

**VOLATILE ORGANIC COMPOUND (VOC)
EMISSIONS TEST REPORT**

**EUCOATINGLINE
REGENERATIVE THERMAL OXIDIZER (RTO)**

Performed for:

**POSTLE EXTRUSION
201 North Edwards Street
Cassopolis, Michigan 49031**

October 28, 2014

Submitted by:



Air Quality Services, LLC
425 Main Street
Evansville, Indiana 47708
Phone: (812) 452-4785
Fax: (812) 452-4786

AQS Project# 14737-11-001

RECEIVED

DEC 29 2014

AIR QUALITY DIV.

SOURCE TESTING REPORT CERTIFICATION



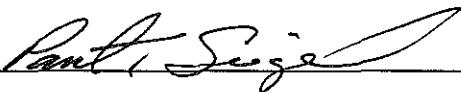
Air Quality Services, LLC

425 Main Street
Evansville, Indiana 47708
Phone: (812) 452-4785
Fax: (812) 452-4786

Reproducing portions of this test report may omit critical substantiating documentation or be taken out of context and due care should be exercised in this regard.

I have prepared and reviewed this report and found the information accurate and complete to the best of my ability.

Report Writer



Date _____ December 23, 2014

Paul T. Siegel
Air Quality Services, LLC

SECTION 1**EXECUTIVE SUMMARY**

On October 28, 2014, Air Quality Services, LLC conducted source emissions testing for volatile organic compounds (VOC) on the EUCOATINGLINE Regenerative Thermal Oxidizer (RTO) at the Postle Extrusion facility in Cassopolis, Michigan. The tests described are designed to demonstrate compliance with the MDEQ (Michigan Department of Environmental Quality) Permit to Install 93-13, State Registration #P0448. The pollutant to be measured is total VOC (volatile organic compounds).

The performance test was conducted when the emission capture system was operating at a representative flow rate and at a maximum coating usage rate and product throughput.

The testing was conducted in accordance with the Test Plan (copy included in Appendix I) as approved by the State of Michigan, Department of Environmental Quality, Air Quality Division. The test results are summarized in Table 1.1.

TABLE 1.1
TEST RESULTS
(Three-Run Average)

Test Location	Inlet to RTO, lbs/hr	Outlet of RTO, lbs/hr	PTE Capture, %	Destruction Efficiency, %
EUCOATINGLINE	142.7	1.23	96.4	99.1

The purpose of this test is to demonstrate compliance with the MDEQ Permit to Install 93-13. The specific objectives are to:

- Employ EPA Method 204 criteria to demonstrate compliance with a minimum VOC capture efficiency of 90% (by weight).
- Measure total VOC emissions from the inlet and outlet of the RTO to demonstrate compliance with a minimum VOC destruction efficiency of 95% (by weight).

SECTION 2

INTRODUCTION

Postle Extrusion retained Air Quality Services, LLC (AQS) to plan and conduct a testing program to determine VOC emissions and the capture and control efficiency from the EU COATING LINE RTO at the facility located in Cassopolis, Michigan.

Testing procedures for the stack emissions followed EPA Methods 1, 2, 3, 4, 25A, and 204 for the determination of traverse point location, velocity determination, stack gas molecular weight, moisture content, VOC concentration in air, and verification of a permanent total enclosure (PTE), respectively.

Messrs. Paul Siegel, Mike McDaniel, and Ryan Neumann, of AQS, performed the sampling procedures on October 28, 2014. Mr. David Patterson and Mr. Dennis Dunlap of MDEQ, Air Quality Division, were present on location to observe the testing program. Mr. Bryan Fehnel of Postle Extrusion coordinated the testing program. Mr. William Gabbard, of Gabbard Environmental Services, Inc., was present as a consultant for Postle Extrusion.

The contacts for this test program were as follows:

TABLE 2.1
TEST PROGRAM CONTACTS

Postle Extrusion: Mr. Bryan Fehnel Project Coordinator 201 North Edwards Street Cassopolis, MI 49031 Phone: (269) 445-5601 E-mail: bfehnel@dwaluminumcom	Air Quality Services, LLC: Mr. Dan Todd / Mr. Paul Siegel 425 Main Street Evansville, IN 47708 Phone: (812) 452-4785 Fax: (812) 452-4786 E-mail: dtodd@aqslc.net psiegel@aqslc.net
---	--

SECTION 3

SUMMARY OF TEST RESULTS

The testing program at the Postle Extrusion facility consisted of compliance stack testing on the regenerative thermal oxidizer serving the EUCOATINGLINE surface coating process.

