

1.0 Introduction

Stelmi America, LLC (Stelmi) located in Marshall, Calhoun County, Michigan operates eight (8) hard chrome plating tanks under State of Michigan Permits to Install (PTI) Nos. 67-15A, and 178-02C. The permits were issued on March 19, 2021, and November 2, 2020, respectively, by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for the operation of its chemical processing (plating) of various metal products.

Flexible Group FGCHROME1 (67-15A) consists of Emission Units EUCHROME6 and EUCHROME7. Both emission units are individual enclosed hard chrome electroplating tanks that share a common a composite mesh pad (CMP) scrubber system and inline mist eliminator. Both emission units exhaust through stack SVCMP1. Flexible Group FGPLATING (178-02C) consists of EUCHROME1, EUCHROME2, EUCHROME3, EUCHROME4, EUCHROME5, and EUCHROME8. All emission units are enclosed hard chrome electroplating tanks that share a common CMP scrubber system with an inline mist eliminator system. All emission units in FGPLATING exhaust through stack SVCHROME2.

The emission testing was performed following Stelmi's new equipment installations and modifications that were permitted under the previously listed PTIs. A compliance test was required to be performed within 180 days after commencement of trial operations.

In addition, provisions of 40 CFR Part 63, Subpart N, the National Emission standard for Hazardous Air Pollutants (NESHAP) for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks, specifies the applicable chromium emission limits and testing requirements.

The emissions testing was performed on May 11-12, 2021 and June 11, 2021 by Impact Compliance & Testing, Inc. (ICT) representatives Blake Beddow, Andrew Eisenberg, and Clay Gaffey. Ms. Amanda Chapel and Ms. Lindsey Wells of EGLE-AQD were on-site to observe portions of the emissions testing. The project was coordinated by Mr. Michael Hall of Stelemi.

The sampling and analysis were performed using procedures specified in the test plan documents dated March 12, 2021 and approved by the EGLE-AQD on April 28, 2021. This report serves as part of the notification of compliance status (NOCS) as required in 40 CFR §63.347.

Appendix 1 provides a copy of the test plan approval letter.

Questions concerning the source and test report should be addressed to:

Testing Manager: Blake Beddow
Project Manager
Impact Compliance & Testing, Inc.
37660 Hills Tech Dr
Farmington Hills, MI 48331
(734) 464-3880
Blake.Beddow@ImpactCandT.com

Site Operations: Mr. Michael Hall
Plant Manager
Stelmi America, LLC
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(269) 781-6222
mhall@stelmiamerica.com

2.0 Summary of Test Results and Operating Conditions

2.1 Purpose and Objective of the Tests

Conditions of PTI Nos. 67-15A and 178-02C, and the provisions of 40 CFR Part 63, Subpart N, the National Emission standard for Hazardous Air Pollutants (NESHAP) for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks, require Stelmi to test each control device (CMP scrubber) for Total Chromium emissions. FGCHROME1 and FGPLATING we tested during this compliance test event.

2.2 Operating Conditions During the Compliance Tests

The testing was performed at maximum routine operating conditions (2 – 2.5 steel bars per hour). Stelmi representatives provided process data for each test run. Stelmi representatives also provided the pressure drop across the CMP scrubber at least twice per test run. For the FGPLATING test runs Stelmi representatives provided the pressure drop across the inline mist eliminators at least twice per test run.

A summary of process data is presented in table 2.1.

Process data sheets are presented in Appendix 2.

2.3 Summary of Air Pollutant Sampling Results

Emission testing was performed for exhaust gas downstream of each CMP Scrubber System. A summary of the average total chromium exhaust concentration for FGCHROME1 and a summary of the average total chromium concentration and total chromium emission rate for FGPLATING are presented in Table 2.1. Measured exhaust gas flowrate, sample train data, and chromium concentrations for each two-hour test period are presented at the end of this report in Table 6.1, 6.2 and 6.3.

The measured total chrome content in the FGCHROME1 exhaust gas is less than the allowable limit of 0.006 milligrams per dry standard cubic meter (mg/dscm) specified in permit number 67-15A. The measured total chrome content in FGPLATING is less than the calculated allowable limit per *CFR Subpart N 63.344(e)(4) special compliance provision for multiple sources controlled by a common add-on air pollution device* of 96.78 mg/hr or 0.010 mg/dscm.

