	75		232	202	
1-7 1-8	9:39:00 9:43:00		1.29 1.39	99.830 102.620	71 71	75 76	76	252	252	55
		0.25			Î.					
1-8 1-9 1-10	9:43:00	0.25 0.27	1.39 1.44 1.50	102.620 105.510 108.460	71	76	76	252	252 252 253	55
1-8 1-9 1-10 1-11	9:43:00 9:47:00 9:51:00 9:55:00	0.25 0.27 0.28 0.29 0.28	1.39 1.44 1.50 1.44	102.620 105.510 108.460 111.460	71 72 72 72 72	76 76 77 78	76 76 77 78	252 251 252 252	252 252 253 252	55 55 56 57
1-8 1-9 1-10	9:43:00 9:47:00 9:51:00 9:55:00 9:59:00	0.25 0.27 0.28 0.29	1.39 1.44 1.50	102.620 105.510 108.460 111.460 114.420	71 72 72	76 76 77	76 76 77	252 251 252	252 252 253	55 55 56
1-8 1-9 1-10 1-11 1-12	9:43:00 9:47:00 9:51:00 9:55:00 9:59:00 10:03:00	0.25 0.27 0.28 0.29 0.28 0.26	1.39 1.44 1.50 1.44 1.34	102.620 105.510 108.460 111.460 114.420 117.283	71 72 72 72 72 72	76 76 77 78 78 78	76 76 77 78 78 78	252 251 252 252 252 252	252 252 253 252 252 252	55 55 56 57 57
1-8 1-9 1-10 1-11 1-12 2-1	9:43:00 9:47:00 9:51:00 9:55:00 9:59:00 10:03:00 10:08:00	0.25 0.27 0.28 0.29 0.28 0.26 0.26	1.39 1.44 1.50 1.44 1.34 2.47	102.620           105.510           108.460           111.460           114.420           117.283           117.283	71 72 72 72 72 72 72 73	76 76 77 78 78 78 79	76 76 77 78 78 78 79	252 251 252 252 252 252 253	252 252 253 252 252 252 252 252	55 55 56 57 57 66
1-8 1-9 1-10 1-11 1-12 2-1 2-2	9:43:00 9:47:00 9:51:00 9:55:00 9:59:00 10:03:00 10:08:00 10:12:00	0.25 0.27 0.28 0.29 0.28 0.26 0.50 0.61	1.39 1.44 1.50 1.44 1.34 2.47 3.01	102.620           105.510           108.460           111.460           114.420           117.283           117.283           121.240	71 72 72 72 72 72 72 73 73 72	76 76 77 78 78 78 79 79	76 76 77 78 78 78 79 79	252 251 252 252 252 252 253 253 252	252 252 253 252 252 252 252 252 252	55 55 56 57 57 57 66 60
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3	9:43:00           9:47:00           9:51:00           9:55:00           9:59:00           10:03:00           10:12:00           10:16:00	0.25 0.27 0.28 0.29 0.28 0.26 0.26 0.50 0.61 0.59	1.39 1.44 1.50 1.44 1.34 2.47 3.01 2.91	102.620           105.510           108.460           111.460           114.420           117.283           117.283           121.240           125.630	71 72 72 72 72 72 72 72 73 73 72 71	76 76 77 78 78 78 79 79 79 80	76 76 77 78 78 78 79 79 79 80	252 251 252 252 252 252 253 253 252 251	252 252 253 252 252 252 252 252 252 251	55 55 56 57 57 57 66 60 60 60
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4	9:43:00           9:47:00           9:51:00           9:55:00           9:59:00           10:03:00           10:12:00           10:16:00           10:20:00	0.25 0.27 0.28 0.29 0.28 0.26 0.26 0.50 0.61 0.59 0.56	1.39 1.44 1.50 1.44 1.34 2.47 3.01 2.91 2.76	102.620           105.510           108.460           111.460           114.420           117.283           117.283           121.240           125.630           129.930	71 72 72 72 72 72 72 72 72 73 72 71 72	76 76 77 78 78 78 79 79 79 80 80 81	76 77 78 78 78 79 79 79 80 81	252 251 252 252 252 252 253 253 252 251 252	252 252 253 252 252 252 252 252 251 251	55 55 56 57 57 57 66 60 60 60 61
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5	9:43:00 9:47:00 9:51:00 9:55:00 10:03:00 10:08:00 10:12:00 10:16:00 10:20:00 10:24:00	0.25 0.27 0.28 0.29 0.28 0.26 0.50 0.61 0.59 0.56 0.51	1.39 1.44 1.50 1.44 1.34 2.47 3.01 2.91 2.76 2.51	102.620           105.510           108.460           111.460           114.420           117.283           117.283           121.240           125.630           129.930           134.150	71 72 72 72 72 72 72 72 72 73 72 71 72 72 72	76 76 77 78 78 79 79 79 80 81 81 82	76 76 77 78 78 79 79 79 80 81 82	252 251 252 252 252 252 253 253 252 251 252 252 252	252 252 253 252 252 252 252 252 251 251 251	55 55 57 57 57 66 60 60 60 61 61
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6	9:43:00 9:47:00 9:51:00 9:55:00 10:03:00 10:08:00 10:12:00 10:20:00 10:24:00 10:28:00	0.25 0.27 0.28 0.29 0.28 0.26 0.50 0.61 0.59 0.56 0.51 0.41	1.39 1.44 1.50 1.44 1.34 2.47 3.01 2.91 2.76 2.51 2.02	102.620           105.510           108.460           111.460           114.420           117.283           117.283           121.240           125.630           129.930           134.150           138.180	71 72 72 72 72 72 72 72 72 71 72 71 72 72 74	76 76 77 78 78 79 79 79 80 81 82 83	76 76 77 78 78 79 79 79 80 81 82 83	252 251 252 252 252 252 253 253 252 251 252 252 252 252	252 252 253 252 252 252 252 252 251 251 251 251 251	55 55 56 57 57 66 60 60 60 61 61 61 60
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7	9:43:00 9:47:00 9:51:00 9:55:00 10:03:00 10:08:00 10:12:00 10:16:00 10:22:00 10:22:00 10:22:00	0.25 0.27 0.28 0.29 0.28 0.26 0.50 0.61 0.59 0.56 0.51 0.41 0.22	1.39 1.44 1.50 1.44 1.34 2.47 3.01 2.91 2.76 2.51 2.02 1.08	102.620           105.510           108.460           111.460           114.420           117.283           117.283           121.240           125.630           129.930           134.150           138.180           141.780	71 72 72 72 72 72 73 72 71 72 71 72 72 74 74	76 76 77 78 78 79 79 79 80 81 81 82 83 83	76 76 77 78 78 79 79 79 80 81 81 82 83 83	252 251 252 252 252 252 253 253 252 251 252 252 252 252 252 252	252 252 253 252 252 252 252 251 251 251 251 252 251	55 55 56 57 57 66 60 60 61 61 61 60 60 60
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8	9:43:00 9:47:00 9:51:00 9:55:00 9:59:00 10:03:00 10:12:00 10:12:00 10:22:00 10:22:00 10:22:00 10:32:00	0.25 0.27 0.28 0.29 0.28 0.26 0.50 0.50 0.61 0.59 0.56 0.51 0.41 0.22 0.21	1.39 1.44 1.50 1.44 1.34 2.47 3.01 2.91 2.76 2.51 2.02 1.08 1.04	102.620           105.510           108.460           111.460           114.420           117.283           117.283           121.240           125.630           129.930           134.150           138.180           141.780           144.450	71 72 72 72 72 73 73 72 71 72 71 72 72 74 74 74	76 76 77 78 78 79 79 79 80 81 81 82 83 83 83 83 83	76 76 77 78 78 79 79 79 80 81 81 82 83 83 83 83 83	252 251 252 252 252 252 253 253 252 252 252 252	252 252 253 252 252 252 252 252 251 251 251 252 251 252 251 252	55 55 56 57 57 66 60 60 61 61 60 60 60 61
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9	9:43:00 9:47:00 9:51:00 9:55:00 10:03:00 10:08:00 10:12:00 10:12:00 10:24:00 10:22:00 10:32:00 10:36:00 10:40:00	0.25 0.27 0.28 0.29 0.28 0.26 0.50 0.50 0.51 0.55 0.51 0.41 0.22 0.21 0.23	1.39 1.44 1.50 1.44 1.34 2.47 3.01 2.91 2.76 2.51 2.02 1.08 1.04 1.13	102.620           105.510           108.460           111.460           114.420           117.283           117.283           121.240           125.630           129.930           138.180           141.780           144.450           147.020	71 72 72 72 72 73 73 72 71 72 71 72 72 74 74 74 74 74	76 77 78 78 79 79 79 80 81 82 83 83 83 83 83 84 84	76 76 77 78 78 79 79 79 80 81 82 83 83 83 83 83 84 84	252 251 252 252 252 253 253 255 255 255 255 255	252 252 253 252 252 252 252 252 251 251 251 252 251 252 251	55 55 56 57 57 66 60 60 61 61 60 60 61 60 60 61 60 60
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10	9:43:00 9:47:00 9:51:00 9:55:00 10:03:00 10:08:00 10:12:00 10:12:00 10:24:00 10:22:00 10:32:00 10:36:00 10:40:00	0.25 0.27 0.28 0.29 0.28 0.26 0.50 0.61 0.59 0.56 0.51 0.41 0.22 0.21 0.23 0.23	1.39 1.44 1.50 1.44 1.34 2.47 3.01 2.91 2.76 2.51 2.02 1.08 1.04 1.13 1.13	102.620           105.510           108.460           111.460           114.420           117.283           117.283           121.240           125.630           129.930           134.150           138.180           141.780           144.450           147.020           149.740	71 72 72 72 72 73 73 72 71 72 71 72 72 74 74 74 74 74 74	76 77 78 78 79 79 79 79 80 81 82 83 83 83 83 83 83 84 84 84	76 76 77 78 78 79 79 79 80 81 82 83 83 83 83 83 84 84 84	252 251 252 252 252 253 253 255 255 255 255 255	252 252 253 252 252 252 252 251 251 251 252 251 252 251 252 251 251	55 55 56 57 57 66 60 60 61 61 60 60 61 60 60 61 62 62
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11	9:43:00 9:47:00 9:51:00 9:55:00 10:03:00 10:08:00 10:12:00 10:16:00 10:28:00 10:28:00 10:32:00 10:36:00 10:44:00 10:48:00	0.25 0.27 0.28 0.29 0.28 0.26 0.50 0.61 0.59 0.56 0.51 0.41 0.22 0.21 0.23 0.23 0.23	1.39 1.44 1.50 1.44 1.34 2.47 3.01 2.91 2.76 2.51 2.02 1.08 1.04 1.13 1.13	102.620           105.510           108.460           111.460           114.420           117.283           117.283           121.240           125.630           129.930           134.150           138.180           141.780           144.450           147.020           149.740           152.450	71 72 72 72 72 73 73 72 71 72 71 72 72 74 74 74 74 74 74 74	76 77 78 78 79 79 79 80 81 82 83 83 83 83 83 84 84 84 84	76 76 77 78 78 79 79 79 80 81 82 83 83 83 83 84 84 84 84 84	252 251 252 252 252 253 253 255 255 255 255 255	252 252 253 252 252 252 252 251 251 251 252 251 252 251 251	55 55 56 57 57 66 60 60 60 61 61 60 60 61 62 62 62 62
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10	9:43:00           9:47:00           9:51:00           9:55:00           9:59:00           10:08:00           10:12:00           10:16:00           10:20:00           10:22:00           10:36:00           10:36:00           10:40:00           10:48:00           10:52:00	0.25 0.27 0.28 0.29 0.28 0.26 0.50 0.61 0.59 0.56 0.51 0.41 0.22 0.21 0.23 0.23	1.39 1.44 1.50 1.44 1.34 2.47 3.01 2.91 2.76 2.51 2.02 1.08 1.04 1.13 1.13	102.620           105.510           108.460           111.460           114.420           117.283           121.240           125.630           129.930           134.150           138.180           141.780           144.450           147.020           152.450           155.150	71 72 72 72 72 73 73 72 71 72 71 72 72 74 74 74 74 74 74	76 77 78 78 79 79 79 79 80 81 82 83 83 83 83 83 83 84 84 84	76 76 77 78 78 79 79 79 80 81 82 83 83 83 83 83 84 84 84	252 251 252 252 252 253 253 255 255 255 255 255	252 252 253 252 252 252 252 251 251 251 252 251 252 251 252 251 251	55 55 56 57 57 66 60 60 61 61 60 60 60 61 62 62
1-8         1-9         1-10         1-11         1-12         2-1         2-2         2-3         2-4         2-5         2-6         2-7         2-8         2-9         2-10         2-11         2-12	9:43:00           9:47:00           9:51:00           9:55:00           9:59:00           10:03:00           10:12:00           10:16:00           10:20:00           10:22:00           10:36:00           10:36:00           10:44:00           10:52:00           10:52:00	0.25 0.27 0.28 0.29 0.28 0.26 0.50 0.61 0.59 0.56 0.51 0.41 0.22 0.21 0.23 0.23 0.23 0.22	1.39 1.44 1.50 1.44 1.34 2.47 3.01 2.91 2.76 2.51 2.02 1.08 1.04 1.13 1.13	102.620           105.510           108.460           111.460           114.420           117.283           117.283           121.240           125.630           129.930           134.150           138.180           141.780           144.450           145.630           152.450           155.150           157.826	71 72 72 72 72 73 73 72 71 72 71 72 72 74 74 74 74 74 74 74 75	76 77 78 78 78 79 79 79 80 81 81 82 83 83 83 83 84 84 84 84 84 84	76         76         77         78         79         79         80         81         82         83         84         84         84         84         84         84         85	252 251 252 252 252 253 253 255 255 255 255 255	252 252 253 252 252 252 252 251 251 251 252 251 252 251 251	55 55 56 57 57 66 60 60 60 61 61 60 60 60 61 62 62 62 62
1-8         1-9         1-10         1-11         1-12         2-1         2-2         2-3         2-4         2-5         2-6         2-7         2-8         2-9         2-10         2-11         2-12	9:43:00           9:47:00           9:51:00           9:55:00           9:59:00           10:08:00           10:12:00           10:16:00           10:20:00           10:22:00           10:36:00           10:36:00           10:40:00           10:48:00           10:52:00	0.25 0.27 0.28 0.29 0.28 0.26 0.50 0.61 0.59 0.56 0.51 0.41 0.22 0.21 0.23 0.23 0.23 0.22	1.39         1.44         1.50         1.44         1.34         2.47         3.01         2.91         2.76         2.51         2.02         1.08         1.13         1.13         1.13         1.08	102.620           105.510           108.460           111.460           114.420           117.283           117.283           121.240           125.630           129.930           134.150           138.180           141.780           144.450           145.650           152.450           155.150           157.826           79.009	71 72 72 72 72 73 72 73 72 71 72 72 74 74 74 74 74 74 74 75	76 77 78 78 78 79 79 79 80 81 82 83 83 83 83 83 83 84 84 84 84 84 84 78.7	76           76           77           78           79           79           80           81           82           83           84           84           84           84           84           84           85           78.7	252 251 252 252 252 253 253 255 255 255 255 255	252 252 253 252 252 252 252 251 251 251 252 251 252 251 251	55 55 56 57 57 66 60 60 60 61 61 60 60 61 62 62 62 62
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11	9:43:00           9:47:00           9:51:00           9:55:00           9:59:00           10:03:00           10:12:00           10:16:00           10:20:00           10:22:00           10:36:00           10:36:00           10:44:00           10:52:00           10:52:00	0.25 0.27 0.28 0.29 0.28 0.26 0.50 0.61 0.59 0.56 0.51 0.41 0.22 0.21 0.23 0.23 0.23 0.22	1.39 1.44 1.50 1.44 1.34 2.47 3.01 2.91 2.76 2.51 2.02 1.08 1.04 1.13 1.13	102.620           105.510           108.460           111.460           114.420           117.283           117.283           121.240           125.630           129.930           134.150           138.180           141.780           144.450           145.630           152.450           155.150           157.826           79.009	71 72 72 72 72 73 73 72 71 72 71 72 72 74 74 74 74 74 74 74 75	76 77 78 78 78 79 79 79 80 81 82 83 83 83 83 83 83 84 84 84 84 84 84 78.7 78.7 78.7	76         76         77         78         79         79         80         81         82         83         84         84         84         84         84         84         84         84         84         85         78.7	252 251 252 252 252 253 253 255 255 255 255 255	252 252 253 252 252 252 252 251 251 251 252 251 252 251 251	55 55 56 57 57 66 60 60 60 61 61 60 60 61 62 62 62 62

Client:	PCC Structurals	Scale Calibration Check Date:	4/26/2023		
Facility:	Carson City Facility	Scale Calibration Check (see QS	-6.05C for procedure)		
Test Location:	System 4	must be within ± 0.5g of certified mass			
Project #:	M231408	Certified Weight, grams	Result, grams		
Date:	4/26/2023	200	199.9		
Test Method:	5				
Weighed/Measured By:	тwм	500	499.8		
Balance ID:	LV3				
		700	699.8		

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS
DI Water	710.2	718.0	-7.8
DI Water	743.8	744.3	-0.5
Empty	658.5	655.5	3.0
Silica Gel	808.8	796.9	11.9

2,112.5	2,117.8	-5.3
Liquid Final	Liquid Initial	Liquid Gain
808.8	796.9	11.9
Silica Final	Silica Initial	Silica Gain

				Run 3	- Metho	d 5				
Test		PCC Struct Carson City System 4						Date: Start Time: End Time:	11:	15
	Condition:	•								
		RY GAS METER	CONDITIONS					STACK CONDITI	ONS	
		ΔH:	2.22	In. H <sub>2</sub> O				Static Pressure	e 0.70	in. H <sub>2</sub> O
	Meter Ten	nperature, Tm:	87.3	°F			FI	ue Pressure (Ps)	: 25.39	in. Hg. ab
		Sqrt ∆P:	0.647	In. H <sub>2</sub> O				Carbon Dioxide	:	%
		mperature, Ts:	78.4	°F				Oxygen		%
		r Volume, Vm:	87.870	ft <sup>3</sup>			_	Nitrogen		%
		olume, Vmstd:	72.332	dscf				s Weight dry, Md		lb/lb mole
		olume, Vwstd:	0.259	wscf			Ga	s Weight wet, Ms		lb/lb mole
	ISOKI	netic Variance:	101.8	%I				Excess Air Gas Velocity, Vs		% fps
		Test Length:	96.00	in mins.				Volumetric Flow		acfm
	No	zzle Diameter:	0.262	in inches				Volumetric Flow	,	dscfm
		etric Pressure:	25.34	in Hg				Volumetric Flow	-,	scfm
	Daronn		20.01	in rig					. 0,112	com
				MOIST	TURE DE	FERMINATION	N			
	Initial Imp	inger Content:	2112.5	ml		5	Silica Initial Wt.	808.8	grams	
	Final Imp	inger Content:	2105.2	ml		\$	Silica Final Wt.	821.6	grams	
	Imping	ger Difference:	-7.3	ml		Si	lica Difference:	12.8	grams	
	Tota	al Water Gain:	5.5		I	Moisture, Bws:	0.004	Supersatu	ration Value, Bws	: 0.039
		Volocity	Orifice	Actual	Stack	Motor	r Temp	Probe	Filter	Imping
Port-	Clock	Velocity Head ∆p		Meter Vol.		Inlet	Outlet		Exit Temp	Impinge Exit Ten
Point No.	Time	in. H2O	ап in. H2O	ft <sup>3</sup>	Temp °F	°F	°F	Temp °F	°F	°F
1-1	11:15:00	0.65	3.33	58.324	76	84	84	248	250	65
1-2	11:19:00	0.88	4.51	62.860	77	85	85	253	259	61
1-3	11:23:00	0.87	4.46	68.150	78	85	85	252	256	60
1-4	11:27:00	0.74	3.80	73.420	78	85	85	251	256	60
1-5	11:31:00	0.60	3.08	78.260	78	86	86	251	255	58
1-6	11:35:00	0.45	2.31	82.650	78	86	86	251	253	56
1-7	11:39:00	0.27	1.38	86.450	78	87	87	251	252	52
1-8	11:43:00	0.29	1.49	89.380	78	87	87	250	252	51
1-9	11:47:00	0.31	1.59	92.420	78	87	87	251	252	50
1-10	11:51:00	0.34	1.74	95.580	78	87	87	252	251	49
1-11	11:55:00	0.33	1.69	98.870	78	87	87	251	251	48
1-12	11:59:00	0.29	1.49	102.120	79	88	88	251	251	48
<u>.</u>	12:03:00	0.50	0.50	105.208	70			054	050	
2-1	12:08:00	0.50	2.56	105.208	78	88	88	251	252	65
2-2 2-3	12:12:00 12:16:00	0.48	2.46 2.21	109.230 113.160	79 79	88 88	88 88	251 251	251 250	48
2-3	12:16:00	0.43	1.95	116.870	79	88	88	251	250	47 50
2-4	12:24:00	0.36	1.85	120.350	79	88	88	251	252	51
2-6	12:28:00	0.31	1.59	123.760	79	88	88	252	251	50
2-7	12:32:00	0.28	1.44	126.920	79	89	89	252	251	49
2-8	12:36:00	0.31	1.59	129.910	79	89	89	251	251	50
2-9	12:40:00	0.34	1.74	133.060	79	88	88	251	252	51
2-10	12:44:00	0.34	1.74	136.360	79	89	89	251	251	52
2-11	12:48:00	0.34	1.74	139.670	79	89	89	252	251	52
2-12	12:52:00	0.32	1.64	142.990	79	89	89	251	251	52
	12:56:00			146.194						
otal	1:36:00			87.870		87.3	8 87.3			
verage			2.22		78.4					
in			1.38		76.0	84.0	)			

Max

79.0

89.0

4.51

Client:	PCC Structurals	Scale Calibration Check Date:	4/26/2023			
Facility:	Carson City Facility	Scale Calibration Check (see QS	-6.05C for procedure)			
Test Location:	System 4	must be within ± 0.5g of certified mass				
Project #:	M231408	Certified Weight, grams	Result, grams			
Date:	4/26/2023	200	199.9			
Test Method:	5					
Weighed/Measured By:	тwм	500	499.8			
Balance ID:	LV3	—				
		700	699.8			

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS
	1		
DI Water	702.0	710.2	-8.2
DI Water	742.0	743.8	-1.8
	1		1
Empty	661.2	658.5	2.7
	1		
Silica Gel	821.6	808.8	12.8

2,105.2	2,112.5	-7.3
Liquid Final	Liquid Initial	Liquid Gain
821.6	808.8	12.8
Silica Final	Silica Initial	Silica Gain

Client: Facility: Test Location: Project #: Test Method: Test Engineer: Test Technician:		PCC Structurals Carson City Facility System 5 M231408 5 TWM RB	
Meter ID:	<u>Run 1</u> CM46	<u>Run 2</u> CM46	<u>Run 3</u> CM46
Pitot ID:	6969	6969	6969
Filter ID:	6555	8385	8373
Filter Pre-Weight (grams):	0.46347	0.44546	0.44560
Nozzle Diameter (Inches):	0.357	0.357	0.357
Meter Calibration Date:	4/18/2023	4/18/2023	4/18/2023
Meter Calibration Factor (Y):	1.001	1.001	1.001
Meter Orifice Setting (Delta H):	1.751	1.751	1.751
Nozzle Kit ID Number and Material:	Glass 10 (1048)	Glass 10 (1048)	Glass 10 (1048)
Pitot Tube Coefficient:		0.840	
Probe Length (Feet):		5.0	
Probe Liner Material:		Glass	
Sample Plane:		Horizontal	
Port Length (Inches):		0.00	
Port Size (Diameter, Inches):		4.00	
Port Type:		Hole in duct	
Duct Shape:		Circular	
Diameter (Feet):		2.5	
Duct Area (Square Feet): Upstream Diameters:		4.909 2.0	
Downstream Diameters:		2.0	
Number of Ports Sampled:		2.0	
Number of Points per Port:		12	
Minutes per Point:		4.0	
Minutes per Reading:		4.0	
Total Number of Traverse Points:		24	
Test Length (Minutes):		96	
Train Type:		Hot Box	
Source Condition:		Normal	
Moisture Balance ID:		LV3	
# of Runs		3	

Projec Client Facilit Locat Pitot I Pitot ( Probe	: y: ion: D: Coeff	icient:	M231408 PCC Struc Carson Cit System 5 6969 0.840 5					Source Co Run No.: Date: Start Time End Time: RM Testers Port Lengt	: s:	on:	Normal 1 4/27/2023 6:50 7:05 0.00				
		DP	Sqrt.	Temp	Yaw		Velocity			DP	Sqrt.	Temp	Yaw		,
Port I	Point	(in. H <sub>2</sub> O)	DP	(°F)	(o)		(V)	Port Point		(in. H <sub>2</sub> O)	DP	(°F)	(o)		
Α	1	0.22	0.4690	73.0	2.0	2.0	28.76	В	1	0.22	0.4690	74.0	2.0	2.0	
Α	2	0.22	0.4690	73.0	2.0	2.0	28.76	В	2	0.24	0.4899	74.0	2.0	2.0	
Α	3	0.22	0.4690	74.0	2.0	2.0	28.79	в	3	0.25	0.5000	74.0	2.0	2.0	
Α	4	0.22	0.4690	74.0	2.0	2.0	28.79	в	4	0.22	0.4690	74.0	2.0	2.0	
Α	5	0.20	0.4472	74.0	2.0	2.0	27.45	в	5	0.20	0.4472	74.0	2.0	2.0	
Α	6	0.18	0.4243	74.0	2.0	2.0	26.04	в	6	0.19	0.4359	74.0	2.0	2.0	
Α	7	0.14	0.3742	74.0	2.0	2.0	22.97	в	7	0.15	0.3873	74.0	2.0	2.0	
Α	8	0.13	0.3606	74.0	2.0	2.0	22.13	в	8	0.13	0.3606	74.0	2.0	2.0	
А	9	0.14	0.3742	74.0	2.0	2.0	22.97	в	9	0.14	0.3742	74.0	2.0	2.0	
А	10	0.15	0.3873	74.0	2.0	2.0	23.77	в	10	0.14	0.3742	74.0	2.0	2.0	
Α	11	0.14	0.3742	74.0	2.0	2.0	22.97	в	11	0.14	0.3742	74.0	2.0	2.0	
Α	12	0.13	0.3606	74.0	2.0	2.0	22.13	В	12	0.12	0.3464	72.0	2.0	2.0	

Average Yaw Angle

2.0 °

Velocity (V) 28.79 30.07 28.79 27.45 26.75 23.77 22.13 22.97 22.97 22.97

21.22

	Facility: t Location: Condition:		y Facility	Kun 1	- Method	a 5		Date: Start Time: End Time: STACK CONDITI	7: 8:	10
			2.68	in. H <sub>2</sub> O				Static Pressure		in. H₂O
	Motor Tor	perature, Tm:	59.6	°F			FI	ue Pressure (Ps):		in. Hg. abs
	Weter Ten	Sqrt ∆P:	0.391	in. H <sub>2</sub> O			1 1	Carbon Dioxide:		%
	Stock Tor	nperature, Ts:	75.6	°F				Oxygen:		%
		r Volume, Vm:	93.209	ft <sup>3</sup>				Nitrogen:		%
		olume, Vmstd:	80.788	dscf			Ca	s Weight dry, Md:		/b lb/lb mole
		olume, Vinsid.	0.628	wscf				s Weight wet, Ms:		lb/lb mole
		etic Variance:	101.5	wsci %l			Gas	Excess Air:		%
	ISUKII	letic variance.	101.5	701				Gas Velocity, Vs:		fps
		Test Length:	96.00	in mins.				Volumetric Flow:		acfm
	Nia	-								
		zzle Diameter: etric Pressure:	0.357 25.30	in inches in Hg				Volumetric Flow: Volumetric Flow:	- ,	dscfm scfm
	Baronik		20.00	innig				volumetric r low.	0,000	30111
	Initial Imp	inger Content:	2105.2	MOIS <sup>.</sup> ml	TURE DE		I ilica Initial Wt.	821.6	grams	
	-	inger Content:	2105.2	ml		-	Silica Final Wt.	825.7	grams	
	•	ger Difference:	9.2	ml			ca Difference:	4.1	grams	
	Tota	al Water Gain:	13.3		Γ	Moisture, Bws:	0.008	Supersatur	ation Value, Bws	: 0.035
		Velocity	Orifice	Actual	Stack	Meter	Temp	Probe	Filter	Impinge
Port-	Clock	Head ∆p	$\Delta \mathbf{H}$	Meter Vol.	Temp	Inlet	Outlet	Temp	Exit Temp	Exit Tem
Point No.	Time	in. H2O	in. H2O	ft <sup>3</sup>	۴F	۴F	°F	°F	°F	°F
1-1	7:10:00	0.22	3.68	46.839	72	46	46	263	264	48
1-2	7:14:00	0.24	4.02	51.380	72	47	47	244	257	40
1-3	7:18:00	0.25	4.19	56.150	74	47	47	242	258	41
1-4	7:22:00	0.24	4.02	60.990	74	48	48	245	257	41
1-5	7:26:00	0.23	3.85	65.770	74	50	50	254	254	41
1-6	7:30:00	0.18	3.01	70.460	74	51	51	254	253	41
1-7	7:34:00	0.15	2.51	74.630	74	53	53	254	254	43
				1	74				1	1
1-8	7:38:00	0.11	1.84	78.470	74	54	54	252	254	44
	7:38:00 7:42:00	0.11 0.12	1.84 2.01	78.470 81.780	74	54 55	54 55	252 254	254 254	44
1-8				1						
1-8 1-9	7:42:00	0.12	2.01	81.780	74	55	55	254	254	44
1-8 1-9 1-10	7:42:00 7:46:00	0.12 0.13	2.01 2.18	81.780 85.180	74 75	55 56	55 56	254 254	254 254	44 44
1-8 1-9 1-10 1-11	7:42:00 7:46:00 7:50:00	0.12 0.13 0.11	2.01 2.18 1.84	81.780 85.180 88.740	74 75 75	55 56 57	55 56 57	254 254 254	254 254 254	44 44 45
1-8 1-9 1-10 1-11	7:42:00 7:46:00 7:50:00 7:54:00	0.12 0.13 0.11	2.01 2.18 1.84	81.780 85.180 88.740 92.060	74 75 75	55 56 57	55 56 57	254 254 254	254 254 254	44 44 45
1-8 1-9 1-10 1-11 1-12	7:42:00 7:46:00 7:50:00 7:54:00 7:58:00	0.12 0.13 0.11 0.10	2.01 2.18 1.84 1.67	81.780 85.180 88.740 92.060 95.165	74 75 75 76	55 56 57 59	55 56 57 59	254 254 254 254	254 254 254 254 254	44 44 45 46
1-8 1-9 1-10 1-11 1-12 2-1	7:42:00 7:46:00 7:50:00 7:54:00 7:58:00 8:02:00	0.12 0.13 0.11 0.10 0.20	2.01 2.18 1.84 1.67 3.35	81.780 85.180 88.740 92.060 95.165 95.165	74 75 75 76 76	55 56 57 59 60	55 56 57 59 60	254 254 254 254 254 252	254 254 254 254 254 255	44 44 45 46 52
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4	7:42:00 7:46:00 7:50:00 7:54:00 7:58:00 8:02:00 8:06:00	0.12 0.13 0.11 0.10 0.20 0.22	2.01 2.18 1.84 1.67 3.35 3.68 3.68 3.68 3.68	81.780 85.180 88.740 92.060 95.165 95.165 99.620	74 75 76 76 76 76 77 76	55 56 57 59 60 62	55 56 57 59 60 62 63 65	254 254 254 254 254 252 252 254	254 254 254 254 255 255 254 254 255	44 44 45 46 52 44 45 45
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3	7:42:00 7:46:00 7:50:00 7:54:00 7:58:00 8:02:00 8:06:00 8:10:00	0.12 0.13 0.11 0.10 0.20 0.22 0.22	2.01 2.18 1.84 1.67 3.35 3.68 3.68	81.780 85.180 88.740 92.060 95.165 95.165 99.620 104.240	74 75 75 76 76 76 76 77	55 56 57 59 60 62 63 65 66	55 56 57 59 60 62 63	254 254 254 254 254 252 252 254 254	254 254 254 254 255 255 254 255 255 254	44 44 45 46 52 44 45
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4	7:42:00 7:46:00 7:50:00 7:54:00 7:58:00 8:02:00 8:06:00 8:10:00 8:14:00	0.12 0.13 0.11 0.10 0.20 0.22 0.22 0.22 0.22	2.01 2.18 1.84 1.67 3.35 3.68 3.68 3.68 3.68	81.780           85.180           88.740           92.060           95.165           95.165           99.620           104.240           108.990	74 75 76 76 76 76 77 76	55 56 57 59 60 62 63 65	55 56 57 59 60 62 63 65	254 254 254 254 254 252 252 254 254 254	254 254 254 254 255 255 254 254 255	44 44 45 46 52 44 45 45
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5	7:42:00 7:46:00 7:50:00 7:54:00 7:58:00 8:02:00 8:06:00 8:10:00 8:14:00 8:18:00	0.12 0.13 0.11 0.10 0.20 0.22 0.22 0.22 0.22 0.22	2.01 2.18 1.84 1.67 3.35 3.68 3.68 3.68 3.68 3.68	81.780           85.180           88.740           92.060           95.165           95.165           99.620           104.240           108.990           113.730	74 75 76 76 76 76 77 76 76 76	55 56 57 59 60 62 63 65 66	55 56 57 59 60 62 63 65 66	254 254 254 254 254 252 252 254 254 254	254 254 254 254 255 255 254 255 255 254	44 44 45 46 52 44 45 45 45
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8	7:42:00 7:46:00 7:50:00 7:54:00 8:02:00 8:06:00 8:10:00 8:14:00 8:14:00 8:18:00 8:22:00 8:26:00 8:30:00	0.12 0.13 0.11 0.10 0.20 0.22 0.22 0.22 0.22 0.22 0.22 0.18 0.13 0.08	2.01 2.18 1.84 1.67 3.35 3.68 3.68 3.68 3.68 3.68 3.68 3.01 2.18 1.34	81.780           85.180           88.740           92.060           95.165           95.165           99.620           104.240           108.990           113.730           118.410           122.690           126.360	74 75 76 76 76 76 77 76 76 77 76 77 77 77 78	55 56 57 59 60 62 63 65 66 67 68 70	55 56 57 59 60 62 63 65 66 67 68 70	254 254 254 254 252 254 254 254 254 253 254 254 252 254	254 254 254 254 255 255 254 254 255 254 254	44 44 45 46 52 44 45 45 45 45 46 46
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7	7:42:00 7:46:00 7:50:00 7:54:00 7:58:00 8:02:00 8:06:00 8:10:00 8:14:00 8:14:00 8:18:00 8:22:00 8:26:00	0.12 0.13 0.11 0.10 0.20 0.22 0.22 0.22 0.22 0.22 0.22 0.18 0.13	2.01 2.18 1.84 1.67 3.35 3.68 3.68 3.68 3.68 3.68 3.68 3.01 2.18	81.780           85.180           88.740           92.060           95.165           95.165           99.620           104.240           108.990           113.730           118.410           122.690	74 75 76 76 76 76 77 76 76 76 77 77	55           56           57           59           60           62           63           65           66           67           68           70           70	55 56 57 59 60 62 63 65 66 67 68 70 70 70	254 254 254 254 252 252 254 254 254 253 254 254 254 252	254 254 254 254 255 255 254 254 255 254 254	44 44 45 46 52 44 45 45 45 45 45 46 45
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8	7:42:00 7:46:00 7:50:00 7:54:00 8:02:00 8:06:00 8:10:00 8:14:00 8:14:00 8:18:00 8:22:00 8:26:00 8:30:00	0.12 0.13 0.11 0.10 0.20 0.22 0.22 0.22 0.22 0.22 0.22 0.18 0.13 0.08	2.01 2.18 1.84 1.67 3.35 3.68 3.68 3.68 3.68 3.68 3.68 3.01 2.18 1.34	81.780           85.180           88.740           92.060           95.165           95.165           99.620           104.240           108.990           113.730           118.410           122.690           126.360	74 75 76 76 76 76 77 76 76 77 76 77 77 77 78	55 56 57 59 60 62 63 65 66 67 68 70	55 56 57 59 60 62 63 65 66 67 68 70	254 254 254 254 252 254 254 254 254 253 254 254 252 254	254 254 254 254 255 255 254 254 255 254 254	44 44 45 46 52 44 45 45 45 45 46 46
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9	7:42:00         7:46:00         7:50:00         7:54:00         7:58:00         8:02:00         8:06:00         8:10:00         8:14:00         8:22:00         8:26:00         8:30:00         8:34:00	0.12 0.13 0.11 0.10 0.20 0.22 0.22 0.22 0.22 0.22 0.22 0.18 0.13 0.08 0.09	2.01 2.18 1.84 1.67 3.35 3.68 3.68 3.68 3.68 3.68 3.01 2.18 1.34 1.51 1.51 1.51	81.780           85.180           88.740           92.060           95.165           95.165           99.620           104.240           108.990           113.730           118.410           122.690           126.360           129.220	74 75 76 76 76 76 77 76 76 77 76 77 77 77 78 78	55           56           57           59           60           62           63           65           66           67           68           70           70	55 56 57 59 60 62 63 65 66 67 68 70 70 70	254 254 254 254 252 254 254 254 254 254	254 254 254 254 255 255 254 255 254 255 254 254	44 44 45 46 52 44 45 45 45 45 45 46 46 46
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10	7:42:00         7:46:00         7:50:00         7:54:00         7:58:00         8:02:00         8:06:00         8:10:00         8:14:00         8:22:00         8:26:00         8:30:00         8:34:00         8:38:00	0.12 0.13 0.11 0.10 0.20 0.22 0.22 0.22 0.22 0.22 0.18 0.13 0.08 0.09 0.09	2.01 2.18 1.84 1.67 3.35 3.68 3.68 3.68 3.68 3.68 3.01 2.18 1.34 1.51 1.51	81.780           85.180           88.740           92.060           95.165           95.165           99.620           104.240           108.990           113.730           118.410           122.690           126.360           129.220           132.260	74 75 76 76 76 76 77 76 77 76 77 77 77 77 78 78 78 78	55           56           57           59           60           62           63           65           66           67           68           70           72	55         56         57         59         60         62         63         65         66         67         68         70         72	254 254 254 254 252 252 254 254 254 253 254 252 254 254 254 254 254 254 253	254 254 254 254 255 254 255 254 254 255 254 254	44 44 45 46 52 44 45 45 45 45 45 46 46 46 46 47
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11	7:42:00           7:46:00           7:50:00           7:54:00           7:58:00           8:02:00           8:06:00           8:10:00           8:14:00           8:22:00           8:30:00           8:34:00           8:38:00           8:42:00	0.12 0.13 0.11 0.10 0.20 0.22 0.22 0.22 0.22 0.22 0.22 0.18 0.13 0.08 0.09 0.09 0.07	2.01 2.18 1.84 1.67 3.35 3.68 3.68 3.68 3.68 3.68 3.01 2.18 1.34 1.51 1.51 1.51	81.780           85.180           88.740           92.060           95.165           95.165           99.620           104.240           108.990           113.730           118.410           122.690           129.220           132.260           135.330	74 75 76 76 76 76 77 76 76 77 77 77 77 78 78 78 78 78 78	55           56           57           59           60           62           63           65           66           67           68           70           72	55         56         57         59         60         62         63         65         66         67         68         70         72	254 254 254 254 252 254 254 254 254 253 254 252 254 254 254 253 254 253 253	254 254 254 254 255 255 254 255 254 255 254 254	44 44 45 46 52 44 45 45 45 45 45 46 46 46 47 47
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11	7:42:00         7:46:00         7:50:00         7:54:00         7:58:00         8:02:00         8:06:00         8:10:00         8:14:00         8:22:00         8:30:00         8:34:00         8:38:00         8:42:00         8:46:00	0.12 0.13 0.11 0.10 0.20 0.22 0.23 0.08 0.09 0.07 0.09 0.04 0.04	2.01 2.18 1.84 1.67 3.35 3.68 3.68 3.68 3.68 3.68 3.01 2.18 1.34 1.51 1.51 1.51	81.780           85.180           88.740           92.060           95.165           95.165           99.620           104.240           108.990           113.730           118.410           122.690           132.260           135.330           138.040	74 75 76 76 76 76 77 76 76 76 76 76 77 77 78 78 78 78 78 80	55           56           57           59           60           62           63           65           66           67           68           70           72	55         56         57         59         60         62         63         65         66         67         68         70         72	254 254 254 254 252 254 254 254 254 253 254 252 254 254 254 253 254 253 253	254 254 254 254 255 255 254 255 254 255 254 254	44 44 45 46 52 44 45 45 45 45 45 46 46 46 47 47
1-8 1-9 1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11 2-12	7:42:00           7:46:00           7:50:00           7:54:00           7:58:00           8:02:00           8:06:00           8:10:00           8:14:00           8:22:00           8:30:00           8:34:00           8:38:00           8:42:00           8:50:00	0.12 0.13 0.11 0.10 0.20 0.22 0.23 0.08 0.09 0.07 0.09 0.04 0.04	2.01 2.18 1.84 1.67 3.35 3.68 3.68 3.68 3.68 3.68 3.01 2.18 1.34 1.51 1.51 1.51	81.780           85.180           88.740           92.060           95.165           95.165           99.620           104.240           108.990           113.730           118.410           122.690           132.260           135.330           138.040           140.048           93.209	74 75 76 76 76 76 77 76 76 76 76 76 77 77 78 78 78 78 78 80	55           56           57           59           60           62           63           65           66           67           68           70           72           73           59.6           59.6	55         56         57         59         60         62         63         65         66         67         68         70         72         73	254 254 254 254 252 254 254 254 254 253 254 252 254 254 254 253 254 253 253	254 254 254 254 255 255 254 255 254 255 254 254	44 44 45 46 52 44 45 45 45 45 45 46 46 46 47 47

Client:	PCC Structurals	Scale Calibration Check Date:	4/27/2023
Facility:	Carson City Facility	Scale Calibration Check (see QS-	6.05C for procedure)
Test Location:	System 5	must be within ± 0.5g of c	ertified mass
Project #:	M231408	Certified Weight, grams	Result, grams
Date:	4/27/2023	200	199.9
Test Method:	5		
Weighed/Measured By:	тwм	500	499.9
Balance ID:	LV3		
		700	699.8

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS/GRAMS	MLS / GRAMS	MLS / GRAMS
DI Water	710.1	702.0	8.1
DI Water	742.8	742.0	0.8
I _ I		1	
Empty	661.5	661.2	0.3
Silica Gel	825.7	821.6	4.1

2,114.4	2,105.2	9.2
Liquid Final	Liquid Initial	Liquid Gain
825.7	821.6	4.1
Silica Final	Silica Initial	Silica Gain

	Facility: t Location: Condition:	•	y Facility	Run 2	- Method	d 5		Date: Start Time: End Time: STACK CONDITI	9:1 10:5	2
	Div		3.24	In. H <sub>2</sub> O				Static Pressure		in. H <sub>2</sub> O
	Meter Terr	perature, Tm:	82.1	°F			FI	ue Pressure (Ps):		in. Hg. ab
	Weter Ten	Sqrt ∆P:	0.434				1.1	Carbon Dioxide		%
	Stock Ton	•	80.3	In. H₂O °F						%
		nperature, Ts: r Volume, Vm:	107.635	ft <sup>3</sup>				Oxygen		%
		,					Ca	Nitrogen: s Weight dry, Md:		
		olume, Vmstd:	89.572 0.841	dscf				0,00		lb/lb mole
		olume, Vwstd: netic Variance:	102.0	wscf %I			Gas	Weight wet, Ms:		%
	ISOKI	ieuc vanance.	102.0	701				Excess Air: Gas Velocity, Vs		% fps
		Test Length:	96.00	in mins.				Volumetric Flow		acfm
	N	-							,	
		zzle Diameter:	0.357	in inches				Volumetric Flow	-,	dscfm
	Daronne	etric Pressure:	25.30	in Hg				Volumetric Flow	: 6,524	scfm
					FURE DET					
		inger Content:	2114.4	ml		-	ilica Initial Wt.	875.5	grams	
	•	inger Content:	2121.5	ml		-	ilica Final Wt.	886.3	grams	
	Imping	ger Difference:	7.1	ml		511	ca Difference:	10.8	grams	
	Tota	al Water Gain:	17.9		Ν	Moisture, Bws:	0.009	Supersatur	ation Value, Bws:	0.04
		Velocity	Orifice	Actual	Stack	Meter	Temp	Probe	Filter	Imping
Port-	Clock	Head ∆p	$\Delta \mathbf{H}$	Meter Vol.	Temp	Inlet	Outlet	Temp	Exit Temp	Exit Ter
Point No.	Time	in. H2O	in. H2O	ft <sup>3</sup>	°F	°F	°F	°F	°F	°F
1-1	9:12:00	0.20	3.35	40.109	79	77	77	240	263	51
1-2	9:16:00	0.18	3.01	44.710	80	77	77	253	257	48
1-3	9:20:00	0.22	3.68	48.930	80	78	78	252	253	50
1-4	9:24:00	0.22	3.68	53.450	80	78	78	252	252	51
1-5	9:28:00	0.05	0.84	58.670	74	80	80	252	251	50
1-6	9:32:00	0.05	0.84	61.040	74	80	80	252	252	50
1-7	9:36:00	0.24	4.02	63.310	81	80	80	251	253	50
1-8	9:40:00	0.23	3.85	68.350	81	81	81	251	251	50
1-9	9:44:00	0.23	3.85	73.290	80	81	81	251	252	51
1-9							0.	201	202	1
1-9	9:48:00	0.22	3.68	78.240	80	81	81	251	252	52
1-10 1-11	9:52:00	0.20	3.35	83.120	80	82	81 82	251 251	252 252	52
1-10	9:52:00 9:56:00			83.120 87.710			81	251	252	
1-10 1-11 1-12	9:52:00 9:56:00 10:00:00	0.20 0.20	3.35 3.35	83.120 87.710 92.335	80 80	82 82	81 82 82	251 251 252	252 252 251	52 52
1-10 1-11 1-12 2-1	9:52:00 9:56:00 10:00:00 10:10:00	0.20 0.20 0.22	3.35 3.35 3.68	83.120 87.710 92.335 92.335	80 80 80	82 82 83	81 82 82 83	251 251 252 251	252 252 251 251 251	52 52 55
1-10 1-11 1-12 2-1 2-2	9:52:00 9:56:00 10:00:00 10:10:00 10:14:00	0.20 0.20 0.22 0.22 0.23	3.35 3.35 3.68 3.85	83.120 87.710 92.335 92.335 97.210	80 80 80 81	82 82 83 83	81 82 82 83 83 83	251 251 252 251 251 250	252 252 251 251 251 252	52 52 55 48
1-10 1-11 1-12 2-1 2-2 2-3	9:52:00 9:56:00 10:00:00 10:10:00 10:14:00 10:18:00	0.20 0.20 0.22 0.23 0.25	3.35 3.35 3.68 3.85 4.19	83.120 87.710 92.335 92.335 97.210 102.150	80 80 80 81 81	82 82 83 83 83 83	81 82 82 83 83 83 83 83	251 251 252 252 251 250 250	252 252 251 251 251 252 251	52 52 55 48 51
1-10 1-11 1-12 2-1 2-2 2-3 2-4	9:52:00 9:56:00 10:00:00 10:10:00 10:14:00 10:18:00 10:22:00	0.20 0.20 0.22 0.23 0.25 0.24	3.35 3.35 3.68 3.85 4.19 4.02	83.120 87.710 92.335 92.335 97.210 102.150 107.320	80 80 80 81 81 81	82 82 83 83 83 83 83 83	81 82 82 83 83 83 83 83 83	251 251 252 251 251 250 250 250 251	252 252 251 251 251 252 251 251 251	52 52 55 48 51 51
1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5	9:52:00           9:56:00           10:00:00           10:10:00           10:14:00           10:18:00           10:22:00           10:26:00	0.20 0.20 0.22 0.23 0.25 0.24 0.24	3.35 3.35 3.68 3.85 4.19 4.02 4.02	83.120 87.710 92.335 92.335 97.210 102.150 107.320 112.400	80 80 80 81 81 81 81 81	82 82 83 83 83 83 83 83 83 84	81 82 82 83 83 83 83 83 83 83 83 83 84	251 252 252 251 251 250 250 250 251 251	252 252 251 251 251 252 251 251 251 251	52 52 55 48 51 51 51 52
1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6	9:52:00           9:56:00           10:00:00           10:10:00           10:14:00           10:18:00           10:22:00           10:26:00           10:30:00	0.20 0.20 0.22 0.23 0.25 0.24 0.24 0.23	3.35 3.35 3.68 3.85 4.19 4.02 4.02 3.85	83.120           87.710           92.335           92.335           97.210           102.150           107.320           112.400           117.440	80 80 81 81 81 81 81 81	82 82 83 83 83 83 83 83 84 84	81 82 83 83 83 83 83 83 83 84 84 84	251 252 252 251 250 250 250 251 251 251	252 252 251 251 251 252 251 251 251 251	52 52 55 48 51 51 52 52 52
1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7	9:52:00           9:56:00           10:00:00           10:11:00           10:14:00           10:18:00           10:22:00           10:26:00           10:30:00	0.20 0.20 0.22 0.23 0.25 0.24 0.24 0.23 0.22	3.35 3.35 3.68 3.85 4.19 4.02 4.02 3.85 3.68	83.120           87.710           92.335           92.335           97.210           102.150           107.320           112.400           117.440           122.420	80 80 81 81 81 81 81 81 81	82 82 83 83 83 83 83 84 84 84 85	81 82 82 83 83 83 83 83 83 84 84 84 85	251 252 252 251 250 250 250 251 251 251 251 253	252 252 251 251 251 252 251 251 251 251	52 52 55 48 51 51 52 52 52 52
1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8	9:52:00           9:56:00           10:00:00           10:11:00           10:14:00           10:18:00           10:22:00           10:26:00           10:30:00           10:38:00	0.20 0.20 0.22 0.23 0.25 0.24 0.24 0.23 0.22 0.22 0.20	3.35 3.35 3.68 3.85 4.19 4.02 4.02 3.85 3.68 3.35	83.120           87.710           92.335           92.335           97.210           102.150           107.320           112.400           117.440           122.420           127.270	80 80 81 81 81 81 81 81 81 81	82 82 83 83 83 83 83 83 84 84 84 85 85	81 82 82 83 83 83 83 83 83 83 84 84 84 85 85	251 251 252 251 250 250 250 251 251 251 251 253 251	252 252 251 251 251 252 251 251 251 251	52 52 55 48 51 51 52 52 52 52 52
1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9	9:52:00 9:56:00 10:00:00 10:10:00 10:14:00 10:18:00 10:22:00 10:26:00 10:30:00 10:34:00 10:38:00 10:42:00	0.20 0.20 0.22 0.23 0.25 0.24 0.24 0.24 0.23 0.22 0.20 0.19	3.35 3.35 3.68 3.85 4.19 4.02 4.02 3.85 3.68 3.35 3.18	83.120           87.710           92.335           92.335           97.210           102.150           107.320           112.400           117.440           122.420           127.270           131.930	80 80 81 81 81 81 81 81 81 81 81 82	82 82 83 83 83 83 83 83 84 84 85 85 85 85	81 82 82 83 83 83 83 83 83 83 83 83 83 83 84 84 85 85 85 85	251 251 252 251 250 250 250 251 251 251 253 251 251 251 252	252 252 251 251 251 252 251 251 251 251	52 52 55 48 51 51 52 52 52 52 52 52
1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10	9:52:00 9:56:00 10:00:00 10:10:00 10:14:00 10:22:00 10:22:00 10:26:00 10:30:00 10:34:00 10:38:00 10:42:00	0.20 0.20 0.22 0.23 0.25 0.24 0.24 0.24 0.23 0.22 0.20 0.19 0.14	3.35 3.35 3.68 3.85 4.19 4.02 4.02 3.85 3.68 3.35 3.18 2.34	83.120           87.710           92.335           92.335           97.210           102.150           107.320           112.400           117.440           122.420           131.930           136.420	80 80 81 81 81 81 81 81 81 81 81 82 82	82 82 83 83 83 83 83 83 83 83 84 84 85 85 85 85 85 86	81 82 82 83 83 83 83 83 83 83 83 83 84 84 85 85 85 85 85 86	251 252 252 251 250 250 250 251 251 251 253 251 252 251	252 252 251 251 252 251 251 251 251 251	52 52 55 48 51 51 52 52 52 52 52 52 52 52
1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11	9:52:00           9:56:00           10:00:00           10:10:00           10:14:00           10:22:00           10:22:00           10:30:00           10:34:00           10:42:00           10:42:00           10:42:00	0.20 0.20 0.22 0.23 0.25 0.24 0.24 0.24 0.23 0.22 0.20 0.19 0.14 0.13	3.35 3.35 3.68 3.85 4.19 4.02 4.02 3.85 3.68 3.35 3.18 2.34 2.18	83.120           87.710           92.335           92.335           97.210           102.150           107.320           112.400           117.440           122.420           131.930           136.420           140.370	80 80 81 81 81 81 81 81 81 81 81 82 82 82 83	82 82 83 83 83 83 83 83 83 84 84 85 85 85 85 86 86	81 82 82 83 83 83 83 83 83 83 83 83 83 84 85 85 85 85 85 86 86 86	251 252 252 251 250 250 250 251 251 251 253 251 252 251 251	252 252 251 251 252 251 251 251 251 251	52 52 55 48 51 51 52 52 52 52 52 52 52 52 52 52
1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10	9:52:00 9:56:00 10:00:00 10:14:00 10:14:00 10:22:00 10:26:00 10:38:00 10:38:00 10:42:00 10:46:00 10:54:00	0.20 0.20 0.22 0.23 0.25 0.24 0.24 0.24 0.23 0.22 0.20 0.19 0.14	3.35 3.35 3.68 3.85 4.19 4.02 4.02 3.85 3.68 3.35 3.18 2.34	83.120           87.710           92.335           92.335           97.210           102.150           107.320           112.400           117.440           122.420           131.930           136.420           140.370           144.120	80 80 81 81 81 81 81 81 81 81 81 82 82	82 82 83 83 83 83 83 83 83 83 84 84 85 85 85 85 85 86	81 82 82 83 83 83 83 83 83 83 83 83 84 84 85 85 85 85 85 86	251 252 252 251 250 250 250 251 251 251 253 251 252 251	252 252 251 251 252 251 251 251 251 251	52 52 55 48 51 51 52 52 52 52 52 52 52 52
1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11 2-12	9:52:00           9:56:00           10:00:00           10:10:00           10:14:00           10:22:00           10:22:00           10:36:00           10:38:00           10:42:00           10:42:00           10:55:00           10:55:00	0.20 0.20 0.22 0.23 0.25 0.24 0.24 0.24 0.23 0.22 0.20 0.19 0.14 0.13 0.12	3.35 3.35 3.68 3.85 4.19 4.02 4.02 3.85 3.68 3.35 3.18 2.34 2.18	83.120           87.710           92.335           92.335           97.210           102.150           107.320           112.400           117.440           122.420           127.270           131.930           136.420           144.120           144.744	80           80           81           81           81           81           81           81           82           83           84	82 82 83 83 83 83 83 83 83 83 83 83 85 85 85 85 85 86 86 86 86	81 82 82 83 83 83 83 83 83 83 83 83 83 83 83 85 85 85 85 85 85 86 86 86 86	251 252 252 251 250 250 250 251 251 251 253 251 252 251 251	252 252 251 251 252 251 251 251 251 251	52 52 55 48 51 51 52 52 52 52 52 52 52 52 52 52
1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11 2-12 tal	9:52:00 9:56:00 10:00:00 10:14:00 10:14:00 10:22:00 10:26:00 10:38:00 10:38:00 10:42:00 10:46:00 10:54:00	0.20 0.20 0.22 0.23 0.25 0.24 0.24 0.24 0.23 0.22 0.20 0.19 0.14 0.13 0.12	3.35 3.35 3.68 3.85 4.19 4.02 4.02 3.85 3.68 3.35 3.18 2.34 2.18 2.01	83.120           87.710           92.335           92.335           97.210           102.150           107.320           112.400           117.440           122.420           127.270           131.930           136.420           144.120           144.744           107.635	80           80           81           81           81           81           81           81           82           83           84	82 82 83 83 83 83 83 83 83 83 83 83 85 85 85 85 86 86 86 86 86 86	81 82 82 83 83 83 83 83 83 83 83 83 83 84 85 85 85 85 85 86 86 86	251 252 252 251 250 250 250 251 251 251 253 251 252 251 251	252 252 251 251 252 251 251 251 251 251	52 52 55 48 51 51 52 52 52 52 52 52 52 52 52 52
1-10 1-11 1-12 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11	9:52:00           9:56:00           10:00:00           10:10:00           10:14:00           10:22:00           10:22:00           10:36:00           10:38:00           10:42:00           10:42:00           10:55:00           10:55:00	0.20 0.20 0.22 0.23 0.25 0.24 0.24 0.24 0.23 0.22 0.20 0.19 0.14 0.13 0.12	3.35 3.35 3.68 3.85 4.19 4.02 4.02 3.85 3.68 3.35 3.18 2.34 2.18	83.120           87.710           92.335           92.335           97.210           102.150           107.320           112.400           117.440           122.420           127.270           131.930           136.420           144.120           144.744           107.635	80           80           81           81           81           81           81           81           82           83           84	82 82 83 83 83 83 83 83 83 83 83 83 85 85 85 85 85 86 86 86 86 86 86 82.1 82.1	81 82 82 83 83 83 83 83 83 83 83 83 83 83 83 85 85 85 85 85 85 86 86 86 86	251 252 252 251 250 250 250 251 251 251 253 251 252 251 251	252 252 251 251 252 251 251 251 251 251	52 52 55 48 51 51 52 52 52 52 52 52 52 52 52 52

Client:	PCC Structurals	Scale Calibration Check Date:	4/27/2023		
Facility:	Carson City Facility	Scale Calibration Check (see QS-6.05C for procedure)			
Test Location:	System 5	must be within ± 0.5g of c	ertified mass		
Project #:	M231408	Certified Weight, grams	Result, grams		
Date:	4/27/2023	200	199.9		
Test Method:	5				
Weighed/Measured By:	тwм	500	499.9		
Balance ID:	LV3				
		700	699.8		

FINAL	INITIAL	GAIN
MLS / GRAMS	MLS / GRAMS	MLS / GRAMS
716.4	710.1	6.3
743.1	742.8	0.3
662.0	661.5	0.5
1		
886.3	875.5	10.8
1		
	716.4 743.1 662.0	716.4     710.1       743.1     742.8       662.0     661.5

2,121.5	2,114.4	7.1
Liquid Final	Liquid Initial	Liquid Gain
886.3	875.5	10.8
Silica Final	Silica Initial	Silica Gain