Testing was conducted in accordance with the procedures outlined in the Test Plan. During each test run, a total hydrocarbon analyzer sampled the gas from the paint booth and oven exhaust vent, and a second analyzer sampled the exhaust gas from the paint kitchen vent. These two locations combine to form the inlet of the RTO gas stream. An additional methane/non-methane hydrocarbon analyzer sampled the gas stream from the exhaust of the RTO. These data were utilized in conjunction with the process VOC mass emissions for the purpose of determining the real-time capture and destruction efficiency PTE and the thermal oxidizer.

Table 3.1 displays the test results of inlet gas streams to the RTO while the process was in operation. The testing was conducted over three (3) one-hour periods. For the average of the three tests, the process emitted 142.7 pounds per hour (lbs/hr) of VOC. The outlet of the recuperative thermal oxidizer emitted 1.23 lbs/hr VOC, which calculates a destruction efficiency of 99.1%.

In the test plan, it was proposed that the EUCOATINGLINE process would employ Method 204 criteria to demonstrate compliance with the VOC capture efficiency requirement of 90%, by weight. However, there is a section of the process during which emissions are not contained while the coating samples are exiting the painting booth before entering the bake oven. The product is in the open for approximately 1 minute, where volatiles are not captured. Because of this, the process cannot be considered a permanent total enclosure. A temporary structure could have been erected to capture the emissions during this period of product transition, but the facility decided to proceed with testing by measuring the amount of paint used during the test runs. Capture efficiency was determined by the paint usage per hour, and the amount of VOC measured at the inlet to the RTO. For test runs 1 and 3, the measured amount of VOC at the inlet was slightly higher than the measured amount of VOC applied, calculating a capture efficiency slightly above 100%. For Run 2, the capture efficiency was calculated to be 89.3%, which was lower due to inlet flow rate being 10% less than the average. Overall, the average capture was determined to be 99.2% based upon the average of the three test runs. By substituting 100% capture for the two test runs over 100%, the average capture efficiency is 96.4%.

During the testing program, the recuperative thermal oxidizer had a temperature set-point of 1450°F. The extruded aluminum being coated was the longest in length, and the paint applied was Macroflex Black, which has the highest VOC content at 5.0 pounds per gallon. The line speed was 18 feet per minute, and the production rate of EUCOATINGLINE during the three test runs averaged 28.76 gallons per hours, equivalent to 143.8 pounds of VOC per hour.

The results of the capture determination tests are summarized in Table 3.1. Table 3.2 displays the results of the inlet to the RTO test parameters which include the Paint Kitchen Vent and the

Vent from the Paint Booth Room and the Baking Oven. The summary test results from the RTO outlet are posted in Table 3.3.

Test Summary and Example Calculations and Field Data sheets are included as Appendices A, B, C, D, and E. The temperature parameters of the RTO are located in Appendix F, along with field data sheets outlining the essential operating parameters of the process during testing.

**TABLE 3.1
SUMMARY OF TESTS RESULTS – CAPTURE DETERMINATION**

October 28, 2014

Run	RTO Inlet	Paint Applied		Capture Efficiency	Capture Efficiency
	VOC lbs/hr	Gallons/hr	VOC lbs/hr	%	% Corrected
1	143.3	27.073	135.4	105.8	100
2	128.8	28.846	144.2	89.3	89.3
3	155.9	30.37	151.9	102.6	100
Average	142.7	28.763	143.8	99.2	96.4