Emission calculations are presented in Appendix 4.

Table 2.1 Average Summary of Composite Mesh Pad Scrubber emission test results
(three-run average)

Parameter	FGCHROME1	FGCHROME1 Retest	FGPLATING
Scrubber Pressure Drop ("WCm)	3.1	2.8	2.2
Chrome Bars Per Hour ¹	2.3	2.3	5.4
Scrubber Exhaust Gas Flowrate (dscfm)	1,862	1,952	5,571
Total Chromium Concentration (µg)	21.4	3.7	25.2
Total Chromium Concentration (mg/dscm)	0.008	0.001	0.009
<i>Total Chromium Emission Limit (mg/dscm)</i>	<i>0.006</i>	<i>0.006</i>	<i>0.010²</i>
Total Chromium Emission Rate (mg/hr)	--	--	87.8
<i>Total Chromium Emission Limit (mg/hr)²</i>	<i>--</i>	<i>--</i>	<i>96.8²</i>

Abbreviations

"WCm = inches of water column

dscfm = dry standard cubic feet of air per minute

µg = micrograms (1X10⁻⁶ grams)

mg/dscm = milligrams per dry standard cubic meter of air

mg/hr = milligrams per hour

1. Average production across all emission units controlled by common scrubber, 3-run average

2. Calculated allowable limit per CFR Subpart N 63.344(e)(4)

3.0 Source and Sampling Location Description

3.1 General Process Description

Stelmi is a mill volume producer of long length hard chrome plated steel bars. Using an advanced chrome plating process, Stelmi produces long length hard chrome plated steel bars and micro-finished steel tubes with a market focus on the hydraulic cylinder industry.

The hard chromium plating process is a 24-hour a day continuous horizontal operation. Using an automated material handling system, which also transfers the required electrical contact to each bar, the bars advance and rotate, driven one by one through a series of circular anodes in the chrome plating machines. The ground and polished bars enter the machine from one side and exit, fully plated, from the other.

The chromium plating is accomplished with a series of circular anodes, and each bar continuously advances and rotates through the anodes, so that a completely homogeneous and dimensionally uniform chrome layer is guaranteed.

Air contaminants are captured from the plating operations and are directed to the CMP scrubbers via PVC ductwork.

3.2 Rated Capacities and Air Emission Controls

The FGCHROME1 CMP Scrubber services chrome plating machines EUCHROME6-7. Both emission units have an emission limit of 0.006 mg/dscm.

The FGPLATING scrubber services chrome plating machines EUCHROME1-5, and EUCHROME8 and utilizes chevron blade type inline mist eliminators downstream of each plating machine except for EUCHROME3.

Most emission units in FGPLATING have an emission limit of 0.011 mg/dscm, however EUCHROME8 has an emission limit of 0.006 mg/dscm. An allowable emission rate was calculated as determined by *CFR Subpart N 63.344(e)(4) special compliance provision for multiple sources controlled by a common add-on air pollution device*.

Appendix 2 provides a sampling location drawing for the scrubber exhaust.

3.3 Process Operating Conditions During the Compliance Testing

Testing was conducted when Stelmi operated at maximum operating conditions. Process data that was required on the Protocol Approval letter was monitored by Stelmi representatives and logged on a data sheet.

Pressure drop across the CMP scrubber was recorded twice per test run (once per hour). Chrome plated steel bar process rate was recorded to determine the bars/hour production

rate. Pressure drop across the inline mist eliminators was recorded for FGPLATING on chrome plating machines that were equipped.

Appendix 3 presents the operating data recorded for the test periods.

4.0 Sampling and Analytical Procedures

A test plan was prepared by ICT and submitted to EGLE-AQD and USEPA CEDRI prior to performing the compliance test. This section provides a summary of the sampling and analytical procedures that were used during the tests and presented in the test plan.

4.1 Exhaust Gas Velocity and Flowrate (USEPA Methods 1 and 2)

Exhaust gas sampling was performed in the 12.25-inch diameter (FGCHROME1) and 21.25-inch diameter (FGPLATING) scrubber exhaust stacks using sampling ports that satisfied USEPA Method 1 criteria. A diagram and measurements for the exhaust gas sampling location is provided in Appendix 2.