Sqrt AP         0.43         in. H <sub>Q</sub> Cathon Divide:         %           Stack Tamporuture, Virsti         101.320         H <sup>3</sup> Gas Weight aff, Mitrogen:         #VALUE!         %           Meter Volume, Virsti         0.278         dsdr         Gas Weight aff, Mitrogen:         #VALUE!         %           Meter Volume, Virsti         0.278         dsdr         Gas Weight aff, Mitrogen:         #VALUE!         %           Notice Value, Virsti         0.278         osci         Volumetric Flow:         5.070         dsdr           Nozizb Dametric Pressure:         0.357         in inches         Volumetric Flow:         5.070         dsdr           Barometric Pressure:         25.30         in Hg         Silica Final Mrt.         886.3         grams         grams           Final Impinger Content:         2124.5         ml         Silica Final Mrt.         886.3         grams         0.494           Mainer Foresure:         2124.5         ml         Silica Final Mrt.         886.3         grams         0.494           Final Impinger Olfrence:         7.7         ml         Silica Final Mrt.         896.3         grams         0.494           Main Mrt.         0.416         Meter Vol.         Temp         Meter					Run 3	- Metho	d 5		Date: Start Time: End Time:	: 11:	20
Meter Temperature, Tru:         91.6         "F         Function of the state of the		DF	RY GAS METER	CONDITIONS					STACK CONDITI		
Stack Tampentum, Ts.         8.6.4         off 0.13         off 0.13         off 0.14         off 0.14 <td></td> <td>Meter Terr</td> <td>nperature, Tm:</td> <td>91.6</td> <td>°F</td> <td></td> <td></td> <td>FI</td> <td>ue Pressure (Ps)</td> <td>: 25.35</td> <td>in. Hg. abs</td>		Meter Terr	nperature, Tm:	91.6	°F			FI	ue Pressure (Ps)	: 25.35	in. Hg. abs
Meter Volume, Vm.         11.320         1 <sup>2</sup> Stack											
Meter volume, Vmatt         82,759         def         Gas Weight wat, Mat         28,089         Ibb mole Gas Veight wat, Mat         24,944         fps           State Interplat         0.367         in mins.         Volumetric Flow:         5,970         dscfm           Nozzle Diameter         0.367         in mins.         Silica Inilal Wt         886.1         grams           Intial Impinger Content         212.15         ml         Silica Final Wt         886.1         grams           Impinger Difference:         6.7         ml         Silica Final Wt         886.1         grams         grams           Total Water Gain:         16.5         Mat         State         Falt         Meter Top         Friter         Mpinger           112         112000         0.20         3.35         48.104         85         88         250         254         561           13         113600         0.10         1.67         Grams         State Falt         561			•								
Meter volume, Vvaid:       0.777       vsd       Gas Weight with:       22.838       bib mole isokinetic Variance:       '''         Isokinetic Variance:       0.30       in mins.       Valuation:       Valuation:       '''       Gas Velocity, 'v'       24.944       '''       '''         Nozzle Diametric Prossure:       25.30       in Hg       Valuation:       Valuation:       6.026       scfm         Barometric Prossure:       25.30       in Hg       Silica Inital Wt.       886.3       grams       grams         Final Impinger Content:       212.5       ml       Silica Inital Wt.       886.3       grams       grams         Impinger Difference:       6.7       ml       Silica Velocity.       Silica Inital Wt.       886.3       grams       grams         Inginger Difference:       6.7       ml       Silica Velocity.       Silica Velocity.       Silica Inital Wt.       886.3       grams       grams         Inginger Difference:       6.7       ml       Silica Velocity.       Silica Hital Wt.       886.1       grams       grams         Inginger Difference:       6.7       ml       fre       rf       fr       fr       fr       fr       fr       fr       fr       fr <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td></td<>									-		
Isokinetic Variance         102.0         %I         Ease Name Name Name Name Name Name Name Nam									0		
Test Langti:         96.00         in mines.         Gas Valoation View         24.94         ps           Nozzie Diametric Pressure:         25.30         in inches         Volumetric Flow:         5.970         dsdm           Barometric Pressure:         25.30         in Hg         Volumetric Flow:         6.026         scfm           Distantitic Flow:         212.5         ml         Silica Initial Wit         886.3         grams           Final Impinger Content:         212.5         ml         Silica Initial Wit         886.3         grams           Total Water Gain:         16.7         ml         Silica Initial Wit         886.1         grams           Port         Clock         Head Ap         Af         Meter Vat         Temp         Neter Temp         Prob         Fit Res         Note           11-1         112.00         0.20         3.35         62.750         86         88         88         250         222         66           1-4         112.00         0.10         1.87         61.920         86         88         88         251         253         56           1-4         112.00         0.10         1.87         61.920         86         88         88			,					Ga	0		
Test Length:         96.00         in mins.         Volumetic Flow:         7.34         dr.m           Nozzle Dametie:         23.30         in Higs         Volumetic Flow:         5.000         schn           Barometric Pressure:         23.30         in Higs         Silica Initial W1         806.01         grams           Initial Impinger Content:         212.5         ml         Silica Initial W1         806.1         grams           Impinger Difference:         6.7         ml         Silica Initial W1         806.1         grams           Impinger Difference:         6.7         ml         Silica Initial W1         806.1         grams           Test Length:         0.7         ml         Silica Initial W1         806.1         grams           Test Water Gait:         16.5         ml         Silica Initial W1         806.1         grams           11         112.000         0.20         3.35         62.70         806         88         88         251         252         54           1.3         112.000         0.02         3.35         62.70         86         88         88         251         252         54           1.4         113.200         0.10         1.67		Isokir	netic Variance:	102.0	%I					-	
Nozel planetic         0.357         in inches         Volumetic Flow:         5.97         dsdm           Barometic Pressure:         25.30         in Hg         Volumetic Flow:         5.02         dsdm           Columetic Pressure:         212.5         m         Silca Initial Wt.         886.3         grams           Impinger Content:         212.5         m         Silca Final Wt.         896.1         grams           Impinger Content:         212.5         m         Silca Final Wt.         896.1         grams           Impinger Content:         212.5         m         Silca Final Wt.         896.1         grams           Total Water Gait         6.57         ml         Silca Water Gait         9.8         grams         0.04           Volumetic Flow:         6.02         Mater Gait         1.65         Water Gait         Note         0.09         Porticic         Mater Gait         Silca Mital Wt.         886.1         254         264         60           1-12         11/2000         0.20         3.35         62.730         86         88         88         251         261         56           1-4         11/3200         0.10         1.67         652.20         86         <			Toot Longth:	06.00	in mine						•
Barometric Pressure         25.30         in Hg         Volumetric File         4.02         sdm           Lotsurper content:         212.5         m         Silica Final MM         865.1         grams         grams           Initial Impinger Content:         212.5         m         Silica Final MM         865.1         grams         grams <t< td=""><td></td><td>Na</td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td>7 -</td><td></td></t<>		Na	-							7 -	
DISTURE DETERMINATION         Initial Impinger Content:       2121.5       ml       Silica Initial W.       896.3       grams         Impinger Content:       2128.2       ml       Silica Difference:       9.8       grams         Impinger Content:       2128.2       ml       Silica Difference:       9.8       grams         Total Water Gain:       16.5       Moisture, Bws:       0.09       Supersaturation Value, Bws:       0.048         Port.       Clock       Volocity       Orlice       Actual       Sate       Meter Temp       Probe       Filter       Impinger         1-1       112.00       0.20       3.35       52.750       86       88       88       251       2261       66         1-3       112.800       0.10       1.67       65.220       86       88       88       251       2261       56         1-4       113.200       0.10       1.67       65.220       86       89       89       251       2261       57         1-4       113.200       0.10       1.67       85.230       86       89       89       251       251       56         1-5       113.800       0.10       1.67										- /	
Initial Impinger Content:         2121.5         ml         Silica Initial WL         886.3         grams           Final Impinger Ofference:         6.7         ml         Silica Initial WL         896.1         grams           Total Water Gain:         16.5         Moisture, Bws:         0.09         Supersaturation Value, Bws:         0.048           Port.         Clock         Head Ap         AH         Meter Vol.         Temp         Indet         Outlet         Temp         Exit Temp         Ex		Barom	etric Pressure:	25.30	in Hg				Volumetric Flow	5,026	SCIM
Final Impinger Content:         22.8.2         ml         Silica Final Wt.         89.1         grams           Total Water Gai:         6.7         ml         Silica Final Wt.         89.1         grams         drams           Port A         Total Water Gai:         16.7         Mater Vol.         Yes         Nortent         Nortent         9.8         grams         0.44           Port A         Tone         Naco A         Actual         Naco A         Nortent         Yes         Prote         Prote         File         Nortent         Yes         Yes         Prote         Prote         File         Nortent         Yes					MOIS	TURE DET	FERMINATION	ł			
Impinge Difference:         6.7         ml         Silica Difference:         9.8         grams           Total Water Gai:         16.5         Moisture, Bws:         0.09         Supersaturation Value, Bws:         0.048           perint No.         Velocity         Orifice         Actual         Sack         Meter Temp         Probe         Filter         Impinge Temp         Filter         Impinge Temp         Filter         Temp         Filter         Temp         Filter         Temp         Filter		Initial Imp	inger Content:	2121.5	ml		S	Silica Initial Wt.	886.3	grams	
Port       Context		Final Imp	inger Content:	2128.2	ml		5	Silica Final Wt.	896.1	grams	
Port.         Circle         Mich         Actual         Stack         Meter $\neg p$ Prop.         Filter         Imping.           Point A.         Time         In 200         0.20         3.35         48.104         85         88         88         254         254         60           1-1         11:2000         0.20         3.35         48.104         85         88         88         254         254         60           1-2         11:2400         0.00         1.67         61.920         86         88         88         251         253         56           1-4         11:3200         0.10         1.67         65.20         86         89         89         247         252         56           1-5         11:3600         0.10         1.67         70.82         86         89         89         251         252         57           1-7         11:4400         0.012         2.01         71.450         85         89         89         251         252         57           1-8         11:4500         0.10         1.67         75.80         84         90         90         251         252         57 <td></td> <td>Imping</td> <td>ger Difference:</td> <td>6.7</td> <td>ml</td> <td></td> <td>Sili</td> <td>ica Difference:</td> <td>9.8</td> <td>grams</td> <td></td>		Imping	ger Difference:	6.7	ml		Sili	ica Difference:	9.8	grams	
Port. bint No.         Clock Time         Head Ap in H2O         ΔH in H2O         Meter Vol. ft         Temp re         Inlet re         Outlet re         Temp re         Temp re         Temp re         Exit Temp re		Tota	al Water Gain:	16.5		r	Noisture, Bws:	0.009	Supersatu	ration Value, Bws	: 0.048
Port. bint No.         Clock Time         Head Ap in H2O         ΔH in H2O         Meter Vol. ft         Temp re         Inlet re         Outlet re         Temp re         Temp re         Temp re         Exit Temp re			Velocity	Orifice	Actual	Stack	Motor	Temp	Probe	Filter	Impinge
bain No.         Time         in. H20         in. H20 <thin. h20<="" th="">         in. H20         <thi< td=""><td>Port-</td><td>Clock</td><td>-</td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></thi<></thin.>	Port-	Clock	-					-			
1-1       11:20:00       0.20       3.35       48.104       85       88       88       254       254       60         1:2       11:24:00       0.20       3.35       52.750       86       88       88       250       252       54         1:3       11:26:00       0.19       3.18       57.410       86       88       88       251       261       56         1:4       11:32:00       0.10       1.67       65:220       86       88       88       251       252       56         1:6       11:36:00       0.10       1.67       65:220       86       89       89       247       252       56         1:6       11:40:00       0.02       2.01       71:450       85       89       89       251       251       57         1:8       11:48:00       0.11       1.84       75:00       84       90       90       251       252       57         1:9       11:5:00       0.10       1.67       78:550       84       91       91       252       251       58         1:12       12:0:00       0.11       1.84       88:210       83       93       93<			•							•	
1-2       1124.00       0.20       3.35       52.750       86       88       88       250       252       54         1.3       1128.00       0.19       3.18       57.410       86       88       88       251       261       56         1.4       11.32.00       0.10       1.67       61.920       86       88       88       251       253       56         1.5       11.36.00       0.00       1.34       68.400       85       89       89       250       252       57         1.7       11.40.00       0.12       2.01       71.450       85       89       89       251       251       251       57         1.8       11.46.00       0.11       1.84       75.08       84       90       90       251       250       57         1.9       11.52.00       0.10       1.67       81.330       83       91       91       252       251       250       57         1.10       11.56.00       0.11       1.84       85.210       84       91       91       252       251       58         1.12       12.04.00       0.11       1.84       85.90       8					48 104	r			254	254	60
1-3       11.28.00       0.19       3.18       57.410       86       88       88       251       261       56         1-4       1132.00       0.10       1.67       61.920       86       88       88       251       253       56         1-5       11.46.00       0.10       1.67       65.20       86       89       89       247       252       55         1-6       11.40.00       0.00       1.34       68.480       85       89       89       251       251       57         1-7       11.44.00       0.11       1.84       75.080       84       90       90       251       252       57         1-8       11.48.00       0.10       1.67       78.550       84       90       90       251       252       252       57         1-10       1156.00       0.10       1.67       78.550       84       91       91       252       251       251       58         1-11       12.00.00       0.11       1.84       85.20       83       92       92       251       251       58         1-12       12.04.00       0.21       4.02       92.179											
1-4       11.32.00       0.10       1.67       61.920       86       88       88       251       253       56         1.5       11.36.00       0.10       1.67       65.220       86       89       89       247       252       56         1.6       11.40.00       0.08       1.34       68.400       85       89       89       260       252       57         1.7       11.44.00       0.12       2.01       71.450       85       89       89       251       251       57         1.8       11.32.00       0.10       1.67       78.550       84       90       90       251       250       57         1.19       11.52.00       0.10       1.67       78.550       84       90       90       251       250       57         1.11       12.04.00       0.11       1.84       85.600       83       92       92       251       251       58         1.12       12.04.00       0.11       1.84       86.600       83       92       92       251       251       56         2.1       12.60.00       0.25       4.19       92.179       87       93 <t< td=""><td>1-3</td><td></td><td></td><td></td><td></td><td>86</td><td>88</td><td>88</td><td>251</td><td>261</td><td>56</td></t<>	1-3					86	88	88	251	261	56
1-6       11:40:00       0.08       1.34       66.480       85       89       89       250       252       57         1.7       11:44:00       0.12       2.01       71.450       85       89       89       251       251       57         1.8       11:48:00       0.11       1.84       75.080       84       90       90       251       252       57         1.9       11:55:00       0.10       1.67       78.550       84       90       90       251       252       57         1.10       11:56:00       0.10       1.67       81.930       83       91       91       252       251       58         1.11       12:00:00       0.11       1.84       88.690       83       92       92       251       251       58         1.12       12:04:00       0.11       1.84       88.690       83       92       92       251       251       66         2.4       12:26:00       0.24       4.02       97.450       86       93       93       251       251       66         2.4       12:26:00       0.24       4.02       112.760       86       93       <	1-4	11:32:00	0.10	1.67	61.920	86	88	88	251	253	56
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	1-5	11:36:00	0.10	1.67	65.220	86	89	89	247	252	56
1-8       11:48:00       0.11       1.84       75.080       84       90       90       251       252       57         1-9       11:52:00       0.10       1.67       78.550       84       90       90       251       250       57         1-10       11:56:00       0.10       1.67       81.930       83       91       91       252       252       57         1-11       12:00:00       0.11       1.84       85.210       84       91       91       252       251       58         1-12       12:04:00       0.11       1.84       88.690       83       92       92       251       251       58         1-12       12:04:00       0.11       1.84       88.690       83       92       92       251       251       58         12:08:00       0.25       4.19       92.179       87       93       93       250       251       62         2-2       12:26:00       0.24       4.02       102.570       86       93       93       251       251       60         2-3       12:26:00       0.23       3.85       107.730       86       93       93	1-6	11:40:00	0.08	1.34	68.480	85	89	89	250	252	57
1-9       11.52:00       0.10       1.67       78.550       84       90       90       251       250       57         1-10       11.56:00       0.10       1.67       81.930       83       91       91       252       252       57         1-11       12:00:00       0.11       1.84       85.210       84       91       91       252       251       58         1-12       12:04:00       0.11       1.84       88.690       83       92       92       251       251       58         1-12       12:08:00       0.25       4.19       92.179       87       93       93       250       251       62         2-4       12:26:00       0.24       4.02       97.450       86       93       93       252       250       60         2-3       12:26:00       0.24       4.02       102:70       86       93       93       251       251       60         2-4       12:30:00       0.23       3.85       107.730       86       93       93       250       251       60         2-5       12:34:00       0.24       4.02       112:760       86       93	1-7	11:44:00	0.12	2.01	71.450	85	89	89	251	251	57
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1-1112:00:000.111.8485:210849191252251581-1212:04:000.111.8488.6908392922512515812:08:00192.179929393250251622-112:18:000.254.1992.179879393250251622-212:22:000.244.0297.450869393251251602-312:26:000.244.02102.570869393251251602-412:30:000.233.85107.730869393250251602-512:34:000.244.02112.760869393250251602-612:38:000.233.85117.920869494252251612-712:42:000.223.68122.950859494250251602-812:46:000.203.35127.800869494252252612-1012:54:000.162.68137.220869494252252612-1112:54:000.162.68137.220869494251252251622-1213:02:000.142.34145.480869595252251 </td <td>1-9</td> <td>11:52:00</td> <td>0.10</td> <td>1.67</td> <td>78.550</td> <td>84</td> <td>90</td> <td>90</td> <td>251</td> <td>250</td> <td>57</td>	1-9	11:52:00	0.10	1.67	78.550	84	90	90	251	250	57
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	1-10	11:56:00	0.10	1.67	81.930	83	91	91	252	252	57
12:08:00       92:179       92:179       87       93       93       250       251       62         2:1       12:18:00       0.25       4.19       92.179       87       93       93       250       251       62         2:2       12:22:00       0.24       4.02       97.450       86       93       93       251       251       60         2:3       12:26:00       0.24       4.02       102:570       86       93       93       252       250       60         2:4       12:30:00       0.23       3.85       107.730       86       93       93       251       251       60         2:5       12:34:00       0.24       4.02       112.760       86       93       93       250       251       60         2:6       12:38:00       0.23       3.85       117.920       86       94       94       252       251       61         2:7       12:42:00       0.22       3.68       122.950       85       94       94       250       251       61         2:9       12:50:00       0.19       3.18       132.590       86       94       94       251	1-11	12:00:00	0.11	1.84	85.210	84	91	91	252	251	58
2-112:18:00 $0.25$ 4.19 $92.179$ 87 $93$ $93$ $250$ $251$ $62$ 2-212:22:00 $0.24$ 4.02 $97.450$ 86 $93$ $93$ $251$ $251$ $60$ 2-312:26:00 $0.24$ 4.02 $102.570$ 86 $93$ $93$ $252$ $250$ $60$ 2-412:30:00 $0.23$ $3.85$ $107.730$ 86 $93$ $93$ $251$ $251$ $60$ 2-512:34:00 $0.24$ $4.02$ $112.760$ 86 $93$ $93$ $250$ $251$ $60$ 2-612:38:00 $0.23$ $3.85$ $117.920$ 86 $94$ $94$ $252$ $251$ $61$ 2-712:42:00 $0.22$ $3.68$ $122.950$ $85$ $94$ $94$ $250$ $251$ $60$ 2-812:46:00 $0.20$ $3.35$ $127.80$ $86$ $94$ $94$ $251$ $251$ $61$ 2-912:50:00 $0.19$ $3.18$ $132.590$ $86$ $94$ $94$ $252$ $252$ $61$ 2-1012:54:00 $0.16$ $2.68$ $137.220$ $86$ $94$ $94$ $251$ $252$ $251$ $62$ 2-11 $12:58:00$ $0.14$ $2.34$ $145.480$ $86$ $95$ $95$ $252$ $251$ $62$ 2-12 $13:02:00$ $0.14$ $2.34$ $145.480$ $86$ $95$ $95$ $251$ $251$ $62$ $2-14$ $1:36:00$ $-14$	1-12		0.11	1.84		83	92	92	251	251	58
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2-512:34:000.244.02112.760869393250251602-612:38:000.233.85117.920869494252251612-712:42:000.223.68122.950859494250251602-812:46:000.203.35127.880869494251251612-912:50:000.193.18132.590869494252252612-1012:54:000.162.68137.220869494251252622-1112:58:000.152.51141.390869595252251622-1213:02:000.142.34145.4808695952512516213:06:001149.424111162al1:36:002.8085.491.691.691.6						Î					
2-6     12:38:00     0.23     3.85     117.920     86     94     94     252     251     61       2-7     12:42:00     0.22     3.68     122.950     85     94     94     250     251     60       2-8     12:46:00     0.20     3.35     127.880     86     94     94     251     251     61       2-9     12:50:00     0.19     3.18     132.590     86     94     94     252     252     61       2-10     12:54:00     0.16     2.68     137.220     86     94     94     251     252     62       2-11     12:58:00     0.15     2.51     141.390     86     95     95     252     251     62       2-12     13:02:00     0.14     2.34     145.480     86     95     95     251     251     62       2-12     13:06:00     0.14     2.34     149.424     1     1     1     1     1     62       13:06:00     101.320     91.6     91.6     91.6     91.6     91.6											
2-712:42:000.0223.68122.950859494250251602-812:46:000.203.35127.880869494251251612-912:50:000.193.18132.590869494252252612-1012:54:000.162.68137.220869494251252622-1112:58:000.152.51141.390869595252251622-1213:02:000.142.34145.4808695952512516213:06:001149.424111111111al1:36:002.80101.32091.691.691.691.62.8085.491.6						1					
2-8     12:46:00     0.20     3.35     127.880     86     94     94     251     251     61       2-9     12:50:00     0.19     3.18     132.590     86     94     94     252     252     61       2-10     12:54:00     0.16     2.68     137.220     86     94     94     251     252     62       2-11     12:58:00     0.15     2.51     141.390     86     95     95     252     251     62       2-12     13:02:00     0.14     2.34     145.480     86     95     95     251     251     62       13:06:00     1     149.424     1     1     1     1     1     1     1     1       al     1:36:00     2.80     85.4     91.6     91.6     91.6     91.6											
2-9     12:50:00     0.19     3.18     132.590     86     94     94     252     252     61       2-10     12:54:00     0.16     2.68     137.220     86     94     94     251     252     62       2-11     12:58:00     0.15     2.51     141.390     86     95     95     252     251     62       2-12     13:02:00     0.14     2.34     145.480     86     95     95     251     251     62       13:06:00     1     149.424     1						1					
2-10     12:54:00     0.16     2.68     137.220     86     94     94     251     252     62       2-11     12:58:00     0.15     2.51     141.390     86     95     95     252     251     62       2-12     13:02:00     0.14     2.34     145.480     86     95     95     251     251     62       13:06:00     1     149.424     1     1     1     1     1     1     1       al     1:36:00     101.320     91.6     91.6     91.6     91.6     91.6											
2-11     12:58:00     0.15     2.51     141.390     86     95     95     252     251     62       2-12     13:02:00     0.14     2.34     145.480     86     95     95     251     251     62       13:06:00     149.424											
2-12     13:02:00     0.14     2.34     145.480     86     95     95     251     251     62       13:06:00     13:06:00     149.424     1 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>											
13:06:00     149.424     91.6       al     1:36:00     101.320       rage     2.80											
al 1:36:00 101.320 91.6 91.6 rage 2.80 85.4 91.6	2-12		0.14	2.34		00	30	30	201	201	02
rage 2.80 85.4 91.6	tal					1	01 6	01 6		1	1
•		1.50.00		2 00							
	erage 1			2.80		85.4 83.0					

Max

87.0

95.0

4.19

Client:	PCC Structurals	Scale Calibration Check Date:	4/27/2023
Facility:	Carson City Facility	Scale Calibration Check (see QS	-6.05C for procedure)
Test Location:	System 5	must be within ± 0.5g of o	ertified mass
Project #:	M231408	Certified Weight, grams	Result, grams
Date:	4/27/2023	200	199.9
Test Method:	5		
Weighed/Measured By:	тwм	500	499.9
Balance ID:	LV3		
		700	699.8

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS
DI Water	722.2	716.4	5.8
DI Water	743.4	743.1	0.3
Empty	662.6	662.0	0.6
Silica Gel	896.1	886.3	9.8

2,128.2	2,121.5	6.7
Liquid Final	Liquid Initial	Liquid Gain
896.1	886.3	9.8
Silica Final	Silica Initial	Silica Gain

Client: Facility: Test Location: Project #: Test Method: Test Engineer: Test Technician:	<u>Run 1</u>	PCC Structurals Carson City Facility System 7 M231408 5/202 AMS RODS <u>Run 2</u>	<u>Run 3</u>
Temp ID:	CM45	CM45	CM45
Meter ID:	CM45	CM45	CM45
Pitot ID:	3002	3002	3002
Filter ID:	8386	8375	8372
Filter Pre-Weight (grams):	0.44483	0.44624	0.44053
Nozzle Diameter (Inches):	0.345	0.345	0.345
Meter Calibration Date:	4/18/2023	4/18/2023	4/18/2023
Meter Calibration Factor (Y):	0.999	0.999	0.999
Meter Orifice Setting (Delta H):	1.687	1.687	1.687
Nozzle Kit ID Number and Material:	Quartz #5 (#108)	Quartz #5 (#108)	Quartz #5 (#108)
Pitot Tube Coefficient:		0.840	
Probe Length (Feet):		3.0	
Probe Liner Material:		Quartz	
Sample Plane:		Horizontal	
Port Length (Inches):		0.00	
Port Size (Diameter, Inches):		2.00	
Port Type:		Hole in duct	
Duct Shape: Length (Feet):		Rectangular 1.416	
Width (Feet):		2.083	
Duct Area (Square Feet):		2.950	
Equivalent Diameter Rectangular Duct (Feet):		1.686	
Upstream Diameters:		3.8	
Downstream Diameters:		2.5	
Number of Ports Sampled:		<u>5</u>	
Number of Points per Port:		5	
Minutes per Point:		4.0	
Minutes per Reading:		4.0	
Total Number of Traverse Points:		25	
Test Length (Minutes): Train Type:		100 Anderson Box	
Source Condition:		Normal	
Diluent Model/Serial Number:		NA	
Moisture Balance ID:		LV4	
# of Runs		3	

Projec Client: Facilit Locati Pitot II Pitot C Probe	y: on: D: Coeff	icient:	M231408 PCC Struct Carson City System 7 3002 0.840 3					Source Coi Run No.: Date: Start Time: End Time: RM Testers Port Lengt	5:	on:	Normal 1 4/27/2023 5:55 6:10 AMS/RODS 0.00	S			
		DP	Sqrt.	Temp	Yaw		Velocity			DP	Sqrt.	Temp	Yaw		Velocity
Port P	oint	(in. H <sub>2</sub> O)	DP	(°F)	(o)		(V)	Port Point		(in. H <sub>2</sub> O)	DP	(°F)	(o)		(V)
Α	1	0.13	0.3606	65.0	0.0	0.0	22.04	с	5	0.13	0.3606	65.0	0.0	0.0	22.04
Α	2	0.14	0.3742	65.0	1.0	1.0	22.88								
Α	3	0.15	0.3873	65.0	2.0	2.0	23.68	D	1	0.15	0.3873	65.0	0.0	0.0	23.68
Α	4	0.13	0.3606	65.0	2.0	2.0	22.04	D	2	0.15	0.3873	65.0	1.0	1.0	23.68
Α	5	0.13	0.3606	65.0	1.0	1.0	22.04	D	3	0.15	0.3873	65.0	2.0	2.0	23.68
								D	4	0.15	0.3873	65.0	0.0	0.0	23.68
В	1	0.14	0.3742	65.0	1.0	1.0	22.88	D	5	0.14	0.3742	65.0	2.0	2.0	22.88
в	2	0.15	0.3873	65.0	1.0	1.0	23.68								
в	3	0.15	0.3873	65.0	2.0	2.0	23.68	E	1	0.13	0.3606	65.0	1.0	1.0	22.04
в	4	0.14	0.3742	65.0	0.0	0.0	22.88	E	2	0.14	0.3742	65.0	2.0	2.0	22.88
в	5	0.14	0.3742	65.0	2.0	2.0	22.88	E	3	0.15	0.3873	65.0	1.0	1.0	23.68
								E	4	0.14	0.3742	65.0	1.0	1.0	22.88
С	1	0.14	0.3742	65.0	2.0	2.0	22.88	E	5	0.13	0.3606	65.0	2.0	2.0	22.04
С	2	0.15	0.3873	65.0	3.0	3.0	23.68								
С	3	0.16	0.4000	65.0	1.0	1.0	24.46								
С	4	0.14	0.3742	65.0	0.0	0.0	22.88								

Average Yaw Angle

1.2 °

Run	1 -	Method	5/202

Client: PCC Structurals Facility: Carson City Facility Test Location: System 7 Source Condition: Normal

Date:	4/27/23
Start Time:	6:20
End Time:	8:05

	DF	RY GAS METER	CONDITIONS					STACK CONDITI	ONS	
		ΔH:	2.07	in. H <sub>2</sub> O				Static Pressure	0.10	in. H <sub>2</sub> O
	Meter Terr	perature, Tm:	51.2	°F			Flu	ue Pressure (Ps):	25.31	in. Hg. abs
		Sqrt ∆P:	0.378	in. H₂O				Carbon Dioxide:		%
	Stack Ter	nperature, Ts:	66.8	°F				Oxygen:		%
	Meter	Volume, Vm:	86.534	ft <sup>3</sup>				Nitrogen:	#VALUE!	%
	Meter Vo	olume, Vmstd:	75.958	dscf			Gas	s Weight dry, Md:	29.000	lb/lb mole
	Meter V	olume, Vwstd:	1.733	wscf			Gas	Weight wet, Ms:	28.755	lb/lb mole
	Isokin	etic Variance:	102.0	%I				Excess Air:	#VALUE!	%
								Gas Velocity, Vs:	23.082	fps
		Test Length:	100.00	in mins.				Volumetric Flow:	4,085	acfm
	No	zzle Diameter:	0.345	in inches				Volumetric Flow:	3,385	dscfm
	Barome	etric Pressure:	25.30	in Hg				Volumetric Flow:	3,463	scfm
				MOIS	TURE DET		J			
	Initial Imp	inger Content:	2184.5	ml	TOREDE		ilica Initial Wt.	876.8	grams	
	Final Imp	inger Content:	2216.8	ml		S	Silica Final Wt.	881.3	grams	
	Imping	er Difference:	32.3	ml		Sili	ca Difference:	4.5	grams	
	Tota	al Water Gain:	36.8		N	loisture, Bws:	0.022	Supersatura	ation Value, Bw	s: 0.026
		Velocity	Orifice	Actual	Stack	Meter	Tomp	Probe	Filter	Impinger
Port-	Clock	Head ∆p		Meter Vol.	Temp	Inlet	Outlet	Temp	Exit Temp	Exit Tem
Point No.	Time	in. H2O	in. H2O	ft <sup>3</sup>	°F	°F	°F	°F	°F	°F
1-1	6:20:00	0.14	2.03	86.088	65	46	46	250	250	59
1-1		0.14	2.03		65	40	40	230	250	54
	6:24:00			89.500 92.900		40	40	249	251	53
1-3 1-4	6:28:00	0.15	2.17		65 65	47	47		250	53
	6:32:00	0.14		96.420				249		
1-5	6:36:00	0.13	1.88	99.825	65	48	48	250	251	53
	6:40:00			103.111		10	10			
2-1	6:42:00	0.14	2.03	103.111	65	48	48	251	251	57
2-2	6:46:00	0.15	2.17	106.525	66	49	49	249	249	54
2-3	6:50:00	0.15	2.17	110.050	66	50	50	250	249	54
2-4	6:54:00	0.15	2.17	113.600	66	50	50	250	250	54
2-5	6:58:00	0.14	2.03	117.150	66	50	50	250	249	54
	7:02:00			120.574						
3-1	7:03:00	0.14	2.03	120.574	67	51	51	248	247	58
3-2	7:07:00	0.15	2.17	124.150	67	51	51	249	252	54
3-3	7:11:00	0.16	2.32	127.550	67	52	52	250	249	53
3-4	7:15:00	0.15	2.17	131.225	67	52	52	248	250	53
3-5	7:19:00	0.14	2.03	134.775	67	52	52	251	251	53
	7:23:00			138.202						
4-1	7:24:00	0.14	2.03	138.202	67	53	53	248	250	57
4-2	7:28:00	0.15	2.17	141.650	68	53	53	250	249	53
4-3	7:32:00	0.15	2.17	145.200	67	53	53	250	250	54
4-4	7:36:00	0.14	2.03	148.750	67	54	54	251	249	53
4-5	7:40:00	0.14	2.03	152.200	68	54	54	252	251	53
	7:44:00			155.653	<u> </u>					
5-1	7:45:00	0.13	1.88	155.653	68	54	54	251	250	58
5-2	7:49:00	0.14	2.03	158.975	69	54	54	249	251	54
5-3	7:53:00	0.15	2.17	162.420	69	55	55	250	248	53
5-4	7:57:00	0.13	1.88	165.975	69	55	55	248	251	53
5-5	8:01:00	0.13	1.88	169.300	70	55	55	251	251	54
	8:05:00			172.622						
					•					
otal	1:40:00			86.534		51.2	51.2			
otal verage	1:40:00		2.0		66.8	51.2 51.2				

Client:	PCC Structurals	Scale Calibration Check Date:	4/27/2023		
Facility:	Carson City Facility	Scale Calibration Check (see QS-6.05C for procedure)			
Test Location:	System 7	must be within ± 0.5g of certified mass			
Project #:	M231408	Certified Weight, grams	Result, grams		
Date:	4/27/2023	200	200.0		
Test Method:	5/202				
Weighed/Measured By:	AMS	500	500.1		
Balance ID:	LV4				
		700	700.1		

IMPINGER	FINAL	INITIAL	GAIN	
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS	
DI Water	778.9	758.2	20.7	
· · ·				
DI Water	811.1	800.4	10.7	
II			I	
Empty	626.8	625.9	0.9	
Silica Gel	881.3	876.8	4.5	
II			I	
		1		

2,216.8	2,184.5	32.3
Liquid Final	Liquid Initial	Liquid Gain
881.3	876.8	4.5
Silica Final	Silica Initial	Silica Gain

	PCC Struc		
Facility: (	Carson Cit	y Facility	
Test Location:	System 7		
Source Condition: I	Normal		
DRY	GAS METER	CONDITIONS	
	۸ <b>H</b> ·	2.06	In I

Date:	4/27/23
Start Time:	8:28
End Time:	10:12

		AY GAS METER	2.06	In. H <sub>2</sub> O				Static Pressure		in. H₂O
	Meter Tem	perature, Tm:	61.5	°F			Fli	e Pressure (Ps):		in. Hg. abs
	Weter rem	Sqrt ∆P:	0.377	In. H <sub>2</sub> O				Carbon Dioxide		%
	Stack Ton	nperature, Ts:	75.7	°F						%
		Volume, Vm:	87.435	ft <sup>3</sup>				Oxygen: Nitrogen:		%
							Cor	Weight dry, Md		
		olume, Vmstd:	75.229	dscf				0,00		lb/lb mole
		olume, Vwstd:	1.677	wscf			Gas	Weight wet, Ms		lb/lb mole
	ISOKIN	etic Variance:	102.0	%I				Excess Air:		%
		Testin	100.00					Gas Velocity, Vs		fps
		Test Length:	100.00	in mins.				Volumetric Flow		acfm
		zle Diameter:	0.345	in inches				Volumetric Flow	- ,	dscfm
	Barome	etric Pressure:	25.30	in Hg				Volumetric Flow	3,429	scfm
				MOIS	TURE DEI	ERMINATION				
	Initial Impi	nger Content:	2216.8	ml			lica Initial Wt.	881.3	grams	
	Final Impi	nger Content:	2247.5	ml		S	ilica Final Wt.	886.2	grams	
	Imping	er Difference:	30.7	ml		Silio	a Difference:	4.9	grams	
	lota	al Water Gain:	35.6		Ν	loisture, Bws:	0.022	Supersatur	ation Value, Bws	: 0.035
		Velocity	Orifice	Actual	Stack	Meter	Temp	Probe	Filter	Impinger
Port-	Clock	Head ∆p	$\Delta \mathbf{H}$	Meter Vol.	Temp	Inlet	Outlet	Temp	Exit Temp	Exit Tem
Point No.	Time	in. H2O	in. H2O	ft <sup>3</sup>	°F	°F	°F	°F	°F	°F
1-1	8:28:00	0.13	1.88	74.394	72	56	56	242	245	63
1-2	8:32:00	0.14	2.03	77.725	73	56	56	251	253	49
1-3	8:36:00	0.15	2.17	81.150	73	57	57	249	249	52
1-4	8:40:00	0.14	2.03	84.725	73	57	57	249	250	52
1-5	8:44:00	0.13	1.88	88.175	73	58	58	248	250	53
	8:48:00			91.499						
2-1	8:49:00	0.14	2.03	91.499	74	58	58	251	250	56
2-2	8:53:00	0.15	2.17	94.950	74	59	59	250	248	54
2-3	8:57:00	0.15	2.17	98.525	74	59	59	250	250	53
2-4	9:01:00	0.14	2.03	102.100	75	60	60	251	251	53
2-5	9:05:00	0.14	2.03	105.575	75	60	60	249	251	53
	9:09:00			109.033						
3-1	9:10:00	0.14	2.03	109.033	75	60	60	250	251	55
3-2	9:14:00	0.15	2.17	112.500	76	61	61	253	251	53
3-3	9:18:00	0.16	2.32	116.075	76	61	61	250	250	54
3-4	9:22:00	0.15	2.17	119.775	77	62	62	248	250	55
3-5	9:26:00	0.14	2.03	123.375	77	63	63	252	250	54
5-5	9:30:00	0.14	2.05	126.848		00	05	202	230	54
4-1	9:31:00	0.14	2.03	126.848	77	63	63	250	250	57
4-1	9:35:00	0.14		130.325	77		64	250		54
			2.03			64 64			251	
4-3	9:39:00	0.15	2.17	133.800	77	64	64	251	248	54
4-4	9:43:00	0.15	2.17	137.400	77	65	65	250	249	54
4-5	9:47:00	0.14	2.03	141.020	78	65	65	250	251	55
<b>F</b> 4	9:51:00	0.40	4.00	144.505	70	65	05	050	050	50
5-1	9:52:00	0.13	1.88	144.505	78	65	65	252	250	58
5-2	9:56:00	0.14	2.03	147.875	78	66	66	251	248	54
5-3	10:00:00	0.14	2.03	151.350	78	66	66	248	249	55
5-4	10:04:00	0.14	2.03	154.850	78	66	66	249	249	55
5-5	10:08:00	0.14	2.03	158.325	78	66	66	252	250	55
	10:12:00			161.829						
				1	L				1	1
tal	1:40:00			87.435		61.5	61.5			
tal	1:40:00		2 04	87.435		61.5 61.5	61.5			
tal erage n	1:40:00		2.00	6	75.7 72.0	61.5 61.5 56.0	61.5			

## Impinger Weight Sheet - Run 2

Client:	PCC Structurals	Scale Calibration Check Date:	4/27/2023
Facility:	Carson City Facility	Scale Calibration Check (see QS	-6.05C for procedure)
Test Location:	System 7	must be within ± 0.5g of o	ertified mass
Project #:	M231408	Certified Weight, grams	Result, grams
Date:	4/27/2023	200	200.0
Test Method:	5/202		
Weighed/Measured By:	AMS	500	500.1
Balance ID:	LV4		
		700	700.1

IMPINGER	FINAL	INITIAL	GAIN	
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS	
DI Water	799.3	778.9	20.4	
DI Water	820.8	811.1	9.7	
Empty	627.4	626.8	0.6	
Silica Gel	886.2	881.3	4.9	
<u> </u>				

2,247.5	2,216.8	30.7
Liquid Final	Liquid Initial	Liquid Gain
886.2	881.3	4.9
Silica Final	Silica Initial	Silica Gain

#### Run 3 - Method 5/202

Client:	PCC Structurals
Facility:	Carson City Facility
Test Location:	System 7
Source Condition:	Normal

Date:	4/27/23
Start Time:	10:30
End Time:	12:14

	51	AY GAS METER	2.07	In. H <sub>2</sub> O				STACK CONDITIE		in. H <sub>2</sub> O
	Motor Tor	nperature, Tm:	73.6	°F			<b>E</b> 1.	e Pressure (Ps):		in. Hg. abs
	weter ren						FIL	Carbon Dioxide		% III. ⊓g. abs
	Cto als Tar	Sqrt ∆P:	0.378	In. H <sub>2</sub> O						
		nperature, Ts:	85.1	°F ft <sup>3</sup>				Oxygen		%
		r Volume, Vm:	88.822				0	Nitrogen		%
		olume, Vmstd:	74.682	dscf				Weight dry, Md		lb/lb mole
		olume, Vwstd:	1.625	wscf			Gas	Weight wet, Ms		lb/lb mole
	Isokin	etic Variance:	101.9	%I				Excess Air:		%
		Testing	100.00					Gas Velocity, Vs		fps
		Test Length:	100.00	in mins.				Volumetric Flow		acfm
		zzle Diameter:	0.345	in inches				Volumetric Flow	- ,	dscfm
	Barome	etric Pressure:	25.30	in Hg				Volumetric Flow	3,404	scfm
				MOIS	<b>FURE DET</b>	ERMINATION				
	Initial Imp	inger Content:	2247.5	ml			ilica Initial Wt.	886.2	grams	
		inger Content:	2278.1	ml			ilica Final Wt.	890.1	grams	
	-	per Difference:	30.6	ml			ca Difference:	3.9	grams	
	mping		00.0			Cint		0.0	gramo	
	Tota	al Water Gain:	34.5		N	loisture, Bws:	0.021	Supersatur	ation Value, Bws:	0.048
		Velocity	Orifice	Actual	Stack	Meter	Temp	Probe	Filter	Impinger
Port-	Clock	Head ∆p		Meter Vol.	Temp	Inlet	Outlet	Temp	Exit Temp	Exit Tem
Point No.	Time	in. H2O	in. H2O	ft <sup>3</sup>	°F	°F	°F	°F	°F	°F
1-1	10:30:00	0.13	1.88	63.847	81	67	67	253	252	61
1-2	10:34:00	0.14	2.03	67.210	82	68	68	250	251	53
1-3	10:38:00	0.15	2.17	70.700	82	68	68	249	250	54
1-4	10:42:00	0.14	2.03	74.315	83	69	69	249	250	54
1-5	10:46:00	0.14	2.03	77.810	83	69	69	251	250	54
	10:50:00			81.303						
2-1	10:51:00	0.14	2.03	81.303	83	70	70	251	249	58
2-2	10:55:00	0.15	2.17	84.810	84	70	70	249	250	54
2-3	10:59:00	0.15	2.17	88.420	84	71	71	250	250	54
2-4	11:03:00	0.14	2.03	92.055	84	71	71	252	250	54
2-5	11:07:00	0.14	2.03	95.560	84	71	71	251	250	54
	11:11:00			99.062						
3-1	11:12:00	0.14	2.03	99.062	84	72	72	249	250	57
3-2	11:16:00	0.15	2.17	102.575	85	73	73	250	249	54
3-3	11:20:00	0.15	2.17	106.220	85	73	73	248	249	54
3-4	11:24:00	0.15	2.17	109.850	85	74	74	250	250	54
3-5	11:28:00	0.15	2.17	113.495	86	74	74	252	251	54
	11:32:00			117.136						
4-1	11:33:00	0.14	2.03	117.136	86	75	75	251	248	58
4-2	11:37:00	0.15	2.17	120.665	86	76	76	250	249	54
4-3	11:41:00	0.15	2.17	124.310	87	70	77	250	249	55
4-4	11:45:00	0.10	2.03	127.975	87	78	78	252	249	55
4-5	11:49:00	0.14	2.03	131.505	87	78	78	251	250	55
. •	11:53:00	0/	2.00	135.056	<u>.</u>			201	200	
5-1	11:54:00	0.13	1.88	135.056	87	79	79	248	250	59
5-2	11:54:00	0.13	2.03	138.475	88	79	79	250	250	55
5-3	12:02:00	0.14	2.03	142.020	88	79	79	250	249	56
5-3 5-4	12:02:00	0.14	2.03	145.570	88	79 80	79 80	251	249	56
5-5	12:10:00	0.14	2.03	149.110	88	80	80	252	248	57
J-J	12:10:00	0.14	2.03	152.669	00	00	UU	200	249	57
	12.14.00			102.009					1	
tal	1:40:00	1		88.822	1	73.6	73.6		1	1
erage	1.40.00		2.07		85.1	73.6	70.0			
Min Max			1.88 2.17	3	81.0 88.0	67.0 80.0				

## Impinger Weight Sheet - Run 3

Client:	PCC Structurals	Scale Calibration Check Date:	4/27/2023
Facility:	Carson City Facility	Scale Calibration Check (see QS-	6.05C for procedure)
Test Location:	System 7	must be within ± 0.5g of c	ertified mass
Project #:	M231408	Certified Weight, grams	Result, grams
Date:	4/27/2023	200	200.0
Test Method:	5/202		
Weighed/Measured By:	AMS	500	500.1
Balance ID:	LV4		
		700	700.1

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS
DI Water	819.2	799.3	19.9
DI Water	830.9	820.8	10.1
1 1			
Empty	628.0	627.4	0.6
Silica Gel	890.1	886.2	3.9
			I

2,278.1	2,247.5	30.6
Liquid Final	Liquid Initial	Liquid Gain
890.1	886.2	3.9
Silica Final	Silica Initial	Silica Gain

Client: Facility: Test Location: Project #: Test Method: Test Engineer: Test Technician:		PCC Structurals Carson City Facility System 9 M231408 5/202 AMS RODS	
<b>T</b>	<u>Run 1</u>	<u>Run 2</u>	<u>Run 3</u>
Temp ID: Meter ID:	CM13	CM13	CM13 CM13
Pitot ID:	CM13 3002	CM13 3002	3002
Filter ID:	6769	6761	6773
Filter Pre-Weight (grams):	0.46865	0.46629	0.46592
Nozzle Diameter (Inches):	0.486	0.486	0.486
Meter Calibration Date:	4/18/2023	4/18/2023	4/18/2023
Meter Calibration Factor (Y):	0.992	0.992	0.992
Meter Orifice Setting (Delta H):	1.520	1.520	1.520
Nozzle Kit ID Number and Material:	Quartz #5 (#106)	Quartz #5 (#106)	Quartz #5 (#106)
Pitot Tube Coefficient:		0.840	I I
Probe Length (Feet):		3.0	
Probe Liner Material:		Quartz	
Sample Plane:		Horizontal	
Port Length (Inches):		0.00	
Port Size (Diameter, Inches):		3.00	
Port Type:		Hole in duct	
Duct Shape:		Circular	
Diameter (Feet): Duct Area (Square Feet):		1 0.785	
Upstream Diameters:		5.0	
Downstream Diameters:		9.0	
Number of Ports Sampled:		2	
Number of Points per Port:		6	
Minutes per Point:		8.0	
Minutes per Reading:		4.0	
Total Number of Traverse Points:		12	
Test Length (Minutes):		96 An dama an Davi	
Train Type: Source Condition:		Anderson Box	
Moisture Balance ID:		Normal LV4	
# of Runs		3	
		-	

### Method 1 and 2 Cyclonic Flow Check Data

Projec Client Facili Locat Pitot I Pitot ( Probe	:: ty: ion: ID: Coeff	icient:	M231408 PCC Struct Carson Cit System 9 3002 0.840 3					Source Con Run No.: Date: Start Time: End Time: RM Testers Port Lengt	5:	on:	Normal 1 4/26/2023 6:25 6:40 AMS/RODS 0.00	5			
		DP	Sqrt.	Temp	Yaw		Velocity			DP	Sqrt.	Temp	Yaw		Velocity
Port	Point	(in. H <sub>2</sub> O)	DP	(°F)	(o)		(V)	Port Point		(in. H <sub>2</sub> O)	DP	(°F)	(o)		(V)
Α	1	0.04	0.2000	76.0	0.0	0.0	12.35	В	1	0.04	0.2000	76.0	1.0	1.0	12.35
Α	2	0.05	0.2236	76.0	2.0	2.0	13.80	В	2	0.05	0.2236	76.0	1.0	1.0	13.80
Α	3	0.06	0.2449	76.0	0.0	0.0	15.12	в	3	0.06	0.2449	76.0	0.0	0.0	15.12
Α	4	0.06	0.2449	76.0	0.0	0.0	15.12	в	4	0.05	0.2236	76.0	2.0	2.0	13.80
Α	5	0.05	0.2236	76.0	1.0	1.0	13.80	В	5	0.05	0.2236	76.0	1.0	1.0	13.80
Α	6	0.04	0.2000	76.0	0.0	0.0	12.35	В	6	0.04	0.2000	76.0	1.0	1.0	12.35

Average Yaw Angle

0.8 °

#### Run 1 - Method 5/202

	Facility: t Location: Condition:		y Facility	Kun 1	- Methoc	1 5/202		Date: Start Time: End Time:	6: 8:	6/23 45 25
	2.	ΔH:	2.48	in. H <sub>2</sub> O				Static Pressure		in. H₂O
	Motor Tom	perature, Tm:	66.4	°F			Fli	ue Pressure (Ps):		in. Hg. abs
	Meter Terr	Sqrt ∆P:	0.219	in. H <sub>2</sub> O			T K	Carbon Dioxide:	20.04	%
	Stack Ter	nperature, Ts:	88.7	°F				Oxygen:		%
		r Volume, Vm:	97.055	ft <sup>3</sup>				Nitrogen:		%
		olume, Vmstd:	82.372	dscf			Gas	s Weight dry, Md:		/o lb/lb mole
		olume, Vwstd:	2.082	wscf				Weight wet, Ms:		lb/lb mole
		etic Variance:	102.3	wsci %l			Gas	Excess Air:		%
	ISOKIII	lette variance.	102.5	/01				Gas Velocity, Vs:		/o fps
		Test Length:	96.00	in mins.				Volumetric Flow:		acfm
	No	zzle Diameter:	0.486	in inches				Volumetric Flow:		dscfm
		etric Pressure:	25.34	in Hg				Volumetric Flow:	525	scfm
			0400 5		TURE DET	ERMINATION		000.4		
	-	inger Content:	2188.5	ml			ilica Initial Wt.	882.4	grams	
	-	inger Content:	2227.0	ml		-	ilica Final Wt.	888.1	grams	
		er Difference: al Water Gain:	38.5 44.2	ml	N	loisture, Bws:	0.025	5.7 Supersatur	grams ation Value, Bw	s: 0.054
		Velocity	Orifice	Actual	Stack	Meter	Tomp	Probe	Filter	Impinge
Port-	Clock	•		Meter Vol.		Inlet	Outlet			
Pont- Point No.	Time	Head ∆p in. H2O	⊿п in. H2O	ft <sup>3</sup>	°F	°F	°F	Temp °F	Exit Temp °F	Exit Tem °F
				1			1			
1-1 1-1	6:45:00 6:49:00	0.04	2.06 2.06	27.216 30.890	87 87	66 66	58 58	249 250	248	63
									250	57
1-2	6:53:00	0.05	2.57	34.550	87	66	58	251	251	54
1-2	6:57:00	0.05	2.57	38.650	87	66	58	251	252	52
1-3	7:01:00	0.06	3.08	42.750	87	66	58	250	250	52
1 2	7.05.00	0.06	3.08	47.250	87	66	58	248	251	51 51
1-3	7:05:00	0.00	0.00	54 705	00	07	50	0.10	050	
1-4	7:09:00	0.06	3.08	51.735	88	67	59	249	250	
1-4 1-4	7:09:00 7:13:00	0.06	3.08	56.225	88	68	60	248	250	51
1-4 1-4 1-5	7:09:00 7:13:00 7:17:00	0.06 0.05	3.08 2.57	56.225 60.730	88 87	68 69	60 61	248 249	250 252	51 52
1-4 1-4 1-5 1-5	7:09:00 7:13:00 7:17:00 7:21:00	0.06 0.05 0.05	3.08 2.57 2.57	56.225 60.730 64.850	88 87 87	68 69 70	60 61 63	248 249 250	250 252 251	51 52 52
1-4 1-4 1-5 1-5 1-6	7:09:00 7:13:00 7:17:00 7:21:00 7:25:00	0.06 0.05 0.05 0.04	3.08 2.57 2.57 2.06	56.225 60.730 64.850 68.990	88 87 87 86	68 69 70 71	60 61 63 64	248 249 250 251	250 252 251 252	51 52 52 53
1-4 1-4 1-5 1-5	7:09:00 7:13:00 7:17:00 7:21:00 7:25:00 7:29:00	0.06 0.05 0.05	3.08 2.57 2.57	56.225 60.730 64.850 68.990 72.700	88 87 87	68 69 70	60 61 63	248 249 250	250 252 251	51 52 52
1-4 1-4 1-5 1-5 1-6 1-6	7:09:00 7:13:00 7:17:00 7:21:00 7:25:00 7:29:00 7:33:00	0.06 0.05 0.05 0.04 0.04	3.08 2.57 2.57 2.06 2.06	56.225 60.730 64.850 68.990 72.700 76.411	88 87 87 86 85	68 69 70 71 72	60 61 63 64 65	248 249 250 251 251	250 252 251 252 252 251	51 52 52 53 53
1-4 1-5 1-5 1-6 1-6 2-1	7:09:00 7:13:00 7:17:00 7:21:00 7:25:00 7:29:00 7:33:00 7:37:00	0.06 0.05 0.05 0.04 0.04 0.04	3.08 2.57 2.57 2.06 2.06 2.06	56.225 60.730 64.850 68.990 72.700 76.411 76.411	88 87 87 86 85 85 86	68 69 70 71 72 71	60 61 63 64 65 66	248 249 250 251 251 251 247	250 252 251 252 251 251 251 250	51 52 52 53 53 53 53 58
1-4 1-5 1-5 1-6 1-6 2-1 2-1	7:09:00 7:13:00 7:17:00 7:21:00 7:25:00 7:29:00 7:33:00 7:37:00 7:41:00	0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.04	3.08 2.57 2.57 2.06 2.06 2.06 2.06	56.225 60.730 64.850 68.990 72.700 76.411 76.411 80.125	88 87 87 86 85 85 86 86	68 69 70 71 72 71 71 71 71	60 61 63 64 65 66 66 66	248 249 250 251 251 251 247 251	250 252 251 252 251 251 250 250 252	51 52 52 53 53 53 53 53 53 54
1-4 1-5 1-5 1-6 1-6 2-1 2-1 2-2	7:09:00           7:13:00           7:17:00           7:21:00           7:25:00           7:29:00           7:33:00           7:37:00           7:41:00           7:45:00	0.06 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.05	3.08 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.57	56.225 60.730 64.850 68.990 72.700 76.411 76.411 80.125 83.850	88 87 87 86 85 86 86 86 88	68 69 70 71 72 71 71 71 71 71	60 61 63 64 65 66 66 66 66	248 249 250 251 251 251 247 251 250	250 252 251 252 251 251 250 252 251	51 52 52 53 53 53 53 58 58 54 53
1-4 1-4 1-5 1-5 1-6 1-6 2-1 2-1 2-2 2-2 2-2	7:09:00           7:13:00           7:17:00           7:21:00           7:25:00           7:29:00           7:33:00           7:37:00           7:41:00           7:45:00           7:49:00	0.06 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.05	3.08 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.57 2.57	56.225 60.730 64.850 68.990 72.700 76.411 76.411 80.125 83.850 87.995	88 87 86 85 86 86 86 88 91	68 69 70 71 72 71 71 71 71 71 71	60 61 63 64 65 66 66 66 66 66	248 249 250 251 251 251 247 251 250 248	250 252 251 252 251 250 250 252 251 250	51 52 53 53 53 53 53 58 54 53 54 54
1-4 1-5 1-5 1-6 1-6 2-1 2-1 2-2 2-2 2-3	7:09:00           7:13:00           7:17:00           7:21:00           7:25:00           7:29:00           7:33:00           7:37:00           7:41:00           7:45:00           7:53:00	0.06 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.05	3.08 2.57 2.57 2.06 2.06 2.06 2.06 2.57 2.57 3.08	56.225 60.730 64.850 68.990 72.700 76.411 76.411 80.125 83.850 87.995 92.125	88 87 87 86 86 86 86 88 91 91	68 69 70 71 72 71 71 71 71 71 71 71 71	60 61 63 64 65 66 66 66 66 66 66 66	248 249 250 251 251 247 251 250 248 249	250 252 251 252 251 250 250 250 250 250	51 52 53 53 53 53 53 58 54 53 54 54 54
1-4 1-5 1-5 1-6 1-6 2-1 2-1 2-2 2-2 2-3 2-3 2-3	7:09:00           7:13:00           7:17:00           7:21:00           7:25:00           7:29:00           7:33:00           7:37:00           7:41:00           7:45:00           7:53:00           7:57:00	0.06 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.05	3.08 2.57 2.06 2.06 2.06 2.06 2.06 2.57 2.57 3.08 3.08	56.225           60.730           64.850           68.990           72.700           76.411           76.411           80.125           83.850           87.995           92.125           96.660	88 87 87 86 86 86 86 88 91 91 91 92	68 69 70 71 72 71 71 71 71 71 71 71 71 71 71	60 61 63 64 65 66 66 66 66 66 66 66	248 249 250 251 251 247 251 250 248 249 250	250 252 251 252 251 250 250 250 250 250 250 250	51 52 53 53 53 53 53 54 54 53 54 54 55
1-4 1-5 1-5 1-6 1-6 2-1 2-1 2-2 2-2 2-3 2-3 2-4	7:09:00 7:13:00 7:17:00 7:21:00 7:25:00 7:29:00 7:33:00 7:37:00 7:41:00 7:45:00 7:49:00 7:53:00 7:57:00 8:01:00	0.06 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.06 0.06 0.05	3.08 2.57 2.06 2.06 2.06 2.06 2.06 2.57 2.57 3.08 3.08 2.57	56.225           60.730           64.850           68.990           72.700           76.411           76.411           80.125           83.850           87.995           92.125           96.660           101.185	88 87 87 86 86 86 86 88 91 91 91 92 93	68 69 70 71 72 71 71 71 71 71 71 71 71 71 71 71	60 61 63 64 65 66 66 66 66 66 66 66 66 66 66	248 249 250 251 251 247 251 250 248 249 250 252	250 252 251 252 251 250 250 250 250 250 250 250	51 52 53 53 53 53 53 54 54 54 55 55 54
1-4 1-5 1-5 1-6 1-6 2-1 2-1 2-2 2-2 2-3 2-3 2-3 2-4 2-4	7:09:00           7:13:00           7:17:00           7:21:00           7:25:00           7:29:00           7:33:00           7:37:00           7:45:00           7:53:00           7:57:00           8:01:00	0.06 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.06 0.05 0.05 0.05	3.08 2.57 2.06 2.06 2.06 2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57	56.225           60.730           64.850           68.990           72.700           76.411           76.411           80.125           83.850           87.995           92.125           96.660           101.185           105.315	88 87 87 86 86 86 86 88 91 91 91 92 93 93 93	68 69 70 71 72 71 71 71 71 71 71 71 71 71 71 71 71	60 61 63 64 65 66 66 66 66 66 66 66 66 66 66 67 67	248 249 250 251 251 247 251 250 248 249 250 252 250	250 252 251 252 251 250 250 250 250 250 250 250 250 250 250	51           52           53           53           53           58           54           55           54           55           54
1-4 1-5 1-5 1-6 1-6 2-1 2-1 2-2 2-2 2-3 2-3 2-3 2-4 2-4 2-5	7:09:00 7:13:00 7:17:00 7:21:00 7:25:00 7:29:00 7:33:00 7:37:00 7:41:00 7:45:00 7:49:00 7:49:00 7:53:00 7:57:00 8:01:00 8:05:00 8:09:00	0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.05 0.05	3.08 2.57 2.57 2.06 2.06 2.06 2.06 2.57 2.57 3.08 3.08 3.08 2.57 2.57 2.57 2.57	56.225           60.730           64.850           68.990           72.700           76.411           76.411           80.125           83.850           87.995           92.125           96.660           101.185           105.315           109.450	88 87 87 86 85 86 86 86 88 91 91 91 92 93 93 92	68 69 70 71 72 71 71 71 71 71 71 71 71 71 71 71 71 71	60 61 63 64 65 66 66 66 66 66 66 66 66 66 67 67 67	248 249 250 251 251 247 251 250 248 249 250 252 250 252 250 248	250 252 251 252 251 250 250 250 250 250 250 250 250 250 250	51 52 52 53 53 53 58 58 54 54 54 54 55 54 54 54 54 54
1-4 1-5 1-5 1-6 1-6 2-1 2-1 2-2 2-2 2-3 2-3 2-3 2-4 2-4 2-5 2-5	7:09:00 7:13:00 7:17:00 7:21:00 7:25:00 7:29:00 7:33:00 7:37:00 7:37:00 7:41:00 7:45:00 7:45:00 7:53:00 7:53:00 7:57:00 8:01:00 8:05:00 8:09:00 8:13:00	0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.05 0.05	3.08 2.57 2.57 2.06 2.06 2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.57 2.57 2.57 2.57 2.06 2.06	56.225           60.730           64.850           68.990           72.700           76.411           76.411           80.125           83.850           87.995           92.125           96.660           101.185           105.315           109.450           113.150	88 87 87 86 85 86 86 86 88 91 91 91 92 93 93 92 92 92	68           69           70           71           72           71	60 61 63 64 65 66 66 66 66 66 66 66 66 67 67 67 67 68	248 249 250 251 251 247 251 250 248 249 250 252 250 252 250 248 249	250 252 251 252 251 250 250 250 250 250 250 250 250 250 250	51 52 52 53 53 53 58 58 54 54 54 54 55 55 54 54 54 54 55 54 54
1-4 1-5 1-5 1-6 1-6 2-1 2-1 2-2 2-2 2-3 2-3 2-3 2-4 2-4 2-5 2-5 2-6	7:09:00 7:13:00 7:17:00 7:21:00 7:25:00 7:29:00 7:33:00 7:37:00 7:37:00 7:41:00 7:45:00 7:49:00 7:53:00 7:57:00 8:01:00 8:05:00 8:09:00 8:13:00 8:17:00	0.06 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.05	3.08 2.57 2.57 2.06 2.06 2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.57 2.57 2.57 2.06 2.06 2.06	56.225           60.730           64.850           68.990           72.700           76.411           76.411           80.125           83.850           87.995           92.125           96.660           101.185           105.315           109.450           113.150           116.850	88           87           86           85           86           86           88           91           92           93           92           93           92           92           92           92           91	68           69           70           71           72           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           72           72	60 61 63 64 65 66 66 66 66 66 66 66 66 67 67 67 67 68 68 68	248 249 250 251 251 247 251 250 248 249 250 252 250 248 249 250 252 250 248 249 251	250 252 251 252 251 250 250 250 250 250 250 250 250 250 250	51 52 52 53 53 53 58 58 54 54 54 55 54 55 54 54 54 55 54 54 55 53 53
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1-4 1-5 1-5 1-6 1-6 2-1 2-1 2-2 2-2 2-3 2-3 2-3 2-4 2-4 2-5 2-5 2-6	7:09:00 7:13:00 7:17:00 7:21:00 7:25:00 7:29:00 7:33:00 7:37:00 7:37:00 7:41:00 7:45:00 7:49:00 7:53:00 7:57:00 8:01:00 8:05:00 8:09:00 8:13:00 8:17:00	0.06 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.05	3.08 2.57 2.57 2.06 2.06 2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.57 2.57 2.57 2.06 2.06 2.06	56.225           60.730           64.850           68.990           72.700           76.411           76.411           80.125           83.850           87.995           92.125           96.660           101.185           105.315           109.450           113.150           116.850	88           87           86           85           86           86           88           91           92           93           92           93           92           92           92           92           91	68           69           70           71           72           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           71           72           72	60 61 63 64 65 66 66 66 66 66 66 66 66 67 67 67 67 68 68 68	248 249 250 251 251 247 251 250 248 249 250 252 250 248 249 250 252 250 248 249 251	250 252 251 252 251 250 250 250 250 250 250 250 250 250 250	51 52 52 53 53 53 58 58 54 54 54 55 54 55 54 54 54 55 54 54 55 53 53
1-4 1-4 1-5 1-5 1-6 1-6 2-1 2-1 2-2 2-2 2-3 2-3 2-3 2-4 2-4 2-5 2-5 2-6 2-6	7:09:00         7:13:00         7:17:00         7:21:00         7:25:00         7:29:00         7:33:00         7:37:00         7:41:00         7:53:00         7:55:00         8:09:00         8:13:00         8:17:00         8:21:00         8:25:00	0.06 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.05	3.08 2.57 2.57 2.06 2.06 2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.57 2.57 2.57 2.06 2.06 2.06	56.225           60.730           64.850           68.990           72.700           76.411           76.411           80.125           83.850           87.995           92.125           96.660           101.185           109.450           113.150           116.850           120.560           124.271	88           87           86           85           86           86           88           91           92           93           92           93           92           92           92           92           91	68         69         70         71         72         71         72         72         72         72         72	60 61 63 64 65 66 66 66 66 66 66 66 66 67 67	248 249 250 251 251 247 251 250 248 249 250 252 250 248 249 250 252 250 248 249 251	250 252 251 252 251 250 250 250 250 250 250 250 250 250 250	51 52 52 53 53 53 58 58 54 54 54 55 54 55 54 54 54 55 54 54 55 53 53
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1-4 1-5 1-5 1-6 1-6 2-1 2-1 2-2 2-2 2-3 2-3 2-3 2-4 2-4 2-5 2-5 2-6	7:09:00         7:13:00         7:17:00         7:21:00         7:25:00         7:29:00         7:33:00         7:37:00         7:41:00         7:53:00         7:55:00         8:09:00         8:13:00         8:17:00         8:21:00         8:25:00	0.06 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.05	3.08 2.57 2.57 2.06 2.06 2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.57 2.57 2.57 2.06 2.06 2.06	56.225           60.730           64.850           68.990           72.700           76.411           76.411           80.125           83.850           87.995           92.125           96.660           101.185           109.450           113.150           116.850           120.560           124.271           97.055	88           87           86           85           86           86           88           91           92           93           92           93           92           92           92           92           91	68         69         70         71         72         71         72         72         72         72         72	60 61 63 64 65 66 66 66 66 66 66 66 66 67 67	248 249 250 251 251 247 251 250 248 249 250 252 250 248 249 250 252 250 248 249 251	250 252 251 252 251 250 250 250 250 250 250 250 250 250 250	51 52 52 53 53 53 58 58 54 54 54 55 54 55 54 54 54 55 54 54 55 53 53