TABLE 3.2
SUMMARY OF TESTS RESULTS – INLET

October 28, 2014

Run #	Run Time	VOC Concentration as Propane		Moisture %	CO ₂ %, dry	O ₂ %, dry	Stack Temp. °F	Flow Rate			VOC Mass Emissions
		ppm, wet	ppm, dry					fps	acfm	dscfm	lbs/hr
Paint Kitchen Vent											
1	10:54-11:54	43.8	44.5	1.60	0.0	20.5	68.5	26.64	1,962	1,913	0.6
2	12:33-13:33	32.3	32.8	1.40	0.0	20.5	72.4	39.31	2,895	2,816	0.6
3	14:01-15:01	40.0	40.5	1.30	0.0	20.5	74.4	32.58	2,399	2,330	0.6
Average		38.7	39.2	1.43	0.0	20.5	71.8	32.85	2,418	2,353	0.6
Paint Room and Baking Oven Vent											
1	10:54-11:54	853.1	882.1	3.29	0.5	20.5	145.1	53.82	28,179	23,564	142.7
2	12:33-13:33	928.3	953.2	2.61	0.5	20.5	149.6	44.60	23,350	19,579	128.1
3	14:01-15:01	1004.0	1034.9	2.98	0.5	20.5	150.3	49.97	26,163	21,851	155.3
Average		928.5	956.7	2.96	0.5	20.5	148.3	49.46	25,898	21,665	142.0

TABLE 3.3
SUMMARY OF TESTS RESULTS – OUTLET

Run #	Run Time	VOC Concentration as Carbon		Moisture %	CO ₂ %, dry	O ₂ %, dry	Stack Temp. °F	Flow Rate			NMHC Mass Emissions	Removal Efficiency %
		ppm, wet	ppm, dry					fps	acfm	dscfm	lbs/hr	
1	10:54-11:54	22.00	22.86	3.75	1.5	19.0	237	41.35	33,833	24,487	1.05	99.3
2	12:33-13:33	23.89	24.43	2.22	1.5	19.0	256	43.08	35,247	25,299	1.15	99.1
3	14:01-15:01	28.34	29.61	4.29	1.5	19.0	247	46.49	38,035	27,081	1.50	99.0
Average		24.74	25.63	3.42	1.5	19.0	247	43.64	35,705	25,622	1.23	99.1

SECTION 4

PROCESS DESCRIPTION

The EUCOATINGLINE is a surface coating line for extruded aluminum parts and components. The conveyORIZED line includes a four-stage parts washer, a drying oven, a mixing area, and two (2) circular paint booths which utilize electrostatic high speed turbo disk rotary atomizing applicators and a natural gas curing oven. The emissions from the paint room and curing oven are controlled by a regenerative thermal oxidizer (RTO). Also, the paint blending room (Paint Kitchen) has a vent which is connected to the inlet of the RTO.

For the painting process, the paint is pumped from a 55 gallon drum which is continuously stirred. After about 80 minute, and while there is still paint in the drum, there is a break in the extruded aluminum parts lines which allows for the painting to stop. During this period, the next paint drum is prepped and the pump and paint stirrer is placed. The remaining paint in the removed drum is then added to the new drum and mixed. This process takes approximately 10 minutes, or however long the material break is in the production line. For the testing program, 5 barrels of paint were used. Test runs occurred during barrels #2, #3, and #4.

In determining the amount of paint used during each test, the average paint usage was calculated from the beginning of the barrel until the barrel was finished (at a production line break). Thus a gallon per minute was determined for each test, with each run using slightly more paint than the previous test. This corresponded with the production material length being longer in the later test runs, and also the inlet VOC concentration to the RTO increasing each test run.

A system description, RTO Design, and facility layout drawings are included in Appendix H, which contains the Test Plan.

SECTION 5

SAMPLING AND ANALYTICAL PROCEDURES

The sampling and analytical procedures used in this test program conformed to EPA Reference Methods 1, 2, 3, 4, 25A, and 204 as published in the Code of Federal Regulations, Title 40, Part 60, (40 CFR 60) Appendix A and Part 51 (40 CFR 51), Appendix M.

LOCATION OF MEASUREMENT SITES

EPA Method 1, "Sample and Velocity Traverses for Stationary Sources", was used to select the representative measurement points.

The inlet test location to the RTO for the Paint Room and Oven vent was located approximately fifteen feet above the ground in a vertical section of duct, with an inside diameter of 40 inches. The two test ports (90° apart) are located 312 inches (7.8 stack diameters) downstream from a disturbance and 41 inches (1.0 stack diameters) upstream from a disturbance. For measurements conforming to Method 1, a total of 16 traverse points were used for the velocity measurements – eight (8) per test port. A copy of the field worksheet is included in Appendix B.