To determine pollutant mass flow emission rates, the stack gas velocity was measured using procedures specified in USEPA Method 2 throughout each test period using an S-type Pitot tube connected to the isokinetic sampling probe. Gas velocity (pressure) measurements were performed at each traverse point using a red-oil manometer. Temperature was recorded at each traverse point using a K-type thermocouple and a calibrated digital thermometer.

Appendix 4 provides copies of exhaust gas velocity field data sheets and flowrate calculations.

4.2 Exhaust Gas Molecular Weight

The exhaust gas is primarily captured building air that has been drawn through the scrubber system. A dry molecular weight of 29.0 was used as specified in Section 8.6 of USEPA Method 2.

4.3 Exhaust Gas Moisture Content (USEPA Method 4)

Moisture content of the scrubber exhaust gas was determined in using the USEPA Method 4 chilled impinger method as part of the isokinetic sampling procedures for chromium. The amount of moisture removed from the sample stream by the chilled impingers was determined gravimetrically by weighing the impinger contents before and after the test period to determine net weight gain.

Appendix 4 provides moisture train sampling data and calculations.

4.4 Chromium Emission Rate (USEPA Method 306)

USEPA Method 306, *Determination of Chromium Emissions from Decorative and Hard Chrome Electroplating and Chromium Anodizing Operations*, was used to determine total chromium concentration in the scrubber exhaust gas. Process gas was withdrawn from the scrubber exhaust stack at an isokinetic sampling rate using a glass sampling nozzle, glass-lined probe and an impinger train containing 0.1N sodium hydroxide (NaOH) solution. Pursuant to USEPA Method 306, the sample probe was not heated, and the filter was omitted. Therefore, the glass probe liner was connected to a clean flexible Teflon line connected directly to the first impinger.

Stack gas temperature and velocity pressure at each traverse point were monitored and recorded throughout each four-hour test period to determine volumetric flowrate.

At the conclusion of each test period the final weight of each impinger was measured. The moisture gain was determined gravimetrically, and the stack gas total moisture was determined based on the total weight gain of the impingers and silica gel. The sample nozzle, probe liner, first three impingers and connective glassware were rinsed using 0.1N NaOH solution. The rinse and impinger solutions were combined and shipped to Element One, Inc. (Wilmington, North Carolina) for analysis. The total chromium content in the recovered solutions was determined by Element One, Inc.

Appendix 5 contains a copy of the Element One laboratory report.

The total chromium [Cr] concentration was determined using the sample train data and laboratory reported Cr mass with the following equation:

$$C_{Cr} = M_{Cr} / V_m / (1,000 \mu\text{g}/\text{mg})$$

- C_{Cr} = Cr concentration (mg/dscm)
- M_{Cr} = Mass Cr in recovered solutions (μg)
- V_m = Sample gas volume for test period (dscm)

The Cr mass emission rate was determined using the information above and the measured volumetric flowrate with the following equation:

$$E_{Cr} = C_{Cr} * Q_d * (60 \text{ min}/\text{hr})$$

- E_{Cr} = Cr emission rate (mg/hr)
- Q_d = Exhaust gas volumetric flowrate (dscmm)

An allowable mass emission rate was determined for FGPLATING following procedures specified in 40 CFR Part 63 Subpart N 63.344(e)(4) special compliance provisions for multiple sources controlled by a common add-on air pollution device.

Appendix 4 presents emission and allowable emission rate calculations.

5.0 QA/QC Activities

5.1 Flow Measurement Equipment

Prior to arriving onsite, the instruments used during the source test to measure exhaust gas properties and velocity (barometer, pyrometer, and Pitot tube) were calibrated to specifications in the sampling methods.

The absence of cyclonic flow for each sampling location was verified using an S-type Pitot tube and oil manometer. The Pitot tube was positioned at each of the velocity traverse points with the planes of the face openings of the Pitot tube perpendicular to the stack cross-sectional plane. The Pitot tube was then rotated to determine the null angle (rotational angle as measured from the perpendicular, or reference, position at which the differential pressure is equal to zero).