## Impinger Weight Sheet - Run 1

Client:	PCC Structurals	Scale Calibration Check Date:	4/26/2023
Facility:	Carson City Facility	Scale Calibration Check (see QS-	6.05C for procedure)
Test Location:	System 9	must be within ± 0.5g of c	ertified mass
Project #:	M231408	Certified Weight, grams	Result, grams
Date:	4/26/2023	200	200.0
Test Method:	5/202		
Weighed/Measured By:	RODS	500	500.0
Balance ID:	LV4		
		700	700.1

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS
			I
DI Water	784.5	761.1	23.4
· · ·			
DI Water	813.6	799.1	14.5
			- I
Empty	628.9	628.3	0.6
Silica Gel	888.1	882.4	5.7
II			11

2,227.0	2,188.5	38.5
Liquid Final	Liquid Initial	Liquid Gain
888.1	882.4	5.7
Silica Final	Silica Initial	Silica Gain

### Run 2 - Method 5/202

	01	DOO 01	(			5/202		Deter	410	2/00
		PCC Struc						Date:	-	5/23
<b>T</b>		Carson Cit	by Facility					Start Time:	-	40
	t Location:	•						End Time:	10	:20
Source	Condition:									
	DR	RY GAS METER						STACK CONDITIO		in 11.0
	Motor Tom	∆H:	2.48	In. H₂O °F			<b>E</b> 1.	Static Pressure		in. H <sub>2</sub> O
	Meter Tem	nperature, Tm:	76.8				FIL	le Pressure (Ps):	25.34	in. Hg. abs
	Stool: Ton	Sqrt ∆P:	0.219	In. H₂O °F				Carbon Dioxide:		%
		mperature, Ts:	93.5	ft <sup>3</sup>				Oxygen:		%
		r Volume, Vm:	98.332				Car	Nitrogen: Weight dry, Md:		% lb/lb mole
		olume, Vmstd: olume. Vwstd:	81.849 1.922	dscf wscf				Weight wet, Ms:	29.000 28.748	lb/lb mole
		etic Variance:	1.922	wsci %l			Gas	Excess Air:		%
	ISOKIII	ielic variance.	101.9	761				Gas Velocity, Vs:		<sup>70</sup> fps
		Test Length:	96.00	in mins.				Volumetric Flow:		acfm
	No	zzle Diameter:	0.486	in inches				Volumetric Flow:		dscfm
		etric Pressure:	25.34	in Hg				Volumetric Flow:	523	scfm
				MOIS	URE DET	ERMINATION				
	Initial Impi	inger Content:	2227.0	ml			ilica Initial Wt.	888.1	grams	
		inger Content:	2262.2	ml			ilica Final Wt.	893.7	grams	
		per Difference:	35.2	ml			ca Difference:	5.6	grams	
	1 3					_			5	
	Tota	al Water Gain:	40.8		N	loisture, Bws:	0.023	Supersatura	ation Value, Bw	s: 0.063
		Velocity	Orifice	Actual	Stack	Meter	Temp	Probe	Filter	Impinge
Port-	Clock	Head ∆p	ΔH	Meter Vol.	Temp	Inlet	Outlet	Temp	Exit Temp	Exit Tem
Point No.	Time	in. H2O	in. H2O	ft <sup>3</sup>	°F	°F	°F	°F	°F	°F
1-1	<b>Time</b> 8:40:00	<b>in. H2O</b> 0.04	in. H2O 2.06		•			•	•	
				ft <sup>3</sup>	°F	۴	۴	°F	°F	°F
1-1	8:40:00	0.04	2.06	ft <sup>3</sup> 25.457	°F 90	° <b>F</b> 68	<b>°F</b> 68	°F 247	°F 246	°F 54
1-1 1-1	8:40:00 8:44:00	0.04 0.04	2.06 2.06	ft <sup>3</sup> 25.457 29.155	° <b>F</b> 90 91	°F 68 69	°F 68 68	°F 247 249	°F 246 248	°F 54 50
1-1 1-1 1-2	8:40:00 8:44:00 8:48:00	0.04 0.04 0.05	2.06 2.06 2.57	ft <sup>3</sup> 25.457 29.155 32.865	°F 90 91 92	°F 68 69 70	°F 68 68 68	°F 247 249 250	°F 246 248 249	°F 54 50 48
1-1 1-1 1-2 1-2	8:40:00 8:44:00 8:48:00 8:52:00	0.04 0.04 0.05 0.05	2.06 2.06 2.57 2.57	ft <sup>3</sup> 25.457 29.155 32.865 36.995	°F 90 91 92 93	°F 68 69 70 72	°F 68 68 68 68 69	°F 247 249 250 251	°F 246 248 249 251	°F 54 50 48 46
1-1 1-1 1-2 1-2 1-3	8:40:00 8:44:00 8:48:00 8:52:00 8:56:00	0.04 0.04 0.05 0.05 0.06	2.06 2.06 2.57 2.57 3.08	ft³           25.457           29.155           32.865           36.995           41.145	°F 90 91 92 93 94	°F 68 69 70 72 74	°F 68 68 68 69 69	°F 247 249 250 251 252	°F 246 248 249 251 250	°F 54 50 48 46 45
1-1 1-1 1-2 1-2 1-3 1-3	8:40:00 8:44:00 8:48:00 8:52:00 8:56:00 9:00:00	0.04 0.04 0.05 0.05 0.06 0.06	2.06 2.06 2.57 2.57 3.08 3.08	ft³           25.457           29.155           32.865           36.995           41.145           45.675	°F 90 91 92 93 94 94	°F 68 69 70 72 74 75	°F 68 68 68 69 69 70	°F 247 249 250 251 252 251	°F 246 248 249 251 250 250	°F 54 50 48 46 46 45 46
1-1 1-1 1-2 1-2 1-3 1-3 1-3 1-4	8:40:00 8:44:00 8:52:00 8:56:00 9:00:00 9:04:00	0.04 0.04 0.05 0.05 0.06 0.06 0.06	2.06 2.06 2.57 2.57 3.08 3.08 3.08	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235	°F 90 91 92 93 94 94 94 93	°F 68 69 70 72 74 75 76	°F 68 68 68 69 69 70 70 70	°F 247 249 250 251 252 251 251 250	°F 246 248 249 251 250 250 250	°F           54           50           48           46           45           46           45           46           47
1-1 1-1 1-2 1-2 1-3 1-3 1-3 1-4 1-4	8:40:00 8:44:00 8:52:00 8:56:00 9:00:00 9:04:00 9:08:00	0.04 0.04 0.05 0.05 0.06 0.06 0.06 0.06	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790	°F 90 91 92 93 94 94 94 93 93	<ul> <li>°F</li> <li>68</li> <li>69</li> <li>70</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> </ul>	<ul> <li>°F</li> <li>68</li> <li>68</li> <li>69</li> <li>69</li> <li>70</li> <li>70</li> <li>71</li> </ul>	°F 247 249 250 251 252 251 250 250 250	°F 246 248 249 251 250 250 250 250 249	°F           54           50           48           46           45           46           47           48
1-1 1-2 1-2 1-3 1-3 1-3 1-4 1-4 1-4 1-5	8:40:00 8:44:00 8:52:00 8:56:00 9:00:00 9:04:00 9:08:00 9:12:00	0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.06 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 3.08 2.57	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360	°F 90 91 92 93 94 94 94 93 93 93	<ul> <li>°F</li> <li>68</li> <li>69</li> <li>70</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>77</li> </ul>	°F 68 68 69 69 70 70 70 71 71 71	°F 247 249 250 251 252 251 250 250 250 251	°F 246 248 249 251 250 250 250 250 249 251	°F           54           50           48           46           45           46           47           48           48
1-1 1-2 1-2 1-3 1-3 1-4 1-4 1-4 1-5 1-5	8:40:00 8:44:00 8:52:00 8:56:00 9:00:00 9:04:00 9:08:00 9:12:00 9:16:00	0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.06 0.05 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 3.08 2.57 2.57	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530	°F 90 91 92 93 94 94 93 93 93 93 93 93	<ul> <li>°F</li> <li>68</li> <li>69</li> <li>70</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>77</li> <li>79</li> </ul>	<ul> <li>°F</li> <li>68</li> <li>68</li> <li>69</li> <li>69</li> <li>70</li> <li>70</li> <li>71</li> <li>71</li> <li>72</li> </ul>	°F 247 249 250 251 252 251 250 250 250 251 251 252	°F 246 248 249 251 250 250 250 250 249 251 248	°F           54           50           48           46           45           46           47           48           49
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6	8:40:00 8:44:00 8:52:00 8:56:00 9:00:00 9:04:00 9:08:00 9:12:00 9:16:00 9:20:00	0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.06 0.05 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 3.08 2.57 2.57 2.57 2.06	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530           67.720	°F 90 91 92 93 94 94 93 93 93 93 93 93 93 94	<ul> <li>°F</li> <li>68</li> <li>69</li> <li>70</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>77</li> <li>79</li> <li>80</li> </ul>	<ul> <li>°F</li> <li>68</li> <li>68</li> <li>69</li> <li>69</li> <li>70</li> <li>70</li> <li>71</li> <li>71</li> <li>72</li> <li>74</li> </ul>	°F 247 249 250 251 252 251 250 250 250 251 252 252 250	°F 246 248 249 251 250 250 250 250 249 251 248 248 249	°F           54           50           48           46           45           46           47           48           49           50
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6	8:40:00           8:44:00           8:48:00           8:52:00           8:56:00           9:00:00           9:04:00           9:08:00           9:12:00           9:16:00           9:20:00           9:24:00	0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.06 0.05 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 3.08 2.57 2.57 2.57 2.06	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530           67.720           71.470	°F 90 91 92 93 94 94 93 93 93 93 93 93 93 94	<ul> <li>°F</li> <li>68</li> <li>69</li> <li>70</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>77</li> <li>79</li> <li>80</li> </ul>	<ul> <li>°F</li> <li>68</li> <li>68</li> <li>69</li> <li>69</li> <li>70</li> <li>70</li> <li>71</li> <li>71</li> <li>72</li> <li>74</li> </ul>	°F 247 249 250 251 252 251 250 250 250 251 252 252 250	°F 246 248 249 251 250 250 250 250 249 251 248 248 249	°F           54           50           48           46           45           46           47           48           49           50
1-1 1-1 1-2 1-2 1-3 1-3 1-3 1-4 1-4 1-4 1-5 1-5 1-6 1-6	8:40:00 8:44:00 8:48:00 8:52:00 9:00:00 9:04:00 9:12:00 9:16:00 9:20:00 9:24:00 9:28:00	0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.06 0.05 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 3.08 2.57 2.57 2.06 2.06	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530           67.720           71.470           75.212	°F 90 91 92 93 94 94 93 93 93 93 93 94 94 94	°F 68 69 70 72 74 75 76 77 77 77 79 80 81	<ul> <li>°F</li> <li>68</li> <li>68</li> <li>69</li> <li>69</li> <li>70</li> <li>70</li> <li>70</li> <li>71</li> <li>71</li> <li>71</li> <li>72</li> <li>74</li> <li>75</li> <li>75</li> <li>76</li> </ul>	°F 247 249 250 251 252 251 250 250 251 252 250 252 250 253	°F 246 248 249 251 250 250 250 250 249 251 248 249 251	°F           54           50           48           46           45           46           47           48           49           50           51
1-1         1-1         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-1         2-2	8:40:00 8:44:00 8:52:00 8:55:00 9:00:00 9:04:00 9:12:00 9:16:00 9:20:00 9:24:00 9:28:00 9:32:00 9:36:00 9:40:00	0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.06 0.05 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 3.08 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.57	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530           67.720           71.470           75.212           78.975           82.725	<ul> <li>°F</li> <li>90</li> <li>91</li> <li>92</li> <li>93</li> <li>94</li> <li>93</li> <li>93</li> <li>93</li> <li>93</li> <li>93</li> <li>94</li> </ul>	°F 68 69 70 72 74 75 76 77 77 77 79 80 81 81	°F 68 68 69 69 70 70 70 71 71 71 72 74 75 75 76 77	°F 247 249 250 251 252 251 250 250 251 252 250 253 247 249 250	°F           246           248           249           251           250           250           250           251           249           251           248           249           251           248           249           251           249           251           249           251           249           251           249           251           249           250           249           250           249           250           249	°F           54           50           48           46           45           46           45           46           47           48           49           50           51           54
1-1 1-2 1-2 1-3 1-3 1-3 1-4 1-4 1-4 1-5 1-5 1-6 1-6 2-1 2-1	8:40:00 8:44:00 8:52:00 8:56:00 9:00:00 9:04:00 9:08:00 9:12:00 9:16:00 9:20:00 9:24:00 9:24:00 9:28:00 9:32:00 9:36:00	0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.06 0.05 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530           67.720           71.470           75.212           78.975	<ul> <li>°F</li> <li>90</li> <li>91</li> <li>92</li> <li>93</li> <li>94</li> <li>94</li> <li>93</li> <li>93</li> <li>93</li> <li>93</li> <li>93</li> <li>94</li> </ul>	°F 68 69 70 72 74 75 76 77 77 77 79 80 81 81 81 81	<ul> <li>°F</li> <li>68</li> <li>68</li> <li>69</li> <li>69</li> <li>70</li> <li>70</li> <li>70</li> <li>71</li> <li>71</li> <li>71</li> <li>72</li> <li>74</li> <li>75</li> <li>75</li> <li>76</li> </ul>	°F           247           249           250           251           252           251           250           251           250           251           250           251           250           251           252           251           252           253           247           249	°F           246           248           249           251           250           250           250           251           249           251           249           251           248           249           251           248           249           251           248           249           251           249           251	°F           54           50           48           46           45           46           47           48           49           50           51           54
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-1         2-2         2-3	8:40:00 8:44:00 8:52:00 8:56:00 9:00:00 9:04:00 9:12:00 9:12:00 9:24:00 9:24:00 9:28:00 9:36:00 9:40:00 9:44:00 9:48:00	0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.06 0.05 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 3.08 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.57 2.57 2.57	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530           67.720           71.470           75.212           78.975           82.725           86.925           91.145	°F 90 91 92 93 94 94 94 93 93 93 93 93 93 93 94 94 94 94 94 94 94	°F 68 69 70 72 74 75 76 77 77 79 80 81 81 81 81 81 81 81 81 82	<ul> <li>°F</li> <li>68</li> <li>68</li> <li>69</li> <li>69</li> <li>70</li> <li>70</li> <li>70</li> <li>71</li> <li>71</li> <li>71</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>78</li> </ul>	°F           247           249           250           251           252           251           250           251           250           251           252           251           252           251           252           253           247           249           250           253	°F           246           248           249           251           250           250           250           251           248           249           251           249           251           249           251           249           251           249           251           249           250           249           250           249           249           249           249           249           249           249           249           249           249           249           249           249           248	°F           54           50           48           46           45           46           47           48           49           50           51           50           51           50           51           50           51           50           51           50           51           50           50           50           50           50           50           50
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6         2-1         2-1         2-2         2-2	8:40:00 8:44:00 8:52:00 8:55:00 9:00:00 9:04:00 9:12:00 9:12:00 9:20:00 9:24:00 9:28:00 9:32:00 9:36:00 9:40:00 9:44:00	0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.06 0.05 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 3.08 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.57 2.57	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530           67.720           71.470           75.212           78.975           82.725           86.925	°F 90 91 92 93 94 94 93 93 93 93 93 94 94 94 94 94 94 94 94	°F 68 69 70 72 74 75 76 77 77 79 80 81 81 81 81 81 81 81 82 82 82	<ul> <li>°F</li> <li>68</li> <li>68</li> <li>69</li> <li>69</li> <li>70</li> <li>70</li> <li>70</li> <li>71</li> <li>71</li> <li>71</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>78</li> <li>78</li> <li>78</li> </ul>	°F           247           249           250           251           252           251           250           251           250           251           250           251           252           251           252           253           247           249           250           251           252           251           252           251           250	°F           246           248           249           251           250           250           250           251           248           249           251           248           249           251           249           251           249           250           249           250           249           250           249           250           249           250           249           250           249           250           249           250           249           250           249           248           252	°F           54           50           48           46           45           46           47           48           49           50           51           54           51           50           51           50           51           50           51
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-2         2-3         2-3         2-4	8:40:00 8:44:00 8:44:00 8:52:00 9:00:00 9:00:00 9:04:00 9:12:00 9:12:00 9:20:00 9:24:00 9:24:00 9:36:00 9:36:00 9:44:00 9:52:00 9:56:00	0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.06 0.05 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.57 2.57 2.57 2.57 2.57 2.57	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530           67.720           71.470           75.212           75.212           78.975           82.725           86.925           91.145           95.350           99.575	°F 90 91 92 93 94 94 94 93 93 93 93 93 93 93 93 94 94 94 94 94 94 94 94 94 94	°F 68 69 70 72 74 75 76 77 77 79 80 81 81 81 81 81 81 81 82 82 82 84	<ul> <li>°F</li> <li>68</li> <li>68</li> <li>69</li> <li>69</li> <li>70</li> <li>70</li> <li>70</li> <li>71</li> <li>71</li> <li>71</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>78</li> <li>79</li> </ul>	°F           247           249           250           251           252           251           250           251           250           251           250           251           252           251           252           253           247           249           250           251           252           251           250           251           250           251           250           251           250           251           250           251           250           251           250           251           250           251           250           251           250           251           250           251           250           247	°F           246           248           249           251           250           250           250           251           248           249           251           248           249           251           249           251           249           251           249           250           249           250           249           250           249           250           249           250           249           250           251           252           251	°F           54           50           48           46           45           46           47           48           49           50           51           50           51           50           51           50           51           50           51           50           51           50           50           50           50           50           50           50           50           50           50           50           50           50           50           50           51
1-1         1-1         1-2         1-3         1-3         1-4         1-5         1-6         2-1         2-2         2-3         2-3         2-4	8:40:00           8:44:00           8:44:00           8:52:00           8:56:00           9:00:00           9:04:00           9:08:00           9:12:00           9:12:00           9:20:00           9:22:00           9:32:00           9:36:00           9:44:00           9:52:00           9:56:00           10:00:00	0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.05 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.57 2.57 2.57 2.57 2.57 2.57 2.57	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530           67.720           71.470           75.212           75.212           78.975           82.725           86.925           91.145           95.350           99.575           103.775	°F 90 91 92 93 94 94 93 93 93 93 93 93 94 94 94 94 94 94 94 94 94 94	°F 68 69 70 72 74 75 76 77 77 79 80 81 81 81 81 81 81 81 81 82 82 82 84 85	°F         68         68         69         69         70         70         70         71         71         72         74         75         76         77         78         79         79	°F           247           249           250           251           252           251           250           251           250           251           250           251           252           251           252           253           247           249           250           251           252           251           252           251           250           251           250           251           250           251           250           251           250           251           250           251           250           247           249	°F           246           248           249           251           250           250           250           251           248           249           251           248           249           251           249           251           249           251           249           250           249           250           249           250           249           250           249           250           251           252           251           251           251	°F           54           50           48           46           45           46           47           48           49           50           51           50           51           50           51           50           51           50           51           50           51           50           50           50           51           50           51           50           51           50           51           51           51
1-1         1-1         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-2         2-3         2-3         2-4         2-5	8:40:00           8:44:00           8:44:00           8:52:00           8:56:00           9:00:00           9:04:00           9:08:00           9:12:00           9:16:00           9:20:00           9:22:00           9:28:00           9:32:00           9:36:00           9:44:00           9:52:00           9:56:00           10:00:00	0.04 0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.57 2.57 2.57 2.57 2.57 2.57 2.57 2.57	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530           67.720           71.470           75.212           78.975           82.725           86.925           91.145           95.350           99.575           103.775           108.010	*F 90 91 92 93 94 94 94 93 93 93 93 93 93 93 93 93 93 93 94 94 94 94 94 94 94 94 94 94 94 94 95 95 95	<ul> <li>°F</li> <li>68</li> <li>69</li> <li>70</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>77</li> <li>79</li> <li>80</li> <li>81</li> <li>81</li> <li>81</li> <li>81</li> <li>81</li> <li>81</li> <li>82</li> <li>82</li> <li>84</li> <li>85</li> <li>85</li> </ul>	°F         68         68         69         69         70         70         70         71         71         72         74         75         76         77         78         79         80	°F           247           249           250           251           252           251           250           251           250           251           250           251           252           251           252           253           247           249           250           252           251           252           251           250           251           250           251           250           251           250           251           250           251           250           251           250           251           250           247           249           248	°F           246           248           249           251           250           250           250           251           248           249           251           248           249           251           249           251           249           250           249           250           249           250           249           250           250           251           252           251           250           251           250           251           250           251	°F           54           50           48           46           47           48           49           50           51           51           51           50           51           50           51           51           50           50           50           50           50           50           50           50           50           51           51           51           51           51           51           51           51           51
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-2         2-3         2-3         2-4         2-5	8:40:00           8:44:00           8:44:00           8:52:00           8:56:00           9:00:00           9:04:00           9:08:00           9:12:00           9:12:00           9:20:00           9:22:00           9:28:00           9:32:00           9:36:00           9:44:00           9:52:00           9:56:00           10:00:00           10:04:00	0.04 0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.57 2.57 2.57 2.57 2.57 2.57 2.57 2.57	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530           67.720           71.470           75.212           78.975           82.725           86.925           91.145           95.350           99.575           103.775           108.010           111.950	*F 90 91 92 93 94 94 94 93 93 93 93 93 93 94 94 94 94 94 94 94 94 94 94	<ul> <li>°F</li> <li>68</li> <li>69</li> <li>70</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>77</li> <li>79</li> <li>80</li> <li>81</li> <li>81</li> <li>81</li> <li>81</li> <li>81</li> <li>81</li> <li>82</li> <li>82</li> <li>84</li> <li>85</li> <li>85</li> <li>86</li> </ul>	°F         68         68         69         69         70         70         71         71         71         72         74         75         76         77         78         79         80         81	°F           247           249           250           251           252           251           250           251           250           251           250           251           252           251           252           253           247           249           250           252           251           252           251           250           251           250           251           250           251           250           247           249           247           249           247           249           248           250	°F           246           248           249           251           250           250           250           251           248           249           251           248           249           251           249           250           249           250           249           250           249           250           249           250           251           252           251           250           251           250           251           250           251           250           251           250           251           250	°F           54           50           48           46           47           48           49           50           51           51           50           51           50           51           50           50           50           50           50           50           50           50           50           51           51           51           51           51           52           52
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-2         2-3         2-3         2-4         2-5         2-6	8:40:00           8:44:00           8:44:00           8:52:00           8:56:00           9:00:00           9:04:00           9:08:00           9:12:00           9:12:00           9:20:00           9:22:00           9:22:00           9:32:00           9:32:00           9:40:00           9:44:00           9:52:00           9:56:00           10:00:00           10:08:00           10:12:00	0.04 0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.04 0.04 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.57 2.57 2.57 2.57 2.57 2.57 2.57 2.57	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530           67.720           71.470           75.212           78.975           82.725           86.925           91.145           95.350           99.575           103.775           108.010           111.950	*F 90 91 92 93 94 94 94 93 93 93 93 93 93 93 94 94 94 94 94 94 94 94 94 94	<ul> <li>°F</li> <li>68</li> <li>69</li> <li>70</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>79</li> <li>80</li> <li>81</li> <li>81</li> <li>81</li> <li>81</li> <li>81</li> <li>82</li> <li>82</li> <li>84</li> <li>85</li> <li>86</li> <li>86</li> <li>86</li> </ul>	<ul> <li>°F</li> <li>68</li> <li>68</li> <li>69</li> <li>69</li> <li>70</li> <li>70</li> <li>71</li> <li>71</li> <li>71</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>78</li> <li>78</li> <li>79</li> <li>80</li> <li>81</li> <li>81</li> </ul>	°F           247           249           250           251           252           251           250           251           250           251           250           251           252           251           252           253           247           249           250           252           251           250           251           250           251           250           251           250           251           250           251           250           251           250           247           249           248           250           250           250	°F           246           248           249           251           250           250           250           251           251           248           249           251           249           251           249           250           249           250           249           250           249           250           249           250           251           250           251           250           251           250           251           250           251           250           251           250           250           250	°F           54           50           48           46           47           48           49           50           51           51           51           50           51           50           51           50           50           50           50           50           50           50           51           51           51           51           51           51           52           52           52
1-1         1-1         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-2         2-3         2-3         2-4         2-5	8:40:00           8:44:00           8:48:00           8:52:00           8:56:00           9:00:00           9:04:00           9:08:00           9:12:00           9:12:00           9:20:00           9:22:00           9:24:00           9:32:00           9:36:00           9:44:00           9:48:00           9:55:00           10:00:00           10:04:00           10:12:00           10:16:00	0.04 0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.57 2.57 2.57 2.57 2.57 2.57 2.57 2.57	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530           67.720           71.470           75.212           78.975           82.725           86.925           91.145           95.350           99.575           103.775           108.010           111.950           116.200           120.000	*F 90 91 92 93 94 94 94 93 93 93 93 93 93 94 94 94 94 94 94 94 94 94 94	<ul> <li>°F</li> <li>68</li> <li>69</li> <li>70</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>77</li> <li>79</li> <li>80</li> <li>81</li> <li>81</li> <li>81</li> <li>81</li> <li>81</li> <li>81</li> <li>82</li> <li>82</li> <li>84</li> <li>85</li> <li>85</li> <li>86</li> </ul>	°F         68         68         69         69         70         70         71         71         71         72         74         75         76         77         78         79         80         81	°F           247           249           250           251           252           251           250           251           250           251           250           251           252           251           252           253           247           249           250           252           251           252           251           250           251           250           251           250           251           250           247           249           247           249           247           249           248           250	°F           246           248           249           251           250           250           250           251           248           249           251           248           249           251           249           250           249           250           249           250           249           250           249           250           251           252           251           250           251           250           251           250           251           250           251           250           251           250	°F           54           50           48           46           47           48           49           50           51           51           51           50           51           50           51           50           50           50           50           50           50           50           50           51           51           51           51           51           52           52
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-2         2-3         2-3         2-4         2-5         2-6	8:40:00           8:44:00           8:44:00           8:52:00           8:56:00           9:00:00           9:04:00           9:08:00           9:12:00           9:12:00           9:20:00           9:22:00           9:22:00           9:32:00           9:32:00           9:40:00           9:44:00           9:52:00           9:56:00           10:00:00           10:08:00           10:12:00	0.04 0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.04 0.04 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.57 2.57 2.57 2.57 2.57 2.57 2.57 2.57	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530           67.720           71.470           75.212           78.975           82.725           86.925           91.145           95.350           99.575           103.775           108.010           111.950	*F 90 91 92 93 94 94 94 93 93 93 93 93 93 93 94 94 94 94 94 94 94 94 94 94	<ul> <li>°F</li> <li>68</li> <li>69</li> <li>70</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>79</li> <li>80</li> <li>81</li> <li>81</li> <li>81</li> <li>81</li> <li>81</li> <li>82</li> <li>82</li> <li>84</li> <li>85</li> <li>86</li> <li>86</li> <li>86</li> </ul>	<ul> <li>°F</li> <li>68</li> <li>68</li> <li>69</li> <li>69</li> <li>70</li> <li>70</li> <li>71</li> <li>71</li> <li>71</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>78</li> <li>78</li> <li>79</li> <li>80</li> <li>81</li> <li>81</li> </ul>	°F           247           249           250           251           252           251           250           251           250           251           250           251           252           251           252           253           247           249           250           252           251           250           251           250           251           250           251           250           251           250           251           250           251           250           247           249           248           250           250           250	°F           246           248           249           251           250           250           250           251           251           248           249           251           249           251           249           250           249           250           249           250           249           250           249           250           251           250           251           250           251           250           251           250           251           250           251           250           250           250	°F           54           50           48           46           47           48           49           50           51           51           51           50           51           50           51           50           50           50           50           50           50           50           50           51           51           51           51           51           52           52           52
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-2         2-3         2-3         2-4         2-5         2-6	8:40:00           8:44:00           8:44:00           8:52:00           8:56:00           9:00:00           9:04:00           9:08:00           9:12:00           9:12:00           9:20:00           9:22:00           9:22:00           9:28:00           9:32:00           9:36:00           9:44:00           9:52:00           9:56:00           10:00:00           10:04:00           10:12:00           10:16:00           10:20:00	0.04 0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.04 0.04 0.05 0.05 0.05 0.04 0.05 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.57 2.57 2.57 2.57 2.57 2.57 2.57 2.57	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530           67.720           71.470           75.212           78.975           82.725           86.925           91.145           95.350           99.575           103.775           108.010           111.950           116.200           123.789	*F 90 91 92 93 94 94 94 93 93 93 93 93 93 94 94 94 94 94 94 94 94 94 94	<ul> <li>°F</li> <li>68</li> <li>69</li> <li>70</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>79</li> <li>80</li> <li>81</li> <li>81</li> <li>81</li> <li>81</li> <li>81</li> <li>82</li> <li>82</li> <li>84</li> <li>85</li> <li>85</li> <li>86</li> <li>86</li></ul>	°F         68         68         69         69         70         70         70         70         71         72         74         75         76         77         78         79         80         81         81         81	°F           247           249           250           251           252           251           250           251           250           251           250           251           252           251           252           253           247           249           250           252           251           250           251           250           251           250           251           250           251           250           251           250           251           250           247           249           248           250           250           250	°F           246           248           249           251           250           250           250           251           251           248           249           251           249           251           249           250           249           250           249           250           249           250           249           250           251           250           251           250           251           250           251           250           251           250           251           250           250           250	°F           54           50           48           46           47           48           49           50           51           50           51           50           51           50           51           50           50           50           50           50           50           50           50           50           50           50           50           50           50           50           50           50           51           52           52           52
1-1         1-2         1-2         1-3         1-4         1-5         1-6         1-6         2-1         2-2         2-3         2-3         2-4         2-5         2-6         2-6         2-6	8:40:00           8:44:00           8:48:00           8:52:00           8:56:00           9:00:00           9:04:00           9:08:00           9:12:00           9:12:00           9:20:00           9:22:00           9:24:00           9:32:00           9:36:00           9:44:00           9:48:00           9:55:00           10:00:00           10:04:00           10:12:00           10:16:00	0.04 0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.04 0.04 0.05 0.05 0.05 0.04 0.05 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 2.57 2.57 2.57 2.57 2.57 2.57 2.57 2.57	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530           67.720           71.470           75.212           78.975           86.925           91.145           95.350           99.575           103.775           108.010           111.950           116.200           123.789           98.332	°F         90         91         92         93         94         93         94         94         94         94         94         94         95         95         94         94         94         94         94         94         94         94         94         94         94         94         94         94         94         94          94	°F           68           69           70           72           74           75           76           77           79           80           81           81           81           81           81           82           84           85           86           86           86           86           86           86           86           86           86           86           86           86           86           87	<ul> <li>°F</li> <li>68</li> <li>68</li> <li>69</li> <li>69</li> <li>70</li> <li>70</li> <li>71</li> <li>71</li> <li>71</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>78</li> <li>78</li> <li>79</li> <li>80</li> <li>81</li> <li>81</li> </ul>	°F           247           249           250           251           252           251           250           251           250           251           250           251           252           251           252           253           247           249           250           252           251           250           251           250           251           250           251           250           251           250           251           250           251           250           247           249           248           250           250           250	°F           246           248           249           251           250           250           250           251           251           248           249           251           249           251           249           250           249           250           249           250           249           250           249           250           251           250           251           250           251           250           251           250           251           250           251           250           250           250	°F           54           50           48           46           47           48           49           50           51           50           51           50           51           50           51           50           50           50           50           50           50           50           50           50           50           50           50           50           50           50           50           50           51           52           52           52
1-1         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-2         2-3         2-3         2-4         2-5         2-6	8:40:00           8:44:00           8:44:00           8:52:00           8:56:00           9:00:00           9:04:00           9:08:00           9:12:00           9:12:00           9:20:00           9:22:00           9:22:00           9:28:00           9:32:00           9:36:00           9:44:00           9:52:00           9:56:00           10:00:00           10:04:00           10:12:00           10:16:00           10:20:00	0.04 0.04 0.05 0.05 0.06 0.06 0.06 0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.04 0.04 0.05 0.05 0.05 0.04 0.05 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.05	2.06 2.06 2.57 2.57 3.08 3.08 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.57 2.57 2.57 2.57 2.57 2.57 2.57 2.57	ft³           25.457           29.155           32.865           36.995           41.145           45.675           50.235           54.790           59.360           63.530           67.720           71.470           75.212           75.212           75.212           75.212           75.212           75.212           75.212           75.212           75.212           75.212           75.350           99.575           103.775           108.010           111.950           116.200           123.789           98.332	°F         90         91         92         93         94         93         94         94         94         94         94         94         95         95         95         94         94         94         94         94         94         94         94         94         94         94         94         94         94         94         94         94         94	<ul> <li>°F</li> <li>68</li> <li>69</li> <li>70</li> <li>72</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>79</li> <li>80</li> <li>81</li> <li>81</li> <li>81</li> <li>81</li> <li>81</li> <li>82</li> <li>82</li> <li>84</li> <li>85</li> <li>85</li> <li>86</li> <li>86</li></ul>	°F         68         68         69         69         70         70         70         70         71         72         74         75         76         77         78         79         80         81         81         81	°F           247           249           250           251           252           251           250           251           250           251           250           251           252           251           252           253           247           249           250           252           251           250           251           250           251           250           251           250           251           250           251           250           251           250           247           249           248           250           250           250	°F           246           248           249           251           250           250           250           251           251           248           249           251           249           251           249           250           249           250           249           250           249           250           249           250           251           250           251           250           251           250           251           250           251           250           251           250           250           250	°F           54           50           48           46           45           46           47           48           49           50           51           50           51           50           51           50           50           50           50           50           50           50           50           50           50           50           50           50           50           50           50           51           52           52

## Impinger Weight Sheet - Run 2

Client:	PCC Structurals	Scale Calibration Check Date:	4/26/2023
Facility:	Carson City Facility	Scale Calibration Check (see QS	-6.05C for procedure)
Test Location:	System 9	must be within ± 0.5g of o	ertified mass
Project #:	M231408	Certified Weight, grams	Result, grams
Date:	4/26/2023	200	200.0
Test Method:	5/202		
Weighed/Measured By:	RODS	500	500.0
Balance ID:	LV4		
		700	700.1

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS/GRAMS
II			
DI Water	806.2	784.5	21.7
DI Water	826.5	813.6	12.9
Empty	629.5	628.9	0.6
			T
Silica Gel	893.7	888.1	5.6
			-
1 1			1

2,262.2	2,227.0	35.2
Liquid Final	Liquid Initial	Liquid Gain
893.7	888.1	5.6
Silica Final	Silica Initial	Silica Gain

### Run 3 - Method 5/202

						d 5/202				
	Client:	PCC Struc	turals					Date:	4/20	6/23
	Facility:	<b>Carson Cit</b>	y Facility					Start Time:	10	:35
Test	Location:							End Time:	12	:15
	Condition:	-								
	DR	RY GAS METER	CONDITIONS					STACK CONDITIO	ONS	
		ΔH:	2.36	In. H <sub>2</sub> O				Static Pressure		in. H <sub>2</sub> O
	Meter Tem	perature, Tm:	90.1	°F			Flu	ue Pressure (Ps):	25.34	in. Hg. abs
		Sqrt ∆P:	0.214	In. H₂O				Carbon Dioxide:		%
	Stack Ter	nperature, Ts:	95.8	°F				Oxygen:		%
		r Volume, Vm:	98.243	ft <sup>3</sup>				Nitrogen:		%
		olume, Vmstd:	79.760	dscf			Gas	s Weight dry, Md:		lb/lb mole
		olume. Vwstd:	1.879	wscf				Weight wet, Ms:		lb/lb mole
		etic Variance:	102.1	%I				Excess Air:		%
								Gas Velocity, Vs:		fps
		Test Length:	96.00	in mins.				Volumetric Flow:		acfm
	Noz	zzle Diameter:	0.486	in inches				Volumetric Flow:		dscfm
		etric Pressure:	25.34	in Hg				Volumetric Flow:		scfm
				MOIS						
	Jack at the st	inger Oratist	0000.0		UKE DEI	ERMINATION		000 7		
	-	inger Content:	2262.2	ml			ilica Initial Wt. iilica Final Wt.	893.7	grams	
		inger Content:	2297.0	ml		-		898.8	grams	
	Imping	jer Difference:	34.8	ml		5110	ca Difference:	5.1	grams	
	Tota	al Water Gain:	39.9		N	loisture, Bws:	0.023	Supersatura	ation Value, Bw	s: 0.067
		Velocity	Orifice	Actual	Stack	Meter	Temp	Probe	Filter	Impinge
Port-	Clock	Head ∆p	$\Delta \mathbf{H}$	Meter Vol.	Temp	Inlet	Outlet	Temp	Exit Temp	Exit Tem
Point No.	Time			•						
	Time	in. H2O	in. H2O	ft <sup>3</sup>	°F	°F	°F	°F	°F	°F
1-1	10:35:00	0.04	in. H2O 2.06	ft <sup>3</sup> 25.211	° <b>F</b> 95	°F 83	°F 83	°F 245	°F 244	°F 63
									1	1
1-1	10:35:00	0.04	2.06	25.211	95	83	83	245	244	63
1-1 1-1	10:35:00 10:39:00	0.04 0.04	2.06 2.06	25.211 29.000	95 96	83 84	83 83	245 251	244 247	63 54
1-1 1-1 1-2	10:35:00 10:39:00 10:43:00	0.04 0.04 0.05	2.06 2.06 2.57	25.211 29.000 32.795	95 96 97	83 84 86	83 83 83	245 251 249	244 247 250	63 54 53
1-1 1-1 1-2 1-2	10:35:00 10:39:00 10:43:00 10:47:00	0.04 0.04 0.05 0.05	2.06 2.06 2.57 2.57	25.211 29.000 32.795 37.025	95 96 97 97	83 84 86 87	83 83 83 84	245 251 249 250	244 247 250 249	63 54 53 53
1-1 1-1 1-2 1-2 1-3	10:35:00 10:39:00 10:43:00 10:47:00 10:51:00	0.04 0.04 0.05 0.05 0.06	2.06 2.06 2.57 2.57 3.08	25.211 29.000 32.795 37.025 41.275	95 96 97 97 97	83 84 86 87 88	83 83 83 84 85	245 251 249 250 252	244 247 250 249 250	63 54 53 53 53
1-1 1-1 1-2 1-2 1-3 1-3	10:35:00 10:39:00 10:43:00 10:47:00 10:51:00 10:55:00	0.04 0.04 0.05 0.05 0.06 0.06	2.06 2.06 2.57 2.57 3.08 3.08	25.211 29.000 32.795 37.025 41.275 45.925	95 96 97 97 97 97 97	83 84 86 87 88 88 89	83 83 83 84 85 85 85	245 251 249 250 252 249	244 247 250 249 250 251	63 54 53 53 53 53 54
1-1 1-1 1-2 1-2 1-3 1-3 1-3 1-4	10:35:00 10:39:00 10:43:00 10:47:00 10:51:00 10:55:00 10:59:00	0.04 0.04 0.05 0.05 0.06 0.06 0.06 0.05	2.06 2.06 2.57 2.57 3.08 3.08 2.57	25.211 29.000 32.795 37.025 41.275 45.925 50.600	95 96 97 97 97 97 97 97	83 84 86 87 88 89 90	83 83 83 84 85 85 85 86	245 251 249 250 252 249 248	244 247 250 249 250 251 251	63 54 53 53 53 53 54 54
1-1 1-1 1-2 1-2 1-3 1-3 1-3 1-4 1-4	10:35:00 10:39:00 10:43:00 10:47:00 10:51:00 10:55:00 10:59:00 11:03:00	0.04 0.04 0.05 0.05 0.06 0.06 0.05 0.05	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850	95 96 97 97 97 97 97 97 97 97	83 84 86 87 88 89 90 91	83 83 83 84 85 85 85 86 86 86	245 251 249 250 252 249 248 248 250	244 247 250 249 250 251 251 251 250	63 54 53 53 53 53 54 54 54
1-1 1-2 1-2 1-3 1-3 1-3 1-4 1-4 1-4 1-5	10:35:00 10:39:00 10:43:00 10:47:00 10:51:00 10:55:00 10:59:00 11:03:00 11:07:00	0.04 0.05 0.05 0.06 0.06 0.06 0.05 0.05 0.05	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.57 2.06	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125	95 96 97 97 97 97 97 97 97 97 97	83 84 86 87 88 89 90 91 91	83 83 83 84 85 85 86 86 86 86 87	245 251 249 250 252 249 248 250 248	244 247 250 249 250 251 251 250 250	63 54 53 53 53 54 54 54 54 54
1-1         1-2         1-2         1-3         1-3         1-4         1-5	10:35:00 10:39:00 10:43:00 10:47:00 10:55:00 10:55:00 11:03:00 11:07:00 11:11:00	0.04 0.05 0.05 0.06 0.06 0.06 0.05 0.05 0.05	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.06 2.06	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950	95 96 97 97 97 97 97 97 97 97 97 97	83 84 86 87 88 89 90 91 91 91 92	83 83 84 85 85 86 86 86 87 88	245 251 249 250 252 249 248 250 248 250 248 248 248	244 247 250 249 250 251 251 250 250 250 251	63 54 53 53 53 54 54 54 54 54 54 55
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6	10:35:00 10:39:00 10:43:00 10:47:00 10:55:00 10:55:00 11:03:00 11:07:00 11:11:00 11:15:00	0.04 0.05 0.05 0.06 0.06 0.06 0.05 0.05 0.05	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.06 2.06 2.06	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950 66.775	95 96 97 97 97 97 97 97 97 97 97 97 97	83 84 86 87 88 89 90 91 91 91 92 92	83 83 84 85 85 86 86 86 87 88 88 88 88	245 251 249 250 252 249 248 250 248 250 248 249 250	244 247 250 249 250 251 251 250 250 250 251 251	63           54           53           53           53           53           54           54           54           54           54           54           54           54           54           54           54           54           54           54           55           55
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6	10:35:00 10:39:00 10:43:00 10:47:00 10:55:00 10:55:00 11:03:00 11:07:00 11:11:00 11:15:00 11:19:00	0.04 0.05 0.05 0.06 0.06 0.06 0.05 0.05 0.05	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.06 2.06 2.06	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950 66.775 70.600	95 96 97 97 97 97 97 97 97 97 97 97 97	83 84 86 87 88 89 90 91 91 91 92 92	83 83 84 85 85 86 86 86 87 88 88 88 88	245 251 249 250 252 249 248 250 248 250 248 249 250	244 247 250 249 250 251 251 250 250 250 251 251	63           54           53           53           53           53           54           54           54           54           54           54           54           54           54           54           54           54           54           54           55           55
1-1 1-1 1-2 1-2 1-3 1-3 1-3 1-4 1-4 1-4 1-5 1-5 1-6 1-6	10:35:00 10:39:00 10:43:00 10:51:00 10:55:00 10:55:00 10:59:00 11:03:00 11:07:00 11:11:00 11:15:00 11:19:00 11:23:00	0.04 0.05 0.05 0.06 0.06 0.06 0.05 0.05 0.05	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.06 2.06 2.06 2.06	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950 66.775 70.600 74.431	95 96 97 97 97 97 97 97 97 97 97 97 97 97	83 84 86 87 88 89 90 91 91 91 92 92 92 92	83 83 84 85 85 86 86 86 86 87 88 88 88 88 88	245 251 249 250 252 249 248 250 248 249 250 250 251	244 247 250 249 250 251 251 250 250 250 251 251 251	63           54           53           53           53           53           54           54           54           54           54           54           54           54           54           54           54           55           55           55
1-1 1-1 1-2 1-2 1-3 1-3 1-3 1-4 1-4 1-4 1-5 1-5 1-6 1-6 2-1	10:35:00 10:39:00 10:43:00 10:51:00 10:55:00 10:59:00 11:07:00 11:17:00 11:11:00 11:19:00 11:23:00 11:27:00	0.04 0.05 0.05 0.06 0.06 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.04	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.06	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950 66.775 70.600 74.431 74.431	95 96 97 97 97 97 97 97 97 97 97 97 97 97 97	83 84 86 87 88 89 90 91 91 91 92 92 92 92 92 92 93	83 83 84 85 85 85 86 86 86 86 87 88 88 88 88 88 88 88	245 251 249 250 252 249 248 248 250 248 249 250 251 250	244 247 250 249 250 251 251 250 250 250 251 251 251 251 251 251	63           54           53           53           53           53           54           54           54           54           54           54           54           54           55           55           60
1-1 1-2 1-2 1-3 1-3 1-3 1-4 1-4 1-4 1-5 1-5 1-6 1-6 2-1 2-1	10:35:00 10:39:00 10:43:00 10:51:00 10:55:00 10:59:00 11:03:00 11:07:00 11:11:00 11:11:00 11:123:00 11:27:00 11:31:00	0.04 0.05 0.05 0.06 0.06 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.04	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.06 2.06 2.06	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950 66.775 70.600 74.431 74.431 78.275	95 96 97 97 97 97 97 97 97 97 97 97 97 97 97	83 84 86 87 88 89 90 91 91 91 92 92 92 92 92 92 93 93 94	83 83 84 85 85 86 86 86 86 87 88 88 88 88 88 88 90 90	245 251 249 250 252 249 248 250 248 249 250 251 250 251	244 247 250 249 250 251 251 250 250 251 251 251 251 251 251 251 251 251 251	63           54           53           53           53           53           54           54           54           54           54           54           55           55           60           56
1-1         1-1         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-2	10:35:00 10:39:00 10:43:00 10:51:00 10:55:00 10:59:00 11:03:00 11:07:00 11:11:00 11:123:00 11:27:00 11:31:00	0.04 0.05 0.05 0.06 0.06 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.04	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.06 2.06 2.06	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950 66.775 70.600 74.431 74.431 74.431 78.275 82.125	95 96 97 97 97 97 97 97 97 97 97 97 97 97 97	83 84 86 87 88 89 90 91 91 91 92 92 92 92 92 92 92 92 92 92 92 92	83 83 84 85 85 86 86 86 87 88 88 88 88 88 88 90 90 90	245 251 249 250 252 249 248 250 248 249 250 251 250 251 250 251 253	244 247 250 249 250 251 251 250 250 250 251 251 251 251 251 251 251 251 253 252	63           54           53           53           53           54           54           54           54           54           54           54           55           55           60           56           55
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6         2-1         2-1         2-2         2-2	10:35:00 10:39:00 10:43:00 10:47:00 10:55:00 10:55:00 11:05:00 11:07:00 11:107:00 11:11:00 11:15:00 11:23:00 11:27:00 11:35:00 11:39:00	0.04 0.05 0.05 0.06 0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.06 2.06 2.06	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950 66.775 70.600 74.431 74.431 74.431 78.275 82.125 86.420	95 96 97 97 97 97 97 97 97 97 97 97 97 97 97	83 84 86 87 88 89 90 91 91 91 92 92 92 92 92 92 92 93 94 94 95	83 83 83 84 85 85 86 86 86 87 88 88 88 88 88 88 88 90 90 90 91	245 251 249 250 252 249 248 250 248 250 251 250 251 250 251 253 252	244 247 250 249 250 251 251 250 250 251 251 251 251 251 251 251 251 253 252 248	63           54           53           53           53           54           54           54           54           54           54           55           55           60           56           55           55           55           55           55           55           55           55           55           55           55           55           55           55           55           55           55           55           55
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-1         2-2         2-3	10:35:00 10:39:00 10:43:00 10:47:00 10:55:00 10:55:00 11:05:00 11:07:00 11:107:00 11:11:00 11:11:00 11:23:00 11:23:00 11:23:00 11:39:00 11:39:00 11:43:00	0.04 0.05 0.05 0.06 0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.06 2.06 2.06	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950 66.775 70.600 74.431 74.431 74.431 78.275 82.125 86.420 90.725	95 96 97 97 97 97 97 97 97 97 97 97 97 97 97	83 84 86 87 88 89 90 91 91 91 92 92 92 92 92 92 92 92 92 92 92 92 93 94 94 95 95	83 83 83 84 85 85 86 86 86 87 88 88 88 88 88 88 88 90 90 90 91 91	245 251 249 250 252 249 248 250 248 249 250 251 250 251 251 253 252 252 249	244 247 250 249 250 251 251 250 250 251 251 251 251 251 251 251 251 251 253 252 248 248 247	63           54           53           53           53           54           54           54           54           54           54           54           55
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-5         1-6         1-6         2-1         2-2         2-3         2-3	10:35:00 10:39:00 10:43:00 10:47:00 10:55:00 10:55:00 11:059:00 11:07:00 11:11:00 11:15:00 11:11:00 11:27:00 11:27:00 11:35:00 11:35:00 11:39:00 11:43:00 11:47:00	0.04 0.05 0.05 0.06 0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.06 2.06 2.06	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950 66.775 70.600 74.431 74.431 74.431 74.431 78.275 82.125 86.420 90.725 95.040	95 96 97 97 97 97 97 97 97 97 97 97 97 97 97	83 84 86 87 88 89 90 91 91 91 92 92 92 92 92 92 92 92 92 92 92 92 92	83 83 83 84 85 85 86 86 86 87 88 88 88 88 88 88 88 90 90 90 91 91 91	245 251 249 250 252 249 248 250 248 249 250 251 250 251 251 253 252 252 249 253	244 247 250 249 250 251 251 250 250 251 251 251 251 251 251 251 251 251 251	63           54           53           53           53           54           54           54           54           54           54           54           54           54           54           54           55           55           55           55           55           55           55           55           55           55           55           55           55           55           55           55           55           55           54
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-5         1-6         1-6         2-1         2-2         2-3         2-3         2-4	10:35:00 10:39:00 10:43:00 10:47:00 10:55:00 10:55:00 11:059:00 11:07:00 11:11:00 11:15:00 11:23:00 11:27:00 11:23:00 11:35:00 11:39:00 11:43:00 11:47:00 11:51:00	0.04 0.05 0.05 0.06 0.06 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.04	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.06 2.06 2.06	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950 66.775 70.600 74.431 74.431 74.431 78.275 82.125 86.420 90.725 95.040 99.350	95 96 97 97 97 97 97 97 97 97 97 97 97 97 97	83 84 86 87 88 89 90 91 91 91 92 92 92 92 92 92 92 92 92 92 92 92 92	83 83 83 84 85 85 86 86 86 87 88 88 88 88 88 88 90 90 90 90 91 91 91 91 92	245 251 249 250 252 249 248 250 248 249 250 251 250 251 250 251 253 252 249 253 252 249 253 252 249 253 252	244 247 250 249 250 251 251 250 250 251 251 251 251 251 251 251 251 251 253 252 248 247 247 247 253	63           54           53           53           53           54           54           54           54           54           54           54           54           54           54           54           55           55           55           55           55           55           55           55           55           55           55           55           55           55           55           55           55           54           54
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-2         2-3         2-3         2-4	10:35:00 10:39:00 10:43:00 10:47:00 10:55:00 10:55:00 11:059:00 11:07:00 11:11:00 11:15:00 11:23:00 11:27:00 11:23:00 11:35:00 11:43:00 11:43:00 11:55:00	0.04 0.05 0.05 0.06 0.06 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.04	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.06 2.06 2.57 2.57 2.57 2.57 2.57 2.57	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950 66.775 70.600 74.431 74.431 74.431 78.275 82.125 86.420 90.725 95.040 99.350 103.675	95 96 97 97 97 97 97 97 97 97 97 97 97 97 97	83 84 86 87 88 89 90 91 91 91 92 92 92 92 92 92 92 92 92 92 92 93 94 94 94 95 95 95 95 95 95	83 83 83 84 85 85 86 86 87 88 88 88 88 88 88 88 90 90 90 90 91 91 91 91 91 92 92	245 251 249 250 252 249 248 250 248 249 250 251 250 251 253 252 253 252 249 253 252 249 253 252 249 253 252 253	244 247 250 249 250 251 251 250 251 251 251 251 251 251 251 251 251 251	63           54           53           53           53           53           54           54           54           54           54           54           54           54           54           54           55           54
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-2         2-3         2-3         2-4         2-5	10:35:00           10:39:00           10:43:00           10:51:00           10:55:00           10:59:00           11:07:00           11:11:00           11:15:00           11:23:00           11:35:00           11:35:00           11:35:00           11:35:00           11:43:00           11:55:00           11:55:00           11:59:00	0.04 0.05 0.05 0.06 0.06 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.04 0.05	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.06 2.57 2.57 2.57 2.57 2.57 2.57 2.57 2.57	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950 66.775 70.600 74.431 74.431 74.431 78.275 82.125 86.420 90.725 95.040 99.350 103.675 107.990	95 96 97 97 97 97 97 97 97 97 97 97 97 97 97	83 84 86 87 88 89 90 91 91 91 92 92 92 92 92 92 92 92 92 92 92 92 92	83 83 83 84 85 85 86 86 87 88 88 88 88 88 88 88 90 90 90 90 91 91 91 91 91 91 92 92 92	245 251 249 250 252 249 248 250 248 249 250 251 250 251 253 252 249 253 252 249 253 252 249 253 252 253 252 253 252	244 247 250 249 250 251 251 250 251 251 251 251 251 253 252 248 247 247 253 247 251	63           54           53           53           53           54           54           54           54           54           54           54           54           54           54           54           55           54           54
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-2         2-3         2-3         2-4         2-5         2-5	10:35:00           10:39:00           10:43:00           10:51:00           10:55:00           10:59:00           11:07:00           11:11:00           11:15:00           11:23:00           11:35:00           11:35:00           11:35:00           11:35:00           11:35:00           11:39:00           11:55:00           11:55:00           11:59:00           12:03:00	0.04 0.05 0.05 0.06 0.06 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.05 0.04 0.05	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.57 2.57 2.57 2.57 2.57 2.57 2.57 2.57	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950 66.775 70.600 74.431 74.431 74.431 78.275 82.125 86.420 90.725 95.040 99.350 103.675 107.990 111.850	95 96 97 97 97 97 97 97 97 97 97 97 97 97 97	83 84 86 87 88 89 90 91 91 91 92 92 92 92 92 92 92 92 92 92 92 92 92	83 83 83 84 85 85 86 86 87 88 88 88 88 88 88 90 90 90 90 91 91 91 91 91 91 91 92 92 92 92 92	245 251 249 250 252 249 248 250 248 249 250 251 250 251 250 251 253 252 249 253 252 249 253 252 253 252 253 252 252 252 252	244 247 250 249 250 251 251 250 251 251 251 251 251 253 252 248 247 247 253 247 253 247 251 252	63           54           53           53           53           54           54           54           54           54           54           54           54           54           54           54           54           55           55           55           55           55           55           55           55           55           55           55           55           55           55           54           54           54           54           54           54           54           55
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-2         2-3         2-3         2-4         2-5         2-6	10:35:00           10:39:00           10:43:00           10:51:00           10:55:00           10:59:00           11:07:00           11:11:00           11:15:00           11:23:00           11:23:00           11:35:00           11:39:00           11:39:00           11:43:00           11:55:00           11:59:00           11:59:00           12:03:00           12:07:00	0.04 0.04 0.05 0.05 0.06 0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.05	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.57 2.57 2.57 2.57 2.57 2.57 2.57 2.57	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950 66.775 70.600 74.431 74.431 74.431 78.275 82.125 86.420 90.725 95.040 99.350 103.675 107.990 111.850 115.725	95           96           97           96           96           95           95           94           94           94           94           94	83 84 86 87 88 89 90 91 91 91 92 92 92 92 92 92 92 92 92 92 92 92 92	83 83 83 84 85 85 86 86 87 88 88 88 88 88 88 90 90 90 90 91 91 91 91 91 91 91 91 91 92 92 92 92 92 92 93	245 251 249 250 252 249 248 250 248 249 250 251 250 251 250 251 253 252 249 253 252 249 253 252 253 252 253 252 252 252 252 252	244 247 250 249 250 251 251 250 250 251 251 251 251 251 253 252 248 247 247 253 247 253 247 251 252 249	63           54           53           53           53           54           54           54           54           54           54           54           54           54           54           54           54           55           55           55           55           55           55           54           55           54           54           54           54           54           54           54           54           54           54           54           55
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-2         2-3         2-3         2-4         2-5         2-6	10:35:00           10:39:00           10:43:00           10:51:00           10:55:00           10:59:00           11:07:00           11:11:00           11:15:00           11:23:00           11:23:00           11:35:00           11:35:00           11:43:00           11:55:00           11:55:00           11:59:00           11:59:00           12:03:00           12:07:00           12:11:00	0.04 0.04 0.05 0.05 0.06 0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.05	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.57 2.57 2.57 2.57 2.57 2.57 2.57 2.57	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950 66.775 70.600 74.431 74.431 74.431 74.431 78.275 82.125 86.420 90.725 95.040 99.350 103.675 107.990 111.850 115.725 119.575	95           96           97           96           96           95           95           94           94           94           94           94	83 84 86 87 88 89 90 91 91 91 92 92 92 92 92 92 92 92 92 92 92 92 92	83 83 83 84 85 85 86 86 87 88 88 88 88 88 88 90 90 90 90 91 91 91 91 91 91 91 91 91 92 92 92 92 92 92 93	245 251 249 250 252 249 248 250 248 249 250 251 250 251 250 251 253 252 249 253 252 249 253 252 253 252 253 252 252 252 252 252	244 247 250 249 250 251 251 250 250 251 251 251 251 251 253 252 248 247 247 253 247 253 247 251 252 249	63           54           53           53           53           54           54           54           54           54           54           54           54           54           54           54           54           55           55           55           55           55           55           54           55           54           54           54           54           54           54           54           54           54           54           54           54           55           55
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-2         2-3         2-3         2-4         2-5         2-6	10:35:00           10:39:00           10:43:00           10:51:00           10:55:00           10:59:00           11:07:00           11:11:00           11:15:00           11:23:00           11:23:00           11:35:00           11:35:00           11:43:00           11:55:00           11:55:00           11:59:00           11:59:00           12:03:00           12:07:00           12:11:00	0.04 0.04 0.05 0.05 0.06 0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.05	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.57 2.57 2.57 2.57 2.57 2.57 2.57 2.57	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950 66.775 70.600 74.431 74.431 74.431 74.431 78.275 82.125 86.420 90.725 95.040 99.350 103.675 107.990 111.850 115.725 119.575	95           96           97           96           96           95           95           94           94           94           94           94	83 84 86 87 88 89 90 91 91 91 92 92 92 92 92 92 92 92 92 92 92 92 92	83 83 83 84 85 85 86 86 87 88 88 88 88 88 88 90 90 90 90 91 91 91 91 91 91 91 91 91 92 92 92 92 92 92 93	245 251 249 250 252 249 248 250 248 249 250 251 250 251 250 251 253 252 249 253 252 249 253 252 253 252 253 252 252 252 252 252	244 247 250 249 250 251 251 250 250 251 251 251 251 251 253 252 248 247 247 253 247 253 247 251 252 249	63           54           53           53           53           54           54           54           54           54           54           54           54           54           54           54           54           55           55           55           55           55           55           54           55           54           54           54           54           54           54           54           54           54           54           54           54           55           55
1-1         1-2         1-2         1-3         1-3         1-4         1-5         1-6         1-6         2-1         2-2         2-3         2-3         2-4         2-5         2-6	10:35:00 10:39:00 10:43:00 10:47:00 10:51:00 10:55:00 11:07:00 11:17:00 11:15:00 11:27:00 11:23:00 11:35:00 11:35:00 11:43:00 11:55:00 11:55:00 11:59:00 12:07:00 12:15:00 12:15:00	0.04 0.04 0.05 0.05 0.06 0.06 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.04 0.05	2.06 2.06 2.57 2.57 3.08 3.08 2.57 2.57 2.57 2.06 2.06 2.06 2.06 2.06 2.57 2.57 2.57 2.57 2.57 2.57 2.57 2.57	25.211 29.000 32.795 37.025 41.275 45.925 50.600 54.850 59.125 62.950 66.775 70.600 74.431 74.431 74.431 74.431 74.431 78.275 82.125 86.420 90.725 95.040 99.350 103.675 107.990 111.850 115.725 119.575 123.454	95           96           97           96           96           95           95           94           94           94           94           94	83 84 86 87 88 89 90 91 91 92 92 92 92 92 92 92 92 92 92 92 92 92	83         83         83         84         85         86         87         88         88         88         89         90         91         91         91         92         92         92         93         93         93	245 251 249 250 252 249 248 250 248 249 250 251 250 251 250 251 253 252 249 253 252 249 253 252 253 252 253 252 252 252 252 252	244 247 250 249 250 251 251 250 250 251 251 251 251 251 253 252 248 247 247 253 247 253 247 251 252 249	63           54           53           53           53           54           54           54           54           54           54           54           54           54           54           54           54           55           55           55           55           55           55           54           55           54           54           54           54           54           54           54           54           54           54           54           54           55           55

## Impinger Weight Sheet - Run 3

Client:	PCC Structurals	Scale Calibration Check Date:	4/26/2023
Facility:	Carson City Facility	Scale Calibration Check (see QS-	6.05C for procedure)
Test Location:	System 9	must be within ± 0.5g of c	ertified mass
Project #:	M231408	Certified Weight, grams	Result, grams
Date:	4/26/2023	200	200.0
Test Method:	5/202		
Weighed/Measured By:	RODS	500	500.0
Balance ID:	LV4		
		700	700.1

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS
DI Water	826.6	806.2	20.4
· · ·		· · · · · · · · · · · · · · · · · · ·	
DI Water	840.7	826.5	14.2
II	I		
Empty	629.7	629.5	0.2
	1		
Silica Gel	898.8	893.7	5.1

2,297.0	2,262.2	34.8
Liquid Final	Liquid Initial	Liquid Gain
898.8	893.7	5.1
Silica Final	Silica Initial	Silica Gain

Appendix F - Plant Operating Data

### PCC Structurals Inc. Carson City Facility M231408 Plant Operating Data

System	Date	Process Rate (tons per hour)
1	4/26/2023	0.10
2	4/25/23	0.25
3	4/25/23	0.12
5	4/27/23	0.15
7	4/27/23	0.10
9	4/26/23	0.14