The inlet test location to the RTO for the Paint Kitchen vent was located approximately ten feet above the ground in a horizontal section of duct, with an inside diameter of 15 inches. The two test ports (90° apart) are located 212 inches (14.1 stack diameters) downstream from a disturbance and 31 inches (2.0 stack diameters) upstream from a disturbance. For measurements conforming to Method 1, a total of 8 traverse points were used for the velocity measurements – four (4) per test port. A copy of the field worksheet is included in Appendix C.

The outlet test location to the RTO was located approximately 25 feet above the ground in a vertical section of duct, with an inside diameter of 50 inches. The two test ports (90° apart) are located 240 inches (4.8 stack diameters) downstream from a disturbance and 180 inches (3.6 stack diameters) upstream from the exhaust. For measurements conforming to Method 1, a total of 16 traverse points were used for the velocity measurements – eight (8) per test port. A copy of the field worksheet is included in Appendix D.

STACK GAS VELOCITY AND VOLUMETRIC FLOW RATE

EPA Method 2, "Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)", used to determine volumetric flow rate. The default Pitot tube coefficient, 0.84, was used at the inlet and outlet locations. An inclined manometer was used to measure the velocity pressure. A calibrated Type "K" thermocouple attached directly to the Pitot tube was used to measure stack gas temperature, which was displayed on a digital temperature indicator.

The average stack gas velocity was calculated from the average velocity pressure, the average stack

gas temperature, stack gas molecular weight and absolute static pressure. The volumetric flow rate is the product of stack gas velocity and the stack cross sectional area. See Appendix B for calculated values based on the field data and Appendix C for field data sheets.

STACK GAS OXYGEN AND CARBON DIOXIDE CONTENT

EPA Method 3, "Gas Analysis for the Determination of Dry Molecular Weight," was used to determine CO₂ and O₂ concentrations of the stack gas. The stack gas was collected from a single point (center of stack) and extracted through a stainless steel tube, filter, and pump. The sample gas was continuously sampled – on a dry basis – during each moisture test run, and collected in a chemically-inert sealed bag. At the end of each test, the concentrations of O₂ and CO₂ were measured by a Fyrite[®] combustion kit for each bag.

The CO₂ and O₂ results can be found in Appendices B, C, and D on the Field Data Sheets.

STACK GAS MOISTURE CONTENT

EPA Method 4, "Determination of Moisture Content in Stack Gases", was employed for these tests at the RTO inlet from the paint room and oven vent and also the RTO exhaust test location.

The moisture train consisted of a total of four (4) impingers, with the first two each containing approximately 100 milliliters of de-ionized water, followed by a third empty impinger, with the first and third impingers being the modified Greenburg-Smith design, and the second impinger having the standard design. The final impinger contained approximately 250 grams of indicating silica gel. The impingers were in an ice water bath which maintained an exit temperature less than 68°F.

Each of the impingers was weighed prior to use then reweighed after the test run to quantify the moisture gained. Following the leak check, the impingers were separated, the moisture on the exterior was removed, and each impinger was reweighed to the nearest gram. The totaled differences between the initial and final weights represented the moisture content of the stack gas during each test run.

Moisture content worksheets are included in Appendices C and D.

The moisture for the Pain Kitchen was determined by an approximation method applying the wet bulb-dry bulb technique. The method can best be described in ASTM E337-02(2007). The wet bulb-dry bulb measurement was taken during each velocity measurement.

TOTAL GASEOUS ORGANICS

EPA Method 25A, "Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer", was used to determine VOC concentration as propane. This method was used at both inlet locations of the RTO unit to provide accurate, real-time VOC measurements on a continuous basis. The stack gas sample was extracted at a constant rate through a heated

Teflon[®] line to an internally heated analyzer. The flame ionization analyzer used for this test program was a Thermo Environmental Instruments, Inc. Model 51. The analyzers were supplied with a blend of 40% hydrogen and 60% helium for the fuel gas and ultra-zero air for the combustion gas.

Prior to the initial test run, a bias check was made to confirm that each system was leak free. Calibration gases prepared in accordance with EPA Protocol 1 procedures were used to calibrate the analyzers. Low-, mid-, and high-range calibration gas mixtures with nominal concentrations of 25-35, 45-55, and 80-90% of span value were used.