5.2 Meter Box and Isokinetic Rate

The dry gas metering console, which was used for the isokinetic sampling, was calibrated prior to and after the testing program. This calibration uses the critical orifice calibration technique presented in USEPA Method 5. The metering console calibration exhibited no data outside the acceptable ranges presented in USEPA Method 5.

The digital pyrometer in the metering console was calibrated using a NIST traceable Omega® Model CL 23A temperature calibrator.

The sampling nozzle diameter was determined using the three-point calibration technique.

The sampling rate for all test periods was within 10% of the calculated isokinetic sampling rate required by USEPA Methods 306 and 5.

5.3 Total Chromium Recovery and Analysis

All recovered samples were stored and shipped in pre-rinsed polyethylene sample bottles with Teflon® lined caps. The liquid level on each bottle was marked with a permanent marker prior to shipment and the caps were secured closed with tape. A sample blank of the reagent used in the test event (500 milliliters of 0.1N sodium hydroxide) was sent to the laboratory for analysis to verify that the reagent used to recover the samples has low chromium content.

The glassware and Teflon line used in the sample train was washed and rinsed prior to use in accordance with the procedures of USEPA Method 306. The glass sample nozzle and probe liner were washed, rinsed and soaked in acid prior to use in accordance with USEPA Method 306.

5.4 Laboratory QA/QC Procedures

The laboratory chromium analyses were conducted by a qualified third-party laboratory according to the appropriate QA/QC procedures specified in the associated USEPA test methods and are included in the final report provided by Element One (Wilmington, NC).

Appendix 6 presents test equipment quality assurance data (instrument calibration records, meter box calibration records, cyclonic flow determinations sheets, Pitot tube, nozzle and probe assembly calibration records).

6.0 Results

6.1 Test Results and Allowable Emission Limits

Air pollutant emission measurement results for each two-hour test period are presented in Tables 6.1, 6.2 and 6.3.

The average measured total chromium emission concentration for FGCHROME1 from the initial compliance test performed on May 12, 2021 is 0.008 milligrams per dry standard cubic meter (mg/dscm), which is greater than (exceeding) the permitted total chromium emission concentration of 0.006 mg/dscm.

Upon receiving lab results and performing emission calculations to determine FGCHROME1 had exceeded the emission limit, a retest was scheduled. The average measured total chromium emission concentration for FGCHROME1 from the compliance retest performed on June 11, 2021 is 0.001 mg/dscm, which is less than (in compliance with) the permitted chromium emission concentration of 0.006 mg/dscm.

Most emission units in FGPLATING have an emission limit of 0.011 mg/dscm, however EUCHROME8 has an emission limit of 0.006 mg/dscm. An allowable emission rate was calculated as determined by *CFR Subpart N 63.344(e)(4) special compliance provision for multiple sources controlled by a common add-on air pollution device* of 97.68 mg/hr. Ms. Lindsey Wells of EGLE-AQD also requested that the results be reported in concentration basis (mg/dscm). The calculate allowable emission limit in concentration basis is 0.010 mg/dscm.

The average measured total chromium emission rate for FGPLATING is 87.83 mg/hr, which is less than (in compliance with) the calculated special compliance provision allowable emission limit of 97.68 mg/hr. The average measured total chromium emission concentration for FGPLATING is 0.009 mg/dscm, which is less than (in compliance with) the calculates special compliance provision allowable emission limit of 0.010 mg/dscm.

6.2 Variations from Normal Sampling Procedures or Operating Conditions

During the May 12, 2021 test event on the FGCHROME1 scrubber, some metal shavings were observed in the sampling ports and in the recovered sample bottles after rinsing the sampling probe. This was noted on the ICT field data recovery sheets. After receiving the lab report, which contained a high chromium hit for the first sample run, it was surmised that there was some sample contamination from the mechanicals within the scrubber or blower system. The contamination resulted in an exceedance of the permitted emission limit for FGCHROME1.

A retest was scheduled for FGCHROME1, and prior to the retest the following corrective actions were made to the CMP scrubber system.

- EUCHROME6, EUCHROME7, and the associated CMP scrubber were shut down from May 27, 2021 through June 9, 2021.
- Stage 1 and Stage 2 composite mesh pads were replaced.
- A 60-inch section of PVC exhaust duct (downstream of the scrubber and blower fan) where sampling is performed was replaced in order to discard of the observed metal shavings, and reduce future contamination.
- The blower fan housing was cleaned up and painted after observing signs of corrosion.