# Appendix G - Field Data Sheets

Test L	t Name/Numbe ocation: <u>Sys</u> Aethod: <u>4</u>	PIC/					Date: Source Con Pre-Calibration D	126 Idition: Normal
Test Meter	ΔH: 1.687		Meter V	Mete	er ID: <u>Cm 4</u>	Tor	Pre-Calibration D	ate: 4/1.8/2023
					oar) 25.	and the second se		Gas Sample Analysis
Static Pressur	e: 0, 1				_(From Meth	nod V	Test Data)	5.50 %CO2 20.50 %O2
Clock Time 24 hour	Meter Volume (Vm) ft3 or L	Meter Gage Pressure (AH)	Meter Inlet Temp. (tm)	Meter Outlet Temp. (tm)	Impinger Outlet Temp	Meter Vacuum "Hg	Scale ID Number	LVY
	(Circle One)	(∆H) in. H₂O	(t <sub>m</sub> ) °F	(t <sub>m</sub> ) °F	°F		Scale Calibration Cl	heck Date:
445	30.008	1.70	58	58	64	2	Scale Calibration Ch	eck (see QS-6.05C for procedure)
50 .	33.904	1.70	58	58	44	2		ns 250.1
55 .	37.825	1.70	59	55	44	2		
. 00	41.707	1.70	59	59	64	2	500 gran	ns 500.0
705 .	45.454	1.70	uo	10	65	3	750 gran	ms 750.1
110 .	49.559	1.70	60	46	15	3		
715 .	53.474	1.70	61	61	45	3	Condonasta	Silion Col on Train
120 .	57.387	1.70	61	41	65	3	<u>Condensate</u>	Silica Gel or Train
725 .	61.308	1.70	61	61	45	3	(42	
130 .	115.237	1.70	42	62	65	3	6932 1732 140.5 ml	s (Vf) 936.8 grams (Wf)
735 .	69.118	1.70	43	63	45	3		Is (Vi) - 922.5 grams (W
740 .	72.841	1.70	43	63	65	3		
745	74.778	1.70	15	(13	64	3	=mls gained	=grams gained
a second	9:	convert to ft	Barometric	Pressure (P <sub>b</sub>			Pre-Test Leak Check:	inlet and outlet if applicable) Post-Test Leak Check: ig <u>0.000 @_12_</u> "Hg <u>Gas Sample Analysis</u> <u>%CO2_%O2</u>
Clock Time 24 hour	Meter Volume (Vm) ft3 or L (Circle One)	Meter Gage Pressure (ΔH) in. H <sub>2</sub> O	Meter Inlet Temp. (t <sub>m</sub> ) °F	Meter Outlet Temp. (t <sub>m</sub> ) °F	Impinger Outlet Temp °F	Meter Vacuum "Hg		
							Condensate	Silica Gel or Train
								s (V <sub>f</sub> )grams (W <sub>f</sub> )
						7		s (Vi)grams (Wi
							=mls gained	=grams gained
					1			
							Average Meter Terr	noerature:
otal Vol. i ft3 (Vm)=		Multiply total convert to ft <sup>3</sup>	volume colle	cted in Liters	by 0.035315	to /	Average Meter Tem	inlet and outlet if applicable)

DS-016 Non-Isokinetic Moisture Data Sheet

### NON-ISOKINETIC MOISTURE FIELD DATA SHEET

Test	ect Name/Numbe Location: <u>Sys7</u> Method: <u>4</u>	emil		Mate		ALLE	Sourc	e Condition:	Normal
Mete	r AH: 1. 687		Meter	1:0,99	er ID: <u>CN</u>	Tes	t Engineer:	tion Date: 4	18/2023
	0. 2				bar) 25 . :				
	ire: 0,1	Stack Tomo							Gas Sample Analysis
							Test Data)	0.50	%CO2 20.50 %O2
Clock Time 24 hour	Meter Volume (Vm) ft3 or L	Meter Gage Pressure	Meter Inlet Temp. (t <sub>m</sub> )	Meter Outlet Temp.	Impinger Outlet Temp	Meter Vacuum "Hg	Scale ID Numi	oer_ <u>_</u>	(
	(Circle One)	(ΔH) in. H <sub>2</sub> O	°F	(t <sub>m</sub> ) °F	°F	ng	Scale Calibrati	ion Check D	ate:
800	77.757	1.7	70	70	41	3	Scale Calibratio	on Check (see	e QS-6.05C for procedure)
805	81.442	1.7	70	20	41	3			50.1
810	\$5.504	1.7	70	70	62	3			
815	89,387	1.7	70	70	62	3		) grams	
820	93.284	1.7	71	71	43	3	750	) grams _Z	50.1
825	97. 114	1.7	71	21	64	3			
830	101.051	1.7	72	72	44	3	Condenaste		Olline Online Tests
835	104,843	1.7	72	72	45	3	<u>Condensate</u>		Silica Gel or Train
840	108,729	1.7	72	72	65	3			
845	112.615	1.7	72	72	105	3		_mls (V <sub>f</sub> )	grams (Wr
850	116.459	1.7	73	73	44	3	- 1 1	mls (Vi)	grams (W
855	120,182	1.7	73	73	47	3	and the second sec		
300	124.055	1.7	73	73	67	3	=mls gain	ied	=grams gained
-	12 34			-					
							Average Mete	r Temperatu	ire:
Total Vol. in ft3 (Vm)=	La martin	Multiply tota convert to ft	l volume coll	ected in Liters	s by 0.035315	5 to	(average o	of both inlet an	d outlet if applicable)
Comments:		- derivert to it					Pre-Test Leak Check	· Po	st-Test Leak Check:
							0.000 @ 10	"Hg 0.	000 @ 10 "Hg
Test (Run) No		-			ar) 25.3	4	_in. Hg		Gas Sample Analysis
Static Pressul	re: 0.1	_Stack Tempe	erature: 21	14	_(From Metho	d Z	Test Data)	0.50	%CO220.50 %O2
Clock Time 24 hour	Meter Volume (Vm) ft3 or L (Circle One)	Meter Gage Pressure (∆H) in. H <sub>2</sub> O	Meter Inlet Temp. (t <sub>m</sub> ) °F	Meter Outlet Temp. (tm)	Impinger Outlet Temp °F	Meter Vacuum "Hg			
215	125.784	1.7	80	°F 80	12	2			
920	129,924	1.7		80	43	2			•
925	134.0/11	1.7	80	80	43	2			
930	138.127	1.7		80	63	2			
935	142,214	1.7	80		64	2			
940	144,386		81	81	44	2			
145	150,497	1.7	81	81	48	2			
950	2.1	1.7	81	81	65	2	and the second second		
155	159.627	1.7	82	82	45	2	<u>Condensate</u>		Silica Gel or Train
	158,777	1.7	82	82	65	2			
000	62.909	1.7	82	82	65	2	1 1	mla AA	
2005	191.001	1.7	82	82	64	2		_mls (V <sub>f</sub> )	grams (W <sub>f</sub> )
010	170,894	1.7	82	82	64	2		mls (V <sub>i</sub> )	grams (W
015	174,734	1.7	82	82	44	2	=mls gaine	ed	=grams gained
			-						
otal Vol.		Multiply total	volume colle	cted in Liters	by 0.035315	to	Average Meter	Temperatu	re:
n ft3 (Vm)=	14-	convert to ft3			,		(average of	f both inlet and	outlet if applicable)
comments:							Pre-Test Leak Check:		t-Test Leak Check:

$\frac{YOS}{EM  }$ $Ma  $ $Size 2 "$ $CO_2 \% 0.50$ $D_2 \% 20.5$ $D_2 \% 20.5$ $D_2 \% - 0$ $Meter No CM 45$ $D_2 \% - 0$	Upstream Di Downstream Port Type N, Wet O Dry B <sub>ws</sub> Fluk Null Point Angle, Degrees	Star End Tes sturbance, D Disturbance	t Number: t Time: Time: t Tech: iameters , Diameter	18.0 S 15.0 Pitot Coeffic Leal Pre_ Post Umb	) 5	0.19 Passed@ ches H <sub>2</sub> O nches H <sub>2</sub> O 
$\frac{\mathcal{F} \mathcal{M} \mathbf{a}}{\mathbf{s}}$ Size $2^{-3}$ Siz	Upstream Di Downstream Port Type N, Wet O Dry B <sub>ws</sub> Fluk Null Point Angle, Degrees	Star End Test sturbance, D Disturbance Pitot Bulb Temp <u>0.120</u> e # <u>CM45</u>	t Time: Time: t Tech: iameters , Diameter	425 440 <u>Red</u> <u>Red</u> <u>re</u> Pitot Coeffic Leal Pre_ Post Umb	) 5	0.99 Passed@ ches H <sub>2</sub> O hches H <sub>2</sub> O
$\begin{array}{c c}  & & & \\  & & $	Upstream Di Downstream Port Type <u>N</u> , Wet Dry Bws Fluk Null Point Angle, Degrees	End Test sturbance, D Disturbance Pole_Pitot Bulb Temp Bulb Temp <u>0.120</u> te # <u>CM 45</u>	Time: t Tech: iameters , Diameter	<u>L940</u> <u>Red</u> <u>R.o</u> s <u>15.0</u> Pitot Coeffic Leal Pre_ Post Umb	) 5	0.99 Passed@ ches H <sub>2</sub> O hches H <sub>2</sub> O
Size $2 $ , $CO_2 \% 0.50$ $O_2 \% 20.5$ $I_2 \%$ Meter No $CM 45$ $\int \Delta P$	Upstream Di Downstream Port Type <u>N</u> , Wet O Dry B <sub>ws</sub> Fluk Null Point Angle, Degrees	Test sturbance, D Disturbance Pole_Pitot Bulb Temp <u>0.120</u> te # <u>CM45</u> Port-	t Tech: iameters , Diameter	<u>Red</u> <u>78.0</u> s <u>15.0</u> Pitot Coeffic Leal Pre_ Post Umb	sient (C.)	Assed@ ches H <sub>2</sub> O hches H <sub>2</sub> O 
Size $2^{\prime}$ $CO_2 \% 0.50$ $O_2 \% 20.5$ $O_2 \% 0$ Meter No $CWV$ $O_2 \% 0$ $O_2 \%$	Upstream Di Downstream Port Type <u>N</u> , Wet Dry B <sub>ws</sub> Fluk Null Point Angle, Degrees	sturbance, D Disturbance Pole_Pitot Bulb Temp Bulb Temp O.120 e # CM 45	iameters , Diameter	<u>78.0</u> s <u>75.0</u> Pitot Coeffic Leal Pre_ Post Umb	cient (C_)	Assed@ ches H <sub>2</sub> O hches H <sub>2</sub> O 
$\begin{array}{c} C_2 & \underline{\mathcal{O}}_2 & \underline{\mathcal{O}}_2 & \underline{\mathcal{O}}_2 & \underline{\mathcal{O}}_2 \\ \hline D_2 & \underline{\mathcal{O}}_2 & \underline{\mathcal{O}}_2 & \underline{\mathcal{O}}_2 \\ \hline D_2 & \underline{\mathcal{O}}_2 & \underline{\mathcal{O}}_2 & \underline{\mathcal{O}}_2 \\ \hline D_2 & \underline{\mathcal{O}}_2 & \underline{\mathcal{O}}_2 \\ \hline D_2 & \underline{\mathcal{O}}_2 & \underline{\mathcal{O}}_2 \\ \hline D_2 & \underline$	Null Point Angle, Degrees	Bulb Temp Bulb Temp 0.120 e # <u>CM45</u> Port-	iameters , Diameter ID <u>Stunded</u>	Lear Pre_ Post Umb	cient (C <sub>p</sub> ) _ k Checks F <u>ソ</u> In Ir ilical ID	Assed@ ches H <sub>2</sub> O hches H <sub>2</sub> O 
$\sqrt{\Delta P}$	Null Point Angle, Degrees	Port-				Null
	4	ronn #	ΔΡ	Temp. °F	$\sqrt{\Delta P}$	Angle, Degrees
	0	2- 1	0.09	215		0
	1	2	0.12	215		0
	0	3	0.11	214	1.1.1.1	1
	0	4	0.15	214		2
						1
-	0					0
	1					2
		ð				
	I-Bws) + (18 ×_ Ms ×_	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$

roject Numb	er:	M2314		v Rate Dete	rmination Date		412	,			
lient:		Acc			Test Number:			Post 1/Pre 2			
est Location			AA 1			Time:	746 746 749				
ource Condi		24312	m 1 a/			Time:					
						Tech:					
est Engineer		Rods					11.5	AMS			
Duct Diam Flue Area Port Leng P <sub>bar</sub> <u>LS-3</u> Static <u>0.1</u> Static P <sub>s</sub>	0.05 th <u>3</u> "Hg "H <sub>2</sub> O "Hg	ft <sup>2</sup> _″ Port Size CO <sub>2</sub>  O <sub>2</sub> %	2 "	Upstream Dis Downstream Port Type <u>N</u> Wet Dry B <sub>ws</sub> Fluk	Disturbance, Dif <u>e</u> Pitot II Bulb Temp Bulb Temp	Diameter: D <u>STANM</u>	s <u>/5-0</u> Pitot Coeffic Leak Pre_ Post	Checks I	Passed@ ches H <sub>2</sub> O nches H <sub>2</sub> O		
Port- Point #	ΔP	Temp. °F	$\sqrt{\Delta P}$	Null Point Angle, Degrees	Port- Point #	ΔP	Temp. °F	$\sqrt{\Delta P}$	Null Point Angle, Degrees		
1-1	0.05	214			2-1	0.04	214				
2	0.05	214			2	005	214				
3	0,07	215		and and the	3	0,05	214				
4	0.07	214			4	0.05	214		1		
5	0,08	214			5	0.06	215		13-1		
4	0.07	214	ř.		4	0.07	215		<u>N</u>		
7	0.05	214			7	0.08	215				
		1			0-271				/		
Average					-		1 T-1				

		Volum	etric Flow	w Rate Dete			ta Sheet				
Project Numb	ber:	M231408					1/24				
lient:		PLL			Tes	t Number:	Post 2/Pre3				
est Location	n:	SUSTE	ml		Sta	rt Time:	Post 2 / Pre 3 901 914				
ource Cond	lition:	Norn			End	I Time:					
est Enginee	er:	Roos			Tes	t Tech:	AMS	AMS			
Duct Diar	meter 0.1	<u>ft</u>		Upstream Di	sturbance, D	ameters	18.0				
Flue Area Port Leng Pbar 25.3 Static 0. Static Ps	a 0.05 gth 3 4/"Hg _"Hg _"Hg _"Hg	ft <sup>2</sup> _″ Port Size CO <sub>2</sub> O <sub>2</sub> % N <sub>2</sub> % Mete	2 " % <u>D.C</u> 20.50 er No. <u>CM</u>	Downstream Port Type Wet Dry Bws Fluk	Disturbance ple_Pitot Bulb Temp Bulb Temp <u>0.12</u> ce # <u>Cmy(</u>	e, Diameter ID <i>\$1744.0418</i>	s <u>/5<sup>·</sup>·O</u> Pitot Coeffi Lea Pre_ Posi Umb	cient (C <sub>p</sub> ) <u>_</u> k Checks I <u></u> In t <u></u> Ir bilical ID	0.99 Passed@ ches H <sub>2</sub> O nches H <sub>2</sub> O		
Port- Point #	Δ₽	Temp. °F	$\sqrt{\Delta P}$	Null Point Angle, Degrees	Port- Point #	ΔP	Temp. °F	$\sqrt{\Delta P}$	Null Point Angle, Degrees		
1- 1	0.00	214			2- 1	0.11	214				
2	0.10	214			2	0.13	214				
3	0.11	214			3	0,15	214	1	1		
4	0.12	215	0		4	0.14	214	1			
5	0.14	215			5	0.14	215	(			
6	0.14	214			6	0.14	215				
7	0.15	217			7	0.13	214				
8	0.15	217			8	0.14	214				
			-								
Average											
( 85.49>	Md × <c< td=""><td>cp×√</td><td>/s) + (18 ×_ Ms ×_</td><td>(Md) Bws) = </td><td>√∆I</td><td></td><td>_ft /sec</td><td>(Vs)</td><td></td></c<>	cp×√	/s) + (18 ×_ Ms ×_	(Md) Bws) = 	√∆I		_ft /sec	(Vs)			
17.647 × _	acfr	n× <u>Ps</u> = Ts °R		scfm x 60 =	·	scfh					
DS-001 Met	hod 2 Pitot	Sheet		Rev.	1.3				1/25/2022		

CO <sub>2</sub> O <sub>2</sub> % N <sub>2</sub> %	M / L % <u>0.5</u> 20.50	Dry	Star End Tes sturbance, D Disturbance Ool C Pitot Bulb Temp Bulb Temp	t Number: rt Time: I Time: t Tech: Diameters e, Diameter ID <u>ST ANDAA</u>	<u>1030</u> <u>1030</u> <u>1030</u> <u>AMS</u> <u>78.0</u> Pitot Coeffic Leal	cient (C <sub>p</sub> ) ∠	2.99
Syste Norma Rops ft ft <sup>2</sup> _" Port Size CO <sub>2</sub> O <sub>2</sub> %	2 " % <u>0.5</u> 20.50	Downstream Port Type <u>//</u> Wet Dry	Star End Tes sturbance, D Disturbance Ool C Pitot Bulb Temp Bulb Temp	rt Time: I Time: t Tech: Diameters e, Diameter ID <u>ST ANDAA</u>	/014 /030 AMS /8.0 rs /5.0 Pitot Coeffic Leal	cient (C <sub>p</sub> ) ∠	0.99
<u>Norma</u> <u>Roos</u> ft ft <sup>2</sup> _" Port Size CO <sub>2</sub> O <sub>2</sub> %	2 " % <u>0.5</u> 20.50	Downstream Port Type <u>//</u> Wet Dry	End Tes sturbance, D Disturbance Ople Pitot Bulb Temp Bulb Temp	I Time: t Tech: Diameters e, Diameter ID <u>ST ANDAA</u>	<u>1030</u> <u>AMS</u> <u>78.0</u> s <u>75.0</u> Pitot Coeffic Leal	cient (C <sub>p</sub> ) ∠	2.99
<u>Norma</u> <u>Roos</u> ft ft <sup>2</sup> _" Port Size CO <sub>2</sub> O <sub>2</sub> %	2 " % <u>0.5</u> 20.50	Downstream Port Type <u>//</u> Wet Dry	Tes sturbance, D Disturbance <u>Opte</u> Pitot Bulb Temp Bulb Temp	t Tech: Diameters Diameter ID <u>STANOAA</u>	<u>AMS</u> 78.0 rs <u>75.0</u> Pitot Coeffic Leal	cient (C <sub>p</sub> ) ∠	2.99
<u><u><u>Roos</u></u> <u>ft</u> <u>ft</u><sup>2</sup> <u>CO<sub>2</sub> <u>CO<sub>2</sub></u></u></u>	2 " % <u>0.5</u> 20.50	Downstream Port Type <u>//</u> Wet Dry	sturbance, D Disturbance Opt C Pitot Bulb Temp Bulb Temp	Diameters e, Diameter ID <u>STANOAA</u>	<u>AMS</u> 78.0 rs <u>75.0</u> Pitot Coeffic Leal	cient (C <sub>p</sub> ) ∠	2.99
ft <sup>2</sup> ″ Port Size CO <sub>2</sub> O <sub>2</sub> %	2 " % 0.5 zo.50	Downstream Port Type <u>//</u> Wet Dry	Disturbance <u>pol e</u> Pitot Bulb Temp Bulb Temp	e, Diameter ID <u>STANOAA</u>	rs <u>/5.0</u> Pitot Coeffic Lea	cient (C <sub>p</sub> ) ∠	0.99
ft <sup>2</sup> ″ Port Size CO <sub>2</sub> O <sub>2</sub> %	2 " % 0.5 zo.50	Downstream Port Type <u>//</u> Wet Dry	Disturbance <u>pol e</u> Pitot Bulb Temp Bulb Temp	e, Diameter ID <u>STANOAA</u>	rs <u>/5.0</u> Pitot Coeffic Lea	cient (C <sub>p</sub> ) <u>∠</u>	0.99
CO <sub>2</sub> O <sub>2</sub> %	% 0.5 20.50	Wef Dry	Bulb Temp Bulb Temp		Lea	cient (C <sub>p</sub> ) <u>2</u> k Checks I	2.79
O2 %	20.50	Dry	Bulb Temp		Lea		10000000000
N2 % Mete	b	<b>D</b>			Pre	9 in	ches H <sub>2</sub> O
Mete	er Nocimys	Fluk			Deet	4 Ir	nches H <sub>2</sub> O
1			e # CM 45	<u> </u>	Umb	ilical ID	-
Temp. °F	$\sqrt{\Delta P}$	Null Point Angle, Degrees	Port- Point #	ΔΡ	Temp. °F	$\sqrt{\Delta P}$	Null Point Angle, Degrees
	VΔI	Degrees				VΔF	Degrees
					1	( i i i i i i i i i i i i i i i i i i i	
-							
				11			
				1/2			
		1		-		1	
			0	0	6.5		
		1			1		
						1	
						<u></u>	
						_	
		-	-				
			812           UL           UL	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$

## **Isokinetic Sampling Cover Sheet**

Client:	PCC Structurels		Pitot	Tube Cp:	0.840
Facility:	Carson City Facility		Probe Leng	th (Feet):	6
Test Location:	System 2		Probe Liner	Material:	Questo
Project #:	1231408	_	Samp	le Plane:	(Hrztl or Vert.
Test Method(s):	5/202		Port Length ("):		6
Test Engineer:	fus		Port Diar	neter ("):	3
Test Technician:	RB		P	ort Type:	Hole : Dut
Upstream Diameters:	2.0		Duc	t Shape:	Circ. or Rect.)
Downstream Diameters:	7.5		Diamet	er (Feet):	-
# of Ports Sampled:	5		Leng	th (Feet):	2
# of Points per Port:	5		Wid	2	
Source Condition:	Normel		Duct Area (S	Gq. Feet):	4
Diluent Model/SN:	PEF		Minutes p	er Point:	4
Mid Gas ID/concentration:	GAS 1%CO2	%02	Total Travers	e Points:	25
High Gas ID/concentration:	DATA 1%CO2	%02	Test Leng	th (Min.):	100
Moisture Balance ID:	LVY		Tra	ain Type:	Anderson
	R# !	<u>R#</u>	2		R#
Meter ID:	CM45	CM45		C	M45
Pitot ID:	4039	403	5		039
Filter ID:	6538	653	9	65	556
Filter Pre-Weight (g):	0.46936	0.4620	94	Q. 4666G	
Nozzle Diameter ("):	0.495	0.491	-	0.495	
Meter Cal Factor (Y):	0,999	0.959		0.999	
Meter Orifice Setting (ΔH):	1.687	1.657		1	. 687
Nozzle Kit ID:	Questa #5	Questo	and the second	-	erte #5
Individual Nozzle ID:	* 845	#84			#845
Pre Pitot Leak Check:	0.00 @ 4 "H2O			0.00	@ 4 "H <sub>2</sub> O
Post Pitot Leak Check:	0.00 @ 5 "H2O	0.00	@ 4/ "H2O	0.00	@ 4 "H <sub>2</sub> O
Pre Nozzle Leak Check:	0.000 @ 15 "Hg	0.000	@ 19 "Hg	0.000	@ 18 "Hg
Post Nozzle Leak Check:	0.000 @ 19 "Hg	1.000	@ 18 "Hg	9.090	@17 "Hg
Barometric Pressure,"Hg:	25.217	25.	217	20	5. 217
Static Pressure, "H <sub>2</sub> O:	0.0		0.0		0.0
CO2 %:					
O2 %:					

Comments: fort length a length of insulctions

DS-004 Isokjaetin Sameting Gover Sheet Multiple Test Locations ©Mostardi Platt1/1/2021

Project Number: M231408					ermination Field Data Sheet Date: _ <u>04/28/23</u>					
Client:	and the	PCC Strue					110,			
est Location						t Number: t Time:	0320			
		Systen	2			21212220120				
Source Cond		Normal				Time:				
est Enginee	r:	ANS			Tes	t Tech:	Bops			
Duct Dian Flue Area Port Leng P <sub>bar</sub> <u>26.20</u> Static_ <u>o.0</u> Static P <sub>s</sub>	1 4 1th 6 7 "Hg 0 "H <sub>2</sub> O	_ ft <sup>2</sup> _" Port Size_ CO <sub>2</sub> O <sub>2</sub> %	3 "Pe	Upstream Di Downstream ort Type Wet Dry B <sub>ws</sub> Fluk	Disturbance	, Diameter ID <u>4031</u>	s <u>7.6</u> Pitot Coef Lea Pre	ficient (C <sub>p</sub> ) k Checks F <u>5</u> In t <u>5</u> Ir pilical ID	Passed@ ches H <sub>2</sub> O iches H <sub>2</sub> O	
Port- Point #	ΔΡ	Temp. °F	$\sqrt{\Delta P}$	Null Point Angle, Degrees	Port- Point #	ΔP	Temp. °F	HI Pout	- <del>Null</del> Point Angle, Degrees	
A-1	0.10	1200		0	D-1	0.10	1211	3		
-2	0.11	1209		1	-2	0.11	1211	3	1.000	
-3	0.11	1210		2	-3	0.11	1211	1		
-4	0.11	1210		0	-4	0.11	1211	1		
-5	0.10	1211		2	-5	0.10	1212	1		
B-1	0.10	1211		0	E -1	0.10	1212	2		
-2	0.11	1210		1	-2		1213	2		
-3	0.12	1210		i	-2	0.11	1213	3	0.000	
-4	0.11	1211	-	2	-4	0.10	1214	1		
-5	0.10	1211		0	-5	0.10	1215	-		
		12.11		0	-)	0.10	1613			
C-1	9.10	1211		1					_	
-2	0.11	1210		2						
-3	0.13	1210		1						
-4	0.12	1210		2						
-5	0.10	1210		1						
			1							

# Isokinetic Sampling Field Data Sheet

	100 C 100 C 100 C	t Number:	M23	1408		_ Dat			4/25/20	23	Test Number:		Runl				
	Client		rcc	Stratural	5	Tes	t Location	: Su	System 2			Operator:		AMS Test Tech: BB			
	Plant:		Carson	1408 Streherel City Fac	1:ty	Tes	Test Method:		202/ بخ		Page Number:		_	1	of /	_	
			K1 =				1				1			K-C	alcs (Optional)		
														K=	x		
Port- Point #	Time	( <b>Δ</b> P)	K <sup>1</sup> x ∆P Orifice Setting (∆H)	Meter Volume (V <sub>m</sub> ) ft <sup>3</sup> , Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	CPM Filter Temp. °F	Pump Vacuum, "Hg	Square Root, ∆P	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V <sub>m</sub> ) ft <sup>3</sup> , per point	Theoretica Meter Volume, (Vm) ft <sup>3</sup> , total	
1-1	0310	0.10	1.78	72.588	1208	52	52	250	250	54	71	5					
-2	2344	0.11	1.95	76.750	1207	52	52	249	248	54	72	5		12.27			
-7	9348	0.11	1.95	79.220	1208	52	52	248	247	54	72	5		0			
-4	0352	0.10	1.78	22.610	1209	52	52	249	248	54	72	5		1			
-5	0356	0.10	1.78	85.845	1210	52	52	250	249	54	22	5		in the second		1	
-	0800	10 m	-	89.069	1	-	-	-		_	-			1.			
1 - 1	0405	0.10	1.78	59.069	1211	52	52	260	250	54	72	5	1				
-2	0409	0.11	1.95	92,306	7212	52	52	251	251	54	72	5		1		1	
-3	0413	0.12	2.13	95.675	1212	53	53	251	252	54	72	5		1			
-4	0417	0.10	1.78	99.235	1212	53	53	252	251	54	72	5		1			
-5	0421	0.10	1.78	102.475	1213	53	53	251	249	54	22	5					
-	0425	1	1	105,707	-	-	-	-			-	-					
1-1	0430	0.10	1.70	105,707	1213	53	53	252	248	54	72	5				1	
-2	0134	0.11	1.95	108.950	1214	53	52	254	251	54	72	5		250.00			
-2	0438	0.12	2.13	112.335	1215	54	54	253	250	54	22	5		1		1.000	
-4	0442	0.11	1:95	115.900	1218	54	54	252	250	54	72	5					
6	0446	0.10	1.78	119.275	1219	55	55	252	251	54	72	5					
-	0450	-	1	122. 522	-	-	-	-	-	-		-					
-1	0456	0.10	1.78	122.522	1214	55	55	251	250	55	73	5		5			
-2	0459	0.11	1.70	125. 225	1213	55	55	249 .	252	55	77	5					
-3	203	0.11	1.95	129.185	1203	55	55	249	249	55	73	5					
- 4	0507	0.11	1.95	132.595	1203	55	35	250	251	55	73	5		1			
	0511	0.10	1.78	136.010	1202	55	55	250	250	55	73	S	1				
-	0515	-	-	139.264	-	-	-		-		_	-					
-1	0520	9.10	1.78	139.264	1216	55	55	248	249	55	73	5	·		1		
-2	0524	0.10	1.78	142.515	1214	55	56	249	250	56	74	5		-			
-3	9528	0.11	1.95	145.765	1214	52	55	250	250	56	74	5					
- 11	0532	0.11	1.90	149. 175	1212	55	55	252	251	56	74	5			e	1.1.1.1.1.1.1	
-5	0636	e-10	1.38	152,595	1218	55	55	251	252	56	24	5					
	0640		- 1	155. 819 d Data Sheet	1-1	-	-	Rev.	-	-	-	-1	-		12/23		

Project No. M231408 Multiple Test Locations 12/23/2019 ©Mostardi Platt

### **IMPINGER WEIGHT SHEET**

Scale ID Number _ LV 4
Scale Calibration Check Date:2
Scale Calibration Check (see QS-6.05C for procedure) must be within ± 0.5g of certified mass
250 grams _ 200 v 0
500 grams
750 grams 700 . (

	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS
IMPINGER 1	433.1	432.2	0.	EMPTY
IMPINGER 2	443.1	439.5		EmPTY
IMPINGER 3	853.0	757.0		P#
IMPINGER 4	908.7	890.8		Silica
IMPINGER 5				
IMPINGER 6				
IMPINGER 7	1			
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:	123	1408		Date: 04/25/23					-	umber:	Run 2				
	Client:		PCC	Structural	s	Test	Location:	System 2			Operator: Page Number:		<u>Ans</u> Test Tech: <u>BB</u> 1 of 1			
	Plant:		Care	Structural	cility	Test	t Method:	5 /202								
		1	K <sup>1</sup> =		~								K-Calcs (Optional)			
														K=	x	
Port- Point #	Time	(AP)	K <sup>1</sup> x ΔP Orifice Setting (ΔH)	Meter Volume (V <sub>m</sub> ) ft <sup>3</sup> , Actual	Stack Temp, ⁰F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	CPM Filter Temp. °F	Pump Vacuum, "Hg	Square Root, ∆P	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (Vm) ft <sup>3</sup> , per point	Theoretica Meter Volume, (V <sub>m</sub> ) ft <sup>3</sup> , total
-1	0695	0.10	1.28	60.544	1215	53	53	248	249	45	23	5				
-2	0609	0.10	1.78	63.700	1218	57	53	249	201	46	73	5		1		
•3	0618	0.11	1.90	67.010	1223	54	54	250	252	46	24		1			-
-4	0617	9.11	1.46	70.400	1232	64	54	280	250	47	74	5	0			-
-5	0621	0.19	1.78	73.775	1234	36	55	252	248	47	74	5				
-	0625	-	-	77.007	-	-	-	-	-	-	-	-		-		
-1	0629	0.10	1.78	17.002	1245	55	55	251	260	47	24	5		· · · · · · · · · · · · · · · · · · ·		
-2	0633	0.11	1.95	80.225	1249	55	58	250	250	48	74	5	A. Carl	-		
-3	0637	0.1/	1.95	83.600	1246	56	56	250	250	48	74	5				
-4	0641	0.11	1.95	\$6.975	1195	56	Go	252	249	47	74	5			10	-
5	0645	0.10	1.78	90.415	1201	57	57	249	253	48	74	5			-	
-	0649	-	-	93.678		-	-	-		-	-	-				
3-1	0653	0.10	1.78	93.675	1262	57	57	250	254	48	74	5	1			
-2	0657	0.10	1.78	96.885	1254	57	57	250	252	48	74	5				
.3	0701	0.11	1.95	100.100	1236	58	58	219	250	48	74	5	1			-
-4	0705	0.11	1.95	103.480	1232	58	58	252	252	48	74	5	-			
-5	0709	9.10	1.78	106.900	1239	59	59	250	250	50	24	5	-			
-	0713		-	110.166	-	-	-	-	-	-	-		-			
1 -1	0717	0.10	1.78	110.166	1217	59	59	249	249	51	74	5	1000	-		
-2	1550	9.10	1.78	113.445	1208	60	60	247	250	52	76	5		1		
-3	0725	0.10	1.78	116.720	1207	60	60	248	251	53	76	5				
-4	0729	0.11	1.95	120.000	1203	59	59	252	250	54	74	5	-			-
-5	0733	0.11	1.95	123.450	1199	58	58	252	249	56	74	5	-			-
	0737	-	-	126.888	-	-	-	-	-		-		-	-		
5-1	0741	0.10	1.78	126.888	1206	57	57	251	251	56	73	5				-
-2	0745	0.10	1.78	130.190	1213	57	57	250	250	57	72	5	-	-		
-3	0749	0.10	1.78	133.420	1207	57	57	252	250	58	71	5	-	1		1000
-4	0753	0.10	1.78	136.670	1203	57	57	280	250	59	72	5	-		1	1
-6	0757	10.10	1.78	139.950	1197	57	57	250	251	60	173	5	1			
-	10801	-	-	143.222	-	-	-		1-	1-	-	-	-			0.0010
1				ield Data Shee					<b>v. 1.2</b> 27 of 295						12/2 ©Mostarc	23/20 di Plat

Multiple Test Locations

.

### **IMPINGER WEIGHT SHEET**

PLANT:	CC Structurels		_ Scale ID Number							
PROJECT NO	: M23 1408		Scale Calibration (	Check Date:						
LOCATION: DATE: TEST NO:2 METHOD: WEIGHED/ME	1/25		Scale Calibration Check (see QS-6.05C for must be within ± 0.5g of certified ( 250 grams 200, 0 500 grams 500, 0 							
1.000	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER						
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS						
IMPINGER 1	430.1	429.4		MT						
IMPINGER 2	653.9	639.7		MT						
IMPINGER 3	846.5	778.4		DI						
IMPINGER 4	917.8	906.5		Silica						

**IMPINGER 5** IMPINGER 6 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: <u>//22/1408</u> Client: <u>PCC Structure 1</u> Plant: <u>Carson Citz Fre</u>				Date	ə:			04/25/23			Run 3					
	Client:		PCC Structures Is			Test Location:		System 2		Operator:		Ans Test Tech: RB					
	Plant:		Carso	n City Fa	cility	Test	Test Method:					Page Number:		/ of			
	-	1	K <sup>1</sup> =											K-Ca	alcs (Optional)		
Port- Point #	Time	( <b>Δ</b> P)	K <sup>1</sup> x ΔP Orifice Setting (ΔH)	Meter Volume (V <sub>m</sub> ) ft <sup>3</sup> , Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	CPM Filter Temp. °F	Pump Vacuum, "Hg	Square Root, ∆P	K= Meter Rate, Cubic Feet/ Min.	x Theoretical Meter Volume, (Vm) ft <sup>3</sup> , per point	Theoretica Meter Volume, (Vm) ft <sup>3</sup> , total	
1-1	0835	0.10	1.78	44.996	1199	59	59	261	246	64	83	5					
- 2	0839	0.11	1.95	48.290	1292	59	59	251	249	50	71	5		1.000		1	
-3	0843	0.11	1.95	51.725	1192	59	59	250	251	52	21	5			1		
-4	0847	9.10	1.78	59.180	1151	59	59	250	251	51	71	5	1				
-6	0851	0.10	1.78	58.520	1159	59	59	251	251	52	70	5		de concia			
-	0855	-	-	61.846	-	-	_		-		-						
2.1	9859	0.10	1.78	61.846	1165	59	59	251	250	53	71	5					
-2	0903	0.10	1.78	65.170	1171	60	60	250	250	34	72	5					
3	0907	0.10	1.78	68.495	1159	60	60	250	249	56	74	5					
-4	0911	0.11	1,95	21.820	1169	59	59	251	250	57	24	5			100		
-5	0915	0.10	1.78	75.300	1151	60	60	250	250	58	74	5			1		
	0919	-	-	78.639	-	-	)	)	-	-	-	-	1				
3-1	0923	0.10	1.78	78.639	1117	60	60	250	249	58	74	5	1				
-2	0922	0.11	1.95	02.025	1163	59	59	251	250	58	75	5	1		0	-	
-3	0931	0.11	1.95	85.900	1154	60	60	250	251	59	75	5		_			
-4	0935	0.10	1.78	88.640	1155	60	60	250	250	59	75	5	4	1.			
-5	0939	0.10	1.78	11.975	1161	60	60	250	250	58	76	5				-	
-	0943	-	-	85.309	-	-		-	-	-	-	-		-			
4-1	0947	0.10	1.28	45.309	1167	60	60	250	250	58	76	5					
-2	0951	0.10	1.78	98.635	1132	61	61	260	250	58	52	5		-			
- 2	0955	0.11	1.95	102.005	1138	61	61	250	250	59	77	5					
-4	0959	0.10	1.28	105. 540	1154	61	61	250	251	59	77	5		-		1	
-5	1003	0.10	1.78	108.875	1159	61	61	251	251	59	77	5					
-	1007	-	-	112.211	-	-	-	-	-	-	-		I				
5-1	1011	0.10	1.78	112.211	1162	61	61	249	249	59	77	5		-	1		
-2	1015	0.10	1.78	115. 550	1163	61	61	250	251	59	78	1		-	-	1	
-3	1019	0.10	1.78	118. 890	1130	61	61	248	249	60	78	5					
-4	1023	.0.10	1.78	122.250	1141	61	61	251	249	60	78	5	-				
-5	1027	0.10	1.28	125.615	1156	62	62	250	250	61	28	15	1				
	1031	1-	1	128.961		-		1 _	1_	-	1-	T	T				

DS-005B M5 with 202 Isokinetic Field Data Sheet Project No. M231408 Multiple Test Locations Rev. 1.2 Page 129 of 295 12/23/2019 ©Mostardi Platt

### **IMPINGER WEIGHT SHEET**

PLANT: PCC	Scale ID Number VY
PROJECT NO: M23 1408	Scale Calibration Check Date: 2
LOCATION: SYSTEM 2	Scale Calibration Check (see QS-6.05C for procedure)
DATE: 4/25	must be within ± 0.5g of certified mass
TEST NO: 3	500 grams <u>5700 0</u>
METHOD: 5/202	750 grams 7 800. /

WEIGHED/MEASURED BY:

	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS
IMPINGER 1	433.3	431.9		Capty
IMPINGER 2	655.7	640.4		Empty
IMPINGER 3	851.1	759.1		DI
IMPINGER 4	903.6	894.9		Silica
IMPINGER 5				
IMPINGER 6				
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		Pitot T	ube Cp:	,840
Facility:	Carron City		Probe Lengt	h (Feet):	3.0
Test Location:	System 3-14	ir Furnace	Probe Liner	Naterial:	Quartz
Project #:	M231408		Sampl	e Plane:	Hrztl, or Vert.
Test Method(s):	5/202		Port Le	ngth ("):	0.00
Test Engineer:	TWM		Port Diam	eter ("):	4.00
Test Technician:	RODS		Pc	ort Type:	Hole in dust
Upstream Diameters:	. 9.3		Duc	t Shape:	Circ. or Rect.
Downstream Diameters:	3.5		Diamete	r (Feet):	0.5
# of Ports Sampled:	2		Lengt	h (Feet):	
# of Points per Port:	12		Widt	h (Feet):	
Source Condition:	Normal		Duct Area (S	q. Feet):	0.196
Diluent Model/SN:			Minutes p	er Point:	4.0
Mid Gas ID/concentration:	/%CO2	%O2	Total Traverse	Points:	24
High Gas ID/concentration:	/%CO2	%O2	Test Lengt	h (Min.):	96
Moisture Balance ID:	LV4		Tra	in Type:	Anderson
	<u>R# / </u>	<u>R#</u>	2		<u>R# 3</u>
Meter ID:	CM13	Cm	13	C	m 13
Pitot ID:	3002	300	02	30	002
Filter ID:	6781	678	Ð	67	82
Filter Pre-Weight (g):	0.46808	0.46	824	0.46	946
Nozzle Diameter ("):	0.166	0.166		0.166	
Meter Cal Factor (Y):	0.992	0.992	2	0.9	
Meter Orifice Setting (DH):	1.520	1.52		1.5	20
Nozzle Kit ID:	Quartz 6	Quari	126	Qu	artz 6
Individual Nozzle ID:	123	/23		12	3
Pre Pitot Leak Check:	6000 @ 4.2 "H2O	0.000 1	@ 4.0 "H2O	0.000	@ 3.9 "H2C
Post Pitot Leak Check:	0.000 @ 4.0 "H2O	0.000	@ <i>3.</i> 9 "H₂O	0.000	@ 4.4 "H20
Pre Nozzle Leak Check:	0.000 @ 16 "Hg	0.000	@ /6 "Hg	0.000	@ 16 "Hg
Post Nozzle Leak Check:	0.000 @ 15 "Hg	0.000	@ /6 "Hg	0.000	) @ 15 "Hg
Barometric Pressure, "Hg:	25.217	25.21	7	25	217
Static Pressure, "H <sub>2</sub> O:	0.7	0.7		0	-7
CO2 %:	0	0		ć	)
	20.9	20.	0	0	0.9

### Comments:

Client: Test Location: Source Condition: Test Engineer: Duct Diameter Flue Area <u>0.</u> Port Length Pbar <u>25.117</u> "H Static <u>0.7</u> "H Static <u>0.7</u> "H	<u>0,5</u> ft <u>46</u> ft <sup>2</sup> <u>0</u> " Por g <sub>2</sub> 0	M251402 PCC System 3 Normal TWM t Size 4.0 CO2 % 0 O2 % 20.	Upstream D Downstream	Da Te Sta En isturbance, I n Disturbance <u>in Disturbance</u> Pito t Bulb Temp Bulb Temp	te: st Number art Time: d Time: st Tech: Diameters e, Diamete t ID <u>300 2</u>	<u>4/25/23</u> <u>Nul Point</u> <u>3:05</u> <u>3:20</u> <u>RoDS</u> <u>9.3</u> <u>9.3</u> <u>9.3</u>			
Port- Point # ∆			Null Point Angle, Degrees	Port- Point #	AP	Temp. °F	VAP	Null Point Angle, Degrees	
1-1 3-1			2	2-1	3.10	96			
-2 3.1			1	-7	3.10	86			
Statement of the statem			1	-3	3.00	86		1	
10			_ 2	-4	3.00	86		2	
-5 3.a -6 3.e				5	2.90	86		Î	
the second se				-6	2.80	86		2	
			-4	-7	2.70	86		1	
	0 05		1	-8	2.70	85		1	
			12	-9	2.60	85		1	
-10 2.4	0 85			-10	2.60	85		2	
-11 2.0			2	-11	2.50	B		2	
-12 2.5	0 85			-12	2.50	85			
		1							

17.647 × \_\_\_\_\_acfm × Ps = \_\_\_\_\_scfm × 60 ≕ \_\_\_\_\_scfh

DS-001 Method 2 Pitot Sheet

# Isokinetic Sampling Field Data Sheet

	Proje Client	ct Number		231408		Da		_	4/25		Test N	lumber:		١		
				CC		_ Tes	st Location	n:	Systen		Opera	tor:	T	Wm T	est Tech: P(	Zac
	Plant:	5	_ Lei	rson (ity	_	Tes	st Method:		\$ 120	)2	Page	Number:	-	1	of /	2
			K <sup>1</sup> =						1	1				K-C	alcs (Optional	
			K <sup>1</sup> x ∆P											K=	v	1
Port- Point #	Time	(ΔP)	Orifice Setting (∆H)	Meter Volume (Vm) ft <sup>3</sup> , Actual	Stack Temp, ⁰F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	CPM Filter Temp. °F	Pump Vacuum, "Hg	Square Root, ∆P	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (Vm) ft <sup>3</sup> , per point	
1-1	3:40	3.10	1.80	69.233	87	50	48	252	247	45	72	10	- 21	WIIII.	point	total
-3	3:49	3.10	1.80	72.660		50.	48	252	247	44	71	10				
-4	3:52	3.00	1.74	76.100	86	50	48	252	248	44	70	10		-		-
-5	3:56	3.00	1.74	79480	36	50	48	252	248	44	70	10		-		-
-5	4:00	2.90	1.74	82.860	20	50	73	252	249	43	70	10				-
-7	4:04	2.30	1.68	36.230	86	50	43	251	240	44	70	10				-
-0	4:08	2.30	1.67	89.570	85	SI	43	251	249	43	70	10				
-9	7:12	2.70	1.62	92.850	85	,51	78	248	242	42	70	10				
-10	4:16	2.60	1.57	96.130	28	54	79	253	248	43	70	10				
-11	4:20	2.60	1.51	99.350	25	55	49	251	249	46	70	10				
-12	4:24	2.50	1.45	102.530	28	57	So	251	251		70	10		S		
	4:28	2.00	1-13	105.710	85	20	50	252	247	53	70	10				
2-1	4:35	3.10	1.80	108.823	Qu	59								1200		
-2	4:39	3.10	1.80	112.310	34 34	59	53	251	250	50	71	5				
-3	4243	3.00	1.74	115.800	94	59	53	251	250	So	71	5				
-4	4:47	3.00	1.74	119.230	82	60	53	250	250	56	71	5		-		
-5	4:51	2.80	1.62	122.690	80	61	54	249	248	56	71	5		()		1.000
-6	4:55	2 90	1.62	126,010	78	61	54	248	245	25	71	5				
-7	4:59	2.70	1.57	129.380	77	61	55	249	249	55 232	71	S		_		
	5:03	2.70	1.57	132 680	76	61	SY	248	247		71	5			1. S	
	5:07	2.60	1.51	135.990		LA.	54	248	4	54	71	5	-			A. 200
	8:11	2.60	1.51	139.210		61	54	253	249	54		5				
-11 :	5:15	2.50		142.440	75	60	34	243	250	54	71	5		_	-	-
-12 ]	5:19	250	1.45	145.610	76	60	55	253	249	59	71	5			(	
-	5:23		-	148.831			50	3.0	-10	00	1	7				
														-		
																1

٨		IMPINGER WEIGH	T SHEET		
PLANT:	ĽĽ		Scale ID Number	LV4	
PROJECT NO	o: M2514	80	_Scale Calibration	Check Date: \$ 4/2	5/23
LOCATION:_	System 4/05/02	\$3	Scale Calibration	Check (see QS-6.05C for p	rocedu
DATE:	1 403/23		250 grams 20	0.0	
TEST NO:	/		500 grams 500	0.0	3
METHOD:	5/202	1	7 <i>c0</i> 750 grams 70	0.1	
WEIGHED/ME	EASURED BY:	TWM			
	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER	
Circle One:	MLS/GRAMS	MLS / GRAMS	GAIN	CONTENTS	
IMPINGER 1	¥13.6	413.1	1	Gmpty	
IMPINGER 2	647.6	646.6		Empty	
IMPINGER 3	688.3	699.0		TAI -	
IMPINGER 4	894.3	874.5		Silica	
IMPINGER 5					
MPINGER 6					
MPINGER 7					
MPINGER 8					
	FINAL TOTAL	INITIAL TOTAL TO	TAL IMPINGER GAI	N	

SILICA

FINAL TOTAL

INITIAL TOTAL

TOTAL SILICA GAIN

# Isokinetic Sampling Field Data Sheet

Time 555 57 507 507	(AP) 3.10 3.70 3.00 3.00	$K^{1} = \_$ $K^{1} \times \Delta P$ Orifice Setting (\Delta H) 2.14 2.14 2.07	Meter Volume (Vm) ft <sup>3</sup> , Actual	Stack Temp, °F	Meter Temp Inlet.	Meter								alcs (Optional)	
555 59 2:03 2:07 2:11	3.10 3.10 3.00	Orifice Setting (AH) 2.14 2.14	Volume (Vm) ft <sup>3</sup> , Actual	Temp, °F	Temp		-					1		1 - Paration (	T
555 59 2:03 2:07 2:11	3.10 3.10 3.00	Setting (ΔH) 2.14 2.14	Volume (Vm) ft <sup>3</sup> , Actual	Temp, °F	Temp				Impinger Outlet Well Temp. °F	CPM Filter Temp. °F	Pump Vacuum, "Hg		K=	¥	
59 203 207 211	3.10	2.14		Temp, °F	Temp Inlet, °F	Temp Outlet, °F	Probe Temp. °F	Filter Temp. °F				Square Root, ΔP	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (Vm) ft <sup>3</sup> , per	Theoretical Meter Volume, (Vm) ft <sup>3</sup> ,
2:03 2:07 1:11	3.00		10 12 1		53	53	252	243	46	70	5	Δr	IVIIII.	point	total
: 07 : 11 : 15		101	53.240	32	57	53	252	252	45	70	5				
: H : H	3.00		56.830	84	59	53	249	250	46	70	5		-		
is .	290	2.07	60.720		61	53	278	249	48	70	S				
-	2.90	2.00	64560	84	61	54	253	252	48	70	5				
1 × 1 × 1		2.00		83	61	55	251	251	49	70	5			1	
:23	2.80	1.93	71.650	84	62	55	2-18	247	419	70	5.				
:27	2.70	1.93	75.590	35	62	55	245	251	49	70	5		-		
3731	2.70	T. 86	79.220	28	62	35	252	247	49	70	3		-		
		1.96	82,770	85	62	55	253	251	50	70	5				
			86.350		62		247		50						
	2.60	1.19	87-860	34	62	55	254	251	50						
	200 :	2.10								10	3				
			43.374	87		56	254	250	49	76	5				
		2.01				57	253	244		70					
			100-620		63		253	249							
					65	58	252								
06	200					58	249					-			
	2.80				64	58		248							
					66		2-18	248		-					
	2					59	249	249			-				
		0			63	59	250	249							
			126.310		47	58	-					-			
10	2.50	-			63										
38	4.50	1.73	133.320	79	63			247			5				
0000	43 54 58 2 2 06 0 4 4 30 55 2 6 2 2 6 30 55 1	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$											

DS-005B M5 with 202 Isokinetic Field Data Sheet

### **IMPINGER WEIGHT SHEET**

LOCATION:_ DATE: TEST NO: METHOD:	5: <u>M231408</u> System 3 125/23 S/202	TUM	Scale ID Number <u>LV 4</u> Scale Calibration Check Date: <u>Y 1/25/</u> <u>Scale Calibration Check (see QS-6.05C for proceed</u> must be within ± 0.5g of certified mass 250 grams <u>200.0</u> 500 grams <u>570.0</u> 750 grams <u>700.1</u>					
	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER				
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS				
IMPINGER 1	412.2	412.6		Empty				
IMPINGER 2	647.4	447.4		Empty				
IMPINGER 3	679.5	484.3		DI				
IMPINGER 4	904.9	894.3		Silica				
IMPINGER 5		Ι. Ι						
IMPINGER 6		Τ						
MPINGER 7		<u> </u>	1					
IMPINGER 8		<u> </u>						

IMPINGERS

FINAL TOTAL

INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA

FINAL TOTAL

INITIAL TOTAL TOTAL SILICA GAIN

# Isokinetic Sampling Field Data Sheet

(ΔP) <u>5.00</u> 2.90 2.90 2.90 2.80 2.80 2.80	2.07 2.00 2.00 2.00 2.00	Meter Volume (Vm) ft <sup>3</sup> , Actual 38.812 72.550 46.240 49.920	Stack Temp, °F 86 87	Inlet, °F	Meter Temp Outlet, °F	Probe Temp.		Impinger	СРМ			K= Meter	alcs (Optional) x Theoretical	Theoretic
3.00 2.90 2.90 2.90 2.90 2.90	Orifice Setting (ΔH) 2.07 2.00 2.00 2.00 2.00 1.93	Meter Volume (Vm) ft <sup>3</sup> , Actual 38.812 72.550 46.240 49.920	Temp, ⁰F 86 87	Temp Inlet, °F	Temp Outlet, °F							Meter	x Theoretical	Theoretic
2.90 2.90 2.90 2.90 2.80	2.00 2.00 200	40.240	87				Filter Temp. °F	Impinger Outlet Well Temp. °F	CPM Filter Temp. °F	Pump Vacuum, "Hg	Square Root, ∆P	Rate, Cubic Feet/	Meter Volume, (V <sub>m</sub> ) ft <sup>3</sup> , per	Meter Volume (Vm) ft <sup>3</sup> ,
2.90	200	49 920	87		56	254	243	56	73		ΔΡ	Min.	point	total
2.90	200	49.920	10	\$600	56	251	251	52	72	4				
2.80	193	49.920	90 1	162 162	56	251	250	50	72	4.				
2 80	1.93		89 1	\$767	57	250	249	53	76	4			1.00	-
	10-	53.440	90	63	57	251	249	59	77	4	-			
2.70	612	57.180	91	63	58	248	249	53	77	4				
2.10		60.650	92	65	58	250	249	52	75	4		1000		
2.70	1.86	63.610	93	64	58	252	247	52	74	4				
		67.520		65	59	248	2:18	53	74	4				
2.60		71.530	91	65	59	249	250	53	73	4				
1.60	1.79	75.190	90	64	60	250	249	53	74	4				
2.50	1.72	78.730	89	64	60	250	248	53	74	4				-
	-	82.015					1010		11	7			<u></u>	
3.10	2.14	82.015	90	62	60	253	253	56	79	Y				
3.00	2.07	85.620		62	60	249	250	54	74	4				
3.00	2.07	89.250	89	62	60	248	251	54	74	4				
.80	1.93	93.310	90	63	60	250	249	54	74	4				
.30	1.93	96,590	90	64		251	249							
.80	1.93	103.220			59	248	249	the second se	74	4				
.70	1.86	103.910	38						78	4				
.70	1.86	107.830								4				
.60	1.79	111.360							-	1				
.40		115.010				and the second se				4				
.50	1.72	118.490												-
-	1.72	121.960					249		19	4				
7.6	0	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	0 1.86 107,830 0 1.79 111.360 0 1.79 115.010 0 1.72 118,490	0 1.86 107.830 88 0 1.79 111.360 87 0 1.79 115.010 87 0 1.72 118.490 87 10 1.72 121.960 87	1.36     103.910     88     64       0     1.86     107.830     88     64       0     1.79     111.360     87     65       0     1.79     115.010     37     65       0     1.72     115.010     37     65       0     1.72     113.490     37     65       0     1.72     121.960     87     65	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

LOCATION:_ DATE:_ <u>4/2</u> TEST NO: METHOD:	o: <u>M231408</u> System 3 25/23 3	i WM	Scale ID Number Scale Calibration Scale Calibration Must be 250 grams 200 500 grams 80 750 grams 70	Check Date: $\frac{4/25}{25/25/25}$ <u>Check (see QS-6.05C for proced</u> within $\pm$ 0.5g of certified mass $\frac{5}{20}$
	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS
IMPINGER 1	413.3	412.2		Empty
IMPINGER 2	647.7	647.4		Empty
IMPINGER 3	673.0	6785		DI
IMPINGER 4	910.5	904.9		Silica
IMPINGER 5		1.		
MPINGER 6				
MPINGER 7	1	1		
MPINGER 8				
IMPINGERS _	FINAL TOTAL	INITIAL TOTAL TO	OTAL IMPINGER GAIN	4

SILICA

FINAL TOTAL

# **Isokinetic Sampling Cover Sheet**

Clier		cale	Pit	ot Tube Cp:	DDIO
Facilit	y: Carson City n: System 4 #: 19231408			ngth (Feet):	0.840
Test Location	n: System 4			er Material:	3.0
Project	#: 19231408				Glass
Test Method(s	): 5			nple Plane:	Hrztl. or Vert.
Test Engineer				Length ("):	0.00
Test Technician	II RB			ameter ("):	4.00
Upstream Diameters				Port Type:	Hole in Det
Downstream Diameters	3.7		Di	uct Shape:	Circ) or Rect.
# of Ports Sampled			Diame	eter (Feet):	2.5
# of Points per Port			Len	gth (Feet):	
Source Condition			Wie	dth (Feet):	
	1.000		Duct Area	Sq. Feet):	4.909
Diluent Model/SN:		×.	Minutes	per Point:	
Mid Gas ID/concentration:	/%CO2	2 %02	Total Travers	se Points:	4.0 ZY
High Gas ID/concentration:	/%002	2 %02	Test Leng	th (Min.):	96
Moisture Balance ID:	LV3		Tr	ain Type:	16+ Box
	<u>R#</u>	<u>R#</u>	2	E	(# ]
Meter ID:	01-16	and	16	1	146
Pitot ID:	69.69		69		5969
Filter ID:	6554	6779	Contraction of the second		63
Filter Pre-Weight (g):	0.46788	0.463			65 414605
Nozzle Diameter ("):	.262	.26:	2	.26	
Meter Cal Factor (Y):	1.001	1.00		1.0	
Meter Orifice Setting (∆H):	1.757	1.751		1.75	
Nozzle Kit ID:	Quartz 5		25		25
Individual Nozzle ID:	299	29		29	
Pre Pitot Leak Check:	6.000 @ 4.1 "H2O	0.000 @			0
Post Pitot Leak Check:	0.000 @ 4.0 "H2O		3.8 "H20	00	
Pre Nozzle Leak Check:	0.000 @ 16 "Hg	0.000 @	/7 "Hg		4.4 "H2O
Post Nozzle Leak Check:	0.000 @/4 "Hg	0.000 @	K "Hg	0.000 @	1.20
Barometric Pressure,"Hg:	25.340	25034C		0.000 @	
Static Pressure, "H <sub>2</sub> O:	07	0		25.1	
CO2 %:	0			0.	/
O2 %:	20.9	0		0	
omments:		20,9		20.9	

Project Num	ber:	Ma	netric Flo 39408	ow Rate Det	erminatio Da	n Field D ite:	ata Shee	t 4/201	23
Client:		7	20		Те	st Number		AUT	Sach
Fest Locatio		Sys	elem.	-1	Sta	art Time:		6:30	ne-1
Source Cond			Norma		En	d Time:	-	6:45	
est Enginee	ər:		um		Te	st Tech:	-	RB	
Flue Area	7_"H <sub>2</sub> O "Ha	ft <sup>2</sup> _″ Port Size CO2 02 % N2 %	10 20.9		isturbance, I Disturbanc ange <sup>Tum</sup> Pito Bulb Temp Bulb Temp e #	e, Diamete t ID_ <u>6969</u>	rs <u>2.0</u> Pitot Coe Lea Pre Pos	fficient (Cp ak Checks	Passed@ nches H <sub>2</sub> O nches H <sub>2</sub> O
Port- Point #	ΔΡ	Temp. °F	$\sqrt{\Delta P}$	Null Point Angle, Degrees	Port- Point #	ΔP	Temp. °F	$\sqrt{\Delta P}$	Null Point Angle, Degrees
-7	0.67	65		V	2.1	073	61	200	L
7	0.40	66	_	2	-2	0.69	69		1-
-4		67		2	5	0.44	68		2
-5	0.33	67		2	-4	0.34	68		2
-0	0.26	67		2	-5	0.33	108		2
4	0.29	67		E.	-6	0.33	60		1.
-8	0.25	67		1-	- 7 -83	034	68		2
-9	0.23	67		1	5	0.30	68		2_
-10	6.25	67	- distant	2	-10	0.26	68		2-
. 11	0.25	67		2	-11	122	68		2-
-12	6.25	07		1	-17	6.70	60%		1/2
				-					
	theyte	2		_					

	Client: Plant:	t Number:	7	1231403 7(c sin (:ty	_	Date: Test Lo Test Me			4/23 em 4 8	Оре	t Number: rator: e Number:	Ē	Jurn Te	st Tech: 721	ß
			K <sup>1</sup> = K <sup>1</sup> x ΔP	-									K-Calc	s (Optional)	
Port- Point #	Time	( <b>ΔP</b> )	Orifice Setting (∆H)	Meter Volume (Vm) ft <sup>3</sup> , Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well	Square Root,	Meter Rate, Cubic	Theoretical Meter Volume, (Vm) ft <sup>3</sup> , per	Theoretica Meter Volume, (Vm) ft <sup>3</sup> ,
1-1	7:00	0.79	4.01	2.182	44	45	45	S	230	253	Temp. °F	ΔΡ	Feet/ Min.	point	total
-2	7:04	0.79	4.01	6.620	64	46	46	5	248	255	46				
-5 -4	7:05	071	3.61	11.700	64	47	47	45,	255	254	52				
-5	7:12	0.65	3.30	16.250	69	48		4	254	253	59				
A	7:140	0.49	2.49	20590	70	49	48	3.5	254	255	56				
-6	7:24	039	1.98	24.370	70	50	So	3	255	254	19				
		0.20	1.02	77.750	69	51	51	2	255	254	JOS				
-99-	7.28	0.19	0.97	30170	63	52	57	2	254	257	88				
-10	7:36	0.19	0.97	32.560	67	\$3	83	2	253	254	60		-		
-11	7:40	0.20	ogn	34.950	67	54	sy	2	255	255	59				
-12	7:44	0.19	1.02	37.780	67	56 56	56	2	254	254	60				
	7:49	0.19	0.97	39.810 42.203	67	56	56	2	254	260	60				
2-1	7:58	0.47	7 -0	42.608	1				12.201						
-2	8:02	0.44	Z.39	42.208	68	61	61	4	284	253	55		1		
-3	8.06		2.23	46.00	68	41	61	4	252	253	56				
4	9.0	0.39	1.95	19.630	69	62	62	3.5	253	254	57				
5	3.14	0.33	1.68	53.150	70	63	63		253	253	58				
-6	3:19	0.30	1.52	54,340	70	64	64	3	254	254	52				
	8:22	0.22	1.12	59.340	70	65	65	2.5		253	30				
-8	3:26	022	1.12	62.020	71		65	2.5	254	254	49				
4		0.22	1.12	64.630	71	66	66	25	253	253	50				
	8.34		1.17	67. 220	72	67	67	2.5	254	253	47				
		0.25		69.840	71	63	68	25	253	25%	50				
		0.24	1.22	72.520	72	68	68	2.5	253	253	44				
	8:46	U. CY	1.20	75.280	72	69	69	2.5	254	253	49				
	0.40			77.976											

DS-005 M5 Isokinetic Field Data Sheet

PLANT:	- The Co	(son	Sc
UNIT NO:	System 4		Sc
LOCATION:_	Carron C	ity	Sc
DATE:	4/26/23	0	25
TEST NO:	1		500
METHOD:	5		700
WEIGHED/ME	EASURED BY: 7	Wm	
	FINAL WEIGHT	INITIAL WEIGHT	-
Circle One:	MLS / GRAMS	MLS / GRAMS	
IMPINGER 1	718.0	725.5	T
	-1107 1		

LV3 ID Number 24/23 Calibration Check Date:

Scale Calibration Check (see QS-6.05C for procedure)  $z_{co}$  must be within ± 0.5g of certified mass 250 grams /99,9

rams

699.8 rams

	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS
IMPINGER 1	718.0	725.5		DI
IMPINGER 2	744.3	144.9		DI
MPINGER 3	USS.S	654.0		Empty
MPINGER 4	769.9	785.0		Silica
MPINGER 5				1
MPINGER 6				
WPINGER 7				L
MPINGER 8				1

IMPINGERS

FINAL TOTAL

INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA

FINAL TOTAL

INITIAL TOTAL

TOTAL SILICA GAIN

	Client: Plant:	Number:	1	31408 TCC In City	_	Date: Test Lo Test Me		0	6-23 tem 9	Ope	t Number: erator: e Number:	1	NM Te	st Tech: RB	,
			K1 =										K-Calc	s (Optional)	
1			K <sup>1</sup> x $\Delta P$										K=	x	
Port- Point #	Time 9:15	(Δ <b>Ρ</b> )	Orifice Setting (ΔH)	Meter Volume (Vm) ft <sup>3</sup> , Actual	Stack Temp, ⁰F	Meter Temp Inlet, °F		Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F		Square Root, ∆P	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (Vm) ft <sup>3</sup> , per point	Theoretica Meter Volume, (V <sub>m</sub> ) ft <sup>3</sup> , total
-2	9:19	0.48	1.63	78.817	75	72	72	S	253	260	51				totai
- 3	9:23	0.43	248	82.750	74	72	72	S	252	258	19 52				
-4	9:27		1.86	86.750	74	74	74	5	252	254	52			1	
-5	9:31	0.34	1.75	90.480 93.930	12	73. 74	73	5	752	252	SY			1°	
-6	9:35	0.29	1.50	97760	52	75	74	400	252	252	54				
-7	9:39	0.25	1.29	97.260	71	75	TS	3.5	255	253	54	1			
-9	9:43	0.27	1.39	102.620	71	76	76		252	252	55				
-9	9:47	0.20	1.44	105.510	72	76		3	252	252	55		1		
-10	9:51	6.29	1.50	108.460	72	77	76	333	251	252	55				0
-11	9:55	0.28	1.44	111. 460	72	78		.2	252	253	56			1	
-12	9:59	0.26	1.34	114.420	TI	78	78	ing	252	252	5)			1	
	10:05	2.00	121	117. 283	12	10	10	~	252	252	57		E 1	1	
	10:08	0.50	2.47	117,293	73	79	79	C	253	700	11				
	10:12	0.61	3.01	121.240	72	79	79	5	252	252	66				
	10.16	059	2.91	125.630	71	80	30	5	251	251	60			-	
-4	10:20	0.56	2.76	129.930	72	81	81	5	252	251	60		-		
-5	10:24	0.51	2.51	134.150	72	82	82				61	_			
	19:28	0.41	2.02	138,180	74	85	83	5.5	252	251	61	-			
-7	10:32	0.22	1.08	141.780	74	83	83	7.5	252	252	60				
-9 1	0:36	0.21	1.04	144.450	74	84	84	3	253	252	60		-		
-9	10:40	0.23	1.13	147.020	74	84	84		252	251	61				
	2: 14	0.23	1.13	149.740	74	84	84	33	352	251	62				
-11 1	0:48	6.23	1.13	152.450	74	84	84	3	251	252	62				
	10:52 10:56	0.22	1.08	155.50	75	85	35		753	252	61				

DS-005 M5 Isokinetic Field Data Sheet

Project No. M231408 Multiple Test Locations

		and a second a second second second	HTSHEET
PLANT:	PCC	IMPINGER WEIG	
UNIT NO:	Syden	/	Scale ID Num
ONT NO:	1	·	Scale Calibra
LOCATION:_	Carron C.	4	Scale Calibrat
DATE:	4-26-2	2	200 mus 250 grams
TEST NO:	2		500 grams
	6		
METHOD:		+2 12	750 grams
	ASURED BY:		
		INITIAL WEIGHT	
WEIGHED/ME	FINAL WEIGHT MLS / GRAMS	INITIAL WEIGHT	IMPINGER
WEIGHED/ME	FINAL WEIGHT MLS / GRAMS	INITIAL WEIGHT MLS / GRAMS	750 grams
WEIGHED/ME Circle One: IMPINGER 1	FINAL WEIGHT MLS/GRAMS 7/0.2	INITIAL WEIGHT MLS / GRAMS	IMPINGER

NB ber 23 tion Check Date: 14

tion Check (see QS-6.05C for procedure) t be within ± 0.5g of certified mass 199.9

> IMPINGER CONTENTS

DI

D

Empt 4

S.T. ca

199.8 199.8

IMPINGER 7 IMPINGER 8

IMPINGERS

IMPINGER 5

IMPINGER 6

FINAL TOTAL

INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA

FINAL TOTAL

	Projec Client: Plant:	t Number:		1231403 PCC Son City	_	Date: Test Lo Test Me		Syster Syster	26/22 m 4	Оре	t Number: erator: le Number:		TWM Te	3 st Tech: R	B
			K1=					1					K-Calc	s (Optional)	
			K <sup>1</sup> x ∆P	1									K=	x	
Port- Point #	Time	(AP)	Orifice Setting (ΔH) 3.35	Meter Volume (V <sub>m</sub> ) ft <sup>3</sup> , 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, ∆P	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (Vm) ft <sup>3</sup> , per	Meter Volume, (V <sub>m</sub> ) ft <sup>3</sup> ,
-2	11.19	0.88	4.51	58 321	76	34 35	34	S	248	250	65	231	Teeu Witt.	point	total
-3	11:23	0.87	4.46	62.860	77	os	85	7	253	259					
4	1127	0.74	3.80	00.150	78	85	05	7	252	256	60		1	-	
-5	11:31	0.60	5.00	73.420	78	85 86	85	7	251	256					
-6	11:35	0.45	3.08 2.31	78.2.60	78	86	86	5	251	255	60 58				
-7	11:30	0.27		82.650	78	86	80	4	251	253	56				
-8	11:43	0.29	1.39	86.450	78	87	97	3	251	252	52				
-9	11:47	0.31	1.59		78	87	87	33	250	252	51				
-60	11:51	0.34	1.74	92.420	10	37	87	3	251	252	SO				
-11	11:55	0.33	1.69	95.530	78	87	87	3	252	251	49				
TE	11:59	0.29	1.49	98.870	78	87	37	3	281	251	48		1		
	12:03	0.00	1.77	102.120	17	39	38	3	isi	251	48				
2-1	12:08	0.50	256	105.208	1-2-02	0.0	0.0	. /	1.2.2.2.1		10				
-2	12:12	0.78	3.4	105.208	78	88 88	38	4	151	152	65	-			
	12:10	0.43	2.26	104.730	79	88	38	14	251	251	45 48				
			500	113 160	19	88	88	4	251	250	47				
		0.38	1.95	116.870	79	88	88 93	3.5	251	152	47				
-6	12:23	0.36		120.350	79	88	53	3.5		252	51				
-7	11:32	0.31	1059	123.160	79	88	83	3.5	251	251	50				
			1.44	16920	79	89	89	23	257	201	110				
-8		0.31	1.59	17-9.910	79	89	89 39	Calve	251	251	49 50				
	12:70	031	1:74	133. Xa	79	83	999	3	251	150	30				
-11	12:44	0.34	1.74	136.360	79	39	39	3	251	252 251 251	52		-		
	12:45	0.34	1.14	139.670	79	89	39 89	3	15.	251	52				
-12	2:50	().37_	1.64	142.990	79	39	89	3	75°C 751	251	52				
				146-147			-					_			

DS-005 M5 Isokinetic Field Data Sheet

		HALLINGER AAEIGH
PLANT:	PCC	And a state of the
UNIT NO:	System	4
LOCATION:_	Corsin C	ity
DATE:	4/24/2	3
TEST NO:	3	
METHOD:	5	
ARIOICOMAR		Tam

13 Scale ID Number

Scale Calibration Check Date:

4/23 9

Scale Calibration Check (see QS-6.05C for procedure) must be within ± 0.5g of certified mass 100 250 grams 190.9

500 grams 50 grams

WEIGHED/MEASURED BY

-	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS
IMPINGER 1	702.0	710.2		DI
IMPINGER 2	742.0	743.8	[	DI
IMPINGER 3	(GGi. 2.	658.5		Empty
IMPINGER 4	82.1.6	808.8		Silica
IMPINGER 5				
IMPINGER 6				
MPINGER 7				
MPINGER 8				

IMPINGERS

FINAL TOTAL

INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA

FINAL TOTAL INITIAL TOTAL

TOTAL SILICA GAIN

Isokinetic Sampling Cover Sheet

Client:	PCC Structurals		Pitot Tube Cp:	.840
Facility:			Probe Length (Feet):	
Test Location:	System 5		Probe Liner Material:	
Project #:			Sample Plane:	0
Test Method(s):			Port Length ("):	0.0
Test Engineer:	TWM		Port Diameter ("):	4.0
Test Technician:			Port Type:	the in Dur
Upstream Diameters:			Duct Shape:	Circ? or Rect.
Downstream Diameters:	2.0		Diameter (Feet):	2.5
# of Ports Sampled:	2		Length (Feet):	6.5
# of Points per Port:	12		Width (Feet):	
Source Condition:	Normal		Duct Area (Sq. Feet):	4.909
Diluent Model/SN:			Minutes per Point:	4.0
Mid Gas ID/concentration:	/%CO2	%O2 .	Total Traverse Points:	24
High Gas ID/concentration:	/%CO2	%O2	Test Length (Min.):	96
Moisture Balance ID:	LV 3		Train Type:	Hat Box
	<u>R# /</u>	<u>R#</u>	2	R# 3
Meter ID:	CM 46	CM4	6 Cn	146
Pitot ID:	6.969	696		69
Filter ID:	6555	8385		
Filter Pre-Weight (g):	0.46347	0.4454		1560
Nozzle Diameter ("):	0.357	0.357	0.3	
Meter Cal Factor (Y):	1.001	1.001		201
Meter Orifice Setting (DH):	1.751	1.751	the second se	51
Nozzle Kit ID:	Glass 10	Glass	10 6	lers 10
Individual Nozzle ID:	1048	1048	109	
Pre Pitot Leak Check:	0.000 @ 4.0 "H2O	1.000 @	4.1 "H2O D.000	@ 3,8 "H2O
Post Pitot Leak Check:	0.000 @ 41 "H2O	0.000 e.		
Pre Nozzle Leak Check:	0.000 @ 18 "Hg	0.000 @	16 "Hg 0.00	@ 15 "Hg
Post Nozzle Leak Check:	0.000 @ 16 "Hg	0.000 @	17 "Hg 0.000	@ 16 "Hg
Barometric Pressure,"Hg:	25.299	ZS.29		.299
Static Pressure, "H <sub>2</sub> O:	0.7	0.7	0.	7
CO2 %:	6	6	0	
		V	0	

Comments:

147/		Rale Delen	mination F	ieid Data	Sheer	4/27/2	3
	1408			Number:	Å	Ill Point	-
PL						6:60	
						and the second se	
Then						ф	
CO2 % O2 % N2 %	<u>4.0</u> "Po % <u>0</u> 20.9	Downstream I ort TypeFta Wet I Dry E B <sub>ws</sub>	Disturbance, nge Pitot I Bulb Temp Bulb Temp	Diameters D <u>6969</u>	Pitot Coeff Leak Pre Post	<u>4.1</u> In <u>4.0</u> Ir	ches H <sub>2</sub> O nches H <sub>2</sub> O
Temp. °F	$\sqrt{\Delta P}$	Null Point Angle, Degrees	Port- Point #	ΔP	Temp. °F	$\sqrt{\Delta P}$	Null Point Angle, Degrees
73		2	21	0.22	74		2
		2	-2	0.24	74		2
			-5		74		2
		2	-4	0.22	74		22
		2	5	0.20	74		
		2	4	0.19	74		2
		2		0.15	14	1	2
74		Z	-8				2
74		2	-9		the second se		2
74			-10			-	2
74		-	-11	0.14			2
74		2	-12	0.12	72		2
2							
	Mars           Image: Color of the second se	$ft^2$ Port Size       4.0       " Port CO2 %       O         O2 %       20.9       N2 %       N2	MarkadThe mail $ft$ Upstream DisconstreamPort Size4.0" Port Type $CO_2$ % $O$ Wet $O_2$ % $2O$ .9Wet $O_2$ % $2O$ .9Dry E $N_2$ % $B_{WS}$ Meter No. $CMYL_{2}$ FlukeTemp. °F $\sqrt{\Delta P}$ Null Point Angle, Degrees $73$ Z $75$ Z $77$ Z $74$ $Z$ $74$ $Z$ $74$ $Z$ $74$ $Z$ $74$ $Z$ $74$ $Z$	System 3MarkedEnd TTestTestftUpstream Disturbance,	$M_{hmax}$ End Time: Test Tech: $ft$ Upstream Disturbance, Diameters Downstream Disturbance, Diameters Downstream Disturbance, Diameters Port Size $4.0$ " Port TypePtange Pitot ID $6949$ CO2 % $O$ Wet Bulb Temp Do 2 % $20.9$ Bws Meter No. CMUL Fluke #Temp. °F $\sqrt{\Delta P}$ Null Point Angle, DegreesPort- Point # $\Delta P$ 75 $\overline{z}$ $2.1$ 75 $\overline{z}$ $2.1$ 75 $\overline{z}$ $2.27$ 75 $\overline{z}$ $2.27$ 75 $\overline{z}$ $2.27$ 74 $\overline{z}$ $74$ 74 $\overline{z}$ $76$ 74 $\overline{z}$	System $M_{hrand}$ End Time: $T_{MM}$ Test Tech: $T_{MM}$ Test Tech: $T_{R}$ Upstream Disturbance, Diameters $2.0$ Downstream Disturbance, DiametersPort Size $4.0$ "Port TypeFlange" Pitot ID 6949 Pitot Coeff CO2 %Pitot Coeff Pre Pre N2 % $O_2$ % <td>NyresMireadMireadEnd Time:7:05MireadTest Tech:<math>IBB</math>TUpstream Disturbance, Diameters2.0Downstream Disturbance, Diameters2.0Port Size4:0"Port TypePort Size4:0"Port TypeDownstream Disturbance, Diameters2.0CO2 %OWet Bulb TempDownstream Disturbance, Diameters2.0N2 %DayWet Bulb TempN2 %BwsPort-Meter No. CMULFluke #Umbilical IDTemp. *F<math>\sqrt{\Delta P}</math>DegreesPoint 75Z2.1Z72Z75Z2.274Z7575Z2.776Z777727574274752747627477275742752.2760.20772742750.207674772742757474275747474757474747574747475747474757474747574747475<!--</td--></td>	NyresMireadMireadEnd Time:7:05MireadTest Tech: $IBB$ TUpstream Disturbance, Diameters2.0Downstream Disturbance, Diameters2.0Port Size4:0"Port TypePort Size4:0"Port TypeDownstream Disturbance, Diameters2.0CO2 %OWet Bulb TempDownstream Disturbance, Diameters2.0N2 %DayWet Bulb TempN2 %BwsPort-Meter No. CMULFluke #Umbilical IDTemp. *F $\sqrt{\Delta P}$ DegreesPoint 75Z2.1Z72Z75Z2.274Z7575Z2.776Z777727574274752747627477275742752.2760.20772742750.207674772742757474275747474757474747574747475747474757474747574747475 </td

Multiple Test Locations

	Project N Client:	umber:	7	1408 rcc		Date: Test Loc Test Met			123 m 5	Ope	Number: rator: e Number:	7		t Tech: 143	<u>r</u>
	Plant:		ling	n lity	-	l est mei	nou:			Fay	e Number.	-		01 /	-
		11	K <sup>1</sup> =										K-Calc	s (Optional)	
				1 1 1 1 1									K=	x	
Port- Point #	Time	(∆P)	K <sup>1</sup> x ∆P Orifice Setting (∆H)	Meter Volume (V <sub>m</sub> ) ft <sup>3</sup> , 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, ∆P	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V <sub>m</sub> ) ft <sup>3</sup> , per point	Theoretica Meter Volume, (V <sub>m</sub> ) ft <sup>3</sup> , total
1-1	7:10	0.22	3.68	46.839	72	46	46	7 1.	263	244	43	6 S			
-2	7:14	0.21	4.02	51.330	72	47	47	7	244	257	40				
-3	7:19	0.25	4.19	56.150	74	47	47	7	242	253	41	_	-		
-4	7:22	0.24	4.02	60.990	74	48	48	7	245	257	41				
-6	7:24	0.23	3.95	65.770	74	50	58	5	254	254	41				
-4	7:30	0.18	3.01	70.460	74	51	51	5	254	253	41				
-7	7:34	0.15	261	74.680	74	53	53	5,	254	254	43	-			
-8	7:38	0.11	1.84	18.470	74	54 55	54	4	252	254	44				
-9	7:42	0.12	2.01	81.730	74	55	55	4	254	254	44		-		
-10	7:46	0.13	2.13	85.130	75	56	56	4	284	254	44	1		-	
-4	7:50	6.11	1.84	38.740	75-	57	57	4	254	254	45		-		-
-12	7:54	0.10	1.67	92.060 95.165	76	59	59	3	254	254	46				
	7:59			95.165	1			10	100	200	10				
2-1	8:02	0.20	3.35	98.165	76	60	60	5.5	252	255	52 44				
-2	8:06	0.22	3,68	99.620	74	62	62	6	rsy				-		
-3	8:10	0.22	3.68	104.240	77	63	63	6	254	254	45	-	1000		
-4	8:14	0.22	3.68	108.990	76	65	65	6	254	285	45	1		-	
-9	3:13	0.22	3.68	113.730	76	66	66	5	253	284	45		-	2	
-6	3:13 8:22	0.19	3.01	118.410	77	67	67		284	254	46 45		-		
27	8:26	0.13	2.13	122.640	77 73	63	68	4	252	253			-		
-8	8:30	0.08	1.34	126.300	73	70	70	2	254	253	46		-		
-9	8:34	0.0%	1.51	129.222	73	70	70	222	254	253	46			-	
-10	8:38	0.09	1.51	132.260	78	72	72	2	253	523	47			-	
-11	8:42	0.07	1.17	135,330	78	72	72	Z	253	253	47		-		
-12	3:46	2.04	0.67	138,040	80	73	73	1	251	254	48				
	8:50	001		140.048	3			here a		1	1	1	-	-	-

+	THE THE CER WEIGH
PLANT:	ll l
UNIT NO: SYSI	lem 5
LOCATION: Car	son City
DATE: 4/27	23
TEST NO:	· · · · · · · · · · · · · · · · · · ·
METHOD:	
WEIGHED/WEASHDED D	. Thim

LV3 Scale ID Number

Scale Calibration Check Date: 4/27/23

Scale Calibration Check (see QS-6.05C for procedure) must be within ± 0.5g of certified mass 200 194.9 260 grams

500 grams 700 150 grams 6

FINAL WEIGHT INITIAL WEIGHT IMPINGER IMPINGER MLS / GRAMS Circle One: MLS / GRAMS GAIN CONTENTS 7020 710.1 **IMPINGER 1** DJ 742.8 2.0 D7 **IMPINGER 2** 661.5 61.2 IMPINGER 3 mat 821.6 825.7 Silica **IMPINGER 4** IMPINGER 5 IMPINGER 6 IMPINGER 7 IMPINGER 8

IMPINGERS

FINAL TOTAL

INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA

FINAL TOTAL

	Client:			108 .C	_	Date: Test Loc	ation:	-4/2 Syst	7/23 Lem 5		Number: rator:	-	Twn Tes	t Tech: RB	<u>.</u>
	Plant:		Care	in City	_	Test Me	thod:		5	Page	e Number:	-	1	of /	
		1	K1=		1								K-Calc	s (Optional)	
													K=	x	
Port- Point #	Time	( <b>Δ</b> P)	K <sup>1</sup> x ∆P Orifice Setting (∆H)	Meter Volume (V <sub>m</sub> ) ft <sup>3</sup> , Actual	Stack Temp, °F	Meter Temp Inlet, °F		Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	Square Root, ∆P	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V <sub>m</sub> ) ft <sup>3</sup> , per point	Theoretical Meter Volume, (V <sub>m</sub> ) ft <sup>3</sup> , total
1-1	9:12	0.20	3.35	40.109	79	77	77	65	246	263	51				
-2	4:16	0.13	3.01	44.710	80	77	77	6.5	253	257	48				
	9:20	0.22	3.68	48.980	80	79	78	7	252	253	50				
4	9.24	0.22	3.68	57. 450	30	78	78	72	252	252	SI			1	
-5	9:29	0.05	0.34	52.670	74	80	80		252	261	So				
4	4:52	0.05	0.84	61.040	74	80	80	2	252	252	50				
-7	9:36	0.24	4.02	63.310	81	80	80	7	251	283	50		Provent la		
-8	9:40	0.23	3.85	68.350	81	81	31	7	TSI	251	50				
A	9:44	0.23	3.95	73.240	80	31	8/	7	251	252	51				
-60	9:48	0.22	3.68	73. 240	80	81	81	2	251	252	52			11	
-11	9:52	0.20	3.35	83.120	30	32	82	2	251	252 251	52				
-12	9:56	0.20	3.35	37.710	90	28	82	7	282	251	52				
	10:00			92.335		1.000	1.0.00								-
2-1	10:00	55.0	3.68	92.335	81	83	83	8	281	251	55				
-2	10:14	0.23	3.85	97.200	81	83	83	5000	250	252	48 51	-			
-3	10:19	0.25	4.19	102,150	31	83		8		251	51		-	1	
4	10:22	0.24	4.02	107,320	81	83	83	8	251	251	Si				
5	10:26	0.24	4.02	112.400	81	84	84	8	251	251	52				
-G	10:30	0.23	3.95	117.440	91	34	84	8	251	251	52				
-7	10:34	0.22	3.68	122.420	31	35	05	88	253	251	52				1.5
-8	10:50	6.20	3.35	127.270	91 81	35	23	7.5	251	251	SZ				
-4	10:42	0.19	3.18	131.930	82	95	85	3	252	251	52	1			
~10	10:46	0.14	2.34	136.420	82	86	86		251	252	52		1		
-11	10;50	0.13	2.18	140.370	83	86	30	5	251	252	52	1	10		
-12	10:54	0.12	2.01	144.120	34	86	96	5	252	252	52				
	10:53		12.000	147.744											

PLANT:	PCC	1	Scale ID Number	113
UNIT NO:	Jysten	5	Scale Calibration (	Check Date: 4/2 7/23
LOCATION:_	Carron C	ity	Scale Calibration (	Check (see OS-6 05C for pro
DATE:	127/23		must be v 250 grams/	
TEST NO:	2		500 grams9	
METHOD:	5		700 750 grams 69	
WEIGHED/ME	ASURED BY:	WM		
	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	1
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	IMPINGER CONTENTS
IMPINGER 1	716.4	710.1		DZ
IMPINGER 2	743.1	742.8		DI
IMPINGER 3	662.0	661.5		Empty
IMPINGER 4	836.3	875.5		Silica
IMPINGER 5		T		
IMPINGER 6				
IMPINGER 7				
IMPINGER 8		1	<u>Г</u>	

IMPINGERS

FINAL TOTAL

INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA

150

FINAL TOTAL

	Project Client:	Number:		23/1/03	_	Date:		4/21	123	Tes	t Number:	1.1	:	3	
				202	-	Test Lo	cation:	System	5	Ope	erator:		them Te	st Tech: RA	3
	Plant:		_la	rson City		Test Me	ethod:		5	Pag	e Number:		1	of /	
			K <sup>1</sup> =		122								K-Calc	s (Optional)	
			K1 X AP	1									K=	x	
Port- Point #	Time	(ΔP)	Orifice Setting (∆H)	Meter Volume (V <sub>m</sub> ) ft <sup>3</sup> , Actual	Stack Temp, °F	Meter Temp Inlet, °F		Pump Vacuum, "Hg	Probe Temp. °F		Impinger Outlet Well Temp. °F	Square Root, ∆P	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (Vm) ft <sup>3</sup> , per point	Theoretic Meter Volume, (Vm) ft <sup>3</sup> ,
-2	11:20	0.20	3.35	48.104	85	88	92	6	254	254	60		I COU WITT.	point	total
-5	11:24	0.20	3.35	52.750	82	88	38	6	250	252					
4	11:57	0.19	3.13	57.40	815	99	88	3	251	261	54 56				
-5	11:36	0.10	1.07	61.920	80	33	33	3	ZSI	253	84				
6		0.10	1.67	105.220	86	89	80	3	247	252	36				
-7	11:40	0.08	1.34	63.483	85	89	89	3	250	252	57		1		
-8	11:49	0.12	2.01	71.450	85	89	87	4.	251	251	57				
-9	1:52	0.11	1.84	75.080 78.550	84	90	90	4	251	252	57				
-10	11:56	0.10	1.67	18.050	34 33	90 9(	90	30005	251 251	250 252	57				
-11	12:00		1.07	81.930	80	91	91	3	252	252	- 57		1		
-12	12:04	0.11	1.34	35.210	84	41	91	3.5	252	251	58		1		
1-		0.11	1.84	88.690 92.179	83 83	92	92	3.5	251	251	58		1	1	
1	12:03	401	11.0	92.174		93									
-2	12:22	0.25	4.19	92.179	87	and the second sec	93	2	250	ZSI	62				1
-7	12:26	0.24	4.02	97.450	36	43	93	2	251	251 250	60		-		
-4			4.02	101.570	86	45	43	7	252	250	60				
0	12:30	0.23	3.85	107. 730	36	93	93	65	251	251	60	1.10	9		
-5	12:34	0.24	4.02	112.760	86	93	95	45	250	251	60			1	
	12:38	0.23	3.95	117.920	86	41	94	6.5	252	251	let				
	12:42	0.22	3.68	122.950	28	94	94	6	250	251 251	60				
-8	12:46	0.20	3.35	127.990	86	94	94	55	251	251	61				
-9	12:50		3.18	132.500	86	94	44	S	252	252	61				
70	12:54	0.16	2.68	137.220	36	94	44	4	251	252	62				
AL	12:58	0.15	2.51	141. 390	86	95	95	4	252	251	62				
14	13:02 13:06	0.19	2.34	145.430	86	45	45	3	251	251 251	62				

UNIT NO:	Systen	5	Scale ID Number	Check Date: 1/27/2
LOCATION:	Lasson C	ity	Scale Calibration (	Check (see QS-6.05C for
DATE:	4/2/10	:5	250 grams //	within ± 0.5g of certified
TEST NO:	3		500 grams	79.9
METHOD:	5		700 750 grams	NA a
WEIGHED/ME	EASURED BY:	INM	roų graina <u>4</u>	4-0
	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS
IMPINGER 1	722.2	716.4		DI
MPINGER 2	743.4	743.1	1	DI
MPINGER 3	662,6	662.0		Emply
MPINGER 4	896.1	386.3		Silian
In HOLN 4				
MPINGER 5				
MPINGER 5				

SILICA

28

FINAL TOTAL

**Isokinetic Sampling Cover Sheet** 

Client	t: PCC Structurels		Dite	ot Tube Cp:	0.4
Facility	" Caroon City Fall's	L			0.010
Test Location	Woor Ling Feel 1	rg		ngth (Feet):	C .
Project #	Current F	A		er Material:	Quits
Test Method(s)	pr			nple Plane:	Hrztł. or Vert.
Test Engineer				Length ("):	0
Test Technician	1042			ameter ("):	2
Upstream Diameters:	174			Port Type:	Holein dest
	5.0		Du	uct Shape:	Rect
Downstream Diameters:			Diame	eter (Feet):	
# of Ports Sampled:	0		Len	gth (Feet):	1.416
# of Points per Port:	5		Wie	dth (Feet):	2.083
Source Condition:	1-310001		Duct Area (	(Sq. Feet):	2,950
Diluent Model/SN:	IN M			per Point:	4
Mid Gas ID/concentration:	NA DEM 1%CO2	2 %02	Total Travers		25
High Gas ID/concentration:			Test Leng	gth (Min.):	100
Moisture Balance ID:				rain Type:	Antering
	<u>R# /</u>	R#			R# 3
Meter ID:	Cm 45	CM 40		Cn	45
Pitot ID:	3002	30.2		39	
Filter ID:	38372 8386	8375		8372	
Filter Pre-Weight (g):	127 0.44483	0.44624		0.4405	7
Nozzle Diameter ("):	0.345	0.345		0.34	
Meter Cal Factor (Y):	0.999	0.999		1.000	
Meter Orifice Setting (ΔH):	1.687	1.687		0.99	
Nozzle Kit ID:	Quitz #6	Quite #5		Queste	
Individual Nozzle ID:	#108	*198		Cudie	
	100	- 19X		FIOK	
			5 "H2O	#105	The second second
Pre Pitot Leak Check:		O @		0,00	@ 5′ "H₂O
Pre Pitot Leak Check:	0.00 @ 4 "H2O 0.00 @ 5 "H2O	0.00 @	5 "H₂O	0,00	@ <u>5</u> ′″H₂O @ "H₂O
Pre Pitot Leak Check: Post Pitot Leak Check: Pre Nozzle Leak Check:	0.00 @ 4 "H2O 0.00 @ 5 "H2O 0.000 @ 12 "Hg	• 0 0	б "H <sub>2</sub> O /З "Hg	0.00	@ 5´ "H₂O @ "H₂O @ 12 "Hg
Pre Pitot Leak Check: Post Pitot Leak Check: Pre Nozzle Leak Check: Post Nozzle Leak Check:	0.00 @ 4 "H2O 0.00 @ 5 "H2O 9.000 @ 12 "Hg 0.909 @ 13 "Hg	•	5     "H2 O       13     "Hg       12     "Hg	0.00	@ 5∕ "H₂O @ "H₂O @ 12 "Hg @ "Hg
Pre Pitot Leak Check: Post Pitot Leak Check: Pre Nozzle Leak Check: Post Nozzle Leak Check:	0.00 @ 4 "H2O 0.00 @ 5 "H2O 0.000 @ 12 "Hg 0.000 @ 13 "Hg 25.299	0.00 0.99 0.990 0.000 25.29	5     "H2 O       13     "Hg       12     "Hg	0.00 0.000 25.2	@ 5′ "H2O @ "H2O @ 12 "Hg @ "Hg 255
Pre Pitot Leak Check: Post Pitot Leak Check: Pre Nozzle Leak Check: Post Nozzle Leak Check: Barometric Pressure,"Hg:	0.00 @ 4 "H2O 0.00 @ 5 "H2O 9.000 @ 12 "Hg 0.909 @ 13 "Hg	0.00 0.99 0.990 0.000 25.29	5     "H2 O       13     "Hg       12     "Hg	0.00	@ 5′ "H2O @ "H2O @ 12 "Hg @ "Hg 255

Comments:

	ber:	M2314	Intric Fio	w Rate Det	erminatior Da				
Client:		The second se						127/23	
Test Locatio	<b>n</b> .	100 37	ruturals			st Number:			ull Point
	0.00	Systen	7		Sta	rt Time:	5:5	55	
Source Cond		Normal			End	d Time:	6:1	0	
Test Enginee	ər:	Ans			Tes	st Tech:	And the second se	DS	
Eliza Anna	meter 1.6			Upstream D	isturbance, I	Diameters	3.8		
Port Leng	gth 0	" Port Size	3 "F	Downstream	Disturbance	e, Diameter	S 2.5	ficient (C.)	840
				We	Bulb Temp		Lea	k Checks	Passed@
Static .	H2O	O2 9 N2 9	0	_ Dry	Bulb Temp Bulb Temp		Pre	<u>5</u> Ir	iches H <sub>2</sub> O
Ps	"Ha		er No. <u>CA 9</u>	Bws Full	e # CMS		Pos	st <u> </u>	nches H <sub>2</sub> O
		T			e# <u>CM95</u>	-	Um	bilical ID	-
Port- Point #	ΔP	Temp. °F	$\sqrt{\Delta P}$	Null Point Angle, Degrees	Port- Point #	AP	Temp. °F	Null Point Aus	Null Point 2Angle, Degrees
A-1	0.13	65		0	D - 1				Preglees
-2	0.14	65		1	-2	0.15	65	0	
-7	0.15	65		2		0.15	65	1	
-4	0.13	65	-	2	-3	0.16	65	2	
.5	0.13	65		1	-5	0.11	65	0	
	10.1				-0	0.14	65	2	-
8-1	0.14	65		1	8 -1	0.13	15	1	
-2	0.15	65		1	-2	0.14		2	
-2	0.15	65		2	-3	0.15	65	-	-
-4	0.14	65		0	-4	0.14	66	1	
-5	0.14	65		2	-5	0.13	65	2	
								L	
C -1	9.14	65		2			1		
5-	0.16	65		>			-		
-3	0.16	65		1					
-4	0.14	65		0					*
-5	0.13	6.0	-	0					
	-		-						
Average									

	Client	t Number:	M231			Date:		04/21		Tes	t Number:		Run			
			ree s	structurels		Test Lo	cation:	Systen	7	Ope	rator:	Ans Test Tech: Roos				
	Plant:		Carson	Structurels City Plant		Test Me	ethod:	System 5		Pag	e Number:	-	1	of 1	<u>v-</u>	
			K1=	_						1			K-Cale	s (Optional)		
			100									1	K=	(optional)		
Port- Point #		(AP)	K <sup>1</sup> x ΔP Orifice Setting (ΔH)	Meter Volume (V <sub>m</sub> ) ft <sup>3</sup> , 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, ∆P	Meter Rate, Cubic Feet/ Min.	X Theoretical Meter Volume, (Vm) ft <sup>3</sup> , per	Meter Volume, (V <sub>m</sub> ) ft <sup>3</sup> ,	
1.1	0620	0.14	2.03	86.088	65	46	46	3	250	250	59		reeu wini.	point	total	
-2	0624	0.14	2.03	89.500	65	46	46	3	249	251	54	1	-			
-3	0628	0.15	2.17	92.900	65	47	47	)	248	251	53					
-4	0632	0.14	2.03	96.420	65	47	47	3	249	250	53		-			
-5	0636	0.13	1.88	99.825	65	48	48	3	250	251	53					
	0640	-	-	103.111	-		-	1		-						
.1	0642	0.14	2.03	103./11	65	48	48	2	251	251	57					
-2	0646	0.15	2.17	106.525	66	49	49	3	249	249	54					
-2	0650	0.15	2.17	110.050	66	50	50	3	250	249	54					
-4	0654	0.15	2.17	113.600	66	50	50	3	250	263						
-0	0658	9.14	2.0 3		66	50	50	3	260	249	54 54					
	0702		-	120.574	-	-	-	-	-	-	-					
	0703	0.44	2.03	120.574	67	51	51	3	248	247	58					
	0707	0,15	2.17	124.150	47	51	51	3	249	252	54					
-3	0711	0.16	2.32	127.550	67	52	52	3	250	249	53		1			
-4	070	0.15	2.17	131.229	67	52	52	3	245	250	53					
-5	0719	0.14	2.03	134.775	67	52	52	3	251	251			1	1		
-	0723	-		138.202	-	-	-	-	_	-	53					
	6724	0.14	2.03	138.202	67	53	53	3	248	250	57					
	8540	0.15	2.17	141.650	68	53	53	3	250	249	53			-		
	0732	0.15	2.17	145.200	67	53	53	3	250	250	54					
-4	0736	0.14	2.03	148.750	67	54	54	3	251	249	53	-	-			
	2740	9.14	2.93	152.200	65	54	54 54	3	252	251	53					
-1	0744	-		199.653	-	-	-		-		-					
	0745	0.13	1.85	155.653	48	54	57	3	251	250	58					
-2	2749	0.14	1.03	158.975	65	54	54	3	249	251	54					
-3	0753	0.15	2.17	162.420	69	55	55	3	250	248	53					
4	0757	0.13	1.88	165.975	49	55	55	3	248	251	53			-		
-5	0801	0.13	1.88	169.300	70	55	55	3	251	217	54					

Multiple Test Locations

PLANT:	C Structurels	· Cerson Why	Scale ID Number	104
UNIT NO:	1231408		Scale Calibration	Check Date: 4/22/23
LOCATION:			must be	Check (see QS-6.05C for proceed within ± 0.5g of certified mass
TEST NO:			250 grams _ 200.	
METHOD: //	ASURED BY: AM	5	700 grams 700.	<u> </u>
	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS/GRAMS	GAIN	CONTENTS
IMPINGER 1	728.9	758.2		DI
IMPINGER 2	811.1	800.4		DT
IMPINGER 3	676.8	625.9		Engly .
IMPINGER 4	881.3	876.8		Silica
MPINGER 5				
IMPINGER 6				
IMPINGER 7				
IMPINGER 8		1		1

IMPINGERS

FINAL TOTAL

INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA

FINAL TOTAL

	Client:	Number:	M23140			Date: Test Loc	ation.	04/27/ System	23		Number: rator:	-	Run 2 fus Tes	t Tech: Rop.	
								Just	Ŧ			1 of 1			<u>,</u>
	Plant:		Cusan (	.6	-	Test Me	thod:	MS	-	Pag	e Number:	-	1	or 1	
		-	K1=			1.000					1			s (Optional)	
													K=	x	
Port- Point #	Time	( <b>Δ</b> P)	K <sup>1</sup> x ∆P Orifice Setting (∆H)	Meter Volume (Vm) ft <sup>3</sup> , Actual	Stack Temp, °F	Meter Temp Inlet, °F		Pump Vacuum, "Hg	Probe Temp. °F			Square Root, ∆P	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (V <sub>m</sub> ) ft <sup>3</sup> , per point	Theoretica Meter Volume, (V <sub>m</sub> ) ft <sup>3</sup> , total
1-1	0828	0.13	1.88	74.394	72	56	56	3	242	245	63				
-2	0832	0.14	2.03	77.225	72	56	56	3	251	253	49				
-3	0836	0.15	2.17	81.150	73	57	57	3	249	249	52				
-1	0840	0.14	2.03	84.725	73	57	57	3	249	250	52				
-5	0844	0.13	1.88	88.175	73	58	58	3	248	250	53			1	
	0848	-	-	11.499	-	1	-	-	-	-	-		1		
2-1	0849	0.14	2.03	91.499	24	58	58	3	251	250	56				
-2	0853	0.15	2.17	94.950	74	59	59	3	250	248	54				
-3	0857	0.15	2.47	98.525	24	59	59	2	250	250	53				
-4	0901	0.14	2.03	102.100	75	60	60	3	257	251	53		0		
-0	0905	0.14	2.03	105.575	25	60	60	3	249	251	53				
-	0909	-	-	104.033	-	-	-		-		-				1
3-1	0910	0.14	2.03	109.033	75	60	60	3	250	251	55				
.2	0914	0.15	2.17	112.500	76	61	61	3	253	251	53	1			1
-3	0918	0.16	2.32	116.075	76	61	61	3	250	250	54			2	1
-4	0922	0.15	2.17	119.775	22	62	62	3	248	250	55		b		2
-5	0926	0.14	2,03	123.375	77	63	63	3	252	250	54				
-	0930	-	-	126.848	-	-	-	-	-	-	-	1.1		1	11
1-1	0931	0.14	2.03	126.848	52	63	63	1	250	250	57	1			
-2	0935	0.14	2.03	130. 325	77	64	64	3	250	251	54	1			
-3	0939	0.15	2.17	133.600	27	64	64	3	251	24/8	54				
-4	0943	0.15	2.17	137.400	22	65	65	3	250	249	54			1	1
5	0947	0.14	2.03	141.020	78	65	65	3	250	251	55			1	
-	0951	-	-	144.505	-	-	-	-	-	-	-				
5-1	0952	0.13	1.88	144.505	78	65	65	3	252	250	58			1	
-2	0956	0.14	2.03	147. 675	28	66	66	3	251	248	54	-	1	1	
->	4000	10.14	2.03	151.350	78	66	66	3	248	. 249	55				
-4	1004	0.14	2.93	154.850	178	66	66	3	249	249	55				
-5	1008	0.14	2.03	158.325	28	66	66	3	252	250	55	-			
- I	S <del>005 M6</del> ro <b>ject N</b> o. N lultiple Test	231408	eld D <del>ata S</del> hee		1-	-	Pa	Rev. 2.2 age 159 of 29		-	-	-		1/1/2 ©Mostard	

LOCATION: <u>/</u> DATE: <u>04//</u> TEST NO: METHOD:	Run 2		Scale Calibration	<u> </u>
WEIGHED/ME	ASURED BY: AM		1	
Circle One:	MLS / GRAMS	INITIAL WEIGHT MLS / GRAMS	IMPINGER	IMPINGER
			GAIN	CONTENTS
IMPINGER 1	799.3	778.9		DI
IMPINGER 2	820.8	811.1		DI
IMPINGER 3	627.4	626.8		Engle
MPINGER 4	886.2	881.3		Silien
MPINGER 5				
MPINGER 6		1		
1				
MPINGER 7				A

FINAL TOTAL

INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA

FINAL TOTAL

Perf	Client: Plant:		<u>PCC</u> S <u>Carsos</u> K <sup>1</sup> =	Structurals City	_	Test Lo Test Me		System	7	One	rator:		MS Te	st Tech: Rops	
Pert	Plant:		1	City		Test Me				ope	alui.	1	1000 10	- 1001. DOD!	6
Dent	1		K1 =			- 19 C.	ethod:	System 15		Pag	e Number:	-		of 1	
Dert		8.		-							1,120		K-Calo	s (Optional)	
Dent			K <sup>1</sup> x ΔP									11 - 1	K=	x	
Port- Point #	Time	(AP)	Orifice Setting (∆H)	Meter Volume (V <sub>m</sub> ) ft <sup>3</sup> , Actual	Stack Temp, °F	Meter Temp Inlet, °F		Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	Square Root, ∆P	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (Vm) ft <sup>3</sup> , per point	Meter Volume,
	1020	0.13	1.88	63.847	81	67	67	3	253	252	61				Lotai
	1034	0.14	2.93	67.210	82	68	68	3	250	251	53				
	1038	0.15	2.17	70.700	82	68	68	3	249	250	54 54	1	1		
	1042	0.14	2.03	24.315	83	69	69	3	249	250					
		0.14	2.03	27.810	83	69	69	3	251	250	54				
	1050 1051	-	-	<i>N.</i> 303	-	-	11	-	-	-					
		0.14	2.03	81.303	83	70	70	3	251	245	58	· · · · · · · · · · · · · · · · · · ·			1
	1055	Q.15	2.17	84.810	84	70	20	3	249	250	54				
	1059	0.15	2.17	88.420	84	15	71	3	250	250	54				
	1103	0.14	2.03	42.055	84	71	71	3	252	250	54		1.000		
	1107	0.14	2.03	15.560	84	71	71	3	251	250	54				
	1111		-	99.062	-	-	-		-		-		-		
	112	0.14	2.03	99.062	84	72	25	3	249	250	57		1		
	116	0.15	2.17	102.575	35	73	73	3	250	249	54				
	120	0.15	2.17	106.220	35	73	73	3	248	249	54			1	
	124	0.15	2.17	109.850	85	74	74	3	250	250	54			1	
	128	0.15	2.17	113.495	86	74	74	3	252	251	54				
	132		-	117.136	-	-	-	_	-	-					-
	123	0.14	2.03	117.136	86	75	75	3	251	248	58				
	127	0.15	2.17	129.665	86	76	76	2	250	248	54				
	141	0.15	2.17	124.310	87	22	77	3	250	249	55				
	45	0.14	2.03	127.475	87	28	78	3	2.52		55				
	145	0.14	2.02	131.505	87	78	28	7	251	250	50				
- 1	153	-	-	135.056	-	-	-								
-1 11	54	9.13	1.88	135.056	25	79	79	3	248	250	54				
	158	0.14	2.03	138.475	88	79	29	3	250	251	55				
	202	0.14	2.93	142.020	88	79	71	3	251	249	56				
The state of the s	206	0.14		145.570	88	30	80	2	252		56 1				
.6 11	210	0.14	2.02	149.110	88	80 1	80	3			57				

DS-005 M5 Isokinetic Field Data Sheet Project No. M231408 Multiple Test Locations

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	C Structurels	- M231408	Scale ID Number	LV 4 Check Date: 04/27/23
DATE: 04	Run 2		Scale Calibration must be 250 grams 200 500 grams 500 700 grams 700	
	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS/GRAMS	GAIN	CONTENTS
IMPINGER 1	819.2	799.3		DI
IMPINGER 2	830.9	820.8		DI
IMPINGER 3	628.0	627.4	ŀ	Emphy
IMPINGER 4	890.1	886.2		Silice
IMPINGER 5				
IMPINGER 6				
MPINGER 7				
IMPINGER 8				

IMPINGERS

FINAL TOTAL

INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA

FINAL TOTAL

# **Isokinetic Sampling Cover Sheet**

Client	: PCC Structurels		Pite	ot Tube Cp:	0.840
Facility	Corses City F. 1	h	and the second second	ngth (Feet):	
Test Location:	: System 9	5		er Material:	Questo
Project #:	1231408			nple Plane:	
Test Method(s):				Length ("):	ArztPor Vert.
Test Engineer:	Ans			ameter ("):	3
Test Technician:	RODS			Port Type:	Hole in Duct
Upstream Diameters:	5			uct Shape:	Circ. or
Downstream Diameters:	9		Diame	eter (Feet):	Rect.
# of Ports Sampled:	2			gth (Feet):	1
# of Points per Port:	6			dth (Feet):	NA
Source Condition:	Normal		Duct Area		NA
<b>Diluent Model/SN:</b>	STENIA L			per Point:	0.785
Mid Gas ID/concentration:	NAA 1 100 1% CO.	2 1/00	Total Traver		8
High Gas ID/concentration:	N/A				12
Moisture Balance ID:	LV4 /%CO:	2 %02		gth (Min.):	96
	<u>R# (</u>	R#			Anderse, Que
Meter ID:	CN 13	CHIZ		1	<u>R#3</u>
Pitot ID:	3002	3002		300	u13
Filter ID:	6769				2
Filter Pre-Weight (g):	0.46865	6761		6773	
Nozzle Diameter ("):	2345 0.486	0.46629	- 141	0.46592	/ 10.
Meter Cal Factor (Y):	0.992 1	2-345	0.486	2.34	
Meter Orifice Setting (ΔH):	1. 520 Aus 4	0.992		0.99	
Nozzle Kit ID:	Queste #5 /			1.52	/ 4/
Individual Nozzle ID:	*108 #106	Querte #3	+ 106	Questa	-0 /
	0.90 @ 4 "H2O	*158		*108	*106
Post Ditet Leak Obert	Q. 49 @ 5 "H2O	0.00 -	5 "H2O		@ 4 "H <sub>2</sub> O
-	0.090 @ 14 "Hg	0.00 @			@ 4 "H <sub>2</sub> O
Dest Manual La Letter	- 1 5		ן א "Hg וא "Hg	0.000	@ 13 "Hg @ / 3 "Hg
	• @ 11 "Hg	\$.900 Q			
Barometric Pressure,"Hg:		e.900 @	קר כי		
	• @ 14 "Hg 25.34 0	25.34	קי כי ny	25.	34
Barometric Pressure,"Hg:	25.34		יש <i>כ</i> ז קע דע		34

Project Num Client:		M231		/	Da			126/23	
est Locatio			Structure		Tes	st Number	Bo	n The	Two/ Nall 1
		0,	/		Sta	rt Time:		625	
ource Con		Norma	/		End	Time:		.40	
est Engine	er:	AB			Tes	t Tech:	Ro		
Flue Are Port Len Pbar 25.3	a <u>●, 735</u> gth <u>0</u> 37 "Hg 2 "H <sub>2</sub> O _ "Hg _ "Hg	_ ft <sup>2</sup> _" Port Size	7 "F % <u>Astat</u> 6 <u>Astat</u> 6 <u>Astat</u> 6 <u>Astat</u>	Upstream D Downstream Port TypeF We Dry Bws Flue	ange_ Pitot	, Diameter	rs <u>9</u> Pitot Coet	ficient (C <sub>P</sub> ) k Checks <u>4</u> 1 it <u>9</u> Dilical ID	) <u>.840</u> Passed@ nches H₂O Inches H₂O
Port- Point #	ΔP	Temp. °F	$\sqrt{\Delta P}$	Null Point Angle, Degrees	Port- Point #	ΔP	Temp. °F		Null Point Angle, Degrees
A-1 -2	2.04	76		0	B - 1	0.04	76		1
->	0.05	76		2	- 2	0.05	76		1
-4	0.0L	76		0	- 3	0.06	76		0
-5	2.05	76		0	-4	0.95	76		2
-6	0.04	26		0	-5	0.05	76		1
			10						
verage	-								
( 85.49 × Vs :	_ Md × Cp × F	× √I Flue Area × 6	) + (18 ×) ) Ms × 0 =	(Md) Bws) = _ Psa scfm x 60 = _	√∆ P		ft/sec (\	/s )	
1/647 ~	acfm	× FS =							

		ct Number:	M271	408		Date:		04/26 System 5	123	Tes	t Number:		Bun		
	Client		PCC S	tructurals City Facil		Test Lo	cation:	Sector	9		erator:				-
	Plant		Cerson	City Fail	1.1.	Test Me	ethod:	Jun			je Number:			est Tech: Bo	<u>P</u> }
	1	1		J	5					Fay	je Number:		1	of 1	_
			K1=	-							1		K-Cal	cs (Optional)	-
			K <sup>1</sup> x $\Delta P$										K=	x	
Port-			Orifice	Meter Volume	Stack	Meter	Meter Temp	Pump			Impinger Outlet		Meter	Theoretical Meter	Theoretic: Meter
Point #	Time	(AP)	Setting (∆H)	(V <sub>m</sub> ) ft <sup>3</sup> , Actual	Temp, °F	Temp Inlet, °F	Outlet,	Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Well	Square Root,	Cubic	Volume, (V <sub>m</sub> ) ft <sup>3</sup> , per	Volume, (V <sub>m</sub> ) ft <sup>3</sup> ,
1-1	0645	0.04	2.06	27.216	87	66	58	3	249	248		ΔP	Feet/ Min	point	total
-1	0649	0.04	2.06	30.840	87	66	58	3	250	248	63				
-2	0653	0.65	2.57	34.550	87	66	58	3	251		57		-		
-2	9657	0.05	2.57	28.650	87	66	58	3	251	251	54				
-7	0701	0.06	3.08	42.750	87	66	58	3	250	250	52 52	-	-		
-3	0706	0.96	3.08	47.250	87	66	58	3	248		51				
-4	0709	9.96	3.08	51. 735	88	67	59	3	249	251		-			
-4	0713	9.06	3.08	56. 225	38	68	60	3	248	250	51 51	-	-		
-8	0717	0.05	2.57	69.730	67	69	61	3	249	252	52	-			
6	0721	0.99	2.57	61.850	87	20	63	3	250	251	52			1	
-6	0726	0.04	2.06	68.990	86	21	64	3	251				-		
-6	0729	0.04	2.06	22.200	85	72	65	3	251	252 251	53		-		
-	0733	-	-	76, 411	-	-	-	-	-	-	53	-			4.
-1	0737	0.04	2.96	76.411	86	71	66	3	242	250	58				
-1	0741	0.94	2.06	80.125	86	71	66	7	251	252	54		-		
-2	0745	0.05	2.57	83.850	88	31	66	3	250	251	53		-		_
-2	0749	0.05	2.57	87.995	91	71	66	2	248	250			-		
-3	0757	0.06	3.08	92.125	91	71	66	3	249		54	1			
-3	0757	0.06		96.660	92	71	66	3		250	54				
-4	0801	0.05		101.185	93	71	67	3	250	250	55				
-4	0805	0.05	440	105.315	93	21	67		252	250	54				
-5	0809	0.09		109.450	92			3	250 248	252	54				
-5	0813	0.04		113.150	92		67 68	3		250	54				
-6	0817	0.04		116.850	9/		68	3	249	250	53				
-6	0821	0.04		120.560	91		68	3	251	249	53	-			
-	0829	-		124.271	-	-	00		250	250	53	1			10 C
					-	-	-	-	-	-	-				

.

LOCATION: DATE: 4 TEST NO: METHOD:	/		Scale Calibration	0.0
	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMDINGED
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	IMPINGER CONTENTS
IMPINGER 1	784.5	761.1		Empty
IMPINGER 2	813.6	799.1		Empty
IMPINGER 3	628.9	628.3		DE
IMPINGER 4	888.1	882.4		Silich
IMPINGER 5		1.		
MPINGER 6				
MPINGER 7				
MPINGER 8				
IMPINGERS	FINAL TOTAL	INITIAL TOTAL TO	TAL IMPINGER GAIN	

SILICA

FINAL TOTAL

		ct Number:	M231	408 Structurals City Facil		Date:		04/26		Tes	t Number:		Runi	2	
	Client		PCC S	Structurals		Test Lo	cation:	System	9	Ope	erator:	7		st Tech: Roo	5
	Plant:		Carson	City Facil	lity	Test Me	thod:	System 5	6.52	Pag	e Number:			of /	_
			K <sup>1</sup> =					1				1.000	K-Calo	s (Optional)	
			K <sup>1</sup> x ∆P										K=	x	
Port- Point #		(ΔP)	Orifice Setting (∆H)	Meter Volume (V <sub>m</sub> ) ft <sup>3</sup> , Actual	Stack Temp, °F	Meter Temp Inlet, °F		Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	Square Root, ∆P	Meter Rate, Cubic Feet/ Min.	Theoretical Meter Volume, (Vm) ft <sup>3</sup> , per point	Theoretic Meter Volume, (V <sub>m</sub> ) ft <sup>3</sup> , total
1-1	0840	0.04	2.06	25.457	90	68	68	3	247	246	54		T CCU MITT.	point	total
-1	0844	0.04	2.06	29.155	91	69	68	3	245	248	50	-			
- 2	0848	0.05	2.57	32.865	92	70	68	3	250	249	48		1		
-2	0852	0.05	2.57	36.995	43	72	69	3	251	251	46	1			
-3	0856	0.06	3.08	41. 145	94	74	69	3	252	250	45			1.	
->	9900	9.96	2,98	45.675	94	75	70	3	261	250	46				
-4	9904	0.96	3.98	50.238	53	76	20	3	200	250	47				-
-4	0908	0,96	3.08	54.790	93	72	71	3	250	219	48	-			
-5	0912	9.05	2.57	A.360	93	72	21	3	251	251	48		1		
	0916	8.05	2.57	63.530	53	79	25	3	252	248	49	1			
-6	0920	0.04		67.720	94	80	74	3	250	249	50		2		
-6	0924	0.04	2.06	71,470	94	81	75	3	253	251	51			-	
-	8500	-		75.212	-	-	-	-	~		-		1		
?-1	0932	0.04	2.06	25.212	94	81	75	>	247	249	54				
-1	0436	0.04	2.06	78.975	94	81	76	2	249	250	51				
-2	0940	0.05	2.62	82.725	94	81	77	3	250	249	50				
-2	0994	0.05	2.57	86.925	94	81	72	С	252	249	50			-	
-3	ogilo	2.95	2.57	91.145	94	82	78	3	251	248	50				
-3	0952	0.02		95.350	94	82	78	3	250	252	51				Same.
-4	0956	9.95		49.575	95	84	79	2	247	251	51	-	-		
-4	4000	9.05		103.775	95	85	29	2	249	250	51				
-6	1004	0.05		108. 010	95	85	80	3	248	251	52		-		
-5	1098	0.05	2.57	111.950	94	86	81	3	250	250	52				_
-6	In	0.04		116.200	94	86	81	7	250	1.4					
-6	1016	0.04		120.000	94	86	81	3	250	250	52				
/	1020	-		123.789	-	-	-	-		esi	52				

UNIT NO: <u>M2&gt;1408</u> Scale Calibration Check Date: <u>4/26/23</u> LOCATION: <u>System 9</u> Scale Calibration Check (see QS-6.05C for must be within ± 0.5g of certified 250 grams 200.0         DATE: <u>4/26/23</u> 250 grams 200.0         TEST NO: <u>B2</u> 500 grams <u>500.0</u> METHOD: <u>5</u> 250 grams <u>200.1</u> WEIGHED/MEASURED BY: <u>AA-5</u> IMPINGER I IMPINGER	PLANT: PCC	Structurels		Scale ID Number	124
DATE:       4/26/23       must be within ± 0.5g of certified         DATE:       4/26/23       250 grams       250.0         TEST NO:       B2       500 grams       500.0         METHOD:       5       250 grams       200.0         WEIGHED/MEASURED BY:       An.5	UNIT NO: MZ	231408		Scale Calibration C	check Date: 4/26/23
	DATE: 4/20 TEST NO: 1 METHOD: 5	6 /23 32	5	must be w 250 grams 500 grams	vithin ± 0.5g of certified mass
		FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One: MLS / GRAMS MLS / GRAMS GAIN CONTENTS	Circle One:	MLS / GRAMS	MLS / GRAMS		
IMPINGER 1 806.2 784.5 DJ	IMPINGER 1	806.2	784.5		A.F
IMPINGER 2 826.5 813.6 DI	IMPINGER 2	826.5	813.6	1	) DI

IMPINGER 3 629.5 628.9 Emply 893.7 8881 Silten **IMPINGER 4** IMPINGER 5 IMPINGER 6 IMPINGER 7 IMPINGER 8

IMPINGERS

FINAL TOTAL INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA

FINAL TOTAL

	Client	t Number:	M231 PCC	408		Date:		01/20 System 5	123	Tes	t Number:		R3		
	Plant:		PLL .	Tructurals		Test Lo		System	9	Ope	erator:		And Te	st Tech: R.D	5
	Fiant.		Carson	Structurals City Fac	ľЪ	Test Me	ethod:	5		Pag	e Number:		1	of /	
			K1 =	-									K-Calo	s (Optional)	
			K <sup>1</sup> x $\Delta P$			1							K=	x	
Port- Point #	Contraction of the second	(∆P)	Orifice Setting (∆H)	Meter Volume (V <sub>m</sub> ) ft <sup>3</sup> , Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well	Square Root,	Meter Rate, Cubic	Theoretical Meter Volume, (V <sub>m</sub> ) ft <sup>3</sup> , per	Meter Volume,
1-1	1035	0.04	2.06	25.211	95	83	33	3	245			ΔP	Feet/ Min.	point	total
-1	1039	0.04	2.06	29.000	96	84	83	3	251	244	63				
-2	1043	0.05	2.57	32.795	92	86	83	3	249		54 53			1	
-2	1047	8.05	2.57	37.025	57	87	84	3	260	250				1	
-7	1051	0.06	3.08	41.275	47	88	85	3	252	250	53			1	
-7	1055	0.96	3.08	45.925	97	87	85	3	249	251	53		-		
-4	1059	0.06	2.57	50.600	97	90	86	3	248		54		1		
-4	1103	0.95	2.57	54.850	97	91	86	3	250	251	54		-	1	
-5	1107	0.04	2.96	59.125	97	91	87	3	248		54				
-5	1111	0.04	2.06	62.950	97	52	88	3	249	250	54				
-6	1115	0.04	2.06	66.775	57	92	88	5	250	251	55				
-6	1119	0.04	2.06	20.600	92	92	88	3	261	251	55			0	S
-	1123		1	24.431		-	-	-	01	261	55			·	
2-1	1127	0.04	2.06	74.431	96	93	89	3	250						
-1	1131	0.04	2.06	78.275	96	94	90	3	251	250	60		-		
-2	1/35	0.05	2.52	82.125	96	94	90	3	253	253	56	1000			
-2	1139	0.05	2.57	86.420	45	95	91	3	252		55				
-3	1143	9.95	2.57	90.725	95	95	91		and the second se	248	55		1		
-3	1147	9.05		95.040	95	55	51	3	249	247	54			C	
-4	1151	0.05	2.57	99.350	94	55		2	253	247	54		1		
-4	1155	0.05	2.57	103.675	94	55	52	3	252	253	54				
5	1159	0.04	2.06	107.990	94	85	92	3	253	247	54		-		
	1203	0.04	2,06	111,850	94	56	92	3	752	251	54				
-6	1207	0.04		115.725			93	3	252	252	55				
	1211	0.04		119. 405		_		2	251	249	55				
	1215	-	1.00	123.454	the second se	96	93	د	252	251	55				
				100, 739	-	-	-	-	-	-	-		1		

DS-005 M5 Isokinetic Field Data Sheet

Project No. M231408 Multiple Test Locations

r GANT:	ec structurels		Scale ID Number	LVY
UNIT NO:	M231408		Scale Calibration	Check Date: 04/26/23
	System 9		Scale Calibration	Check (see QS-6.05C for proces
DATE: 04	1/26/23		must be	Within + 0 50 of confisient men
TEST NO:	R3		500 grams _ 500	
METHOD:	M5		709 750 grams _ 20	
WEIGHED/ME	ASURED BY: A	ns	i oo grama	2.1
	FINAL WEIGHT	INITIAL WEIGHT	INDIALOFT	
Circle One:	MLS / GRAMS	MLS / GRAMS	IMPINGER GAIN	IMPINGER CONTENTS
IMPINGER 1	826.6	806.2		DI
IMPINGER 2	840.7	826.5		DI
IMPINGER 3	629.7	629.5		Empty
MPINGER 4	898.8	893.7		Silica
MPINGER 5				
MPINGER 6			and the second sec	
MPINGER 6				

INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA

FINAL TOTAL

FINAL TOTAL

INITIAL TOTAL TOTAL SILICA GAIN

.