After the corrective actions were performed, the second sampling event on FGCHROME1 yielded emissions less than (in compliance with) the permitted emission limits.

There were no other variations from normal sampling procedures or operating conditions during the testing project.

Table 6.1 Measured exhaust gas conditions and total chromium emissions for FGCHROME1 (Initial test on May 12, 2021)

Test No	1	2	3	Three Test
Date	05/12/21	05/12/21	05/12/21	Average
Time	0703-0907	0922-1126	1142-1352	
<u>Scrubber Exhaust</u>				
Exhaust gas flowrate (dscfm)	1,867	1,850	1,869	1,862
Exhaust gas flowrate (dscmm)	52.9	52.4	52.9	52.7
Temperature (°F)	91.7	93.1	94.6	93.1
Moisture (%)	4.12	4.46	4.54	4.37
<u>Sample Train Data</u>				
Sample volume (dscf)	96.8	95.3	97.0	96.4
Sample volume (dscm)	2.74	2.70	2.75	2.73
Cr catch weight (µg)	42.7	11.8	9.77	21.4
<u>Emission Rate</u>				
Cr concentration (mg/dscm)	0.016	0.004	0.004	0.008
<i>Permitted concentration (mg/dscm)</i>	-	-	-	<i>0.006</i>

Abbreviations

dscfm = dry standard cubic feet of air per minute
dscmm = dry standard cubic meters of air per minute
µg = micrograms (1E-06 grams)
mg/dscm = milligrams per dry standard cubic meter of air

Table 6.2 Measured exhaust gas conditions and total chromium emissions for FGCHROME1 (Retest on June 11, 2021)

Test No	1	2	3	Three Test
Date	06/11/21	06/11/21	06/11/21	Average
Time	0706-0917	0935-1141	1158-1402	
<u>Scrubber Exhaust</u>				
Exhaust gas flowrate (dscfm)	1,927	1,968	1,960	1,952
Exhaust gas flowrate (dscmm)	54.6	55.7	55.5	55.3
Temperature (°F)	101	104	105	104
Moisture (%)	5.55	6.04	6.45	6.01
<u>Sample Train Data</u>				
Sample volume (dscf)	100	101	101	101
Sample volume (dscm)	2.84	2.87	2.85	2.85
Cr catch weight (µg)	3.0	3.8	4.2	3.7
<u>Emission Rate</u>				
Cr concentration (mg/dscm)	0.001	0.001	0.002	0.001
<i>Permitted concentration (mg/dscm)</i>	-	-	-	<i>0.006</i>

Abbreviations

dscfm = dry standard cubic feet of air per minute
dscmm = dry standard cubic meters of air per minute
µg = micrograms (1E-06 grams)
mg/dscm = milligrams per dry standard cubic meter of air

Table 6.3 Measured exhaust gas conditions and total chromium emissions for FGPLATING

Test No	1	2	3	Three Test
Date	05/11/21	05/11/21	05/11/21	Average
Time	0708-0912	0930-1133	1148-1351	
<u>Scrubber Exhaust</u>				
Exhaust gas flowrate (dscfm)	5,613	5,543	5,558	5,571
Exhaust gas flowrate (dscmm)	159	157	157	158
Temperature (°F)	79.2	80.6	80.5	80.1
Moisture (%)	88.1	88.9	89.8	88.9
<u>Sample Train Data</u>				
Sample volume (dscf)	97.1	95.4	95.2	95.9
Sample volume (dscm)	2.75	2.70	2.70	2.72
Cr catch weight (µg)	24.5	26.3	24.8	25.2
<u>Emission Rate</u>				
Cr emission rate (mg/hr)	84.95	91.67	86.88	87.83
<i>Permitted emission rate (mg/hr)¹</i>	-	-	-	96.78
Cr concentration (mg/dscm)	0.004	0.002	0.002	0.009
<i>Permitted concentration (mg/dscm)²</i>	-	-	-	0.010

Abbreviations

dscfm = dry standard cubic feet of air per minute
dscmm = dry standard cubic meters of air per minute
µg = micrograms (1E-06 grams)
mg/dscm = milligrams per dry standard cubic meter of air
mg/hr = milligrams per hour