### visible Emissions Observation Record Form

POC Structurals							Ohco	nuor.	R	B		
Corson City Failing M23140K							Obse	nvatio	n Sta	D	7:	30
system 3							Obse	Ivatic	En	nd:	7: 1	14
			1 37	1 20	1 45					_		-
Observation Point:	~		15	30	45	Notes	><	0	15	30	45	Notes
	0	P	0	0	0		30					
	1	D	0	0	0		31		-		_	
	2	R	0	0	0		32			-		
10	3	R	0	0	0		33					
Distance from Source: 60	ft. 4	Q	0	0	0		34					
Source Height: 30 Emission Color: CLear	ft. 5	Ø	0	0	0		35					
Emission Color:	6	PQ	0	0	0		36					
Background: <u>tteat</u>							37					
	8						38				_	_
Sky Condition: [[Car	9						39					
	10						40					
Sun Position: Back	11						41					
Temperature: 41	°F 12						42					
Temperature: <u>41</u> Wind Direction: <u>NE</u> at	4 mph 13						43					
Reading Conditions:	+NOrmal 14						44					
	15						45					
	16						46					
Operating Conditions: NOC	mal 17					-	47					
	18			-			48					
	19						49					
	20						50					
Plume Description:	21						51	-				
	22					-	52					
Attached or Detached	23			-			53	-				
Observer's Name:	24						54					
Ricardo Borane.							55					
Observed Clausetures	Date: 26					-	56					
Organization:	4/25 27			-			57					
Organization:	28						58					
Mostardi Platt	29						59					-
Certified By:		litional	Com	ment	:		-	-		-	-	
Obaque	3/31/23											

O Emission Point

**Observers** Location

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of

**Compass Heading** 

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### Visible Emissions Observation Record Form

Facility Location: Structores PLC City fucilit rarsoa 1,7 10 system

Date: 4125/23

Observer: <u>XB</u> Observation Start: <u>8:15</u> End: <u>8:21</u>

Observation Point:	×	0	15	30	45	Notes	×	0	15	30	45	Notes
	0	0	0	0	0		30					
	1	0	0	0	0		31					
	2	0	0	0	0		32					
	3	0	0	0	0		33					_
Distance from Source:ft.	4	0	0	0	0		34					
Source Height: <u>30</u> ft.	5	0	0	0	0		35					
Source Height: <u>30</u> ft. Emission Color: <u>(19 al</u>	6	0	0	0	0		36					-
Background: 5 Ku	7.						37					
	8						38	-				
Sky Condition:	9						39					
	10						40					
Sun Position: Balk	11			-			41					
Tomporatura 45 or	12						42				-	
Wind Direction: NE at 5 mph	13						43					
Wind Direction: <u>NE</u> at 5 mph Reading Conditions: <u>NOTMAC</u>	14						44					
	15	-					45	-				
	16	-		-			46					
Operating Conditions: Normel	17	-					47					
	18		1	-			48					
	19	-		-			49					
	20		-		-		50					
Plume Description:	21						51					
	22						52				-	
Attached or Detached	23		-	-			53					
Observer's Name:	24						54					
Ricardo Bocanegra	25		-				55					-
Observer's Signature: Date:	26						56					~
Observer's Signature: Date: 1/28/23	27						57					
Organization	28						58	_				
Certified By: Date:	29						59					
Certified By: Date:	Addi	tiona	Com	ments								
Opan us 512113												

O Emission Point

**Observers** Location °01

**Compass Heading** 

#### Visible Emissions Observation Record Form

Facility Location:	
PCC Structore	15
raison city	fugility
M2)1408	
System 3	

Date: 04/25/23

Observer: <u>RB</u> Observation Start: <u>9:00</u> End: <u>9:00</u>

Observation Point:	×	0	15	30	45	Notes	×	0	15	30	45	Notes
	0	0	0	0	0		30					-
	1	0	0	0	0		31					
	2	0	0	Ó	0		32					
	3	0	0	0	0		33					
Distance from Source:ft.	4	0	0	0	0		34					
Source Height: <u>30</u> ft.	5	0	0	0	0		35			-		
Emission Color: <u>llear</u>	6	0	0	0	0		36	-				
Background: 5×4/	7.		-				37					
	8						38					
Sky Condition:	9						39					
	10	-		-			40		-			
Sun Position: Back	11			-			41					
Temperature: 47 °F	12						42					
Wind Direction: E at 10 mph	13						43					
Sun Position: Temperature: Wind Direction: Reading Conditions: Nor Mat	14					-	44			-		
	15		-				45					
	16						46					
Operating Conditions: Normal	17			-			47					
	18	-					48					
	19		-				49					
	20						50					
Plume Description:	21						51					
	22						52					
Attached or Detached	23						53	-		-	-	
Observer's Name:	24					-	54					-
Ricardo Bocarcora	25						55		-	-		-
Observer's Signature: Date:	26	-					56					
Journa te 9 4/25/23	27						57				-	
Organization:	28						58					
Mostardi Platt	29						59					
Certified By: Date:		tional	Com	nents	:		-					
Osague 5/2/123						_	_			_		

O Emission Point

**Observers** Location 00

**Compass Heading** 

7

Page 17.3 of 295

Facility Location: PCC structarals Carson city fucility M231408 System Z

Date: 04/25/23

Observer: RB Observation Start: 7:37 End: 7:43

Observation Point:	><	0	15	30	45	Notes	><	0	15	30	45	Notes
	0	D	0	0	0		30					
	1	0	0	0	0		31	-				-
	2	K	0	0	0		32					
	3	D	0	0	0		33					
Distance from Source: <u>60</u> ft. Source Height: <u>30</u> ft.	4	Ø	0	8	0		34					
Source Height: <u>30</u> ft.	5	Ø	0	0	0		35					
Emission Color: (lear	6	Ø	0	0	0		36					
Background: Sky	7.						37					
. 1	8						38					
Sky Condition:	9						39					
	10						40					
Sun Position: Back	11						41					
Temperature: 4/1 °F	12						42					
Wind Direction: NE at 9 mph	13						43					
Wind Direction: <u>NF</u> at <u>4</u> mph Reading Conditions: <u>NOTMEC</u>	14						44					
	15						45					
	16						46					
Operating Conditions: NOT mal	17						47					
	18						48					
	19						49					
	20						50					
Plume Description: NE	21						51					
	22						52					
Attached or Detached	23						53					
Observer's Name:	24					-	54					
Ricardo Bucancara	25						55					
Observer's Signature: Date:	26						56					
Juni 4/25/23	27						57					
A	28						58					
Mostardi platt	29						59					
Certified By: Date:		ional	Com	nents	:							
D DEQUE 5121123									-			

O Emission Point

**Observers** Location 11,2011 Page 174 of 295

**Compass Heading** 

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Facility Location:	
PCC	
Carson City	fucility
M231408	
system 2	

Date:	041	251	23

Observer: *RB* Observation Start: <u>9:25</u> End: <u>8:31</u>

Observation Point:	×	0	15	30	45	Notes	×	0	15	30	45	Notes
	0	0	0	0	0	-	30				-	
	1	0	0	0	0		31					
	2	0	0	0	D		32					
	3	0	0	0	0		33					
Distance from Source: 60ft.	4	0	0	0	0		34					
Source Height: 30 ft.	5	0	0	0	0		35					
Emission Color: (Lear	6	Ť					36					-
Background: 5kv	7.						37					-
	8						38					
Sky Condition: Llear	9						39				-	
	10						40					
Sun Position: Back	11				-		41					
Temperature: 45 °F	12						42					
Wind Direction: NE at 5 mph	13						43	-				
Wind Direction: <u>NE</u> at 5 mph Reading Conditions: <u>NOTMal</u>	14	-			-		44		***			
	15		3				45					
	16		-				46	-	-			
Operating Conditions: Normal	17		~				47	-				-
	18						48					
	19						49	-				
	20		-	-			50	-				
Plume Description:	21						51					
	22					-	52					-
Attached or Detached	23						53					
Observer's Name:	24						54				-	
Ricardo Bocancgra	25						55					
Observer's Signature: Date:	26		-		-		56	-				-
	27						57				-	-
Organization:	28						58					-
Mostaldi platt	29						59					
Organization: Mostardi platt Certified By: Date:	Addi	tional	Comr	nents	:							
Opaque 5/2/125												

O Emission Point

**Observers** Location 00

-1,

**Compass Heading** 

Page 175.0f 295

Facility Location: PCC Structurals Carson City fucility M23 1408 System 2

Date: 04/25/23

Observer: RB Observation Start: 9108 End: 9:19

Observation Point:	×	0	15	30	45	Notes	×	0	15	30	45	Notes
	0	0	0	0	0		30					
	1	0	0	0	0		31					
	2	0	0	0	0		32					-
	3	0	0	0	0		33					5
Distance from Source: 60 ft.	4	0	0	0	0		34					
Source Height: 30 ft.	5	0	0	0	0		35					
Source Height: <u>30</u> ft. Emission Color: <u>(Lear</u>	6	0	0	6	0		36					
Background: SKy	7.						37					
	8				1		38					
Sky Condition: Clear	9						39					
	10		-				40					
Sun Position: Back	11		-				41					-
Temperature: <u>47</u> °F	12		-		-	1	42	-				-
Wind Direction: <u>F</u> at <u>10</u> mph			-	-			43	-				
Reading Conditions: Norman	14			-			44	-	-			-
	15		-		1		45				-	
	16		-			-	46					-
Operating Conditions: MOrmal	17	-				-	47					-
	18		-	-	-		48			-		-
	19	-		-			49	-	-		-	
	20		-				50					
Plume Description:	21						51				-	
	22		-	-			52					
Attached or Detached	23		-				53	-				
Observer's Name:	24			-			54	-				-
Ricardo Bocancara	25			-	-		55		-			
Observer's Signature: Date:	26		-				56	-	-	-		
Observer's Signature: Date: Amonta 4/25/25			-	-	-		57	-	-	-		
Organization	28						58			-		
Mastarti platt	29	-	-				59	-			-	-
Certified By: Opeque 512/23		tional	Com	ments				-			-	
ODEQUE \$121/23			00111									

O Emission Point

**Observers** Location ot Page 176 of 295

**Compass Heading** 

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	acility Location:
	Mazikas
_	system (
	Eystern (

Date: 4/26/25 Observer: Observation Start: 7:16 End: 7:15

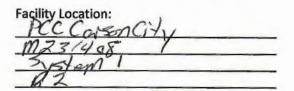
Observation Point:	×	0	15	30	45	Notes	×	0	15	30	45	Notes
Observation Point: USO'E of Stark	0	0	0	0	0		30					
	1	G	0	0	0		31					
	2	6	0	0	0		32					
	3	6	0	0	0		33					
Distance from Source: <u>~30</u> ft.	4	0	0	05	0		34					
Source Height: v) () ft.	5	0	O	0	G		35					
Source Height: who ft. Emission Color: White Steam	6			~			36	-				
Background: 5ky	7.						37					
	8						38					
sky Condition: Clpcs	9			-			39	-				
	10						40			-		
Sun Position: E	11			-		-	41			-	-	
remperature: 40 °F	12						42		-			
Wind Direction: SE at mph	13		-	-			43					
Reading Conditions: Groc d	14				-		44					
	15				-		45					-
	16					-	46					**
Operating Conditions: 1/amal	17				-		47					
	18					-	48	-		5 5		
	19			-	_		49		-	-		
	20			-			50	-		-		_
Plume Description: Cone	21			-	-		51		-			
<u></u>	22	-				-	52		-	-		
Attached or Detached	23						53	-				
Observer's Name: 1 / 1	24				-		54					-
Kyle Vones	25						55	-		-		
Observer's Signature: Date:	26	-		-			56		_			
MILL SULAILE	27		-	-			57		-	-		- 1.00
Organization: A 1 / A	28				-	-	58					
Drganization: McS+Credi Hatt	29						59					
Certified By: Date: 312/123	Addit	tional	Comr	nents	:							

O Emission Point

**Observers** Location \$00

**Compass Heading** 

l



4126125 Date: Observer: Observation Start: 5. End: 8:20

Observation Point:	><	0	15	30	45	Notes	×	0	15	30	45	Notes
Observation Point: NSO'E of Stack	0	0	0	0	0		30					
	1	0	00	0	0		31					
	2	0	0	0	0		32					
	3	0	0	0	0		33					
Distance from Source:ft.	4	0	0	9	6		34					
Source Height:O ft. Emission Color:	5	0	c)	0	0		35					
Emission Color: White Steam	6						36	-				
Background: <u>Sby</u>	7.						37					
	8						38				-	_
Sky Condition: Clear	9		-				39					
	10						40		-	-		
Sun Position:	11			-			41					
Temperature: 45 °F	12						42					
Wind Direction: SE at / mph	13	-		-			43					
Reading Conditions: _ Good	14					1	44					
	15			-			45	-				
	16			-			46	-		-		
Operating Conditions: <u>Clear</u>	17		-	-			47	-		-		
operating contaitions. Or every	18	-	-			-	48					
	19			-			49	-	-			
	20		-				50	-	-	-		
Plume Description: Cone	21						51					
	22		-				52					
Attached or Detached	23	-			-	-	53				-	
Observer's Name: /// ]	24	-	-				54					-
Kyle Jons	25			-			55	-		-		
Observer's Signature: Date:	26			-		-	56			_		-
4/26/2				-			57	_			-	
Organization:	28		-				58		-	-		
Mostaroli Matt	29						59	-				
Certified By: Date:		tional	Com	nents	:			-	-	-		
OSC GUE 5/21/25	, toolin		Contra									
pulle station	-	-	-				-	-				

O Emission Point

**Observers** Location ot

**Compass Heading** 5n

Fagility L	ocation:	
PCC	Carson(ity	
VI à	51408	
45	tem 1	
140	nJ	

4126125 Date: Observer: **Observation Start:** End:

Observation Point:	×	0	15	30	45	Notes	×	0	15	30	45	Notes
Disservation Point: N30E of Stack	0	B	0	0	0		30					
	1	0	0	0	0		31					
	2	0	O	0	0		32					
	3	G	0	0	0		33					
Distance from Source: <u>M38</u> ft.	4	0	0	0	G		34					
ource Height: ~ / G ft.	5	0	0	0	8		35					
Source Height: G ft.	6						36					
Background: 5811	7.						37					
	8				-		38					
Sky Condition: Clear	9						39			-		-
	10						40		-			
Sun Position: ESE	11					-	41					-
Temperature: 54 °F	12						42	-				
Wind Direction: ESE at 4, mph	13						43					
Wind Direction: <u>ESE</u> at <u>4</u> , mph Reading Conditions: <u>Coo of</u>	14			-			44	-				
	15					-	45					
	16						46				-	
Operating Conditions: Norma 1	17						47			-		-
	18				-		48					1
	19					1	49	-				-
	20			-		-	50					-
Plume Description: Long	21						51					
	22						52					-
Attached or Detached	23						53		-			
Observer's Name: / / )	24	-				-	54					
Kyle Uolos	25						55				-	
Observer's Signature: Date:	26		-				56	-				
The 4/2623		-		-		-	57	-		-	-	
Prophization:	28						58					
Mostarol, Matt	29					1	59	-				-
Certified By: Date:	Addi	tional	Com	nents	:							-
Chaque 3/2/12	1											

O Emission Point

**Observers** Location .9

Compass Heading

Facility Location:	1
PCC Carson (1	YY
Sistem 4	
Ronl	

4126125 Date: Observer: :30 Observation Start: 7% End: 720:35 42

Observation Point:	×	0	15	30	45	Notes	×	0	15	30	45	Notes
W50 NE of Stack	0	G	C	O	G		30					
	1	0	0	B	6		31					
	2	0	0	0	O		32					
	3	B	0	0	0		33					
Distance from Source: <u>~50</u> ft.	4	0	0	0	C		34					
Source Height: <u>120</u> ft.	5	0	O	0	$\bigcirc$		35					-
Source Height: $\frac{nZ_0}{nIA}$ ft.	6						36					
Background: 5kg	7.			-			37	-				
	8						38					
Sky Condition: Clear	9						39					
	10						40					
Sun Position: ESE	11						41					
Formander IIG OF	12						42					-
Wind Direction: at mp	h 13			-			43					
Reading Conditions: Gcod	14						44					
	15			-			45					-
	16						46					
Operating Conditions: Armal	17	-					47	-				
	18		-	-			48					
	19	1	1				49					
	- 20	-	-				50					
Plume Description: M/A	21		-			-	51					
	22		-	-			52					
Attached or Detached	23	-				-	53	-				
Observer's Name: 7/ /	24						54	-				
Kule Jones	25		-				55					
Observer's Signature: Date:	26		1	-		-	56	-				-
4/201				-			57				-	
Drganization: AA 1714 11	28			1			58					-
Wheels I Al. H	29					an anna	59					
Certified By: Date: Date: 3/2/12	Addi	tional	Com	ments	:							
Ofecue 3/2/12												

O Emission Point

**Observers** Location 67

SIL

**Compass Heading** 

Facility Location: PCC Carson G m231408 5 tem 4

4124125 Date: Observer: Observation Start: \_ 9:40 :45 End: G

Observation Point:	×	0	15	30	45	Notes	×	0	15	30	45	Notes
WSO NE of Stuck	0	0	0	0	G		30					
	1	0	0	0	0		31					
	2	0	0	0	0		32				-	
	3	0	0	0	0		33					
Distance from Source: VSO ft.	4	0	0	0	On		34					
Source Height: 1-20 ft	5	0	0	0	Õ		35					
Emission Color: 1/A	6						36					
Emission Color: <u>A</u> Background: <u>SRY</u>	7.						37					
	8						38					
Sky Condition: <u>Clear</u>	9						39					
	10						40					
Sun Position: ESE	11						41					
Sun Position: <u>ESE</u> Temperature: <u>S4</u> °F,	12		-				42					
Wind Direction: ESE at 4 mph	13			-			43			-		
Reading Conditions: Good	14						44					-
	15						45					
	16						46					
Operating Conditions: Nor Mal	17						47					
	18		-				48					
	19					-	49					
A.A	20						50					
Plume Description:	21					-	51					-
	22						52					
Attached or Detached	23						53					
Observer's Name: 1/ 1 1	24						54	-				
Kule Jones	25		-				55		-			-
Observer's Signature.	26						56				-	
101 4242	27						57					
Organization: M / / / / /	28						58					
Mestanoli Hat	29						59					
Certified By: Opa g. un Date:	Addi	tional	Com	nents	:							

O Emission Point

**Observers** Location 1.00FI

S.I.M

**Compass Heading** 

Facility Location: Carson 08 m4 3

4/26125 Date: Observer: Observation Start: 20 End:

Observation Point:	×	0	15	30	45	Notes	×	0	15	30	45	Notes
Observation Point: 450 ME of Stack	0	0	0	O	0		30					
	1	0	0	0	0		31					
	2	0	0	0:	0		32					
	3	0	0	0	0		33					
Distance from Source: NSO ft.	4	0	O.	0	0		34			-		
Source Height: n20 ft.	5	A	0	0	O		35					
Emission Color: <u>DIA</u>	6	1 c					36				-	
Background: Skid	7.						37					
	8						38					
Sky Condition: <u>Clear</u>	9			-			39					
	10						40					
Sun Position: $SE$	11						41					
Temperature: 62 °F	12				-		42					
Wind Direction: <u>Ene</u> at <u>I</u> mph	13						43					
Reading Conditions: 9000	14						44					
	15						45					
	16						46					
Operating Conditions: 10mmal	17						47					
	18		-		-	-	48				-	
	19	-					49	-		-		
	20						50					-
Plume Description: 114	21						51					
	22						52				-	
Attached or Detached	23	-					53					
Observer's Name: 1/ / 1	24						54					
KUlovona	25	1					55					
	26		1				56	-				-
Observer's Signature: Date:	27		-				57					
Organization:	28						58					
Mastardi Narth	29						59					
Certified By: Date:	Addi	tional	Com	nents	:							
CAGALO \$121/23		_					_		_	_	-	

**O** Emission Point

**Observers** Location 600

SIL

**Compass Heading** 

©Mostardi Platt 9715/2022

Facility Lo	ocation:	01	
PCC	Carson	4+11/	
10231	408		1
245+	enty		

Date:	4/26/23
Observer:	KLJ
Observation S	Start: 14:50
	End: 19.35

W75 SEOF Stack	×	0	15	30	45	Notes	×	0	15	30	45	Notes
175 SEOF Stack	0	G	C	0	C		30					
	1	0	B	O	0		31					
	2	0	0	G	G		32					
	3	0	0	G	0		33					
Distance from Source: <u>~75</u> ft.	4	C	0	0	0		34					
Source Height: U30 ft.	5	0	0	0	O		35					
Emission Color: <u>N/4</u>	6						36					
Source Height: $\frac{10.30}{1/4}$ ft. Emission Color: $\frac{1/4}{5k_1/4}$	7.					199.00	37					
	8						38					
Sky Condition: Clear	9						39					
	10						40					
Sun Position: ENE	11						41					
Temperature: 46 °F	12						42					
Wind Direction: SE at / mph	13						43					
Wind Direction: <u>55</u> at mph Reading Conditions: <u>67 co of</u>	14						44					
· <u> </u>	15			-			45					
	16			1			46			-		
Operating Conditions: 10mmai	17						47			-		
	18						48					
	19	-		-			49					
	20						50					
Plume Description: 11/A	21						51					
·······	22					-	52		-			
Attached or Detached	23		-	-		-	53					
Observer's Name: 1/ / 1	24		1				54					
Kylevones	25						55					
Observer's Signature: DIA Date:	26	-		-			56					
Ch 412612			-	-	-		57					
Organization:	28						58					
Mestardi Hatt	29						59					
Certified By: Date: Date:	Addi	tional	Com	nents						1.317		

O Emission Point

**Observers** Location 1400

ミンド

**Compass Heading** 

Facility	Location:	()	
MZ	Carson 51408	1 City_	
345	tien 9		

419 175 Date: Observer: Observation Start: End: 3

Observation Point: 15'SE A Stack	×	0	15	30	45	Notes	×	0	15	30	45	Notes
15'SE at Stark	0	G	0	0	0		30					
	1	0	0	O	0		31					-
	2	0	0	0	C		32					
	3	0	0	0	0		33					
Distance from Source: 675ft.	4	0	0	0	0		34					
Source Height: N3Q ft.	5	O	0	0	5		35					
Source Height: $\underline{N30}_{ft.}$ ft. Emission Color: $\underline{N/A}_{ft.}$	6						36					
Background: 5kV	7.						37					
	8						38					
Sky Condition: Clear	9						39					
	10						40					
Sun Position:	11					-	41	-				-
							42					
Temperature: <u>64</u> °F Wind Direction: <u>FSE</u> at <u>4</u> mph	13		-			-	43			-	-	
Reading Conditions: Good	14						44			-	-	
	15		-	-	-		45				-	-
	16	-				-	46				-	
Operating Conditions: 1 amal	17			-			47					
aparating annumber of the second second	18	-			-		48		-		-	
	19						49	-				
	20				-	-	50					
Plume Description: <u>Y//A</u>	21						51	-			-	
1-	22			-			52					
Attached or Detached	23		-				53			-	-	
Observer's Name: 1/ ,1	24		-	-			54	-				
Kyle Jones	25	-					55	-		-		
			-	-		-	56				-	
Observer's Signature: Date: 4/2/4/2	27	-		-		-	57			-		
Organization:	28						58	-			-	
Nostardi Hat	29			-			59			-		
Certified By: Date: Date:		tional	Com	nents	:							

O Emission Point

**Observers** Location 1400

シー -È

**Compass Heading** 

Facility	Location:			
PCC	Carson	Cit1	1	
Mà	2/408	. /		
'3	vstem	9		
	Kon 3			

4/26125 Date: KL1

Observer: \_\_\_\_\_\_ Observation Start: \_\_\_\_\_\_ End: \_\_\_\_\_5

Observation Point:	×	0	15	30	45	Notes	×	0	15	30	45	Notes
2) Deservation Point; SEOS Stark	0	0	0	R	G		30					
	1	0	0	0	0		31					
	2	0	0	0	0		32					
	3	0	0	0	0		33					
Distance from Source: <u>M75</u> ft.	4	0	0	0	0		34					
ource Height: ft.	5	0	0	CL	O		35	1				
Source Height: <u>256</u> ft. Emission Color: <u>AIA</u> Background: <u>56</u> 1/	6						36					
Background: Sky	7.						37					
	8						38		-			
Sky Condition: Clean	9						39					
	10						40					
Sun Position: SE	11						41					
remperature: <u>6.2</u> °F	12						42	_				
Wind Direction: at mph	13						43			-		
Nind Direction: <u>ENF</u> at <u>I</u> mph Reading Conditions: <u>Good</u>	14		-				44					
	15						45					
	16					-	46					
Operating Conditions: Nanmal	17			1			47	-				
7, 61	18					-	48					
	19						49					
	20						50					
Plume Description:	21						51					
	22						52			-		
Attached or Detached	23		-				53					
Observer's Name: // 1	24					-	54					
Observer's Name: KACDONOS	25						55					
	26	-					56					
Observer's Signature: Date:	27	-			-		57	-				
Organization:	28						58					
Mistandi Hatt	29	-					59					
Certified By: Dea City Date:		tional	Com	nents	:							

O Emission Point

**Observers** Location 1400

A INTE

**Compass Heading** 

ľ

Facility Location: PCC Carson Ci em 5

Date: Observer: **Observation Start:** End:

Observation Point: 15 30 >< 30 45 × Notes Notes V 10' Eas Stack C  $\sigma$ OG Distance from Source: 6/10) ft. Source Height: n ft. Emission Color: Д Background: Clear Sky Condition: Sun Position: Temperature: °F Wind Direction: mph at **Reading Conditions:** norma Operating Conditions: Plume Description: Attached or Detached Observer's Name: Date: **Observer's Signature:** Organization: 1a Certified By: Dațe: Additional Comments: 5/211

O Emission Point

**Observers** Location .01

**Compass Heading** 

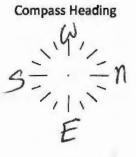
Facility Location:	AL
M231468	CITY
System 5	

4/27/23 Date: Observer: Observation Start: : 24 End: 9:33

Observation Point:	><	0	15	30	45	Notes	×	0	15	30	45	Notes
Deservation Point:	0	0	0	0	0		30					
	1	0	6	0	0		31					
	2	0	0	0	0		32					
4	3	0	0	0	0		33					
Distance from Source: <u>v66</u> ft.	4	0	0	0	0		34					
Source Height: ft.	5	0	0	K	0		35					
Emission Color: 11.A	6						36				-	
Background: <u>Shv</u>	7.						37					
	8						38					
Sky Condition: Clean	9						39					-
	10						40					
Sun Position: E	11						41			-		
Temperature: 57 °F	12						42				-	
Wind Direction: ESE at 1 mp	h 13						43				-	-
Reading Conditions:	14						44					
	15		-		-		45					-
	16						46					
Operating Conditions: 1/ cr mal	17						47	-		-	-	
	18		-				48					
	19		-				49		-			-
	20						50	-	-	-		
Plume Description: 1/1/	21			-			51					-
	22						52			-		100.9
Attached or Detached	23					-	53					
Observer's Name: 1/ 1	24	-					54		-			
Kyle Jones							55		-	-		-
Observer's Signature: Date:	26		-				56	-				-
12/ 4/211							57	-				
Organization: AAIII	28						58					
110-stardi Patt	29						59	_				
Certified By: Date:	Addi	tional	Comr	nents	:							
Chaque Stall	3											

O Emission Point

**Observers** Location .05



11

Facility Location:

4/27/25 Date: 15 Observer: Observation Start: 11:20 25 End: 11:

Observation Point: VGO'EOFStack	×	0	15	30	45	Notes	×	0	15	30	45	Notes
VGO'EDISTACK	0	0	0	G	G		30					
	1	0	<3	0	0		31					
the second s	2	0	0	0	0		32					
	3	0	0	0	0		33					
Distance from Source: <u>MacO</u> ft.	4	0	0	0	0		34					
Source Height: <u>v30</u> ft.	5	0	0	c)	0		35					
Emission Color:	6						36					
Background: SPV	7.						37					
. /	8						38					
Sky Condition: Clean	9		1				39					
	10		-	-			40				-	
Sun Position: SE	11					-	41					
Temperature: 76 °F	12	-		-			42					
Wind Direction: ESE at 4 mph	13						43					
Reading Conditions:	14	-				-	44					-
· ····································	15						45				-	
	16		-	-			46					
Operating Conditions: 1/mmal	17				-		47	-		-		
	18	-			-	-	48	-				-
	19						49			-		
	20	-		-		Law .	50					
Plume Description: 11/A	21	-			-		51					P
	22			-			52	-		-		
Attached or Detached	23			-	-		53	1	-			
Observer's Name: / / /	24						54				-	
KULENDE	25	-					55					
Observer's Signature: Date:	26						56					
1/2 4/27/23	27						57				-	
Organization: A /Y / VI	28						58					-
Mostardi Hatt	29						59					
Certified By: A. Date:	Addi	tional	Com	ments	:							
() AO que 31/173	-						-				-	

O Emission Point

**Observers** Location 2011

**Compass Heading** 

Facility Location:	0.1
MIZZULAS	Caty
SUSTOM T	
Kun I	

27/23 4 Date: Observer: Observation Start: 0 7:25 End:

Observation Point: N70 E of Stack	×	0	15	30	45	Notes	×	0	15	30	45	Notes
NTO Eat Stack	0	C	0	0	C		30				1	
	1	0	0	0	0		31					
	2	0	0	0	0		32					
4.5	3	0	0	0	0		33					
Distance from Source: <u>~76</u> ft.	4	0	0	0	0		34					
Source Height: <u>~25</u> ft.	5	0	0	0	O		35					
Source Height: $-\frac{25}{1/4}$ ft. Emission Color: $\frac{n}{4}$	6						36					
Background: <u>Sky</u>	7.						37					
	8						38					
Sky Condition: Clear	9						39					
	10					1	40					
Sun Position: E	11						41					
Temperature: <u>45</u> °F Wind Direction: <u>5</u> at <u>1</u> mph Reading Conditions: <u>Good</u>	12						42					
Wind Direction: <u>S</u> at mph	13						43					
Reading Conditions: Good	14						44					
	15						45	-				P
1	16			-			46					
Operating Conditions: 10mma	17						47					
	18						48					1
	19						49					
0.1.1	20						50					
Plume Description:/	21						51					
	22						52					
Attached or Detached	23						53					
Observer's Name: 1/1/	24						54					
Kyle Jones	25						55					
Observer's Signature: Date:	26						56					
Ch 417-1/23	27						57					
Organization: M / / / /	28						58					
Mostandi Hatt	29						59					
Certified By: Date:		tional	Comr	nents	:							
Opac 40 3/2/128												
		-	Freelow									

O Emission Point

**Observers** Location 07

**Compass Heading** 

Facility Location:	
PCC ConsonCity	
M231408 1	
-System7	
- Runz	

Date:	4/2	41	15	
Observer: _	K	2)		
Observation	Start:	9	:25	
	End:	9	181	

Observation Point:	×	0	15	30	45	Notes	×	0	15	30	45	Notes
v70 Eofstack	0	0	0	0	0		30					
	1	O	0	0	0		31					
	2	0	0	0	0		32					
	3	0	0	0	O		33					
Distance from Source: <u>~76</u> ft.	4	0	0	0	0		34					
ource Height:ft.	5	0	0	0	$\left( \right)$		35					
mission Color: <u>n/A</u>	6						36					
Background: <u>Sky</u>	7.						37					
	8						38					
iky Condition: Clear	9						39					
	10			-			40					
Sun Position: E	11						41					
emperature: <u>57</u> °F	12						42					
Wind Direction: ESE at mph	13						43					
Reading Conditions: Ground	14	-					44					
	15						45					
	16						46					
Operating Conditions: // mal	17						47					
	18						48					
	19						49					
	20						50					
Plume Description: N/A	21						51					
	22						52					
Attached or Detached	23						53					
Observer's Name: 1/ / 1	24						54					
KVIE UMES	25	-					55					
Observer's Signature: 11 Date:	26		1				56					
1/2 4/27/2	27	-					57					
Drganization: A li I VI K	28						58					
Mostarti Plat	29						59					
Certified By: Date: SIZIZE		tional	Com	nents	:							

O Emission Point

**Observers** Location .07

**Compass Heading** 37. - E n

Facility Location:	cil.
M 231408	on lity
System 1	7

125 Date: Observer: **Observation Start:** 0 End: 10

Observation Point: N TO EST Stack	><	0	15	30	45	Notes	×	0	15	30	45	Notes
n 10' Lot Stack	0	0	C	0	0		30					
	1	0	0	C	0		31					
	2	0	0	0	0		32					
	3	0	0	0	0		33					
Distance from Source: <u>~ 70</u> ft.	4	0	0	0	0		34			-		
Source Height: ft.	5	C	O	0	0		35	-				
Source Height:75_ft. Emission Color:174	6						36					
Background: Ska	7.						37					
	8						38					
Sky Condition:	9	-					39					
	10						40					
Sun Position: SE	11				-	-	41			-		
Temperature: 05 °F	12	-					42	-	-			
Wind Direction: Ene at 1 mph	13						43					
Reading Conditions: Grand	14			-			44					
	15						45					-
	16						46	-	-	-		
Operating Conditions: //wma	17						47			-		
	18	-					48					
	19						49					
	20		-				50					
Plume Description: n/A	21		-				51			-		-
	22						52			-		
Attached or Detached	23	-	-	-			53	-	-	-		
Observer's Name: 1/1 1	24			-	-		54					
KVIE Umes	25		-			-	55		-			
Observer's Signature: Date:	26	-					56					
14 412112	- 27						57			-		
Organization: AA / / / / /	28						58			-		
Mostardi Platt	29						59	-				
Certified By: Date:	Addi	tional	Comr	nents	:							
Certified By: Deg INP Stall73												
									-	-		

O Emission Point

**Observers** Location

**Compass Heading** 

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# VISIBLE EMISSIONS EVALUATOR

This is to certify that:

Ricardo Bocanegra-

Met the specifications of Federal Reference Method 9 (40 CFR part 60, Appendix A, Method 9) and qualified as a visible emissions evaluator.

Maximum deviation on white and black smoke did not exceed 7.5 opacity and no single error exceeding 15% opacity was incurred during the certification test conducted by Opaque Smoke School LLC of OPKS

All Sources Source Types 03/31/2023 Certification Date

<u>14812</u> Certificate Number

In /illiam P. Stevenson

President and Owner

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# VISIBLE EMISSIONS EVALUATOR This is to certify that: Kyle Jones-Met the specifications of Federal Reference Method 9 (40 CFR part 60, Appendix A, Method 9) and qualified as a visible emissions evaluator. Maximum deviation on white and black smoke did not exceed 7.5 opacity and no single error exceeding 15% opacity was incurred during the certification test conducted by Opaque Smoke School LLC of OPKS 03/31/2023 1481 1 Sources **Certification Date Certificate Number** Source Types In /illiam P. Stevenson President and Owner ©Mostardi Platt Project No. M231408

Multiple Test Locations

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# Appendix H - Calibration Data

## **MOSTARDI PLATT**

## **Procedures for Method 5 and Flow 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

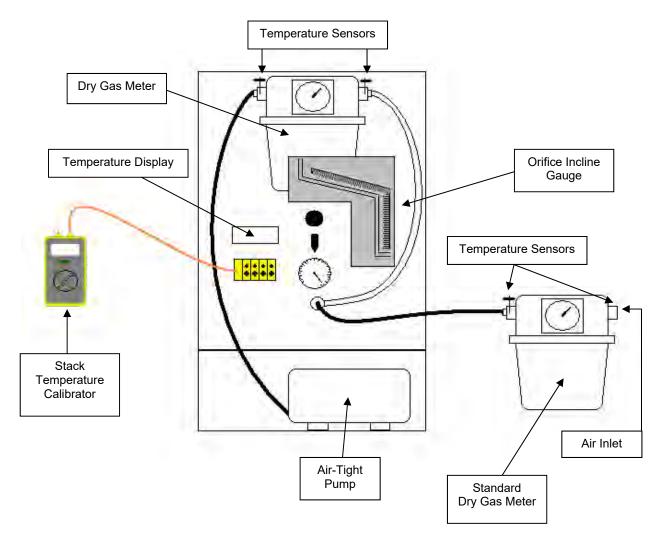
The accuracy of the analytical balance is checked with Class S, Stainless Steel Type 303 weights manufactured by F. Hopken and Son, Jersey City, New Jersey.

#### Temperature Sensing Devices

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

## **Pitot Tubes**

The 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.



Dry Gas Meter/Control Module Calibration Diagram

	t: PCC Structural y: Carson Facility	-		System 1 - Autock 4/26/23	ave			
	#: M231408		Operator:					
Operating Condition			operatori	I LO				
operating container		Probe Length:	3.0	ft	Point Markin	gs (including	port length).	
		Probe Type:	Extractive		Point #	• • •	iches	
		Sample Plane:	Horizontal		1		1.66	
		Port Length:	4.00	in.	2		5.98	
	Port S	ize (diameter):	4.00	in.	3		7.30	
	FUILS	Port Type:	Other		5	'	.30	
		Duct Shape:	Circular					
		Diameter:	0.33	ft				
		Duct Area:	0.09	Sq. Ft.				
		am Diameters:						
		am Diameters:	2					
		orts Sampled:	2					
	Number of P	oints per Port:	6					
То	tal Number of Tr	averse Points:	12					
Туре	Setting	Cylinder ID	Cylinder Value	Analyzer Response	Difference, % of Span	Expiration Date	Final Bottle Pressure, PSI	
	Zero	Zero Nitrogen	0	-0.09	0.41%	N/A	>500	
O2 % (dry)	Mid	CC415470	11.06	11.09	-0.14%	47784	>500	
,	High	SG896172	22.07	22.01	0.27%	47185	>500	
	Zero	Zero Nitrogen	0	-0.01	0.05%	N/A	>500	
CO2 % (dry)	Mid	CC415470	11.17	11.28	-0.57%	47784	>500	
,	High	SG896172	19.21	19.15	0.31%	47185	>500	

Туре	Setting	Cylinder ID	Cylinder Value	Predicted Value	Predicted Value Difference, %	Analyzer Response	Difference, % of Cylinder	Expiration Date	Final Bottle Pressure, PSI
	Zero	Zero Nitrogne	0	N/A	N/A	-0.08	0.09%	N/A	>500
THC ppmv	Low	EB0014316	30.06	30.31	0.11%	30.28	-0.73%	10/3/2030	>500
THE ppilly	Mid	CC277550	60.54	61.13	0.71%	60.70	-0.26%	2/11/2030	>500
	High	ALM-044753	89.65	N/A	N/A	90.56	-1.02%	3/4/2030	>500

#### Response Time Data

Туре	RM Analyzer Make/Model	RM Analyzer s/n	Analyzer Span	RM Gas Span
THC ppmv	Thermo 51i	12104510878	500	112
	Start		95% Response	Time (min)
Upscale				0.75
Downscale				0.75

#### Client: PCC Structurals Facility: Carson Facility Fuel Type: Coal, Bituminous Fuel Factor: 9780 Diluent: O2 %

#### Location: System 1 - Autoclave Date: 4/26/23 Operator: KLJ Project #: M231408 Fuel Factor: by Standard

#### O2 % (dry) Correction Data

Rur	า #	Cma	Precal	Postcal	Pre zero	Post zero	Со	Cm	С	Cgas	Span Bias	Span Drift	Zero Bias	Zero Drift
1		11.06	10.98	10.92	-0.20	-0.06	-0.13	10.95	20.61	20.7	0.77	-0.27	-0.14	0.63
2	2	11.06	10.92	10.81	-0.06	-0.07	-0.07	10.87	20.96	21.3	1.27	-0.50	-0.09	-0.05
3	3	11.06	10.81	10.80	-0.07	-0.01	-0.04	10.81	20.58	21.0	1.31	-0.05	-0.36	0.27

_		CO2 % (dry) Correction Data												
	Run #	Cma	Precal	Postcal	Pre zero	Post zero	Со	Cm	С	Cgas	Span Bias	Span Drift	Zero Bias	Zero Drift
	1	11.17	10.97	10.99	-0.01	-0.01	-0.01	10.98	0.21	0.2	1.51	0.10	0.00	0.00
Γ	2	11.17	10.99	10.89	-0.01	-0.03	-0.02	10.94	0.03	0.1	2.03	-0.52	0.10	-0.10
Г	3	11.17	10.89	10.88	-0.03	-0.01	-0.02	10.89	0.02	0.0	2.08	-0.05	0.00	0.10

	THC ppmv Calibration Data												
Run #	Cma	Precal	Postcal	Pre zero	Post zero	Со	Cm	С	Cgas	Span Bias	Span Drift	Zero Bias	Zero Drift
1	60.54	60.70	60.02	-0.08	0.21	0.07	60.36	7.70	7.7	0.86	-0.61	-0.19	0.26
2	60.54	60.02	59.51	0.21	-0.13	0.04	59.77	14.20	14.2	1.70	-0.46	0.12	-0.30
3	60.54	59.51	58.31	-0.13	1.74	0.81	58.91	13.20	13.2	3.68	-1.07	-1.55	1.67

					Calibratio	n Corrected Da	ata
Run #		Run Date	Start Time	End Time	CO2 % (dry)	O2 % (dry)	THC ppmv
1		4/26/23	6:44	7:44	0.2	20.7	7.7
2		4/26/23	7:59	8:59	0.1	21.3	14.2
3		4/26/23	9:14	10:14	0.0	21.0	13.2

## Calibration Corrected Data

## **Client:** PCC Structurals Facility: Carson Facility Project #: M231408 Test Location: System 1 - Autoclave Operating Condition: Normal Date: 4/26/23

#### Linearity Cal/Pre 1 Cal

Time	<u>O2 % (dry)</u>		<u>CO2 % (dry)</u>		THC ppmv	
5:18	20.81		0.06			
5:19	0.00		0.00			
5:20	20.47		0.05			
5:21	20.83		0.05			
5:22	-0.54		0.02			
5:23	-0.09	iz	-0.01	iz		
5:24	11.03		9.41			
5:25	22.71		20.37			
5:26	22.31		19.69			
5:27	21.53		18.78			
5:28	22.01	ih	19.15	ih		
5:29	22.48		17.91			
5:30	13.35		12.32			
5:31	11.09	im	11.28	im		
5:32	10.91		11.22			
5:52	6.67		0.01		0.15	
5:53	0.09		-0.01		-0.08	Z
5:54	0.06		-0.01		0.18	
5:55	10.30		0.03		0.77	
5:56	19.26		0.05		1.68	
5:57	18.32		-0.01		90.56	h
5:58	18.59		0.00		90.56	
5:59	17.47		0.00		84.79	
6:00	0.06		0.00		14.35	
6:01	-0.18		0.00		13.81	
6:02	-0.19		-0.01		60.70	m
6:03	8.85		0.02		60.42	
6:04	19.21		0.00		38.12	
6:05	20.48		-0.01		30.42	
6:06	20.47		0.01		30.28	I
6:07	20.50		-0.01		70.16	
6:21	-0.20	z	-0.01	z	16.71	
6:22	-0.21		-0.01		15.42	
6:23	12.62		3.09		15.63	
6:24	10.98	m	10.97	m	15.16	

#### Client: PCC Structurals Facility: Carson Facility Project #: M231408

#### Post 1/Pre 2

#### Test Location: System 1 - Autoclave Operating Condition: Normal Date: 4/26/23

#### Post 2/Pre 3

Time	<u>O2 % (dry)</u>		<u>CO2 % (dry)</u>		THC ppmv		Time	<u>O2 % (dry)</u>		<u>CO2 % (dry)</u>		THC ppmv	
7:46	5.62		0.55		2.38		9:01	-0.05		-0.02		4.10	
7:47	-0.12		0.00		0.73		9:02	-0.07	z	-0.03	z	0.55	
7:48	-0.06	z	-0.01	z	0.21	z	9:03	8.26		8.74		-0.13	z
7:49	10.55		6.67		0.12		9:04	10.81	m	10.89	m	-0.31	
7:50	10.92	m	10.99	m	0.08		9:05	16.52		4.16		27.57	
7:51	15.99		4.91		27.08		9:06	20.66		0.02		56.96	
7:52	20.87		0.02		53.46		9:07	20.68		-0.01		59.51	m
7:53	20.89		-0.01		60.02	m							

#### Post 3

Time	<u>O2 % (dry)</u>		<u>CO2 % (dry)</u>		THC ppmv	
10:16	8.91		0.04		2.67	
10:17	-0.01	z	-0.01	z	3.98	
10:18	1.18		1.59		3.15	
10:19	10.70		10.80		2.53	
10:20	10.80	m	10.88	m	1.74	z
10:22	20.60		0.03		61.91	
10:23	20.63		-0.01		58.31	m

## Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM45	Date:	December 15, 2022
Standard Meter No.	16541852	Calibrated By:	KLJ
Standard Meter (Y)	0.98870	Barometric Pressure:	28.40

	Orifice	Standard Meter	Dry Gas Meter	Standard Meter	Dry Gas Meter	Dry Gas Meter	Dry Gas Meter				
	Setting in $H_2$ O	Gas Volume	Gas Volume	Temp. F°	Inlet Temp. F°	Outlet Temp. $F^{\circ}$	Avg. Temp. F°	Time	Time		
Run Number	Chg (H)	vr	vd	tr	tdi	tdo	td	Min	Sec	Y	Chg (H)
Final		58.790	98.427	56	55	55					
Initial		53.748	93.401	55	54	54					
	0.20		5.026	56		55	55	20	29	0.989	1.956
Final		65.702	105.325	57	53	53					
Initial		58.790	98.427	56	55	55					
Difference 2	0.50	6.912	6.898	57	54	54	54	17	16	0.985	1.858
Final		71.930	111.525	53	58	58					
Initial		65.702	105.325	57	53	53					
Difference 3	0.70	6.228	6.200	55	56	56	56	13	11	0.992	1.852
Final		79.161	118.731	54	58	58					
Initial	_	71.930	111.525	53	58	58					
Difference 4	0.90	7.231	7.206	54	58	58	58	13	25	0.999	1.810
Final		87.248	126.778	45	54	54					
Initial	_	79.161	118.731	54	58	58					
Difference 5	5 1.20	8.087	8.047	50	56	56	56	13	1	1.003	1.795
Final		53.748	93.401	55	53	53					
Initial		37.956	77.857	54	51	51					
Difference 6	2.00	15.792	15.544	55	52	52	52	20	4	0.994	1.916

Average 0.994 1.864

#### Stack Temperature Sensor Calibration

Meter Box # :	<u>CM45</u>			Name :	KLJ
Ambient Temperature	:	80	°F	Date :	December 15, 2022
Calibrator Model # :	CL940A				
Serial # :	526				
Date Of Certification :	December 16	, 2021	_		

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

Reference Source Temperature (° F)	Test Thermometer Temperature (° F)	<i>Temperature Difference %</i>
0	2	0.4
250	252	0.3
600	602	0.2
1200	1205	0.3

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

Ref. Temp., °F + 460

#### Meter Box Calibration

## Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM45	Date:	May 11, 2023
Standard Meter No.	25125408	Calibrated By:	Rods
Standard Meter (Y)	1.00050	Barometric Pressure:	28.07

	Orifice	Standard Meter	Dry Gas Meter	Standard Meter	Dry Gas Meter	Dry Gas Meter	Dry Gas Meter				
	Setting in H <sub>2</sub> O	Gas Volume	Gas Volume	Temp. F°	Inlet Temp. F°	Outlet Temp. F <sup>o</sup>	-	Time	Time		
Run Number	Chg (H)	vr	vd	tr	tdi	tdo	td	Min	Sec	Y	Chg (H)
		1	1								
Final		94.737	86.568	76	82	82					
Initial		80.261	71.899	75		80					
Difference	1 0.20	14.476	14.669	76	81	81	81	56	31	0.997	1.832
Final		80.261	71.899	75	80	80					
Initial		56.831	48.201	75	80	80					
Difference 2	2 0.50	23.430	23.698	75	80	80	80	58	42	0.997	1.886
Final		56.831	48.201	75	80	80					
Initial		50.346	41.651	74	79	79					
Difference 3	3 0.70	6.485	6.550	75	80	80	80	13	50	0.998	1.912
Final		50.346	41.651	74	80	80					
Initial		45.562	36.811	74	79	79					
Difference 4	4 0.90	4.784	4.840	74	80	80	80	9	0	0.997	1.909
Final		45.562	36.811	74	79	79					
Initial		39.626	30.833	74	79	79					
Difference 🗧	5 1.20	5.936	5.978	74	79	79	79	9	40	1.000	1.909
Final		39.626	30.833	74	79	79					
Initial		30.760	21.896	74	78	78	[				
Difference 6	6 2.00	8.866	8.937	74	79	79	79	11	5	0.996	1.876

Average 0.997 1.887

#### Stack Temperature Sensor Calibration

Meter Box # :	<u>CM45</u>			Name :	Rods
Ambient Temperature	: _	75.2 <sup>°</sup> F	=	Date :	May 11, 2023
Calibrator Model # :	CL940A				
Serial # :	526				
Date Of Certification :	December 2	9, 2022			

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

Reference Source Temperature (° F)	Test Thermometer Temperature (° F)	<i>Temperature Difference %</i>
0	1	0.2
250	251	0.1
600	601	0.1
1200	1205	0.3

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

Ref. Temp., °F + 460

## Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM13	Date:	January 3, 2023
Standard Meter No.	16541652	Calibrated By:	TWM
Standard Meter (Y)	0.98870	Barometric Pressure:	28.12

	Orifice	Standard Meter	Dry Gas Meter	Standard Meter	Dry Gas Meter	Dry Gas Meter	Dry Gas Meter				
	Setting in $H_2$ O	Gas Volume	Gas Volume	Temp. F°	Inlet Temp. F°	Outlet Temp. F°	Avg. Temp. F°	Time	Time		
Run Number	Chg (H)	vr	vd	tr	tdi	tdo	td	Min	Sec	Y	Chg (H)
Final		98.113	62.955	54	63	57					
Initial		104.954	69.710	54	61	60					
	0.20		-6.755	54	62	59	•	23	31	1.013	1.391
Final	0.20	22.415		55		62		20	01	1.010	1.001
Initial		29.508		56	66	63					
Difference 2	0.50		-7.080	56	66	63	64	15	55	1.006	1.479
Final		17.117	81.759	55		62					
Initial		22.415		55	66	62					
Difference 3	0.70	-5.298	-5.292	55	66	62	64	10	17	1.005	1.547
Final		11.554	76.242	54	65	61					
Initial		17.117	81.759	55	65	62					
Difference 4	0.90	-5.563	-5.517	55	65	62	63	9	31	1.012	1.544
Final		5.110	69.850	54	61	60					
Initial		11.554	76.242	54	65	61					
Difference 5	5 1.20	-6.444	-6.392	54	63	61	62	9	35	1.009	1.557
Final		92.747	57.715	53	58	57					
Initial	_	98.113	62.955	54	63	57					
Difference 6	3 2.00	-5.366	-5.240	54	61	57	59	6	14	1.018	1.589

Average **1.010 1.518** 

	Stack Temperature Sensor Calibratio	n	
Temperature ID :	CM13	Name :	TWM
Ambient Temperature, °F:	51	Date :	January 3, 2023

Temperature Calibrator					
Model # :	CL940A	Certification Date:	January 3, 2023		
Serial # :	526	Expiration Date:	January 3, 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	252	0.3
600	602	0.2
1200	1205	0.3

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

Ref. Temp., °F + 460

## Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM13	Date:	May 10, 2023
Standard Meter No.	16541852	Calibrated By:	RICHS
Standard Meter (Y)	0.98870	Barometric Pressure:	27.96

	Orifice	Standard Meter	Dry Gas Meter	Standard Meter	Dry Gas Meter	Dry Gas Meter	Dry Gas Meter				
	Setting in $H_2$ O	Gas Volume	Gas Volume	Temp. F°	Inlet Temp. F <sup>o</sup>	Outlet Temp. F <sup>o</sup>	-	Time	Time		
Run Number	Chg (H)	vr	vd	tr	tdi	tdo	td	Min	Sec	Y	Chg (H)
		-									
Final		8.350	60.830	71	73	72					
Initial	_	0.001	<i>52.4</i> 53	70	73	71					
Difference	1 0.20	8.349	8.377	71	73	72	72	28	27	0.988	1.431
Final		18.772	71.276	71	76	73					
Initial		8.350	60.830	71	73	72					
Difference	2 0.50	10.422	10.446	71	75	73	74	23	8	0.990	1.517
Final		24.969	77.498	71	76	73					
Initial		18.772	71.276	71	76	73					
Difference	3 0.70	6.197	6.222	71	76	73	75	11	37	0.989	1.512
Final		31.760	84.325	71	78	74					
Initial		24.969	77.498	71	76	73					
Difference	4 0.90	6.791	6.827	71	77	74	75	11	38	0.989	1.622
Final		62.589	115.250	72	79	75					
Initial		31.760	84.325	71	78	74					
Difference	5 1.20	30.829	30.925	72	79	75	77	45	7	0.992	1.577
Final		99.966	52.415	70	73	71					
Initial		94.881	47.393	70	71	70	[				
Difference	6 2.00	5.085	5.022	70	72	71	71	5	45	0.998	1.576

Average 0.991 1.539

	Stack Temperature Sensor Calibratio	n	
Temperature ID :	CM13	Name :	RICHS
Ambient Temperature, ° F :	70	Date :	5/10/2023

Temperature Calibrator					
Model # :	CL940A	Certification Date:	December 29, 2022		
Serial # :	526	Expiration Date:	December 29, 2023		

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

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

<u>(Ref. Temp.,  ${}^{\circ}F + 460$ ) - (Test Therm. Temp.,  ${}^{\circ}F + 460$ ) \* 100 <= 1.5 %</u>

Ref. Temp., °F + 460

## Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM46	Date:	March 31, 2023
Standard Meter No.	25125408	Calibrated By:	RB
Standard Meter (Y)	1.00050	Barometric Pressure:	28.36

	Orifice	Standard Meter	Dry Gas Meter	Standard Meter	Dry Gas Meter	Dry Gas Meter	Dry Gas Meter				
	Setting in H <sub>2</sub> O	Gas Volume	Gas Volume	Temp. F°	Inlet Temp. F°	Outlet Temp. F°	Avg. Temp. F°	Time	Time		
Run Number	Chg (H)	vr	vd	tr	tdi	tdo	td	Min	Sec	Y	Chg (H)
Final		424.201	476.946	56	56	56					
Initial		429.247	482.080	56	57	57					
Difference 1	0.20	-5.046	-5.134	56	57	57	57	18	0	0.984	1.472
Final		429.247	482.080	56	57	57					
Initial		434.102	487.000	58	59	59					
Difference 2	2 0.50	-4.855	-4.920	57	58	58	58	12	0	0.988	1.769
Final		434.102	487.000	58	59	59					
Initial		438.841	491.820	58	60	60					
Difference 3	3 0.70	-4.739	-4.820	58	60	60	60	10	0	0.985	1.806
Final		438.841	491.820	58	60	60					
Initial		443.718	496.772	58	61	61					
Difference 4	4 0.90	-4.877	-4.952	58	61	61	61	9	0	0.988	1.773
Final		443.718	496.772	58	61	61					
Initial		448.536	501.671	58	62	62					
Difference 5	5 1.20	-4.818	-4.899	58	62	62	62	8	0	0.988	1.910
Final		419.535	472.225	56	55	55					
Initial		424.201	476.946	56	56	56					
Difference 6	3 2.00	-4.666	-4.721	56	56	56	56	6	0	0.983	1.917

Average 0.986 1.774

### Stack Temperature Sensor Calibration

Meter Box # :	<u>CM46</u>			Name :	RB
Ambient Temperature	: _	55.8	°F	Date :	March 31, 2023
Calibrator Model # :	CL940A				
Serial # :	526				
Date Of Certification :	December 2	9, 2022			

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

Reference Source Temperature (° F)	Test Thermometer Temperature (° F)	<i>Temperature Difference %</i>
0	1	0.2
250	252	0.3
600	602	0.2
1200	1206	0.4

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

Ref. Temp., °F + 460

### Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM46	Date:	March 31, 2023
Standard Meter No.	25125408	Calibrated By:	RB
Standard Meter (Y)	1.00050	Barometric Pressure:	28.36

	Orifice	Standard Meter	Dry Gas Meter	Standard Meter	Dry Gas Meter	Dry Gas Meter	Dry Gas Meter				
	Setting in H <sub>2</sub> O	Gas Volume	Gas Volume	Temp. F°	Inlet Temp. F°	Outlet Temp. F°	Avg. Temp. F°	Time	Time		
Run Number	Chg (H)	vr	vd	tr	tdi	tdo	td	Min	Sec	Y	Chg (H)
		10 1 00 1	170.040	50	50	50					
Final		424.201	476.946	56							
Initial	1	429.247	482.080	56	57	57					
Difference	1 0.20	-5.046	-5.134	56	57	57	57	18	0	0.984	1.472
Final		429.247	482.080	56	57	57					
Initial		434.102	487.000	58	59	59					
Difference 2	2 0.50	-4.855	-4.920	57	58	58	58	12	0	0.988	1.769
Final		434.102	487.000	58	59	59					
Initial		438.841	491.820	58	60	60					
Difference 3	3 0.70	-4.739	-4.820	58	60	60	60	10	0	0.985	1.806
Final		438.841	491.820	58	60	60					
Initial		443.718	496.772	58	61	61					
Difference	4 0.90	-4.877	-4.952	58	61	61	61	9	0	0.988	1.773
Final		443.718	496.772	58	61	61					
Initial		448.536	501.671	58	62	62					
Difference	5 1.20	-4.818	-4.899	58	62	62	62	8	0	0.988	1.910
Final		419.535	472.225	56	55	55					
Initial		424.201	476.946	56	56	56					
Difference d	6 2.00	-4.666	-4.721	56	56	56	56	6	0	0.983	1.917

Average 0.986 1.774

### Stack Temperature Sensor Calibration

Meter Box # :	<u>CM46</u>			Name :	RB
Ambient Temperature	: _	55.8	°F	Date :	March 31, 2023
Calibrator Model # :	CL940A				
Serial # :	526				
Date Of Certification :	December 2	9, 2022			

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

Reference Source Temperature (° F)	Test Thermometer Temperature (° F)	<i>Temperature Difference %</i>
0	1	0.2
250	252	0.3
600	602	0.2
1200	1206	0.4

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

Ref. Temp., °F + 460

### Dry Gas Meter Calibration Data

Dry Gas Meter No.	CM46	Date:	May 12, 2023
Standard Meter No.	25125408	Calibrated By:	RB
Standard Meter (Y)	1.00050	Barometric Pressure:	28.12

	Orifice	Standard Meter	Dry Gas Meter	Standard Meter	Dry Gas Meter	Dry Gas Meter	Dry Gas Meter				
	Setting in H <sub>2</sub> O	Gas Volume	Gas Volume	Temp. F°	Inlet Temp. F <sup>o</sup>	Outlet Temp. F <sup>o</sup>	-	Time	Time		
Run Number	Chg (H)	vr	vd	tr	tdi	tdo	td	Min	Sec	Y	Chg (H)
		-									
Final		948.882	758.757	77	76	76					
Initial	_	944.261	754.110	76	73	73					
Difference	1 0.20	4.621	4.647	77	75	75	75	18	3	0.991	1.860
Final		953.842	763.745	76	78	78					
Initial		948.882	758.757	77	76	76					
Difference 2	2 0.50	4.960	4.988	77	77	77	77	12		0.995	1.775
Final		958.686	768.621	78	78	78					
Initial		953.842	763.745	76	78	78					
Difference 3	3 0.70	4.844	4.876	77	78	78	78	10		0.994	1.810
Final		963.636	773.617	78	79	79					
Initial		958.686	768.621	78	78	78					
Difference	4 0.90	4.950	4.996	78	79	79	79	9	4	0.990	1.837
Final		968.613	778.641	78	80	80					
Initial		963.636	773.617	78	79	79					
Difference S	5 1.20	4.977	5.024	78	80	80	80	8	1	0.991	1.890
Final		944.261	754.110	76	73	73					
Initial		939.417	749.295	76	73	73					
Difference d	6 2.00	4.844	4.815	76	73	73	73	6	2	0.996	1.893

Average 0.993 1.844

### Stack Temperature Sensor Calibration

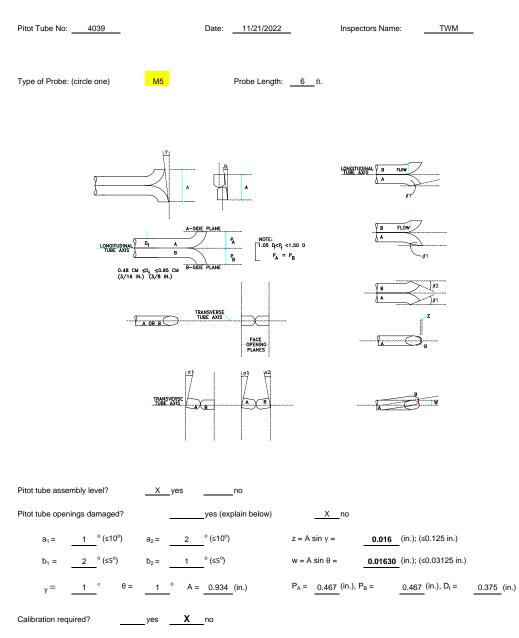
Meter Box # :	<u>CM46</u>			Name :	RB
Ambient Temperature	:	77.9	°F	Date :	May 12, 2023
Calibrator Model # :	CL940A				
Serial # :	526				
Date Of Certification :	December 29	), 2022	_		

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

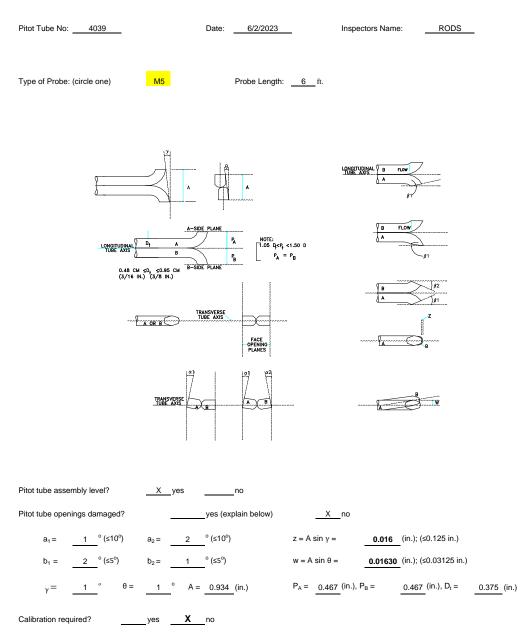
Reference Source Temperature (° F)	Test Thermometer Temperature (° F)	<i>Temperature Difference %</i>
0	0	0.0
250	251	0.1
600	601	0.1
1200	1205	0.3

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

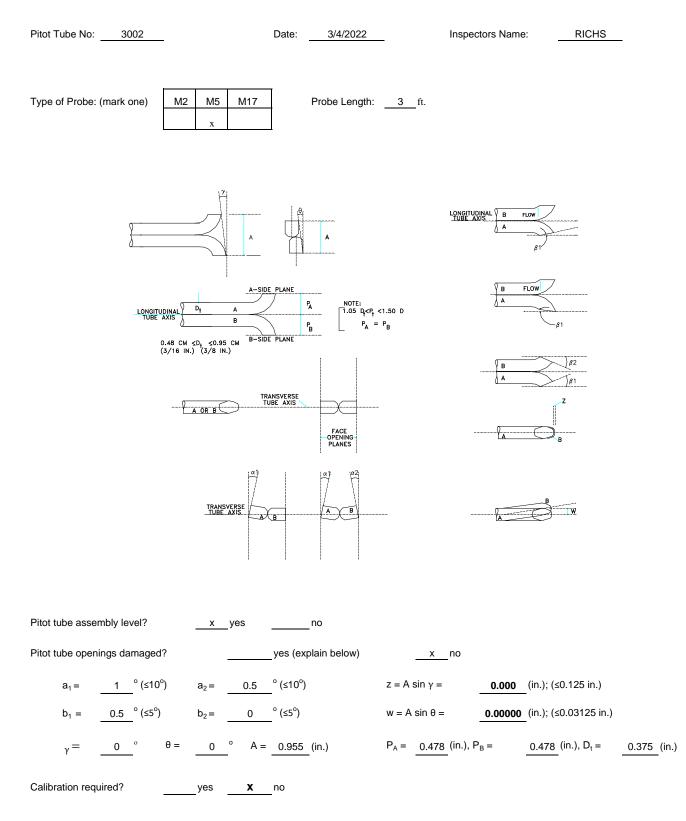
Ref. Temp., °F + 460

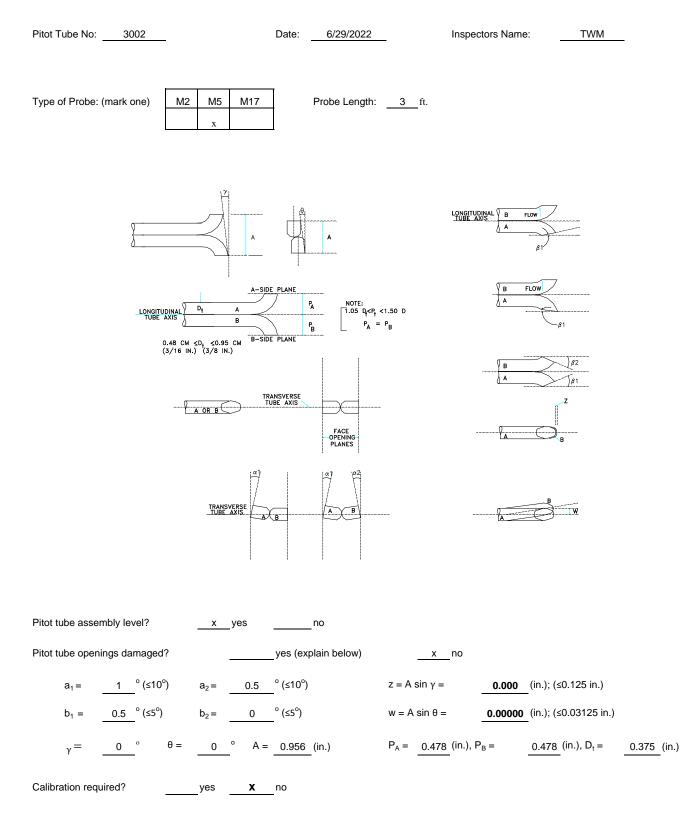


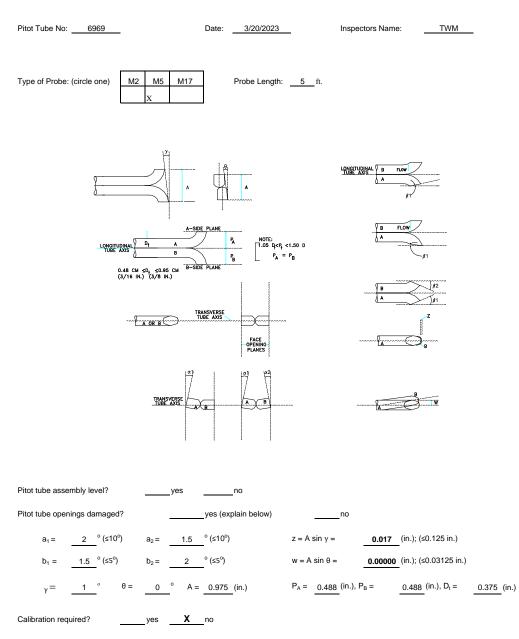
γ



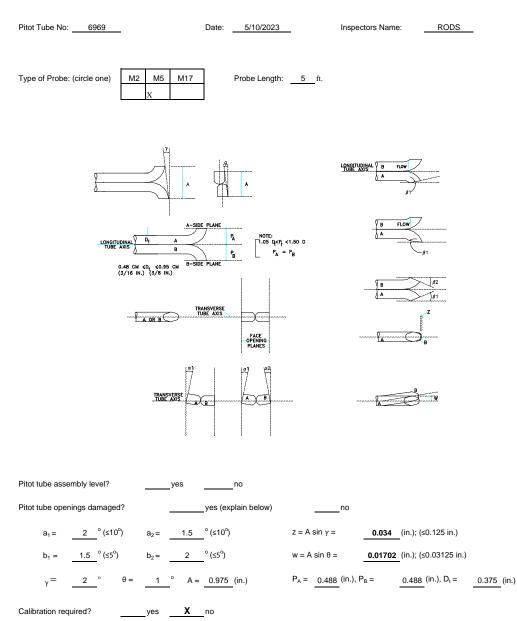
γ



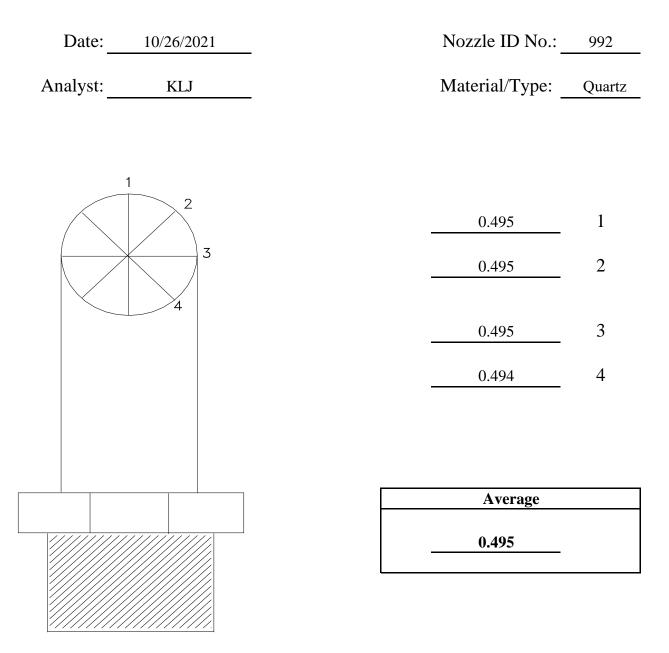


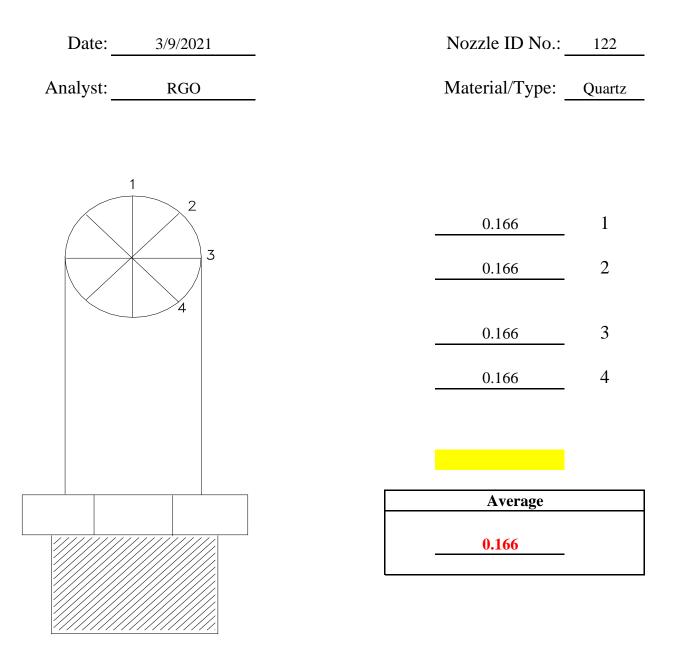


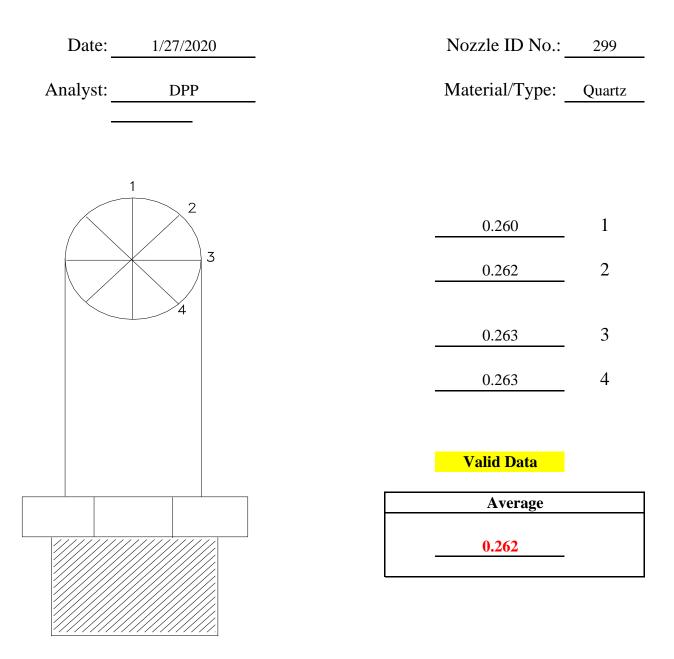
γ

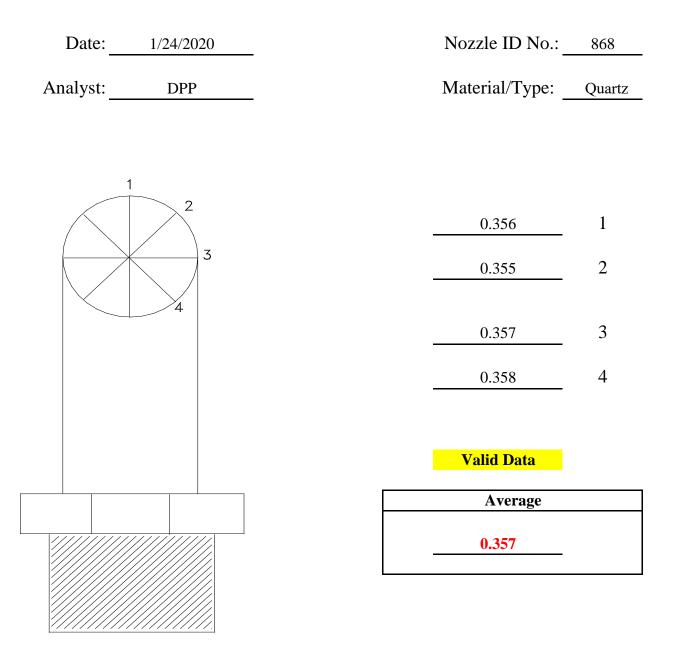


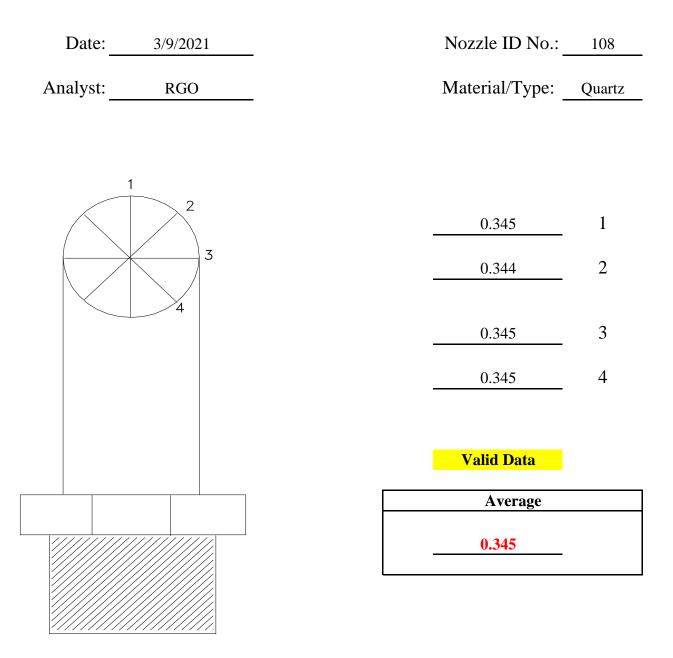
γ

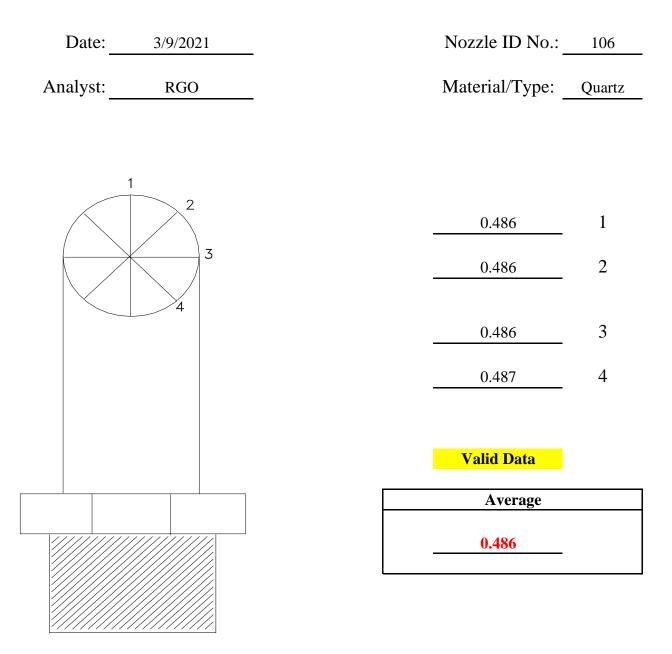












Appendix I - Gas Cylinder Certifications



## **Grade of Product: EPA PROTOCOL STANDARD**

Part Number: Cylinder Number: Laboratory: PGVP Number: Gas Code: E03NI78E15A0225 CC415470 124 - Los Angeles (SAP) - CA B32022 CO2,O2,BALN Reference Number:48-402574718-1Cylinder Volume:152.0 CFCylinder Pressure:2015 PSIGValve Outlet:590Certification Date:Oct 28, 2022

Expiration Date: Oct 28, 2030

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted. The results relate only to the items tested. The report shall not be reproduced except in full without approval of the laboratory. Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS											
Compone	ent	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates					
CARBON [	DIOXIDE	11.00 %	11.17 %	G1	+/- 0.6% NIST Traceable	10/28/2022					
OXYGEN		11.00 %	11.06 %	G1	+/- 0.7% NIST Traceable	10/28/2022					
NITROGEN	Ν	Balance									
CALIBRATION STANDARDS											
Туре	Lot ID	Cylinder No	Concentration		Uncertainty	Expiration Date					
NTRM	13060432	CC413737	7.489 % CARBON	DIOXIDE/NITROGEN	+/- 0.6%	May 14, 2025					
NTRM	98051002	SG9150866BAL	12.05 % OXYGEN	/NITROGEN	+/- 0.7%	Dec 14, 2023					
	ANALYTICAL EQUIPMENT										
Instrume	nt/Make/Mod	el	Analytical Principle	l	ast Multipoint Calibrat	ion					
SIEMENS 6E CO2 NDIR		NDIR	(	Dct 17, 2022							
SIEMENS	OXYMAT 6		PARAMAGNETIC	(	Dct 13, 2022						





## **Grade of Product: EPA PROTOCOL STANDARD**

Part Number: Cylinder Number: Laboratory: PGVP Number: Gas Code: E03NI59E15A3452 SG896172 124 - Los Angeles (SAP) - CA B32021 CO2,O2,BALN Reference Number:48-402051367-1Cylinder Volume:159.0 CFCylinder Pressure:2015 PSIGValve Outlet:590Certification Date:Mar 08, 2021

Expiration Date: Mar 08, 2029

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted. The results relate only to the items tested. The report shall not be reproduced except in full without approval of the laboratory. Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS										
Compone	ent	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates				
CARBON D	DIOXIDE	19.00 %	19.21 %	G1	+/- 0.6% NIST Traceable	03/08/2021				
OXYGEN		22.00 %	22.07 %	G1	+/- 0.3% NIST Traceable	03/08/2021				
NITROGEN	N	Balance								
CALIBRATION STANDARDS										
Туре	Lot ID	Cylinder No	Concentration		Uncertainty	Expiration Date				
NTRM	12061520	CC354777	19.87 % CARBON DI	OXIDE/NITROGEN	+/- 0.6%	Jan 11, 2024				
NTRM	16060506	CC353376	23.204 % OXYGEN/N	NITROGEN	+/- 0.2%	Dec 24, 2021				
ANALYTICAL EQUIPMENT										
Instrume	nt/Make/Mode	el	Analytical Principle		Last Multipoint Calibra	tion				
SIEMENS 6E CO2 NDIR			Feb 12, 2021							
SIEMENS	OXYMAT 6		PARAMAGNETIC		Mar 04, 2021					





## **Grade of Product: EPA PROTOCOL STANDARD**

Part Number: Cylinder Number: Laboratory: PGVP Number: Gas Code: E02AI99E15A0705 EB0014316 124 - Los Angeles (SAP) - CA B32023 PPN,BALA Reference Number:48-402677770-1Cylinder Volume:146.0 CFCylinder Pressure:2015 PSIGValve Outlet:590Certification Date:Feb 28, 2023

Expiration Date: Feb 28, 2031

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted. The results relate only to the items tested. The report shall not be reproduced except in full without approval of the laboratory. Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS									
Component	Requeste Concentra		l entration	Protocol Method	Total Relative Uncertainty	Assay Dates			
PROPANE AIR	30.00 PPM Balance	30.06 F	PPM	G1	+/- 0.6% NIST Tracea	able 02/28/2023			
CALIBRATION STANDARDS									
Туре	Lot ID	Cylinder No	Concentra	tion	Uncertainty	Expiration Date			
NTRM	16061117	EB0081910	50.06 PPM F	PROPANE/AIR	+/- 0.5%	Mar 22, 2028			
		A	NALYTICAI	LEQUIPME	NT				
Instrument/M	lake/Model	A	Analytical Principle		Last Multipoint C	Calibration			
Nicolet iS50 AL	JP2010243 C3H8	F	TIR		Feb 17, 2023				





## **Grade of Product: EPA PROTOCOL STANDARD**

Part Number: Cylinder Number: Laboratory: PGVP Number: Gas Code: E02AI99E15A1877 CC277550 124 - Los Angeles (SAP) - CA B32023 PPN,BALA Reference Number:48-402677771-1Cylinder Volume:146.0 CFCylinder Pressure:2015 PSIGValve Outlet:590Certification Date:Feb 28, 2023

Expiration Date: Feb 28, 2031

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted. The results relate only to the items tested. The report shall not be reproduced except in full without approval of the laboratory. Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS									
Component	Requester Concentra		l entration	Protocol Method	Total Relative Uncertainty	Assay Dates			
PROPANE AIR	60.00 PPM Balance	60.54 F	PPM	G1	+/- 0.6% NIST Tracea	able 02/28/2023			
CALIBRATION STANDARDS									
Туре	Lot ID	Cylinder No	Concentra	ation	Uncertainty	Expiration Date			
NTRM	16061117	EB0081910	50.06 PPM	PROPANE/AIR	+/- 0.5%	Mar 22, 2028			
ANALYTICAL EQUIPMENT									
Instrument/Make/Model Analytical Principle Last Multipo					Last Multipoint C	Calibration			
Nicolet iS50 AL	JP2010243 C3H8	F	TIR		Feb 17, 2023				





## **Grade of Product: EPA PROTOCOL STANDARD**

Part Number: Cylinder Number: Laboratory: PGVP Number: Gas Code: E02AI99E15A0565 ALM-044753 124 - Los Angeles (SAP) - CA B32021 PPN,BALA Reference Number:48-402058891-1Cylinder Volume:146.2 CFCylinder Pressure:2015 PSIGValve Outlet:590Certification Date:Mar 22, 2021

Expiration Date: Mar 22, 2029

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted. The results relate only to the items tested. The report shall not be reproduced except in full without approval of the laboratory. Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS									
Component	Requested Concentrat		l entration	Protocol Method	Total Relative Uncertainty	Assay Dates			
PROPANE AIR	90.00 PPM Balance	89.65 F	PPM	G1	+/- 0.5% NIST Trace	able 03/22/2021			
CALIBRATION STANDARDS									
Туре	Lot ID	Cylinder No	Concent	ration	Uncertainty	Expiration Date			
NTRM	16060312	CC471390	99.70 PPI	M PROPANE/AIR	+/- 0.5%	Nov 16, 2021			
ANALYTICAL EQUIPMENT									
Instrument/Make/Model Analytical Principle Last Multipoint Calibration						alibration			
MKS FTIR C3H	18 018335821	FTI	FTIR		Mar 09, 2021				



## Appendix J - $NO_2$ to NO Converter Efficiency Test

### NO2 to NO Converter Test

Client:	PCC Stru	cturals				Conv. Temp:	621.	6 °C
Facility: Carson City Facility				Test Type NO2 Direct				
Test Location: System 2 - Mold Burnout						<b>Max:</b> 45.5		5 ppm
Date:	4/24/2023	•						
Project #:	M231408					Conversion:	90.3	7 %
						Requirement:	90.0	0 %
Pre-Calib	ration		Tes	t		Post-Calibra	ition	
Time	NO <sub>x</sub>	Cal Flag	Time	<u>NO,</u>		Time	NO,	Cal Flag
15:15	-0.01	z	15:26	42.6		15:56	0.6	
15:16	0.00		15:27	44.3		15:57	0.4	z
15:17	24.26		15:28	44.1		15:58	16.3	
15:18	44.12	h	15:29	44.0		15:59	18.0	m
15:19	11.13		15:30	44.2		16:00	18.0	
15:20	30.15		15:31	44.5				
15:21	20.01		15:32	44.9				
15:22	18.00		15:33	45.5	Max			
15:23	18.04	m	15:34	45.0				

PRE-CAL RE	SULT
zero	-0.02%

mid -0.07% high -0.11%

POST-CAL RESULT				
zero	0.91%			
mid	-0.16%			

Туре		RM Analyzer Make/Model	RM Analyzer s/n	Analyzer Span	RM Gas Span	
		Thermo 42i	1173100023	100	44.17	
Type Setting		Cylinder ID	Cylinder Value	Analyzer Response Difference, % of S		Expiration Date
	Zero	Zero Nitrogen	0	-0.01	0.02%	N/A
	Mid	CC438563	18.07	18.04	0.07%	5/25/2024
	High	CC733600	44.17	44.12	0.11%	12/14/2023
NO2 ppmvd	CEG	CC510742	50.35			3/17/2024

-

## Appendix K – Pictures and Correspondence







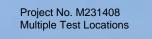
























#### Appendix L – NDEP Permit



### NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

Steve Sisolak, Governor Bradley Crowell, Director Greg Lovato, Administrator

June 22, 2022

Ryan Walker General Manager PCC Structurals, Inc. 2727 Lockheed Way Carson City, NV 89706

#### RE: Notification of Issuance of Revision and Renewal of Class II Air Quality Operating Permit AP3324-1253.03, FIN A0528, Air Cases 9519 and 9520 – Carson City Facility

Dear Mr. Walker:

The Nevada Division of Environmental Protection – Bureau of Air Pollution Control (BAPC) has reviewed the applications submitted by PCC Structurals, Inc. on December 26, 2017 for the above-referenced operating permit under legal authority from Nevada Revised Statutes (NRS) 445B.100 through 445B.640, inclusive, and pursuant to regulations in Nevada Administrative Code (NAC) 445B.001 through 445B.3689, inclusive. Based upon technical review and recommendation, I hereby issue the operating permit with appropriate restrictions. Enclosed is your copy of the operating permit which must be posted conspicuously at the facility.

In accordance with NRS 445B.340 and NAC 445B.890, you may appeal the Department's issuance of the operating permit within 10 days after you receive the operating permit. Appeals may be filed with the State Environmental Commission located at 901 S. Stewart Street, Carson City, Nevada 89701. For questions regarding appeals, call (775) 687-9374.

Please review the operating permit carefully and ensure you understand all conditions, restrictions, monitoring, recordkeeping, and other requirements. If you have any questions, contact Andrew Bell at (775) 687-9356 or abell@ndep.nv.gov.

Sincerely,

Ashley Taylor, P.E. Supervisor, Permitting Branch Bureau of Air Pollution Control

AT/ab Enclosure: Certified Mail No. E-Copy:

Class II Air Quality Operating Permit AP3324-1253.03 9171 9690 0935 0255 2632 02 ryan.walker@pecstructurals.com, PCC Structurals, Inc.

	Nevada Department of Conservation and Natural R	esources • Division of Environmental Protection			
	Rureau of Air P	ollution Control			
901 SOUTH STEWART STREET SUITE 4001					
NIDE	EVADA 89701-5249				
p: 775-687-9349 • <u>ndep.nv.gov/air</u>					
Facility	ID No. A0528	Permit No. AP3324-1253.03			
	CLASS II AIR QUALITY	OPERATING PERMIT			
Issued to:	PCC STRUCTURALS, INC. (HEREINAFTER REFER	RED TO AS PERMITTEE)			
	Idress: 2727 LOCKHEED WAY, CARSON CITY				
Physical A					
		TAKE THE ARROWHEAD DRIVE EXIT 42 AND TRAVELEAS			
		TURN RIGHT ON RYAN WAY THEN LEFT ON LOCKHEET			
General Fa	acility Location: SECTION 4, T 15N.	R 20E, MDB&M			
	HA 104 - EAGLE VALLEY				
	North 4,342,385 m, East 263,5				
Emission U	nit List:				
A Constant 1	Sterry Hasted Antralan				
A. System 1 S2.001	- Steam Heated Autoclave Melco Steel Autoclave				
52.001	Meleo Stell Autoclave				
B. System 2	- Mold Burnout Furnaces				
S2.002	Self-Fabricated Furnace "F" (S004/007) - 1.68 MMI	Btu			
S2.003	Pacific Kiln Mold Burnout Furnace 1 – 4.2 MMBtu				
S2.004	Pacific Kiln Mold Burnout Furnace 2 - 4.2 MMBtu				
S2.005	Pacific Kiln Mold Burnout Furnace (S004/093) – 1.	69 MMBtu			
C. System 3	- Air Furnaces (Electric)				
S2.006	InductoTherm Furnace 1				
S2.007	InductoTherm Furnace 2				
S2.008	InductoTherm Furnace 3				
S2.009	InductoTherm Furnace 4				
S2.035	CLA Air Furnace				
S2.036	Lift Coil Air Fumace				
\$2.010	Vacuum Furnace				
D. System 4	- Part Removal				
S2.011	Tabor 24" Abrasive Chop-saw (S006/016)				
\$2.012	Tabor 16" Abrasive Chop-saw (S006/020)				
S2.014	Blade Stop				
S2.017	Self-Fabricated Knockout Station				
S2.018	Thermadyne Plasma Arc (S006/031)				



Facility ID No. A0528 Permit No. AP3324-1253.03 CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

Emission Unit List: (continued)

E. System 5	5 - Sand Blast Cleaning Equipment
S2.020	Clemco Blast Cabinet (S007/006)
S2.021	Clemco Blast Cabinet (S007/027)
S2.022	Clemco Blast Cabinet (S007/028)
S2.023	Goff Tumble Blast (S007/002)
S2.024	Goff Tumble Blast (S004/053)
S2.025	Pangborn Tumble Blast (S007/002)
\$2.026	Clemco Blast Cabinet (S007/014)
S2.027	10" Abrasive Chop-saw (S006/011)
S2.033	Jet Arc Booth (\$006/008)
S2.037	Clemco Blast Cabinet - 100 Grit (2-28)
S2.044	Jet Arc Booth
F. System 6	6 - Hangar Blast Cleaning
S2.028	Goff Hangar Blast (S007/022)
G. System	7 - Gate Removal Equipment
S2.029	Single Head Grinder 1
S2.030	Single Head Grinder 2
S2.031	Porter Cable 8" Platen Grinder (S009/002)
S2.038	Dual Belt Grinder
S2.039	Bader Grinder I
S2.040	Bader Grinder 2
S2.041	CC Built 2" Belt Grinder
C10 C3	Dual Dalt Caindan

S2.042 Dual Belt Grinder

#### H. System 8 - Reserved

#### I. System 9 - Ingot Cutoff Saw

\$2.034	Ingot Cutoff Saw
\$2.043	8" Porter Cable Grinder

#### \*\*\*\*End of Emission Unit List\*\*\*\*

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# NDEP

Facility ID No. A0528 Permit No. AP3324-1253.03 CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section I. General Provisions

A. <u>Prohibited acts; penalty; establishment of violation; request for prosecution</u> (NRS 445B.470) (*State Only Requirement*) 1. A person shall not knowingly:

- A person shall not knowingly
  - a. Violate any applicable provision, the terms or conditions of any permit or any provision for the filing of information;
  - b. Fail to pay any fee;
  - c. Falsify any material statement, representation or certification in any notice or report; or
  - d. Render inaccurate any monitoring device or method, required pursuant to the provisions of NRS 445B.100 to 445B.450, inclusive, or 445B.470 to 445B.640, inclusive, or any regulation adopted pursuant to those provisions.
- Any person who violates any provision of subsection 1 shall be punished by a fine of not more than \$10,000 for each day of the violation.
- 3. The burden of proof and degree of knowledge required to establish a violation of subsection 1 are the same as those required by 42 U.S.C. § 7413(c), as that section existed on October 1, 1993.
- 4. If, in the judgment of the Director of the Department or the Director's designee, any person is engaged in any act or practice which constitutes a criminal offense pursuant to NRS 445B.100 to 445B.640, inclusive, the Director of the Department or the designee may request that the Attorney General or the district attorney of the county in which the criminal offense is alleged to have occurred institute by indictment or information a criminal prosecution of the person.
- 5. If, in the judgment of the control officer of a local air pollution control board, any person is engaged in such an act or practice, the control officer may request that the district attorney of the county in which the criminal offense is alleged to have occurred institute by indictment or information a criminal prosecution of the person.

B. <u>Visible emissions: Maximum opacity: determination and monitoring of opacity</u> (NAC 445B.22017) (*Federally Enforceable SIP Requirement*)

- Except as otherwise provided in this section and NAC 445B.2202, no owner or operator may cause or permit the discharge into the atmosphere from any emission unit which is of an opacity equal to or greater than 20 percent. Opacity must be determined by one of the following methods:
  - a. If opacity is determined by a visual measurement, it must be determined as set forth in Reference Method 9 in Appendix A of 40 CFR Part 60.
  - b. If a source uses a continuous monitoring system for the measurement of opacity, the data must be reduced to 6-minute averages as set forth in 40 CFR 60.13(h).
- The provisions of this section and NAC 445B.2202 do not apply to that part of the opacity that consists of uncombined water. The burden of proof to establish the application of this exemption is upon the person seeking to come within the exemption.
- If the provisions of 40 CFR Part 60, Subpart D or Da apply to an emission unit, the emission unit must be allowed one 6minute period per hour of not more than 27 percent opacity as set forth in 40 CFR 60.42(a)(2) and 40 CFR 60.42a(b).
- 4. The continuous monitoring system for monitoring opacity at a facility must be operated and maintained by the owner or operator specified in the permit for the facility in accordance with NAC 445B.256 to 445B.267, inclusive.

C. <u>Visible emissions: Exceptions for stationary sources</u> (NAC 445B.2202) (*Federally Enforceable SIP Requirement*) The provisions of NAC 445B.22017 do not apply to:

- 1. Smoke from the open burning described in NAC 445B.22067;
- Smoke discharged in the course of training air pollution control inspectors to observe visible emissions, if the facility has written approval of the Commission;
- 3. Emissions from an incinerator as set forth in NAC 445B.2207; or
- 4. Emissions of stationary diesel-powered engines during warm-up for not longer than 15 minutes to achieve operating temperatures.

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## NDEP Facility ID No. A0528

cility ID No. A0528 Permit No. AP3324-1253.03 CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section I. General Provisions (continued)

D. Odors (NAC 445B.22087) (State Only Requirement)

- No person may discharge or cause to be discharged, from any stationary source, any material or regulated air pollutant which is or tends to be offensive to the senses, injurious or detrimental to health and safety, or which in any way interferes with or prevents the comfortable enjoyment of life or property.
- 2. The Director shall investigate an odor when 30 percent or more of a sample of the people exposed to it believe it to be objectionable in usual places of occupancy. The sample must be at least 20 people or 75 percent of those exposed if fewer than 20 people are exposed.
- 3. The Director shall deem the odor to be a violation if he or she is able to make two odor measurements within a period of 1 hour. These measurements must be separated by at least 15 minutes. An odor measurement consists of a detectable odor after the odorous air has been diluted with eight or more volumes of odor-free air.
- E. <u>Prohibited Conduct: Concealment of Emissions</u> (NAC 445B.225) (Federally Enforceable SIP Requirement) No person may install, construct or use any device which conceals any emission without reducing the total release of regulated air pollutants to the atmosphere.
- F. <u>Prohibited conduct: Operation of source without required equipment; removal or modification of required equipment; modification of required procedure (NAC 445B.227) (Federally Enforceable SIP Requirement)</u> Except as otherwise provided in NAC 445B.001 to 445B.3497, inclusive, [NAC adopted as of October 2016 includes NAC 445B.001 to 445B.390, inclusive], no person may:
  - 1. Operate a stationary source of air pollution unless the control equipment for air pollution which is required by applicable requirements or conditions of this Operating Permit is installed and operating.
  - Disconnect, alter, modify or remove any of the control equipment for air pollution or modify any procedure required by an applicable requirement or condition of the permit.

G. Excess Emissions (NAC 445B.232) (State Only Requirement)

- 1. Scheduled maintenance or testing or scheduled repairs which may result in excess emissions of regulated air pollutants prohibited by NAC 445B.001 to 445B.3689, inclusive, must be approved in advance by the Director and performed during a time designated by the Director as being favorable for atmospheric ventilation.
- 2. Each owner or operator shall notify the Director of the proposed time and expected duration at least 30 days before any scheduled maintenance or testing which may result in excess emissions of regulated air pollutants prohibited by NAC 445B.001 to 445B.390, inclusive. The scheduled maintenance or testing must not be conducted unless the scheduled maintenance or testing is approved pursuant to subsection 1.
- 3. Each owner or operator shall notify the Director of the proposed time and expected duration at least 24 hours before any scheduled repairs which may result in excess emissions of regulated air pollutants prohibited by NAC 445B.001 to 445B.390, inclusive. The scheduled repairs must not be conducted unless the scheduled repairs are approved pursuant to subsection 1.
- Each owner or operator shall notify the Director of any excess emissions within 24 hours after any malfunction or upset of the
  process equipment or equipment for controlling pollution or during start-up or shutdown of that equipment.

## Facility ID No. A0528Permit No. AP3324-1253.03CLASS II AIR QUALITY OPERATING PERMIT

**Issued to:** PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section I. General Provisions (continued)

#### G. Excess Emissions (NAC 445B.232) (State Only Requirement) (continued)

- Each owner or operator shall provide the Director, within 15 days after any malfunction, upset, start-up, shutdown or human error which results in excess emissions, sufficient information to enable the Director to determine the seriousness of the excess emissions. The information must include at least the following:
  - a. The identity of the stack or other point of emission, or both, where the excess emissions occurred.
  - b. The estimated magnitude of the excess emissions expressed in opacity or in the units of the applicable limitation on emission and the operating data and methods used in estimating the magnitude of the excess emissions.
  - c. The time and duration of the excess emissions.
  - d. The identity of the equipment causing the excess emissions.
  - e. If the excess emissions were the result of a malfunction, the steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of the malfunction.
  - f. The steps taken to limit the excess emissions.
  - g. Documentation that the equipment for controlling air pollution, process equipment or processes were at all times maintained and operated, to a maximum extent practicable, in a manner consistent with good practice for minimizing emissions.
- 6. Each owner or operator shall ensure that any notification or related information submitted to the Director pursuant to this section is provided in a format specified by the Director.

#### H. <u>Testing and Sampling</u> (NAC 445B.252) (Federally Enforceable SIP Requirement)

- 1. To determine compliance with NAC 445B.001 to 445B.3497, inclusive, [NAC adopted as of October 2016 includes NAC 445B.001 to 445B.390, inclusive], before the approval or the continuance of an operating permit or similar class of permits, the Director may either conduct or order the owner of any stationary source to conduct or have conducted such testing and sampling as the Director determines necessary. Testing and sampling or either of them must be conducted and the results submitted to the Director within 60 days after achieving the maximum rate of production at which the affected facility will be operated, but not later than 180 days after initial start-up of the facility and at such other times as may be required by the Director.
- 2. Tests of performance must be conducted and data reduced in accordance with the methods and procedures of the test contained in each applicable subsection of this section unless the Director:
  - a. Specifies or approves, in specific cases, the use of a method of reference with minor changes in methodology;
  - b. Approves the use of an equivalent method;
  - c. Approves the use of an alternative method, the results of which the Director has determined to be adequate for indicating whether a specific stationary source is in compliance; or
  - d. Waives the requirement for tests of performance because the owner or operator of a stationary source has demonstrated by other means to the director's satisfaction that the affected facility is in compliance with the standard.
- 3. Tests of performance must be conducted under such conditions as the Director specifies to the operator of the plant based on representative performance of the affected facility. The owner or operator shall make available to the Director such records as may be necessary to determine the conditions of the performance test. Operations during periods of startup, shutdown and malfunction must not constitute representative conditions of a performance test unless otherwise specified in the applicable standard.
- 4. The owner or operator of an affected facility shall give notice to the Director 30 days before the test of performance to allow the Director to have an observer present. A written testing procedure for the test of performance must be submitted to the Director at least 30 days before the test of performance to allow the Director to review the proposed testing procedures.
- 5. Each test of performance must consist of at least three separate runs using the applicable method for that test. Each run must be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic means of results of the runs apply. In the event of forced shutdown, failure of an irreplaceable portion of the sampling train, extreme meteorological conditions or other circumstances with less than three valid samples being obtained, compliance may be determined using the arithmetic mean of the results of the other two runs upon the Director's approval.
- 6. All testing and sampling will be performed in accordance with recognized methods and as specified by the Director.

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### Facility ID No. A0528Permit No. AP3324-1253.03CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section I. General Provisions (continued)

H. Testing and Sampling (NAC 445B.252) (Federally Enforceable SIP Requirement) (continued)

- 7. The cost of all testing and sampling and the cost of all sampling holes, scaffolding, electric power and other pertinent allied facilities as may be required and specified in writing by the Director must be provided and paid for by the owner of the stationary source.
- 8. All information and analytical results of testing and sampling must be certified as to their truth and accuracy and as to their compliance with all provisions of these regulations, and copies of these results must be provided to the Director no later than 60 days after the testing or sampling, or both.
- 9. Notwithstanding the provisions of subsection 2, the Director shall not approve an alternative method or equivalent method to determine compliance with a standard or emission limitation contained in Part 60, 61 or 63 of Title 40 of the Code of Federal Regulations for:
  - a. An emission unit that is subject to a testing requirement pursuant to Part 60, 61 or 63 of Title 40 of the Code of Federal Regulations; or
  - b. An affected source.

#### I. Permit Revision (NAC 445B.287(1)(b)) (Federally Enforceable SIP Requirement)

If a stationary source is a Class II source, a revision of the operating permit or the permit to construct is required pursuant to the requirements of NAC 445B.3465 before the stationary source may be modified.

J. Violations: Acts constituting; notice (NAC 445B.275) (Federally Enforceable SIP Requirement)

- Failure to comply with any requirement of NAC 445B.001 to 445B.3791, inclusive, [NAC adopted as of October 2016 includes NAC 445B.001 to 445B.390, inclusive] any applicable requirement or any condition of an operating permit constitutes a violation. As required by NRS 445B.450, the Director shall issue a written notice of an alleged violation to any owner or operator for any violation, including, but not limited to:
  - a. Failure to apply for and obtain an operating permit;
  - b. Failure to construct a stationary source in accordance with the application for an operating permit as approved by the Director;
  - c. Failure to construct or operate a stationary source in accordance with any condition of an operating permit;
  - d. Commencing construction or modification of a stationary source without applying for and receiving an operating permit or a modification of an operating permit as required by NAC 445B.001 to 445B.3497, inclusive, [NAC adopted as of October 2016 includes NAC 445B.001 to 445B.3477, inclusive], or a mercury operating permit to construct as required by NAC 445B.3611 to 445B.3689, inclusive;
  - e. Failure to comply with any requirement for recordkeeping, monitoring, reporting or compliance certification contained in an operating permit; or
  - f. Failure to pay fees as required by NAC 445B.327 or 445B.3689.
- The written notice must specify the provision of NAC 445B.001 to 445B.3791, inclusive, [NAC adopted as of October 2016 includes NAC 445B.001 to 445B.390, inclusive], the condition of the operating permit or the applicable requirement that is being violated.
- Written notice shall be deemed to have been served if delivered to the person to whom addressed or if sent by registered or certified mail to the last known address of the person.

#### K. <u>Operating permits: Imposition of more stringent standards for emissions</u> (NAC 445B.305) (Federally Enforceable SIP Requirement)

1. The Director may impose standards for emissions on a proposed stationary source that are more stringent than those found in NAC 445B.001 to 445B.3689, inclusive, [NAC adopted as of October 2016 includes NAC 445B.001 to 445B.390, inclusive], as a condition of approving an operating permit for the proposed stationary source.

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Facility ID No. A0528Permit No. AP3324-1253.03CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section I. General Provisions (continued)

L. <u>Contents of operating permits: Exception for operating permits to construct; required conditions (NAC 445B.315)</u> (*Federally Enforceable SIP Requirement*)

- 1. Notwithstanding any provision of this section to the contrary, the provisions of this section do not apply to operating permits to construct.
- 2. The Director shall cite the legal authority for each condition contained in an operating permit.
- 3. An operating permit must contain the following conditions:
  - a. The term of the operating permit is 5 years.
  - b. The holder of the operating permit shall retain records of all required monitoring data and supporting information for 5 years after the date of the sample collection, measurement, report or analysis. Supporting information includes all records regarding calibration and maintenance of the monitoring equipment and all original strip-chart recordings for continuous monitoring instrumentation.
  - c. Each of the conditions and requirements of the operating permit is severable, and if any are held invalid, the remaining conditions and requirements continue in effect.
  - d. The holder of the operating permit shall comply with all conditions of the operating permit. Any noncompliance constitutes a violation and is a ground for:
    - (1) An action for noncompliance;
    - (2) Revising, revoking, reopening and revising, or terminating the operating permit by the Director; or
    - (3) Denial of an application for a renewal of the operating permit by the Director.
  - e. The need to halt or reduce activity to maintain compliance with the conditions of the operating permit is not a defense to noncompliance with any condition of the operating permit.
  - f. The Director may revise, revoke and reissue, reopen and revise, or terminate the operating permit for cause.
  - g. The operating permit does not convey any property rights or any exclusive privilege.
  - h. The holder of the operating permit shall provide the Director, in writing and within a reasonable time, with any information that the Director requests to determine whether cause exists for revising, revoking and reissuing, reopening and revising, or terminating the operating permit, or to determine compliance with the conditions of the operating permit.
  - i. The holder of the operating permit shall pay fees to the Director in accordance with the provisions set forth in NAC 445B.327 and 445B.331.
  - j. The holder of the operating permit shall allow the Director or any authorized representative, upon presentation of credentials, to:
    - (1) Enter upon the premises of the holder of the operating permit where:
      - (i) The stationary source is located;
      - (ii) Activity related to emissions is conducted; or
      - (iii) Records are kept pursuant to the conditions of the operating permit;
    - (2) Have access to and copy, during normal business hours, any records that are kept pursuant to the conditions of the operating permit;
    - (3) Inspect, at reasonable times, any facilities, practices, operations or equipment, including any equipment for monitoring or controlling air pollution, that are regulated or required pursuant to the operating permit; and
    - (4) Sample or monitor, at reasonable times, substances or parameters to determine compliance with the conditions of the operating permit or applicable requirements.

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k. A responsible official of the stationary source shall certify that, based on information and belief formed after a reasonable inquiry, the statements made in any document required to be submitted by any condition of the operating permit are true, accurate and complete.

### Facility ID No. A0528Permit No. AP3324-1253.03CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

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#### Section I. General Provisions (continued)

M. <u>Operating permits: Assertion of emergency as affirmative defense to action for noncompliance</u> (NAC 445B.326) (State Only Requirement)

- A holder of an operating permit may assert an affirmative defense to an action brought for noncompliance with a technologybased emission limitation contained in the operating permit if the holder of the operating permit demonstrates through signed, contemporaneous operating logs or other relevant evidence, that:
  - a. An emergency occurred and the holder of the operating permit can identify the cause of the emergency;
  - b. The facility was being properly operated at the time of the emergency;
  - c. During the emergency, the holder of the operating permit took all reasonable steps to minimize excess emissions; and
  - d. The holder of the operating permit submitted notice of the emergency to the Director within 2 working days after the emergency. The notice must contain a description of the emergency, any steps taken to mitigate emissions, and any corrective actions taken to restore the normal operation of the facility.
- In any action for noncompliance, the holder of an operating permit who asserts the affirmative defense of an emergency has the burden of proof.

N. Operating permits: Revocation and reissuance (NAC 445B.3265) (State Only Requirement)

- 1. An operating permit may be revoked if the control equipment is not operating.
- An operating permit may be revoked by the Director upon determining that there has been a violation of NAC 445B.001 to 445B.390, inclusive, or the provisions of 40 CFR 52.21, or 40 CFR Part 60 or 61, Prevention of Significant Deterioration, New Source Performance Standards, and National Emission Standards for Hazardous Air Pollutants, adopted by reference in NAC 445B.221.
- 3. The revocation is effective 10 days after the service of a written notice, unless a hearing is requested.
- 4. To reissue a revoked operating permit, the holder of the revoked permit must file a new application with the Director, accompanied by the fee for an initial operating permit as specified in NAC 445B.327. An environmental review of the stationary source must be conducted as though construction had not yet commenced.

O. <u>Required contents of permit</u> (NAC 445B.346) (Federally Enforceable SIP Requirement)

In addition to the conditions set forth in NAC 445B.315, Class II operating permits must contain, as applicable:

- 1. Emission limitations and standards, including those operational requirements and limitations that ensure compliance with the conditions of the operating permit.
- 2. All requirements for monitoring, testing and reporting that apply to the stationary source.
- A requirement that the owner or operator of the stationary source promptly report any deviations from any requirements of the operating permit.
- 4. The terms and conditions for any reasonably anticipated alternative operating scenarios identified by the owner or operator of the stationary source in his or her application and approved by the Director. Such terms and conditions must require the owner or operator to keep a contemporaneous log of changes from one alternative operating scenario to another.
- A schedule of compliance for stationary sources that are not in compliance with any applicable requirement or NAC 445B.001 to 445B.3689, inclusive, [NAC adopted as of October 2016 includes NAC 445B.001 to 445B.390, inclusive], at the time the operating permit is issued, including:
  - a. Semiannual progress reports and a schedule of dates for achieving milestones;
  - b. Prior notice of and explanations for missed deadlines; and
  - c. Any preventive or corrective measures taken.

#### \*\*\*\*End of General Provisions\*\*\*\*

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### Facility ID No. A0528Permit No. AP3324-1253.03CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section II. General Monitoring, Recordkeeping, and Reporting Conditions

A. <u>Records Retention</u> (NAC 445B.315(3)(b)) (Federally Enforceable SIP Requirement) The holder of the operating permit shall retain records of all required monitoring data and supporting information for 5 years after the date of the sample collection, measurement, report or analysis. Supporting information includes all records regarding calibration and maintenance of the monitoring equipment and all original strip-chart recordings for continuous monitoring instrumentation.

- B. <u>Deviations (NAC 445B.346(3))</u> (Federally Enforceable SIP Requirement) Under the authority of NAC 445B.346(3), and in addition to the conditions set forth in NAC 445B.315, the owner or operator of the stationary source shall promptly report to the Director any deviations from the requirements of the operating permit. The report to the Director shall include the probable cause of all deviations and any action taken to correct the deviations. For the operating permit, prompt is defined as submittal of a report within 15 days of the deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC 445B.232 as reproduced in Section I.G. E-mail notifications to: <u>cenotify@ndep.ny.gov</u>
- C. <u>Yearly Reports</u> (NAC 445B.315(3)(h), NAC 445B.346(2)) (Federally Enforceable SIP Requirement) Under the authority of NAC 445B.315(3)(h) and NAC 445B.346(2), the Permittee will submit yearly reports including, but not limited to, throughput, production, fuel consumption, hours of operation, and emissions. These reports will be submitted on the form provided by the Bureau of Air Pollution Control for all emission units/systems specified on the form. The completed form must be submitted to the Bureau of Air Pollution Control no later than March 1 annually for the preceding calendar year.

\*\*\*\*End of General Monitoring, Recordkeeping, and Reporting Conditions\*\*\*\*

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Facility ID No. A0528 Permit No. AP3324-1253.03 CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section III. General Construction Conditions

A. <u>Notification</u> (NAC 445B.250; NAC 445B.346(2)) (*Federally Enforceable SIP Requirement*) Under the authority of NAC 445B.250 and NAC 445B.346; the Director shall be notified in writing of the following for **S2.035** 

- through S2.044
- 1. The date construction (or reconstruction as defined under NAC 445B.247) of the affected facility is commenced, postmarked no later than 30 days after such date. This requirement shall not apply in the case of mass-produced facilities which are purchased in completed form.
- 2. The anticipated date of initial startup of an affected facility, postmarked no more than 60 days and no less than 30 days prior to such date.
- 3. The actual date of initial startup of the affected facility, postmarked within 15 days after such date.
- The date upon which demonstration of the continuous monitoring system performance commences in accordance with NAC 445B.256 to 445B.267, inclusive. Notification must be postmarked not less than 30 days before such date.

\*\*\*\*End of General Construction Conditions\*\*\*\*

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## Facility ID No. A0528Permit No. AP3324-1253.03CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section IV. Specific Construction Requirements

- A. <u>Initial Opacity Compliance Demonstration and Initial Performance Tests</u> (NAC 445B.22017, NAC 445B.252, NAC 445B.346(2)) (*Federally Enforceable SIP Requirement*)
  - the authority of NAC 445B.22017, NAC 445B.252, and NAC 445B.346, the Permittee, upon issuance of this operating permit, shall conduct initial opacity compliance demonstrations and/or initial performance tests within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup. The Permittee shall follow the test methods and procedures referenced in Table IV-1 and Table IV-2 below:

System	System	Pollutant To Be Tested	System
System 3 – Air Furnaces (Electric)	\$2.035 &\$2.036		
System 4 - Part Removal	\$2.011, \$2.012, \$2.014, \$2.017, and \$2.018		Method 9 in Appendix A of 40 CFR Part 60 shall be used to determine opacity
System 5 – Sand Blast Cleaning Equipment	S2.033, S2.037, and S2.044	Opacity	Opacity observations shall be conducted concurrently with the applicable performance test. The minimum total time of observations shall be six minutes (2-consecutive observations recorded at 15 second intervals), unless otherwise specified by an applicable subpart.
System 7 – Gate Removal Equipment	S2.038 through S2.042	5.2	
System 9 – Ingot Cutoff Saw	2.043		

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Facility ID No. A0528 Permit No. AP3324-1253.03 CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section IV. Specific Construction Requirements (continued)

- A. Initial Opacity Compliance Demonstration and Initial Performance Tests (NAC 445B.22017, NAC 445B.252, NAC 445B.346(2)) (Federally Enforceable SIP Requirement) (continued)
  - the authority of NAC 445B.22017, NAC 445B.252, and NAC 445B.346, the Permittee, upon issuance of this operating permit, shall conduct initial opacity compliance demonstrations and/or initial performance tests within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup. The Permittee shall follow the test methods and procedures referenced in Table IV-1 and Table IV-2 below:

System	Emission Unit(s)	Pollutant To Be Tested	Testing Methods/Procedures
System 5 – Sand Blast Cleaning Equipment	\$2.033 \$2.037 \$2.044		
System 7 – Gate Removal Equipment	S2.038 through S2.042	PM	Method 5 in Appendix A of 40 CFR Part 60 shall be used to determine PM emissions. The sample volume for each test run shall be at least 1.7 dscm (60 dscf). Test runs must be conducted for up to two hours in an effort to collect this minimum sample.
System 9 – Ingot Cutoff Saw	2.043		
System 5 – Sand Blast Cleaning Equipment	\$2.033 \$2.037 \$2.044		Method 201A in Appendix M of 40 CFR Part 51 shall be used to determine $PM_{10}$ and $PM_{23}$ emissions. The sample time and sample volume collected for each test run shall be sufficient to collect according to unique accurately.
System 7 – Gate Removal Equipment	S2.038 through S2.042	PM10, PM25	be sufficient to collect enough mass to weigh accurately. The Method 201A test required in this section may be replaced by a Method 5 in Appendix A of 40 CFR Part 60 test. All particulate captured in the Method 5 test performed under this provision shall be considered PM <sub>2.5</sub> for determination of
System 9 – Ingot Cutoff Saw	2.043		compliance.

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Facility ID No. A0528 Permit No. AP3324-1253.03 CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section IV. Specific Construction Requirements (continued)

- A. <u>Initial Opacity Compliance Demonstration and Initial Performance Tests</u> (NAC 445B.22017, NAC 445B.252, NAC 445B.346(2)) (*Federally Enforceable SIP Requirement*) (continued)
  - 2. All initial opacity compliance demonstrations and initial performance tests must comply with the advance notification, protocol review, operational conditions, reporting, and other requirements of Section I.H. Testing and Sampling (NAC 445B.252) of this operating permit. Material sampling must be conducted in accordance with protocols approved by the Director. All initial performance test results shall be based on the arithmetic average of three valid runs. (NAC 445B.252(5))
    Testing chall be conducted on the autobacted in accordance with protocols approved by the Director. All initial performance test results shall be based on the arithmetic average of three valid runs. (NAC 445B.252(5))
  - Testing shall be conducted on the exhaust stack (post controls).
  - 4. Initial opacity compliance demonstrations and initial performance tests, as specified in Table IV-1 and Table IV-2 above, must be conducted under such conditions as the Director specifies to the operator of the plant based on representative performance of the affected facility. The Permittee shall make available to the Director such records as may be necessary to determine the conditions of the initial opacity compliance demonstrations and initial performance tests. Operations during periods of startup, shutdown and malfunction must not constitute representative conditions of the initial opacity compliance demonstrations and initial performance tests. Use the initial opacity compliance demonstrations and initial performance tests unless otherwise specified in the applicable standard. (NAC 445B.252(3))
  - 5. The Permittee shall give notice to the Director 30 days before the initial opacity compliance demonstrations and initial performance tests to allow the Director to have an observer present. A written testing procedure must be submitted to the Director at least 30 days before the initial opacity compliance demonstrations and initial performance tests to allow the Director to review the proposed testing procedures. (NAC 445B.252(4) and 40 CFR Part 60.7(a)(6))
  - 6. Within 60 days after completing the initial opacity compliance demonstrations and initial performance tests contained in Table IV-1 and Table IV-2 of this section, the Permittee shall furnish the Director a written report of the results. All information and analytical results of testing and sampling must be certified as to the truth and accuracy and as to their compliance with NAC 445B.001 to 445B.3689, inclusive. (NAC 445B.252(8))
  - 7. Initial opacity compliance demonstrations and initial performance tests required under this section that are conducted below the maximum allowable throughput, shall be subject to the Director's review to determine if the throughputs during the initial opacity compliance demonstrations and initial performance tests were sufficient to provide adequate compliance demonstration. Should the Director determine that the initial opacity compliance demonstrations and initial performance tests do not provide adequate compliance demonstration, the Director may require additional testing.

#### \*\*\*\*End of Specific Construction Requirements\*\*\*\*

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# NDEP

Facility ID No. A0528 Permit No. AP3324-1253.03 CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section V. Specific Operating Conditions

#### A. Emission Unit S2.001

System 1 - Steam Heated Autoclave		Location UTM (Zone 11, NAD 83)		
		m North	m East	
S2.001	Melco Steel Autoclave	4,342,389	263,596	

1. <u>Air Pollution Control Equipment</u> (NAC 445B.346(1)) (Federally Enforceable SIP Requirement)

- a. Emissions from S2.001 shall have no add-on controls.
   b. Descriptive Stack Parameters
  - Descriptive Stack Parameters Stack Height: 26 feet Stack Diameter: 0.083 feet Stack Temperature: 337°F Exhaust Flow: 918 dry standard cubic feet per minute (dscfm)

#### 2. Operating Parameters (NAC 445B.346(1)) (Federally Enforceable SIP Requirement)

- a. The maximum allowable throughput rate for \$2.001 shall not exceed 0.85 tons of metal alloy per any one-hour period, nor more than 6,242.0 tons per year.
- b. Hours

4.

- (1) S2.001 may operate a total of 19.5 hours per day.
- (2) S2.001 may operate a total of 7,117.5 hours per year.
- (3) S2.001 may operate from 4:00 AM to 11:30 PM.

 Emission Limits (NAC 445B.305, NAC 445B.346(1), NAC 445B. 22017) (Federally Enforceable SIP Requirement) The Permittee, upon issuance of this operating permit, shall not discharge or cause the discharge into the atmosphere from S2.001 the following pollutants in excess of the following specified limits:

- a. The discharge of VOCs (volatile organic compounds) to the atmosphere shall not exceed 1.73 pounds per hour, nor more than 6.34 tons per year.
- b. The discharge of HAPs (hazardous air pollutants) to the atmosphere shall not exceed than 6.36 tons per year.

c. The opacity from S2.001 shall not equal or exceed 20 percent.

Monitoring, Recordkeeping, and Reporting (NAC 445B.346(2)) (Federally Enforceable SIP Requirement)

The Permittee, upon the issuance of this operating permit, shall maintain, in a contemporaneous log, the monitoring and recordkeeping specified in this section. All records in the log must be identified with the calendar date of the record. All specified records shall be entered into the log at the end of the shift, end of the day of operation, or the end of the final day of operation for the month, as appropriate.

- a. Monitor and record the throughput for S2.001 on a daily basis.
- b. Monitor and record the times at which operations start and stop as well as the total daily hours of operation for \$2.001.
- c. Record the corresponding average hourly throughput rate in tons per hour. The average hourly throughput rate shall be determined from the total daily throughput and the total daily hours of operation.
- d. Monitor and record the total yearly throughput rate in tons per year. The annual throughput shall be determined at the end of each month as the sum of the monthly throughput rates for the year for all previous months of that year.
- e. Monitor and record the total yearly hours of operation per year. The annual hours of operation shall be determined at the end of each month as the sum of the monthly hours of operation for all previous months of that year.

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### Facility ID No. A0528Permit No. AP3324-1253.03CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section V. Specific Operating Conditions

#### A. Emission Unit S2.001 (continued)

- 5. <u>Performance Testing (NAC 445B.346(2), NAC 445B.252(1)) (Federally Enforceable SIP Requirement)</u> The Permittee, upon issuance of this operating permit, shall conduct renewal performance testing at least 90 days prior to the expiration of this operating permit, but no earlier than 365 days from the date of expiration of this operating permit, and every 5 years thereafter, in accordance with the following:
  - a. All opacity compliance demonstrations and/or performance tests must comply with the advance notification, protocol review, operational conditions, reporting, and other requirements of Section 1.H. Testing and Sampling (NAC 445B.252) of this operating permit. All performance test results shall be based on the arithmetic average of three valid runs (NAC 445B.252(5)).
  - b. Testing shall be conducted on the exhaust stack (post controls).
  - c. Method 9 in Appendix A of 40 CFR Part 60 shall be used to determine opacity. Opacity observations shall be conducted concurrently with the applicable performance test. The minimum total time of observations shall be six minutes (24 consecutive observations recorded at 15 second intervals), unless otherwise specified by an applicable subpart.
  - d. Method 25A in Appendix A of 40 CFR Part 60 shall be used to determine the volatile organic compound concentration. Method 18 in Appendix A of 40 CFR Part 60 or Method 320 in Appendix A of CFR Part 63 may be used in conjunction with Method 25A to break out the organic compounds that are not considered VOC's by definition per 40 CFR 51.100(s). Each Method 25A test will be run for a minimum of one hour.
- 6. <u>Federal Requirements</u> (NAC 445B.346(2), NAC 445B.252(1)) (*Federally Enforceable SIP Requirement*) S2.001 is subject to the requirements in Section V.J-<u>National Emission Standards for Hazardous Air Pollutants Area</u> <u>Source Standards – 40 CFR Part 63, Subpart ZZZZZ - National Emission Standards for Hazardous Air Pollutants</u> for Iron and Steel Foundries Area Sources of this permit.

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#### Permit No. AP3324-1253.03 Facility ID No. A0528 CLASS II AIR OUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section V. Specific Operating Conditions (continued)

#### **Emission Units S2.002 through S2.005** B.

NDFP

System 2 - Mold Burnout Furnaces (non-combustion)		Location UTM (Zone 11, NAD 83)		
System 2 -	Mold Burnout Furnaces (non-combustion)	m North m East		
S2.002	Self-Fabricated Furnace "F" (S004/007) - 1.68 MMBtu	4,342,382	263,611	
S2.003	Pacific Kiln Mold Burnout Furnace 1 – 4.2 MMBtu	4,342,376	263,592	
S2.004	Pacific Kiln Mold Burnout Furnace 2 – 4.2 MMBtu	4,342,370	263,593	
S2.005	Pacific Kiln Mold Burnout Furnace (S004/093) - 1.69 MMBtu	4,342,386	263,604	

Air Pollution Control Equipment (NAC 445B.346(1)) (Federally Enforceable SIP Requirement) 1.

Emissions from S2.002 through S2.005, each, shall have no add-on controls. a. Descriptive Stack Parameters for S2.002 b. Stack Height: 28 feet Stack Diameter: 1.0 feet Stack Temperature: 1500°F Exhaust Flow: 1,667 dry standard cubic feet per minute (dscfm) Descriptive Stack Parameters for S2.003 and S2.004 c. Stack Height: 28 feet Stack Diameter: 2.0 feet Stack Temperature: 1500°F Exhaust Flow: 7,523 dry standard cubic feet per minute (dscfm) d. Descriptive Stack Parameters for S2.005 Stack Height: 28 feet Stack Diameter: 1.5 feet Stack Temperature: 1500°F Exhaust Flow: 2,885 dry standard cubic feet per minute (dscfm)

Operating Parameters (NAC 445B.346(1)) (Federally Enforceable SIP Requirement) 2.

The maximum allowable throughput rate for S2.002 through S2.005, combined shall not exceed 2.14 tons of metal a. alloy per any one-hour period, nor more than 6,242.0 tons per year.

The maximum allowable throughput rate for S2.002 shall not exceed 1,647.1 scf of natural gas per any one-hour b. period, nor more than 11,722,949.6 scf per year.

- The maximum allowable throughput rate for S2.003 and S2.004, each, shall not exceed 4,117.7 scf of natural gas per c. any one-hour period, nor more than 36,070,588.0 scf per year.
- The maximum allowable throughput rate for S2.005 shall not exceed 1,656.9 scf of natural gas per any one-hour d. period, nor more than 11,792,701.1 scf per year.
- e. Hours
  - S2.002 through S2.005, each may operate a total of 19.5 hours per day. (1)
  - S2.002 through S2.005, each may operate a total of 7,117.5 hours per year. (2)
  - S2.002 through S2.005, each may operate from 4:00 AM to 11:30 PM. (3)

### Facility ID No. A0528Permit No. AP3324-1253.03CLASS II AIR QUALITY OPERATING PERMIT

**Issued to:** PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section V. Specific Operating Conditions (continued)

#### B. Emission Units S2.002 through S2.005 (continued)

a.

b.