1. Calculated allowable limit per CFR Subpart N 63.344(e)(4)
2. Calculated allowable concentration limit as requested by Ms. Lindsey Wells

APPENDIX 1

- TEST PLAN APPROVAL LETTER



GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING



LIESL EICHLER CLARK
DIRECTOR

April 28, 2021

Mr. Mike Hall
Plant Manager
Stelmi America, Inc.
1601 Brooks Drive
Marshall, Michigan 49068

N7166; Calhoun County

Dear Mr. Hall:

SUBJECT: FGCHROME1, FG Plating, Chromium Emission Testing, Permits: 178-20C, 67-15A; SRN: N7166

The Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD) has completed a review of the protocol for chromium testing of the composite mesh pad scrubber systems and mist eliminators that serve FGCHROME1 (EUCHROME6; EUCHROME7), and FGPLATING (EUCHROME1; EUCHROME2; EUCHROME3; EUCHROME4; EUCHROME5; and EUCHROME8). This testing is required by Title 40 of the Code of Federal Regulations (40 CFR), Part 63, Subpart N, Permit No. 67-15A and Permit No. 178-02C.

Testing will be performed in accordance with 40 CFR, Part 60, Appendix A, Methods 1, 2, 3, 4, and Method 306:

- Sampling duration will be 120 minutes and collect a minimum of 60 dry standard cubic feet of stack gas; and
- Emissions will be calculated as milligrams per dry standard cubic meter (mg/dscm) corrected to 70F and 29.92 Hg.

All requirements and specifications of the above methods apply; and any modifications of the test methods on-site must be approved by the AQD.

FGCHROME1

Testing will be performed while process operates at 20 bars per 8-hour period or 2—2.5 bars per hour, per machine. The following process data will be recorded during testing:

- Production rate; and
- Pressure drop across the composite mesh pad scrubber at least twice per run, approximately once per hour.

FGPLATING

EUCHROME5, EUCHROME8 (4-bar lines) testing will be performed while the process operates at 20 bars per 8-hour period or 2-2.5 per hour.

EUCHROME1, EUCHROME2, and EUCHROME4 (2-bar lines) testing will be performed while the process operates at 8 bars per 8-hour period or about 1 bar per hour.

EUCHROME3 testing will be performed while the process operates at 100 bars per 8-hour period (proprietary technology). The following process data will be recorded during each FGPLATING test run:

- Production rate;
- Pressure drop across the composite mesh pad scrubber at least twice per run, approximately once per hour; and
- Pressure drop across inline mist eliminators at least twice per run, approximately once per hour.

The test report will include:

- All pre-test and post-test meter box calibration, pitot tube calibration, and field data sheets;
- All laboratory data including any quality control audits; and
- The process data listed above.

All aborted or failed runs must be included in the report.

A complete copy of the test report should be sent to the following locations:

Ms. Amanda Chapel
EGLE, Air Quality Division
7953 Adobe Road
Kalamazoo, Michigan 49009-5026

Ms. Karen Kajiya-Mills
EGLE, Air Quality Division
Constitution Hall, 2nd Floor South
525 West Allegan Street
Lansing, Michigan 48933

Testing is scheduled for May 11 - 12, 2021. Please provide notification of any change in the test date to Ms. Amanda Chapel, of the Kalamazoo District Office at 269-910-2109, and to me. If you have any questions regarding this letter, please contact me by telephone or e-mail at WellsL8@Michigan.gov.