3. Emission Limits (NAC 445B.305, NAC 445B.346(1), NAC 445B. 22017) (Federally Enforceable SIP Requirement)

The Permittee, upon issuance of this operating permit, shall not discharge or cause the discharge into the atmosphere for S2.002 and S2.005, each, the following pollutants, from fuel combustion, in excess of the following specified limits:

- The discharge of PM<sub>10</sub> (particulate matter less than or equal to 10 microns in diameter) to the atmosphere shall not exceed 0.013 pounds per hour, nor more than 0.045 tons per year.
- (2) The discharge of PM<sub>10</sub> (particulate matter less than or equal to 10 microns in diameter) to the atmosphere shall not exceed 0.013 pounds per hour, nor more than 0.045 tons per year.
- (3) discharge of PM<sub>2.5</sub> (particulate matter less than or equal to 2.5 microns in diameter) to the atmosphere shall not exceed 0.013 pounds per hour, nor more than 0.045 tons per year.
- (4) The discharge of SO<sub>2</sub> (sulfur dioxide) to the atmosphere shall not exceed 0.00099 pounds per hour, nor more than 0.0035 tons per year.
- (5) The discharge of NO<sub>X</sub> (oxides of nitrogen) to the atmosphere shall not exceed 0.16 pounds per hour, nor more than 0.59 tons per year.
- (6) The discharge of CO (carbon monoxide) to the atmosphere shall not exceed 0.14 pounds per hour, nor more than 0.49 tons per year.
- (7) The discharge of VOCs (volatile organic compounds) to the atmosphere shall not exceed 0.0091 pounds per hour, nor more than 0.032 tons per year.
- (8) The discharge of HAPs (hazardous air pollutants) to the atmosphere shall not exceed than 0.011 tons per year.
- (9) The opacity from S2.002 and S2.005 shall not equal or exceed 20 percent.
- The Permittee, upon issuance of this operating permit, shall not discharge or cause the discharge into the atmosphere for S2.003 and S2.004, each, the following pollutants, from fuel combustion, in excess of the following specified limits:
  - (1) The discharge of PM<sub>10</sub> (particulate matter less than or equal to 10 microns in diameter) to the atmosphere shall not exceed 0.031 pounds per hour, nor more than 0.11 tons per year.
  - (2) The discharge of PM<sub>10</sub> (particulate matter less than or equal to 10 microns in diameter) to the atmosphere shall not exceed 0.031 pounds per hour, nor more than 0.11 tons per year.
  - (3) discharge of PM<sub>2.5</sub> (particulate matter less than or equal to 2.5 microns in diameter) to the atmosphere shall not exceed 0.031 pounds per hour, nor more than 0.11 tons per year.
  - (4) The discharge of SO<sub>2</sub> (sulfur dioxide) to the atmosphere shall not exceed 0.0025 pounds per hour, nor more than 0.0088 tons per year.
  - (5) The discharge of NO<sub>x</sub> (oxides of nitrogen) to the atmosphere shall not exceed 0.41 pounds per hour, nor more than 1.47 tons per year.
  - (6) The discharge of CO (carbon monoxide) to the atmosphere shall not exceed 0.35 pounds per hour, nor more than 1.23 tons per year.
  - (7) The discharge of VOCs (volatile organic compounds) to the atmosphere shall not exceed 0.023 pounds per hour, nor more than 0.081 tons per year.
  - (8) The discharge of HAPs (hazardous air pollutants) to the atmosphere shall not exceed than 0.028 tons per year.
  - (9) The opacity from S2.003 and S2.004, each, shall not equal or exceed 20 percent.

### Facility ID No. A0528Permit No. AP3324-1253.03CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section V. Specific Operating Conditions (continued)

#### B. Emission Units S2.002 through S2.005 (continued)

C.

- 3. <u>Emission Limits</u> (NAC 445B.305, NAC 445B.346(1), NAC 445B. 22017) (Federally Enforceable SIP Requirement) (continued)
  - The Permittee, upon issuance of this operating permit, shall not discharge or cause the discharge into the atmosphere for **S2.002 through S2.005, combined** the following pollutants generated from process throughput in excess of the following specified limits:
    - (1) The discharge of PM<sub>10</sub> (particulate matter less than or equal to 10 microns in diameter) to the atmosphere shall not exceed 0.057 pounds per hour, nor more than 0.083 tons per year.
    - (2) The discharge of PM<sub>10</sub> (particulate matter less than or equal to 10 microns in diameter) to the atmosphere shall not exceed 0.057 pounds per hour, nor more than 0.083 tons per year.
    - (3) discharge of PM<sub>2.5</sub> (particulate matter less than or equal to 2.5 microns in diameter) to the atmosphere shall not exceed 0.057 pounds per hour, nor more than 0.083 tons per year.
    - (4) The discharge of CO (carbon monoxide) to the atmosphere shall not exceed 1.97 pounds per hour, nor more than 2.87 tons per year.
    - (5) The discharge of VOCs (volatile organic compounds) to the atmosphere shall not exceed 2.53 pounds per hour, nor more than 3.96 tons per year.
    - (6) The discharge of HAPs (hazardous air pollutants) to the atmosphere shall not exceed than 2.96 tons per year.
    - (7) The opacity from S2.002 through S2.005 shall not equal or exceed 20 percent.

4. <u>Monitoring, Recordkeeping, and Reporting</u> (NAC 445B.346(2)) (*Federally Enforceable SIP Requirement*) The Permittee, upon the issuance of this operating permit, shall maintain, in a contemporaneous log, the monitoring and recordkeeping specified in this section. All records in the log must be identified with the calendar date of the record. All specified records shall be entered into the log at the end of the shift, end of the day of operation, or the end of the final day of operation for the month, as appropriate.

- a. Monitor and record the throughput for S2.002 through S2.005, each, on a daily basis.
- b. Monitor and record the times at which operations start and stop as well as the total daily hours of operation for S2.002 through S2.005, each.
- c. Record the corresponding average hourly throughput rate in tons per hour. The average hourly throughput rate shall be determined from the total daily throughput and the total daily hours of operation.
- d. Monitor and record the total yearly throughput rate in tons per year. The annual throughput shall be determined at the end of each month as the sum of the monthly throughput rates for the year for all previous months of that year.
- e. Monitor and record the total yearly hours of operation per year. The annual hours of operation shall be determined at the end of each month as the sum of the monthly hours of operation for all previous months of that year.

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## Facility ID No. A0528Permit No. AP3324-1253.03CLASS II AIR QUALITY OPERATING PERMIT

**Issued to:** PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section V. Specific Operating Conditions (continued)

#### B. Emission Units S2.002 through S2.005 (continued)

5. <u>Performance and Compliance Testing</u> (NAC 445B.346(2), NAC 445B.252(1)) (Federally Enforceable SIP Requirement) (continued)

The Permittee, upon issuance of this operating permit, shall conduct renewal performance testing. Testing shall be completed on one exhaust stack, of the Permittee's choice, exhausting the combustion of one furnace, and the maximum hourly throughput for the entire system being processed through that furnace, at least 90 days prior to the expiration of this operating permit, but no earlier than 365 days from the date of expiration of this operating permit, and every 5 years thereafter, in accordance with the following:

- a. All opacity compliance demonstrations and/or performance tests must comply with the advance notification, protocol review, operational conditions, reporting, and other requirements of Section I.H. Testing and Sampling (NAC 445B.252) of this operating permit. All performance test results shall be based on the arithmetic average of three valid runs (NAC 445B.252(5)).
- b. Testing shall be conducted on the exhaust stack (post controls).
- c. Method 5 in Appendix A of 40 CFR Part 60 shall be used to determine PM emissions. The sample volume for each test run shall be at least 1.7 dscm (60 dscf). Test runs must be conducted for up to two hours in an effort to collect this minimum sample.
- d. Method 201A and Method 202 in Appendix M of 40 CFR Part 51 shall be used to determine PM<sub>10</sub> and PM<sub>25</sub> emissions. The sample time and sample volume collected for each test run shall be sufficient to collect enough mass to weigh accurately.
- e. The Method 201A and 202 test required in this section may be replaced by a Method 5 in Appendix A of 40 CFR Part 60 and Method 202 in Appendix M of 40 CFR Part 51 test. All particulate captured in the Method 5 and Method 202 test performed under this provision shall be considered PM<sub>2.5</sub> for determination of compliance.
- f. Method 6C in Appendix A of 40 CFR Part 60 shall be used to determine the sulfur dioxide concentration. Each test will be run for a minimum of one hour.
- g. Method 7E in Appendix A of 40 CFR Part 60 shall be used to determine the nitrogen oxides concentration. Each test will be run for a minimum of one hour.
- h. Method 9 in Appendix A of 40 CFR Part 60 shall be used to determine opacity. Opacity observations shall be conducted concurrently with the applicable performance test. The minimum total time of observations shall be six minutes (24 consecutive observations recorded at 15 second intervals), unless otherwise specified by an applicable subpart.
- i. Method 10 in Appendix A of 40 CFR Part 60 shall be used to determine the carbon monoxide concentration. Each test will be run for a minimum of one hour.
- j. Method 25A in Appendix A of 40 CFR Part 60 shall be used to determine the volatile organic compound concentration. Method 18 in Appendix A of 40 CFR Part 60 or Method 320 in Appendix A of CFR Part 63 may be used in conjunction with Method 25A to break out the organic compounds that are not considered VOC's by definition per 40 CFR 51.100(s). Each Method 25A test will be run for a minimum of one hour.

6. <u>Federal Requirements</u> (NAC 445B.346(2), NAC 445B.252(1)) (Federally Enforceable SIP Requirement)

S2.002 through S2.005 are subject to the requirements in Section V.J-<u>National Emission Standards for Hazardous Air</u> <u>Pollutants Area Source Standards – 40 CFR Part 63, Subpart ZZZZZ - National Emission Standards for Hazardous</u> <u>Air Pollutants for Iron and Steel Foundries Area Sources</u> of this permit.

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## NDEP

Facility ID No. A0528 Permit No. AP3324-1253.03 CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section V. Specific Operating Conditions (continued)

#### C. Emission Units S2.006, S2.007, S2.008, S2.009, S2.035, S2.036, and S2.010

System 3 - Air Furnaces (Electric)		Location UTM (Zone 11, NAD 83)		
		m North	m East	
S2.006	InductoTherm Furnace I	4,342,374	263,601	
S2.007	InductoTherm Furnace 2	4,342,374	263,601	
S2.008	InductoTherm Furnace 3	4,342,374	263,601	
S2.009	InductoTherm Furnace 4	4,342,374	263,601	
- 7	CLA Air Furnace - (Discharge to atmosphere through three roof vents)	4,342,381	263,601	
S2.035		4,342,376	263,604	
		4,342,380	263,613	
	Lift Coil Air Furnace – (Discharge to atmosphere through three roof vents)	4,342,381	263,601	
S2.036		4,342,376	263,604	
		4,342,380	263,613	
		4,342,381	263,601	
S2.010	Vacuum Furnace – (Discharge to atmosphere through three roof vents)	4,342,376	263,604	
		4,342,380	263,613	

1. <u>Air Pollution Control Equipment</u> (NAC 445B.346(1)) (Federally Enforceable SIP Requirement)

a. Emissions from S2.006, S2.007, S2.008, S2.009, S2.035, S2.036, and S2.010 each, shall have no add-on controls.

- b. Descriptive Stack Parameters for S2.006, S2.007, S2.008, and S2.009
  - Stack Height: 26 feet
    - Stack Diameter: 0.8 feet

Stack Temperature: 815°F

Exhaust Flow: 2,880 dry standard cubic feet per minute (dscfm)

c. S2.010, S2.035 and S2.036 shall be vented through three roof vents.

2. Operating Parameters (NAC 445B.346(1)) (Federally Enforceable SIP Requirement)

a. The maximum allowable throughput rate for \$2.006, \$2.007, \$2.008, \$2.009, combined, shall not exceed 0.56 tons of metal alloy per any one-hour period, nor more than 4,004.0 tons per year.

b. The maximum allowable throughput rate for \$2.010, \$2.035, and \$2.036, combined, shall not exceed 0.23 tons of metal alloy per any one-hour period, nor more than 1,071.0 tons per year.

- c. Hours
  - (1) S2.006, S2.007, S2.008, S2.009, S2.035, S2.036, and S2.010, each, may operate a total of 19.5 hours per day.
  - (2) S2.006, S2.007, S2.008, S2.009, S2.035, S2.036, and S2.010, each, may operate a total of 7,117.5 hours per year.
  - (3) S2.006, S2.007, S2.008, S2.009, S2.035, S2.036, and S2.010, each, may operate from 4:00 AM to 11:30 PM.

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### Facility ID No. A0528Permit No. AP3324-1253.03CLASS II AIR QUALITY OPERATING PERMIT

**Issued to:** PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section V. Specific Operating Conditions (continued)

#### C. Emission Units S2.006, S2.007, S2.008, S2.009, S2.035, S2.036, and S2.010 (continued)

- 3. Emission Limits (NAC 445B.305, NAC 445B.346(1), NAC 445B. 22017) (Federally Enforceable SIP Requirement)
  - a. The Permittee, upon issuance of this operating permit, shall not discharge or cause the discharge into the atmosphere from S2.006, S2.007, S2.008, and S2.009, combined, the following pollutants in excess of the following specified limits:
    - (1) The discharge of PM (particulate matter) to the atmosphere shall not exceed 0.18 pounds per hour, nor more than 0.62 tons per year.
    - (2) The discharge of PM<sub>10</sub> (particulate matter less than or equal to 10 microns in diameter) to the atmosphere shall not exceed 0.18 pounds per hour, nor more than 0.62 tons per year.
    - (3) The discharge of PM<sub>2.5</sub> (particulate matter less than or equal to 2.5 microns in diameter) to the atmosphere shall not exceed 0.18 pounds per hour, nor more than 0.62 tons per year.
    - (4) The discharge of HAPs (hazardous air pollutants) to the atmosphere shall not exceed than 0.23 tons per year.
    - (5) The opacity from the stack exhausting S2.006, S2.007, S2.008, and S2.009 shall not equal or exceed 20 percent.
  - b. The Permittee, upon issuance of this operating permit, shall not discharge or cause the discharge into the atmosphere from S2.010, S2.035, and S2.036, combined, the following pollutants in excess of the following specified limits:
    - (1) The discharge of **PM** (particulate matter) to the atmosphere shall not exceed **0.056** pounds per hour, nor more than **0.11** tons per year.
    - (2) The discharge of PM<sub>10</sub> (particulate matter less than or equal to 10 microns in diameter) to the atmosphere shall not exceed 0.056 pounds per hour, nor more than 0.11 tons per year.
    - (3) The discharge of PM<sub>2.5</sub> (particulate matter less than or equal to 2.5 microns in diameter) to the atmosphere shall not exceed 0.056 pounds per hour, nor more than 0.11 tons per year.
    - (4) The discharge of HAPs (hazardous air pollutants) to the atmosphere shall not exceed than 0.042 tons per year.
    - (5) The opacity from the roof vents exhausting S2.010, S2.035, and S2.036 shall not equal or exceed 20 percent.
- 4. <u>Monitoring, Recordkeeping, and Reporting</u> (NAC 445B.346(2)) (*Federally Enforceable SIP Requirement*) The Permittee, upon the issuance of this operating permit, shall maintain, in a contemporaneous log, the monitoring and recordkeeping specified in this section. All records in the log must be identified with the calendar date of the record. All specified records shall be entered into the log at the end of the shift, end of the day of operation, or the end of the final day of operation for the month, as appropriate.
  - a. Monitor and record the throughput for S2.006, S2.007, S2.008, S2.009, S2.035, S2.036, and S2.010, each, on a daily basis.
  - b. Monitor and record the times at which operations start and stop as well as the total daily hours of operation for S2.006, S2.007, S2.008, S2.009, S2.035, S2.036, and S2.010.
  - c. Record the corresponding average hourly throughput rate in tons per hour. The average hourly throughput rate shall be determined from the total daily throughput and the total daily hours of operation.
  - d. Monitor and record the total yearly throughput rate in tons per year. The annual throughput shall be determined at the end of each month as the sum of the monthly throughput rates for the year for all previous months of that year.
  - e. Monitor and record the total yearly hours of operation per year. The annual hours of operation shall be determined at the end of each month as the sum of the monthly hours of operation for all previous months of that year.

### Facility ID No. A0528Permit No. AP3324-1253.03CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

NDEP

#### Section V. Specific Operating Conditions (continued)

#### C. Emission Units S2.006, S2.007, S2.008, S2.009, S2.035, S2.036, and S2.010 (continued)

- 5. <u>Performance and Compliance Testing</u> (NAC 445B.346(2), NAC 445B.252(1)) (Federally Enforceable SIP Requirement) The Permittee, upon issuance of this operating permit, shall conduct renewal performance testing on S2.006 through S2.009, combined, at least 90 days prior to the expiration of this operating permit, but no earlier than 365 days from the date of expiration of this operating permit, and every 5 years thereafter, in accordance with the following:
  - a. All opacity compliance demonstrations and/or performance tests must comply with the advance notification, protocol review, operational conditions, reporting, and other requirements of Section I.H. Testing and Sampling (NAC 445B.252) of this operating permit. All performance test results shall be based on the arithmetic average of three valid runs (NAC 445B.252(5)).
  - b. Testing shall be conducted on the exhaust stack (post controls).
  - e. Method 5 in Appendix A of 40 CFR Part 60 shall be used to determine PM emissions. The sample volume for each test run shall be at least 1.7 dscm (60 dscf). Test runs must be conducted for up to two hours in an effort to collect this minimum sample.
  - d. Method 201A and Method 202 in Appendix M of 40 CFR Part 51 shall be used to determine PM<sub>10</sub> and PM<sub>2.5</sub> emissions. The sample time and sample volume collected for each test run shall be sufficient to collect enough mass to weigh accurately.
  - e. The Method 201A and 202 test required in this section may be replaced by a Method 5 in Appendix A of 40 CFR Part 60 and Method 202 in Appendix M of 40 CFR Part 51 test. All particulate captured in the Method 5 and Method 202 test performed under this provision shall be considered PM<sub>2.5</sub> for determination of compliance.
  - f. Method 9 in Appendix A of 40 CFR Part 60 shall be used to determine opacity. Opacity observations shall be conducted concurrently with the applicable performance test. The minimum total time of observations shall he six minutes (24 consecutive observations recorded at 15 second intervals), unless otherwise specified by an applicable subpart.

 <u>Federal Requirements</u> (NAC 445B.346(2), NAC 445B.252(1)) (*Federally Enforceable SIP Requirement*) S2.006, S2.007, S2.008, S2.009, S2.035, S2.036, and S2.010 are subject to the requirements in Section V.J - <u>National</u> <u>Emission Standards for Hazardous Air Pollutants Area Source Standards – 40 CFR Part 63, Subpart ZZZZZ -</u> <u>National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources</u> of this permit.

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*Facility ID No.* A0528 *Permit No.* AP3324-1253.03 CLASS II AIR QUALITY OPERATING PERMIT

**Issued to:** PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section V. Specific Operating Conditions (continued)

#### D. Emission Units S2.011, S2.012, S2.014, S2.017 and S2.018

System 4 - Part Removal		Location UTM (Zone 11, NAD 83)	
		m North m Eas	
S2.011	Tabor 24" Abrasive Chop-saw (S006/016)	4,342,360	263,626
S2.012	Tabor 16" Abrasive Chop-saw (S006/020)	4,342,360	263,626
S2.014	Blade Stop	4,342,360	263,626
S2.017	Self-Fabricated Knockout Station	4,342,360	263,626
S2.018	Thermadyne Plasma Arc (S006/031)	4,342,360	263,626

1. <u>Air Pollution Control Equipment</u> (NAC 445B.346(1)) (Federally Enforceable SIP Requirement)

- a. Emissions from S2.011, S2.012, S2.014, S2.017 and S2.018, combined, shall be controlled by a dust collector (DC-001).
- b. <u>Descriptive Stack Parameters</u> Stack Height: 25 feet Stack Diameter: 3 feet Stack Temperature: 60°F Exhaust Flow: 12,074 dry standard cubic feet per minute (dscfm)
- 2. Operating Parameters (NAC 445B.346(1)) (Federally Enforceable SIP Requirement)
  - The maximum allowable throughput rate for S2.011, S2.012, S2.014, S2.017 and S2.018, combined, shall not exceed 3.21 tons of metal alloy per any one-hour period, nor more than 6,242.0 tons per year.
  - b. Hours

a

- (1) S2.011, S2.012, S2.014, S2.017 and S2.018, each, may operate a total of 19.5 hours per day.
- (2) S2.011, S2.012, S2.014, S2.017 and S2.018, each, may operate a total of 7,117.5 hours per year.
- (3) S2.011, S2.012, S2.014, S2.017 and S2.018, each, may operate from 4:00 AM to 11:30 PM.

 <u>Emission Limits</u> (NAC 445B.305, NAC 445B.346(1), NAC 445B. 22017) (*Federally Enforceable SIP Requirement*) The Permittee, upon issuance of this operating permit, shall not discharge or cause the discharge into the atmosphere from S2.011, S2.012, S2.014, S2.017 and S2.018, combined, the following pollutants in excess of the following specified limits:

- a. The discharge of **PM** (particulate matter) to the atmosphere shall not exceed **0.21** pounds per hour, nor more than **0.74** tons per year.
- b. The discharge of **PM**<sub>10</sub> (particulate matter less than or equal to 10 microns in diameter) to the atmosphere shall not exceed **0.21** pounds per hour, nor more than **0.74** tons per year.
- c. The discharge of PM<sub>2.5</sub> (particulate matter less than or equal to 2.5 microns in diameter) to the atmosphere shall not exceed 0.21 pounds per hour, nor more than 0.74 tons per year.
- d. The discharge of HAPs (hazardous air pollutants) to the atmosphere shall not exceed than 0.097 tons per year.
- e. The opacity from S2.011 through S2.019, and S2.033, combined, shall not equal or exceed 20 percent.

4. <u>Monitoring, Recordkeeping, and Reporting</u> (NAC 445B.346(2)) (*Federally Enforceable SIP Requirement*) The Permittee, upon the issuance of this operating permit, shall maintain, in a contemporaneous log, the monitoring and recordkeeping specified in this section. All records in the log must be identified with the calendar date of the record. All specified records shall be entered into the log at the end of the shift, end of the day of operation, or the end of the final day of operation for the month, as appropriate.

a. Monitor and record the throughput for S2.011, S2.012, S2.014, S2.017 and S2.018, combined, on a daily basis.

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### Facility ID No. A0528 Permit No. AP3324-1253.03 CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section V. Specific Operating Conditions (continued)

#### D. Emission Units S2.011, S2.012, S2.014, S2.017 and S2.018 (continued)

- 4. <u>Monitoring, Recordkeeping, and Reporting</u> (NAC 445B.346(2)) (*Federally Enforceable SIP Requirement*) (continued) The Permittee, upon the issuance of this operating permit, shall maintain, in a contemporaneous log, the monitoring and recordkeeping specified in this section. All records in the log must be identified with the calendar date of the record. All specified records shall be entered into the log at the end of the shift, end of the day of operation, or the end of the final day of operation for the month, as appropriate.
  - b. The dust collector (DC-001) must be operating any time S2.011, S2.012, S2.014, S2.017 or S2.018 are operating.
  - c. Monitor and record the times at which operations start and stop as well as the total daily hours of operation for \$2.011, \$2.012, \$2.014, \$2.017 and \$2.018.
  - d. Record the corresponding average hourly throughput rate in tons per hour. The average hourly throughput rate shall be determined from the total daily throughput and the total daily hours of operation.
  - e. Monitor and record the total yearly throughput rate in tons per year. The annual throughput shall be determined at the end of each month as the sum of the monthly throughput rates for the year for all previous months of that year.
  - f. Monitor and record the total yearly hours of operation per year. The annual hours of operation shall be determined at the end of each month as the sum of the monthly hours of operation for all previous months of that year.
  - g. Conduct and record an observation of visible emissions (excluding water vapor) on the dust collector controlling S2.011, S2.012, S2.014, S2.017 and S2.018 on a monthly basis while operating. The observer shall stand at a distance sufficient to provide a clear view of the emissions with the sun oriented to their back. If visible emissions are observed and exceed the applicable opacity standard, the Permittee shall take immediate corrective action. The Permittee shall maintain in a contemporaneous log the following recordkeeping: the calendar date of any required monitoring, results of the monthly observation of visible emissions, and any corrective actions taken.
  - h. Inspect the dust collector installed on S2.011, S2.012, S2.014, S2.017 and S2.018 in accordance with the manufacturer's operation and maintenance manual and record the results (e.g. the condition of the filter fabric) and any corrective actions taken.
- 5. <u>Performance and Compliance Testing</u> (NAC 445B.346(2), NAC 445B.252(1)) (Federally Enforceable SIP Requirement) The Permittee, upon issuance of this operating permit, shall conduct renewal performance testing at least 90 days prior to the expiration of this operating permit, but no earlier than 365 days from the date of expiration of this operating permit, and every 5 years thereafter, in accordance with the following:
  - a. All opacity compliance demonstrations and/or performance tests must comply with the advance notification, protocol review, operational conditions, reporting, and other requirements of Section 1.H. Testing and Sampling (NAC 445B.252) of this operating permit. All performance test results shall be based on the arithmetic average of three valid runs (NAC 445B.252(5)).
  - b. Testing shall be conducted on the exhaust stack (post controls).
  - c. Method 5 in Appendix A of 40 CFR Part 60 shall be used to determine PM emissions. The sample volume for each test run shall be at least 1.7 dscm (60 dscf). Test runs must be conducted for up to two hours in an effort to collect this minimum sample.
  - d. Method 201A in Appendix M of 40 CFR Part 51 shall be used to determine PM10 and PM2.5 emissions. The sample time and sample volume collected for each test run shall be sufficient to collect enough mass to weigh accurately.
  - e. The Method 201A test required in this section may be replaced by a Method 5 in Appendix A of 40 CFR Part 60. All particulate captured in the Method 5 test performed under this provision shall be considered PM2.5 for determination of compliance.
  - f. Method 9 in Appendix A of 40 CFR Part 60 shall be used to determine opacity. Opacity observations shall be conducted concurrently with the applicable performance test. The minimum total time of observations shall be six minutes (24 consecutive observations recorded at 15 second intervals), unless otherwise specified by an applicable subpart.

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Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

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Section V. Specific Operating Conditions (continued)

D. Emission Units S2.011, S2.012, S2.014, S2.017 and S2.018 (continued)

 <u>Federal Requirements</u> (NAC 445B.346(2), NAC 445B.252(1)) (*Federally Enforceable SIP Requirement*) S2.011 through S2.019, and S2.033 are subject to the requirements in Section V.J-<u>National Emission Standards for</u> <u>Hazardous Air Pollutants Area Source Standards - 40 CFR Part 63, Subpart ZZZZZ - National Emission Standards</u> <u>for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources</u> of this permit.

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**Issued to:** PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section V. Specific Operating Conditions (continued)

#### E. Emission Units S2.020 through S2.027, S2.033, S2.037, and S2.044

System 5 - Sand Blast Cleaning Equipment		Location UTM (Zone 11, NAD 83)		
		m North	m East	
S2.020	Clemco Blast Cabinet (S007/006)	4,342,355	263,614	
S2.021	Clemco Blast Cabinet (S007/027)	4,342,355	263,614	
S2.022	Clemco Blast Cabinet (S007/028)	4,342,355	263,614	
S2.023	Goff Tumble Blast (S007/002)	4,342,355	263,614	
S2.024	Goff Tumble Blast (S004/053)	4,342,355	263,614	
S2.025	Pangborn Tumble Blast (S007/002)	4,342,355	263,614	
S2.026	Clemco Blast Cabinet (S007/014)	4,342,355	263,614	
S2.027	10" Abrasive Chopsaw (S006/011)	4,342,355	263,614	
S2.033	Jet Arc Booth (S006/008)	4,342,355	263,614	
S2.037	Clemco Hand Blast Cabinet - 100 Grit (2-28)	4,342,355	263,614	
S2.044	Jet Arc Booth	4,342,355	263,614	

Air Pollution Control Equipment (NAC 445B.346(1)) (Federally Enforceable SIP Requirement)

a. Emissions from S2.020 through S2.027, S2.033, S2.037, and S2.044, combined, will be controlled by a dust collector (DFE-324).

 <u>Descriptive Stack Parameters</u> Stack Height: 25 feet Stack Diameter: 3 feet Stack Temperature: 60°F Exhaust Flow: 10.733 dry standard cubic feet per minute (dscfm)

2. Operating Parameters (NAC 445B.346(1)) (Federally Enforceable SIP Requirement)

- a. The maximum allowable throughput rate for S2.020 through S2.027, S2.033, S2.037, and S2.044, combined, shall not exceed 1.1 tons of metal alloy per any one-hour period, nor more than 6,242.0 tons per year.
- b. Hours

1,

- (1) S2.020 through S2.027, S2.033, S2.037, and S2.044, each, may operate a total of 19.5 hours per day.
- (2) S2.020 through S2.027, S2.033, S2.037, and S2.044, each, may operate a total of 7,117.5 hours per year.
- (3) S2.020 through S2.027, S2.033, S2.037, and S2.044, each, may operate from 4:00 AM to 11:30 PM.

 Emission Limits (NAC 445B.305, NAC 445B.346(1), NAC 445B. 22017) (Federally Enforceable SIP Requirement) The Permittee, upon issuance of this operating permit, shall not discharge or cause the discharge into the atmosphere from S2.020 through S2.027, S2.033, S2.037, and S2.044, combined, the following pollutants in excess of the following specified limits:

- a. The discharge of PM (particulate matter) to the atmosphere shall not exceed 0.18 pounds per hour, nor more than 0.65 tons per year.
- b. The discharge of **PM**<sub>10</sub> (particulate matter less than or equal to 10 microns in diameter) to the atmosphere shall not exceed **0.18** pounds per hour, nor more than **0.65** tons per year.
- c. The discharge of PM<sub>2.5</sub> (particulate matter less than or equal to 2.5 microns in diameter) to the atmosphere shall not exceed 0.18 pounds per hour, nor more than 0.65 tons per year.
- d. The discharge of HAPs (hazardous air pollutants) to the atmosphere shall not exceed than 0.0050 tons per year.
- e. The opacity from S2.020 through S2.027, S2.033, S2.037, and S2.044, combined, shall not equal or exceed 20 percent.

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Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

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#### Section V. Specific Operating Conditions (continued)

#### E. Emission Units S2.020 through S2.027, S2.033, S2.037, and S2.044 (continued)

4. <u>Monitoring, Recordkeeping, and Reporting</u> (NAC 445B.346(2)) (Federally Enforceable SIP Requirement) The Permittee, upon the issuance of this operating permit, shall maintain, in a contemporaneous log, the monitoring and recordkeeping specified in this section. All records in the log must be identified with the calendar date of the record. All specified records shall be entered into the log at the end of the shift, end of the day of operation, or the end of the final day of operation for the month, as appropriate.

- a. Monitor and record the throughput for S2.020 through S2.027, S2.033, S2.037, and S2.044, combined, on a daily basis.
- b. The dust collector (DC-324) must be operating any time S2.020 through S2.027, S2.033, S2.037, or S2.044 are operating.
- c. Monitor and record the times at which operations start and stop as well as the total daily hours of operation for S2.020 through S2.027, S2.033, S2.037, and S2.044.
- d. Record the corresponding average hourly throughput rate in tons per hour. The average hourly throughput rate shall be determined from the total daily throughput and the total daily hours of operation.
- e. Monitor and record the total yearly throughput rate in tons per year. The annual throughput shall be determined at the end of each month as the sum of the monthly throughput rates for the year for all previous months of that year.
- f. Monitor and record the total yearly hours of operation per year. The annual hours of operation shall be determined at the end of each month as the sum of the monthly hours of operation for all previous months of that year.
- g. Conduct and record an observation of visible emissions (excluding water vapor) on the dust collector controlling S2.020 through S2.027, S2.033, S2.037, and S2.044 on a monthly basis while operating. The observer shall stand at a distance sufficient to provide a clear view of the emissions with the sun oriented to their back. If visible emissions are observed and exceed the applicable opacity standard, the Permittee shall take immediate corrective action. The Permittee shall maintain in a contemporaneous log the following recordkeeping: the calendar date of any required monitoring, results of the monthly observation of visible emissions, and any corrective actions taken.
- h. Inspect the dust collector installed on S2.020 through S2.027, S2.033, S2.037, and S2.044 in accordance with the manufacturer's operation and maintenance manual and record the results (e.g. the condition of the filter fabric) and any corrective actions taken.
- 5. <u>Performance and Compliance Testing</u> (NAC 445B.346(2), NAC 445B.252(1)) (Federally Enforceable SIP Requirement) The Permittee, upon issuance of this operating permit, shall conduct renewal performance testing at least 90 days prior to the expiration of this operating permit, but no earlier than 365 days from the date of expiration of this operating permit, and every 5 years thereafter, in accordance with the following:
  - a. All opacity compliance demonstrations and/or performance tests must comply with the advance notification, protocol review, operational conditions, reporting, and other requirements of Section LH. Testing and Sampling (NAC 445B.252) of this operating permit. All performance test results shall be based on the arithmetic average of three valid runs (NAC 445B.252(5)).
  - b. Testing shall be conducted on the exhaust stack (post controls).
  - c. Method 5 in Appendix A of 40 CFR Part 60 shall be used to determine PM emissions. The sample volume for each test run shall be at least 1.7 dscm (60 dscf). Test runs must be conducted for up to two hours in an effort to collect this minimum sample.
  - d. Method 201A in Appendix M of 40 CFR Part 51 shall be used to determine PM10 and PM2.5 emissions. The sample time and sample volume collected for each test run shall be sufficient to collect enough mass to weigh accurately.
  - c. The Method 201A test required in this section may be replaced by a Method 5 in Appendix A of
  - f. 40 CFR Part 60. All particulate captured in the Method 5 test performed under this provision shall be considered PM2.5 for determination of compliance.
  - g. Method 9 in Appendix A of 40 CFR Part 60 shall be used to determine opacity. Opacity observations shall be conducted concurrently with the applicable performance test. The minimum total time of observations shall be six minutes (24 consecutive observations recorded at 15 second intervals), unless otherwise specified by an applicable subpart.

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Section V. Specific Operating Conditions (continued)

E. Emission Units S2.020 through S2.027, S2.033, S2.037, and S2.044 (continued)

 <u>Federal Requirements</u> (NAC 445B.346(2), NAC 445B.252(1)) (*Federally Enforceable SIP Requirement*) S2.020 through S2.027, S2.033, S2.037, and S2.044 are subject to the requirements in Section V. J - <u>National Emission</u> <u>Standards for Hazardous Air Pollutants Area Source Standards – 40 CFR Part 63, Subpart ZZZZZ - National</u> <u>Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources</u> of this permit.

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**Issued to:** PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section V. Specific Operating Conditions (continued)

#### F. Emission Unit S2.028

System 6 - Hangar Blast Cleaning		Location UTM (Z	Location UTM (Zone 11, NAD 83)		
		m North	m East		
S2.028	Goff Hangar Blast (S007/022)	4,342,375	263,624		

<u>Air Pollution Control Equipment</u> (NAC 445B.346(1)) (*Federally Enforceable SIP Requirement*)

 Emissions from S2.028 will be controlled by a dust collector (DC-003).

 b. <u>Descriptive Stack Parameters</u> Stack Height: 25 feet Stack Diameter: 1.37 feet Stack Temperature: 60°F Exhaust Flow: 10,733 dry standard cubic feet per minute (dscfm)

#### 2. Operating Parameters (NAC 445B.346(1)) (Federally Enforceable SIP Requirement)

a. The maximum allowable throughput rate for S2.028 shall not exceed 2.14 tons of metal alloy per any one-hour period, nor more than 6,242.0 tons per year.

- b. <u>Hours</u>
  - (1) S2.028 may operate a total of 19.5 hours per day.
  - (2) S2.028 may operate a total of 7,117.5 hours per year.
  - (3) S2.028 may operate from 4:00 AM to 11:30 PM.

 Emission Limits (NAC 445B.305, NAC 445B.346(1), NAC 445B. 22017) (Federally Enforceable SIP Requirement) The Permittee, upon issuance of this operating permit, shall not discharge or cause the discharge into the atmosphere from S2.028 the following pollutants in excess of the following specified limits:

- a. The discharge of PM (particulate matter) to the atmosphere shall not exceed 0.18 pounds per hour, nor more than 0.65 tons per year.
- b. The discharge of PM<sub>10</sub> (particulate matter less than or equal to 10 microns in diameter) to the atmosphere shall not exceed 0.18 pounds per hour, nor more than 0.65 tons per year.
- e. The discharge of PM<sub>2.5</sub> (particulate matter less than or equal to 2.5 microns in diameter) to the atmosphere shall not exceed 0.18 pounds per hour, nor more than 0.65 tons per year.
- d. The discharge of HAPs (hazardous air pollutants) to the atmosphere shall not exceed than 0.0017 tons per year.
- e. The opacity from S2.028 shall not equal or exceed 20 percent.

4. Monitoring, Recordkeeping, and Reporting (NAC 445B.346(2)) (Federally Enforceable SIP Requirement)

The Permittee, upon the issuance of this operating permit, shall maintain, in a contemporaneous log, the monitoring and recordkeeping specified in this section. All records in the log must be identified with the calendar date of the record. All specified records shall be entered into the log at the end of the shift, end of the day of operation, or the end of the final day of operation for the month, as appropriate.

- a. Monitor and record the throughput for S2.028 on a daily basis.
- b. Monitor and record the times at which operations start and stop as well as the total daily hours of operation for S2.028.
- c. Record the corresponding average hourly throughput rate in tons per hour. The average hourly throughput rate shall he determined from the total daily throughput and the total daily hours of operation.
- d. Monitor and record the total yearly throughput rate in tons per year. The annual throughput shall be determined at the end of each month as the sum of the monthly throughput rates for the year for all previous months of that year.
- e. Monitor and record the total yearly hours of operation per year. The annual hours of operation shall be determined at the end of each month as the sum of the monthly hours of operation for all previous months of that year.

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#### Section V. Specific Operating Conditions (continued)

#### F. Emission Unit S2.028 (continued)

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4.

- Monitoring, Recordkeeping, and Reporting (NAC 445B.346(2)) (Federally Enforceable SIP Requirement) (continued) The Permittee, upon the issuance of this operating permit, shall maintain, in a contemporaneous log, the monitoring and recordkeeping specified in this section. All records in the log must be identified with the calendar date of the record. All specified records shall be entered into the log at the end of the shift, end of the day of operation, or the end of the final day of operation for the month, as appropriate.
  - f. Conduct and record an observation of visible emissions (excluding water vapor) on the dust collector controlling S2.028 on a monthly basis while operating. The observer shall stand at a distance sufficient to provide a clear view of the emissions with the sun oriented to their back. If visible emissions are observed and exceed the applicable opacity standard, the Permittee shall take immediate corrective action. The Permittee shall maintain in a contemporaneous log the following recordkeeping: the calendar date of any required monitoring, results of the monthly observation of visible emissions, and any corrective actions taken.
- g. Inspect the dust collector installed on S2.028 in accordance with the manufacturer's operation and maintenance manual and record the results (e.g. the condition of the filter fabric) and any corrective actions taken.
- <u>Federal Requirements</u> (NAC 445B.346(2), NAC 445B.252(1)) (*Federally Enforceable SIP Requirement*) S2.028 is subject to the requirements in Section V. J - <u>National Emission Standards for Hazardous Air Pollutants Area</u> <u>Source Standards – 40 CFR Part 63, Subpart ZZZZZ - National Emission Standards for Hazardous Air Pollutants</u> <u>for Iron and Steel Foundries Area Sources</u> of this permit.

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**Issued to:** PCC STRUCTURALS, INC. (AS PERMITTEE)

### Section V. Specific Operating Conditions (continued)

#### G. Emission Units S2.029 through S2.031, and S2.038 through S2.042

System 7 - Gate Removal Equipment		Location UTM (Zone 11, NAD 83)	
		m North	m East
S2.029	Single Head Grinder 1	4,342,351	263,605
S2.030	Single Head Grinder 2	4,342,351	263,605
S2.031	Porter Cable 8" Platen Grinder (S009/002)	4,342,351	263,605
S2.038	Dual Belt Grinder	4,342,351	263,605
S2.039	Bader Grinder 1	4,342,351	263,605
S2.040	Bader Grinder 2	4,342,351	263,605
S2.041	CC Built 2" Belt Grinder	4,342,351	263,605
S2.042	Dual Belt Grinder	4,342,351	263,605

1. Air Pollution Control Equipment (NAC 445B.346(1)) (Federally Enforceable SIP Requirement)

- a. Emissions from S2.029 through S2.031, and S2.038 through S2.042, combined, will be controlled by a dust collector (DC-002).
- b. <u>Descriptive Stack Parameters</u> Stack Height: 25 feet Stack Diameter: 1.37 feet Stack Temperature: 60°F Exhaust Flow: 10,733 dry standard cubic feet per minute (dscfm)
- 2. Operating Parameters (NAC 445B.346(1)) (Federally Enforceable SIP Requirement)
  - a. The maximum allowable throughput rate for S2.029 through S2.031, and S2.038 through S2.042, combined, shall not exceed 1.07 tons of metal alloy per any one-hour period, nor more than 6,242.0 tons per year.
  - b. Hours
    - (1) S2.029 through S2.031, and S2.038 through S2.042, each, may operate a total of 19.5 hours per day.
    - (2) S2.029 through S2.031, and S2.038 through S2.042, each, may operate a total of 7,117.5 hours per year.
    - (3) S2.029 through S2.031, and S2.038 through S2.042, each, may operate from 4:00 AM to 11:30 PM.
- Emission Limits (NAC 445B.305, NAC 445B.346(1), NAC 445B. 22017) (Federally Enforceable SIP Requirement) The Permittee, upon issuance of this operating permit, shall not discharge or cause the discharge into the atmosphere from S2.029 through S2.031, and S2.038 through S2.042, combined, the following pollutants in excess of the following specified limits:
  - a. The discharge of PM (particulate matter) to the atmosphere shall not exceed 0.18 pounds per hour, nor more than 0.65 tons per year.
  - b. The discharge of PM<sub>10</sub> (particulate matter less than or equal to 10 microns in diameter) to the atmosphere shall not exceed 0.18 pounds per hour, nor more than 0.65 tons per year.
  - c. The discharge of PM<sub>2.5</sub> (particulate matter less than or equal to 2.5 microns in diameter) to the atmosphere shall not exceed 0.18 pounds per hour, nor more than 0.65 tons per year.
  - d. The discharge of HAPs (hazardous air pollutants) to the atmosphere shall not exceed than 0.23 tons per year.
  - e. The opacity from S2.029 through S2.031, and S2.038 through S2.042, combined, shall not equal or exceed 20 percent.

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### Facility ID No. A0528Permit No. AP3324-1253.03CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

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### Section V. Specific Operating Conditions (continued)

G. Emission Units S2.029 through S2.031, and S2.038 through S2.042 (continued)

4. <u>Monitoring, Recordkeeping, and Reporting</u> (NAC 445B.346(2)) (Federally Enforceable SIP Requirement) The Permittee, upon the issuance of this operating permit, shall maintain, in a contemporaneous log, the monitoring and recordkeeping specified in this section. All records in the log must be identified with the calendar date of the record. All specified records shall be entered into the log at the end of the shift, end of the day of operation, or the end of the final day of operation for the month, as appropriate.

- a. Monitor and record the throughput for S2.029 through S2.031, and S2.038 through S2.042, combined, on a daily basis.
- b. The dust collector (DC-002) must be operating any time S2.029 through S2.031, and S2.038 through S2.042 are operating.
- c. Monitor and record the times at which operations start and stop as well as the total daily hours of operation for S2.029 through S2.031, and S2.038 through S2.042.
- d. Record the corresponding average hourly throughput rate in tons per hour. The average hourly throughput rate shall be determined from the total daily throughput and the total daily hours of operation.
- e. Monitor and record the total yearly throughput rate in tons per year. The annual throughput shall be determined at the end of each month as the sum of the monthly throughput rates for the year for all previous months of that year.
- f. Monitor and record the total yearly hours of operation per year. The annual hours of operation shall be determined at the end of each month as the sum of the monthly hours of operation for all previous months of that year.
- g. Conduct and record an observation of visible emissions (excluding water vapor) on the dust collector controlling S2.029 through S2.031, and S2.038 through S2.042 on a monthly basis while operating. The observer shall stand at a distance sufficient to provide a clear view of the emissions with the sun oriented to their back. If visible emissions are observed and exceed the applicable opacity standard, the Permittee shall take immediate corrective action. The Permittee shall maintain in a contemporaneous log the following recordkeeping: the calendar date of any required monitoring, results of the monthly observation of visible emissions, and any corrective actions taken.
- h. Inspect the dust collector installed on S2.029 through S2.031, and S2.038 through S2.042 in accordance with the manufacturer's operation and maintenance manual and record the results (e.g. the condition of the filter fabric) and any corrective actions taken.

 <u>Federal Requirements</u> (NAC 445B.346(2), NAC 445B.252(1)) (*Federally Enforceable SIP Requirement*) S2.029 through S2.031, and S2.038 through S2.042 are subject to the requirements in Section V.J - <u>National Emission</u> <u>Standards for Hazardous Air Pollutants Area Source Standards – 40 CFR Part 63, Subpart ZZZZZ - National</u> <u>Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources of this permit.</u>

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## *Facility ID No.* A0528 *Permit No.* AP3324-1253.03 CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

Section V. Specific Operating Conditions (continued)

H. System 8 - Reserved

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*Facility ID No.* A0528 *Permit No.* AP3324-1253.03 CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

### Section V. Specific Operating Conditions (continued)

#### I. Emission Units S2.034 and S2.043

System 9 - Ingot Cutoff Saw		Location UTM (Zone 11, NAD 83)	
		m North	m East
S2.034	Ingot Cutoff Saw	4,342,393	263,617
S2.043	8" Porter Cable Grinder	4,342,393	263,617

1. <u>Air Pollution Control Equipment</u> (NAC 445B.346(1)) (Federally Enforceable SIP Requirement)

- a. Emissions from S2.034 and S2.043, combined, will be controlled by a dust collector (DC-005).
  - b. <u>Descriptive Stack Parameters</u> Stack Height: 25 feet Stack Diameter: 3 feet Stack Temperature: 60°F Exhaust Flow: 10,733 dry standard cubic feet per minute (dscfm)
- 2. Operating Parameters (NAC 445B.346(1)) (Federally Enforceable SIP Requirement)
  - a. The maximum allowable throughput rate for S2.034 and S2.043, combined, shall not exceed 2.14 tons of metal alloy per any one-hour period, nor more than 6,242.0 tons per year.
  - b. Hours
    - (1) S2.034 and S2.043, each, may operate a total of 19.5 hours per day.
    - (2) S2.034 and S2.043, each, may operate a total of 7,117.5 hours per year.
    - (3) S2.034 and S2.043, each, may operate from 4:00 AM to 11:30 PM Monday.

 Emission Limits (NAC 445B.305, NAC 445B.346(1), NAC 445B. 22017) (Federally Enforceable SIP Requirement) The Permittee, upon issuance of this operating permit, shall not discharge or cause the discharge into the atmosphere from S2.034 and S2.043, combined, the following pollutants in excess of the following specified limits:

- a. The discharge of **PM** (particulate matter) to the atmosphere shall not exceed **0.18** pounds per hour, nor more than **0.65** tons per year.
- b. The discharge of **PM**<sub>10</sub> (particulate matter less than or equal to 10 microns in diameter) to the atmosphere shall not exceed **0.18** pounds per hour, nor more than **0.65** tons per year.
- c. The discharge of PM<sub>2.5</sub> (particulate matter less than or equal to 2.5 microns in diameter) to the atmosphere shall not exceed 0.18 pounds per hour, nor more than 0.65 tons per year.
- d. The discharge of HAPs (hazardous air pollutants) to the atmosphere shall not exceed than 0.27 tons per year.
- e. The opacity from S2.034 and S2.043, combined, shall not equal or exceed 20 percent.

4. <u>Monitoring, Recordkeeping, and Reporting</u> (NAC 445B.346(2)) (*Federally Enforceable SIP Requirement*)

The Permittee, upon the issuance of this operating permit, shall maintain, in a contemporaneous log, the monitoring and recordkeeping specified in this section. All records in the log must be identified with the calendar date of the record. All specified records shall be entered into the log at the end of the shift, end of the day of operation, or the end of the final day of operation for the month, as appropriate.

- a. Monitor and record the throughput for S2.034 and S2.043, combined, on a daily basis.
- b. Monitor and record the times at which operations start and stop as well as the total daily hours of operation for \$2.034 and \$2.043.
- c. Record the corresponding average hourly throughput rate in tons per hour. The average hourly throughput rate shall be determined from the total daily throughput and the total daily hours of operation.
- d. Monitor and record the total yearly throughput rate in tons per year. The annual throughput shall be determined at the end of each month as the sum of the monthly throughput rates for the year for all previous months of that year.
- e. Monitor and record the total yearly hours of operation per year. The annual hours of operation shall be determined at the end of each month as the sum of the monthly hours of operation for all previous months of that year.

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## Facility ID No. A0528Permit No. AP3324-1253.03CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

### Section V. Specific Operating Conditions (continued)

#### L. Emission Units S2.034 and S2.043 (continued)

- 4. <u>Monitoring, Recordkeeping, and Reporting</u> (NAC 445B.346(2)) (*Federally Enforceable SIP Requirement*) (continued) The Permittee, upon the issuance of this operating permit, shall maintain, in a contemporaneous log, the monitoring and recordkeeping specified in this section. All records in the log must be identified with the calendar date of the record. All specified records shall be entered into the log at the end of the shift, end of the day of operation, or the end of the final day of operation for the month, as appropriate.
  - f. Conduct and record an observation of visible emissions (excluding water vapor) on the dust collector controlling S2.034 and S2.043 on a monthly basis while operating. The observer shall stand at a distance sufficient to provide a clear view of the emissions with the sun oriented to their back. If visible emissions are observed and exceed the applicable opacity standard, the Permittee shall take immediate corrective action. The Permittee shall maintain in a contemporaneous log the following recordkeeping: the calendar date of any required monitoring, results of the monthly observation of visible emissions, and any corrective actions taken.
  - g. Inspect the dust collector installed on S2.034 and S2.043 in accordance with the manufacturer's operation and maintenance manual and record the results (e.g. the condition of the filter fabric) and any corrective actions taken.
- 5. <u>Federal Requirements</u> (NAC 445B.346(2), NAC 445B.252(1)) (*Federally Enforceable SIP Requirement*) S2.034 and S2.043 are subject to the requirements in Section V.J Specific Operating Conditions - <u>National Emission</u> <u>Standards for Hazardous Air Pollutants Area Source Standards - 40 CFR Part 63, Subpart ZZZZZ - National</u> <u>Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources</u> of this permit.

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### Facility ID No. A0528 Permit No. AP3324-1253.03 CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

#### Section V. Specific Operating Conditions (continued)

- J. National Emission Standards for Hazardous Air Pollutants Area Source Standards 40 CFR Part 63, Subpart ZZZZZ National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources: System 1 (S2.001), System 2 (S2.002 through S2.005), System 3 (S2.006, S2.007, S2.008, S2.009, S2.035, S2.036, and S2.010), System 4 (S2.011 through S2.019, and S2.033), System 5 (S2.020 through S2.027, and S2.037), System 6 (S2.028), System 7 (S2.029 through S2.031, and S2.038 through S2.042), and System 9 (S2.034 and S2.043)
  - Federal Requirements (NAC 445B.346(2), NAC 445B.252(1)) (Federally Enforceable SIP Requirement) National Emission Standards for Hazardous Air Pollutants Area Source Standards – 40 CFR Part 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources
    - Affected Facilities (40 CFR 63.10880)

a.

- (1) If you own or operate an existing affected source, you must determine the initial applicability of the requirements of this subpart to a small foundry or a large foundry based on your facility's metal melt production for calendar year 2008. If the metal melt production for calendar year 2008 is 20,000 tons or less, your area source is a small foundry. If your metal melt production for calendar year 2008 is greater than 20,000 tons, your area source is a large foundry. You must submit a written notification to the Administrator that identifies your area source as a small foundry or a large foundry no later than January 2, 2009. (40 CFR 63.10880(f))
- (2) If you own or operate a new affected source, you must determine the initial applicability of the requirements of this subpart to a small foundry or a large foundry based on your facility's annual metal melting capacity at startup. If the annual metal melting capacity is 10,000 tons or less, your area source is a small foundry. If the annual metal melting capacity is greater than 10,000 tons, your area source is a large foundry. You must submit a written notification to the Administrator that identifies your area source as a small foundry or a large foundry no later than 120 days after startup. (40 CFR 63.10880(g))
- b. Compliance Dates (40 CFR 63.10881)
  - ) Following the initial determination for an existing affected source required in J.1.a.(1) (40 CFR 63.10880(d))
    - (a) Beginning January 1, 2010, if the annual metal melt production of your small foundry exceeds 20,000 tons during the preceding calendar year, you must submit a notification of foundry reclassification to the Administrator within 30 days and comply with the requirements in paragraphs J.1.b.(1)(a)(i) of this section, as applicable. (40 CFR 63.10881(d)(1))
      - (i) If your small foundry has never been classified as a large foundry, you must comply with the requirements for a large foundry no later than 2 years after the date of your foundry's notification that the annual metal melt production exceeded 20,000 tons. (40 CFR 63.10881(d)(1)(i))
      - (ii) If your small foundry had previously been classified as a large foundry, you must comply with the requirements for a large foundry no later than the date of your foundry's most recent notification that the annual metal melt production exceeded 20,000 tons. (40 CFR 63.10881(d)(1)(ii))
  - (2) Following the initial determination for a new affected source required in J.1.a.(2) (40 CFR 63.10880(e))
    - (a) If you increase the annual metal melt capacity of your small foundry to exceed 10,000 tons, you must submit a notification of reclassification to the Administrator within 30 days and comply with the requirements for a large foundry no later than the startup date for the new equipment, if applicable, or the date of issuance for your revised State or Federal operating permit. (40 CFR 63.10880(e)(1))

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*Facility ID No.* A0528 *Permit No.* AP3324-1253.03 CLASS II AIR QUALITY OPERATING PERMIT

**Issued to:** PCC STRUCTURALS, INC. (AS PERMITTEE)

### Section V. Specific Operating Conditions (continued)

- J. National Emission Standards for Hazardous Air Pollutants Area Source Standards 40 CFR Part 63, Subpart ZZZZZ -National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources: System 1 (S2.001), System 2 (S2.002 through S2.005), System 3 (S2.006, S2.007, S2.008, S2.009, S2.035, S2.036, and S2.010), System 4 (S2.011 through S2.019, and S2.033), System 5 (S2.020 through S2.027, and S2.037), System 6 (S2.028), System 7 (S2.029 through S2.031, and S2.038 through S2.042), and System 9 (S2.034 and S2.043) (continued)
  - 1. <u>Federal Requirements</u> (NAC 445B.346(2), NAC 445B.252(1)) (*Federally Enforceable SIP Requirement*) (continued) <u>National Emission Standards for Hazardous Air Pollutants Area Source Standards – 40 CFR Part 63, Subpart ZZZZZ –</u> <u>National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources</u>
    - c. <u>Management Practices for Binder Formulations</u> (40 CFR 63.10886)
      - (1) For each furfuryl alcohol warm box mold or core making line at a new or existing iron and steel foundry, you must use a binder chemical formulation that does not use methanol as a specific ingredient of the catalyst formulation. This requirement does not apply to the resin portion of the binder system.
    - d. <u>Management Practices and Compliance Requirements</u> (40 CFR 63.10890)
      - (1) You must submit an initial notification of applicability according to §63.9(b)(2). (40 CFR 63.10890(b))
      - (2) You must submit a notification of compliance status according to §63.9(h)(2)(i). You must send the notification of compliance status before the close of business on the 30th day after the applicable compliance date specified in J.1.b. The notification must include the following compliance certifications, as applicable: "This facility has prepared, and will operate by, written material specifications for metallic scrap according to §63.10885(a)(1)" and/or "This facility has prepared, and will operate by, written material specifications for general iron and steel scrap according to §63.10885(a)(2)." (40 CFR 63.10890(c)(3))
      - (3) As required by §63.10(b)(1), you must maintain files of all information (including all reports and notifications) for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks, or on microfiche. Any records required to be maintained by this part that are submitted electronically via the EPA's Compliance and Emissions Data Reporting Interface (CEDRI) may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to a delegated air agency or the EPA as part of an on-site compliance evaluation. (40 CFR 63.10890(d))
      - (4) You must maintain records of the information specified in paragraphs (a) through (d) of this section according to the requirements in §63.10(b)(1). (40 CFR 63.10890(e))
        - (a) Records supporting your initial notification of applicability and your notification of compliance status according to §63.10(b)(2)(xiv). (40 CFR 63.10890e(1))
        - (b) Records to document use of binder chemical formulation that does not contain methanol as a specific ingredient of the catalyst formulation for each furfuryl alcohol warm box mold or core making line as required by J.1.c. These records must be the Material Safety Data Sheet (provided that it contains appropriate information), a certified product data sheet, or a manufacturer's hazardous air pollutant data sheet. (40 CFR 63.10890e(5))
        - (c) Records of the annual quantity and composition of each HAP-containing chemical binder or coating material used to make molds and cores. These records must be copies of purchasing records, Material Safety Data Sheets, or other documentation that provides information on the binder or coating materials used. (40 CFR 63.10890e(6))

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(d) Records of metal melt production for each calendar year. (40 CFR 63.10890e(7))

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### Section V. Specific Operating Conditions (continued)

- J. National Emission Standards for Hazardous Air Pollutants Area Source Standards 40 CFR Part 63, Subpart ZZZZ -National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources: System 1 (S2.001), System 2 (S2.002 through S2.005), System 3 (S2.006, S2.007, S2.008, S2.009, S2.035, S2.036, and S2.010), System 4 (S2.011 through S2.019, and S2.033), System 5 (S2.020 through S2.027, and S2.037), System 6 (S2.028), System 7 (S2.029 through S2.031, and S2.038 through S2.042), and System 9 (S2.034 and S2.043) (continued)
  - 1. <u>Federal Requirements</u> (NAC 445B.346(2), NAC 445B.252(1)) (*Federally Enforceable SIP Requirement*) (continued) <u>National Emission Standards for Hazardous Air Pollutants Area Source Standards – 40 CFR Part 63, Subpart ZZZZZ –</u> <u>National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources</u>
    - d. Management Practices and Compliance Requirements (40 CFR 63.10890) (continued)
      - (5) You must submit a written notification to the Administrator of the initial classification of your facility as a small foundry as required in J.1.a(2) and J.1.a(2), as applicable, and for any subsequent reclassification as required in J.1.b(1a) or J.1.b(2), as applicable. (40 CFR 63.10890(g))
      - (6) Following the initial determination for an existing affected source as a small foundry, if the annual metal melt production exceeds 20,000 tons during the preceding year, you must comply with the requirements for large foundries by the applicable dates in J.1.b.(2)(i) or J.1.b.(2)(ii). Following the initial determination for a new affected source as a small foundry, if you increase the annual metal melt capacity to exceed 10,000 tons, you must comply with the requirements for a large foundry by the applicable dates in J.1.b.(2). (40 CFR 63.10890(h)) (7) At all times, the Permittee must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. (40 CFR 63.10890(i))
      - (8) The Permittee must comply with the following requirements of the general provisions in subpart A of this part: 40 CFR 40 CFR 63.1 through 63.5; 40 CFR 63.6(a), (b), and (c); 40 CFR 63.9; 40 CFR 63.10(a), (b)(1), (b)(2)(xiv), (b)(3), (d)(1) and (4), and (f); and 40 CFR 40 CFR 63.13 through 63.16. Requirements of the general provisions not cited in the preceding sentence do not apply to the owner or operator of a new or existing affected source that is classified as a small foundry. (40 CFR 63.10890(j)

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Facility ID No. A0528Permit No. AP3324-1253.03CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

### Section VI. Emission Caps

A. Not Applicable

\*\*\*\*End of Emission Caps\*\*\*\*

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## Facility ID No. A0528Permit No. AP3324-1253.03CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

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### Section VII. Surface Area Disturbance Conditions

The surface area disturbance for PCC Structurals is less than 5 acres.

#### A. Fugitive Dust (NAC 445B.22037) (Federally Enforceable SIP Requirement)

- 1. No person may cause or permit the handling, transporting or storing of any material in a manner which allows or may allow controllable particulate matter to become airborne.
- 2. Except as otherwise provided in subsection 4, no person may cause or permit the construction, repair, demolition, or use of unpaved or untreated areas without first putting into effect an ongoing program using the best practical methods to prevent particulate matter from becoming airborne. As used in this subsection, "best practical methods" includes, but is not limited to, paving, chemical stabilization, watering, phased construction and revegetation.
- 3. Except as otherwise provided in subsection 4, no person may disturb or cover 5 acres or more of land or its topsoil until he has obtained an operating permit for surface area disturbance to clear, excavate, or level the land or to deposit any foreign material to fill or cover the land.
- 4. The provisions of subsections 2 and 3 do not apply to:
  - a. Agricultural activities occurring on agricultural land; or
  - b. Surface disturbances authorized by a permit issued pursuant to NRS 519A.180 which occur on land which is not less than 5 acres or more than 20 acres.

### \*\*\*\*End of Surface Area Disturbance Conditions\*\*\*\*

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Facility ID No. A0528 Permit No. AP3324-1253.03 CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

### Section VIII. Schedules of Compliance

A. Not Applicable

\*\*\*\*End of Schedule of Compliance \*\*\*\*

# NDEP

Facility ID No. A0528 Permit No. AP3324-1253.03 CLASS II AIR QUALITY OPERATING PERMIT

Issued to: PCC STRUCTURALS, INC. (AS PERMITTEE)

Section IX. Amendments

This permit:

- 1. Is non-transferable. (NAC 445B.287.3) (Federally Enforceable SIP Requirement)
- 2. Will be posted conspicuously at or near the stationary source. (NAC 445B.318.5) (Federally Enforceable SIP Requirement)
- 3. Will expire and be subject to renewal five (5) years from: (NAC 445B.315) (Federally Enforceable SIP Requirement)
- 4. A completed application for renewal of an operating permit must be submitted to the director on the form provided by him with the appropriate fee at least 70 calendar days before the expiration date of this operating permit. (NAC 445B.3473.2) (Federally Enforceable SIP Requirement)
- 5. Any person aggrieved by a final decision of the Department may, not later than 10 days after notice of the action of the Department, appeal the decision by filing a request for a hearing before the Commission on a form 3\* with the State Environmental Commission, 901 South Stewart Street, Suite 4001, Carson City, Nevada 89701-5249. \*(See adopting agency for form.) (NAC 445B.890) (State Only Requirement)

THIS PERMIT EXPIRES ON: March 18, 2023

Signature:

**Issued by:** 

hle

Ashley Taylor, P.E. Supervisor, Permitting Branch Bureau of Air Pollution Control

Phone:

(775) 687-9330 Date:

June 22, 2022

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Project No. M231408 Multiple Test Locations Page 42 of 42

March 18, 2018

### Class II Insignificant Activities List Appended to Permit #AP3324-1253.03

Emission Unit #	Emission Unit Description
1A1.001	Cleaver Brooks, Clear Fire, Gas-fired Boiler (30hp)
IA1.002	Salt bath heater

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### END OF THE REPORT

# Exhibit B

Photographs of Bader Grinders 1 and 2 with Dust Collection Installed Bader Grinders with dust collection installed