Sincerely,

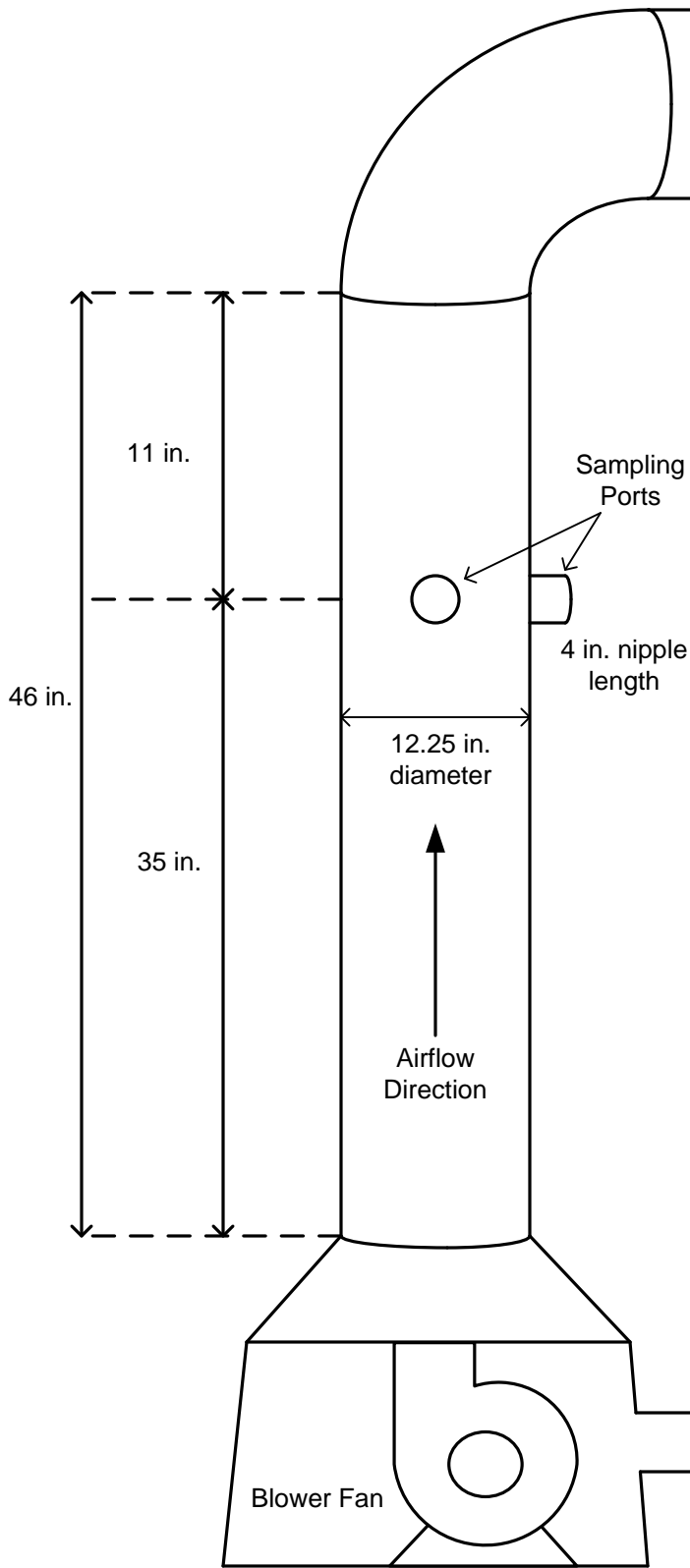


Lindsey Wells
Technical Programs Unit
Field Operations Section
Air Quality Division
517-282-2345

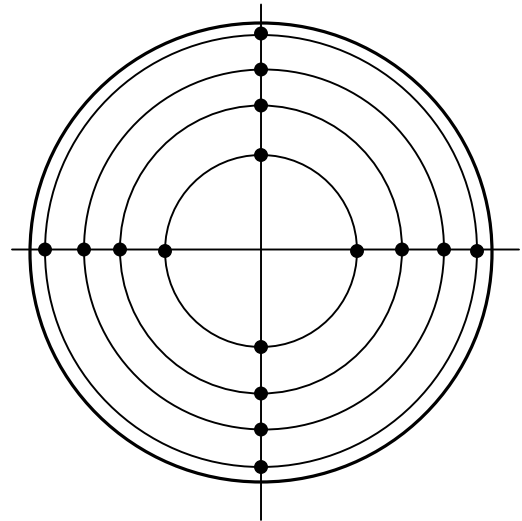
cc: Mr. Blake Beddow, Impact Compliance & Testing
Mr. Robert Harvey, Impact Compliance & Testing
Ms. Karen Kajiya-Mills, EGLE
Mr. Rex Lane, EGLE
Ms. Amanda Chapel, EGLE

APPENDIX 2

- SAMPLE LOCATION DRAWING



Velocity sample locations as measured from stack wall



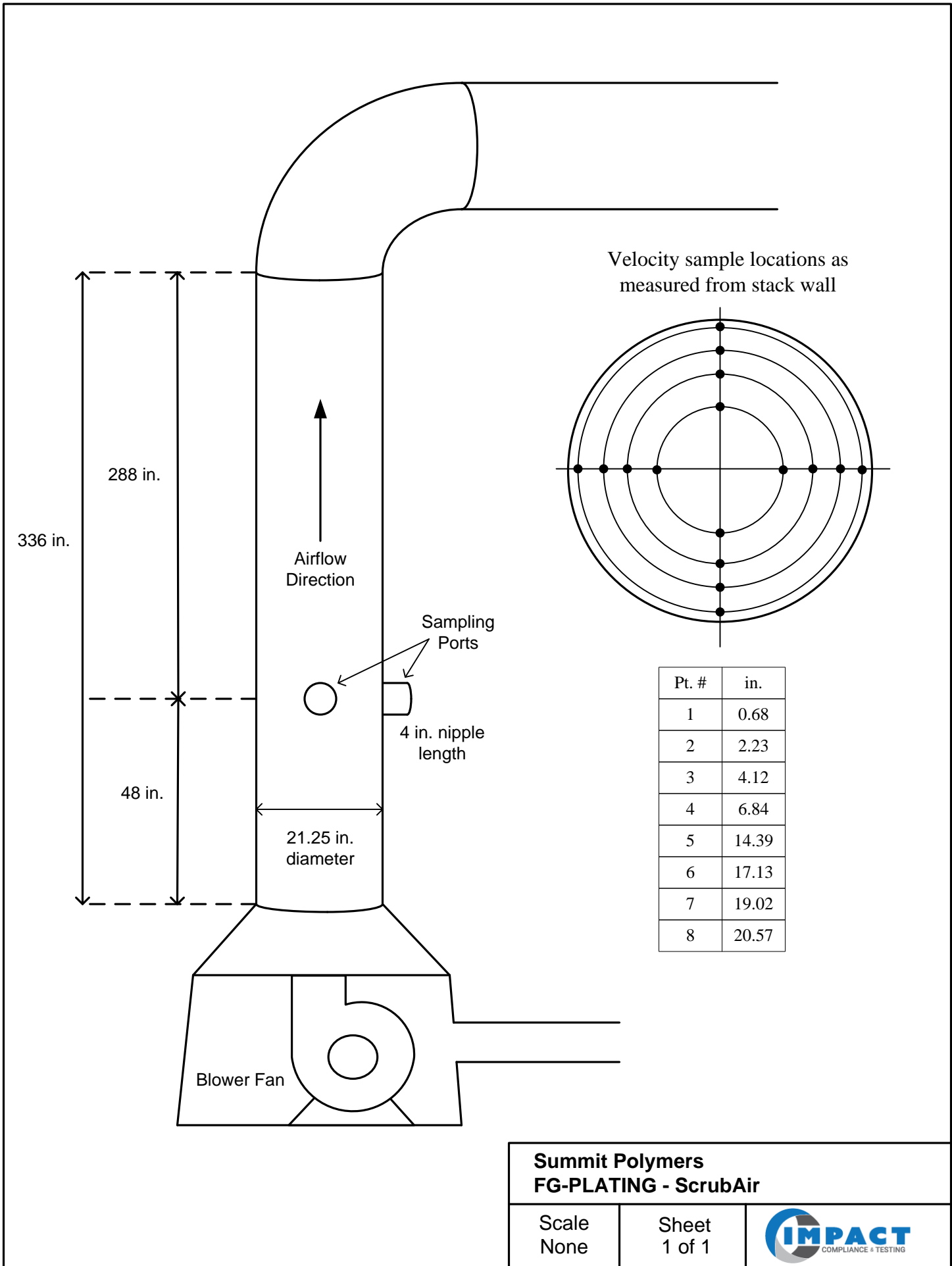
Pt. #	in.
1	0.50
2	1.29
3	2.38
4	3.94
5	8.29
6	9.87
7	11.00
8	11.75

Stelmi America
FG-CHROME1 - MapCo

Scale
None

Sheet
1 of 1





Summit Polymers
FG-PLATING - ScrubAir

Scale
None

Sheet
1 of 1