Instrument responses were recorded on a digital strip chart recorder in two-second increments. Values presented are based on one-minute averages and adjusted for calibration responses. The analyzer met the following measurement system performance specifications: 1) Zero drift: less than 3% of the span value; 2) Calibration drift: less than 3% of the span value; 3) Calibration error: less than 5% of the calibration gas value.

Method 25A field data and results can be found in Appendix E.

NON-METHANE VOLATILE ORGANIC COMPOUNDS

NMVOC concentrations were determined using the procedure specified in EPA Method 25A, "Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer". This Method was used to provide accurate, real-time measurements on a continuous basis. Gas sample was extracted at a constant rate through a heated Teflon[®] line to an internally heated analyzer. A Thermo Environmental Instruments Model 55C Direct Methane, Non-Methane Hydrocarbon Analyzer was used to measure the NMVOCs for the source. The Model 55C is a back-flush gas chromatography (GC) system designed for automated measurement of methane and non-methane hydrocarbons. Unlike instruments that only measure methane and total hydrocarbons, the back-flush GC method used by the Model 55C provides a direct measurement of non-methane concentrations. This allows accurate and precise measurement of low levels of non-methane hydrocarbons, even in the presence of methane at much higher concentrations. The analyzer was supplied with a blend of 40% hydrogen and 60% helium for the fuel gas and ultra-zero air for the combustion gas.

Prior to the test run, a bias check was made to confirm that the sampling system was leak free. Calibration gases prepared in accordance with EPA Protocol 1 procedures were used to calibrate the analyzer.

Instrument response was recorded on a digital strip chart recorder in two-second increments. Values presented are based on one-minute averages. The analyzer met the following measurement system performance specifications: 1) Zero drift: less than 3% of the span value; 2) Calibration drift: less than 3% of the span value; 3) Calibration error: less than 5% of the calibration gas value.

The Model 55C measures the NMVOCs as carbon (C). Calibration gases prepared in accordance with EPA Protocol 1 procedures were used to calibrate the analyzer. An EPA Protocol G1 gases comprised of propane were used with values of 15.84 ppm (47.52 ppm C), 30.05 ppm (90.15 ppm C), and 50.06 ppm (150.18 ppm C).

CAPTURE EFFICIENCY

In the test plan, it was proposed that the EUCOATINGLINE process would employ Method 204 criteria to demonstrate compliance with the VOC capture efficiency requirement of 90%, by weight. However, there is a section of the process during which emissions are not contained while the coating samples are exiting the painting booth before entering the bake oven. The product is in the open for approximately 1 minute, where volatiles are not captured. Because of this, the process cannot be considered a permanent total enclosure. A temporary structure could have been erected to capture the emissions during this period of product transition, but the facility decided to proceed with testing by measuring the amount of paint used during the test runs. Capture efficiency was determined by the paint usage per hour, and the amount of VOC measured at the inlet to the RTO. For test runs 1 and 3, the measured amount of VOC at the inlet was slightly higher than the measured amount of VOC applied, calculating a capture efficiency slightly above 100%. For Run 2, the capture efficiency was calculated to be 89.3%, which was lower due to inlet flow rate being 10% less than the average. Overall, the average capture was determined to be 99.2% based upon the average of the three test runs. By substituting 100% capture for the two test runs over 100%, the average capture efficiency is 96.4%.

EPA Method 204, "Criteria for and Verification of a Permanent or Temporary Total Enclosure," was conducted to help monitor the RTO system and develop parameters to determine the VOC capture efficiency. Although Method 204 was unable to be used to determine a permanent total enclosure, worksheets are included in Appendix G. During the test program, differential pressure readings of the Paint Kitchen enclosure were recorded, and also smoke tube verification of the direction of air flow into the enclosure was performed and indicated capture was achieved.

PERFORMANCE AUDITS

Testing commenced on October 28, 2014. In accordance with the applicable requirements specified in 40 CFR 60.8(g), the US EPA Web site was accessed at least 60-days prior to test date. At that time, there were no commercially available performance audit samples available.

RECEIVED
DEC 29 2014
AIR QUALITY DIV.

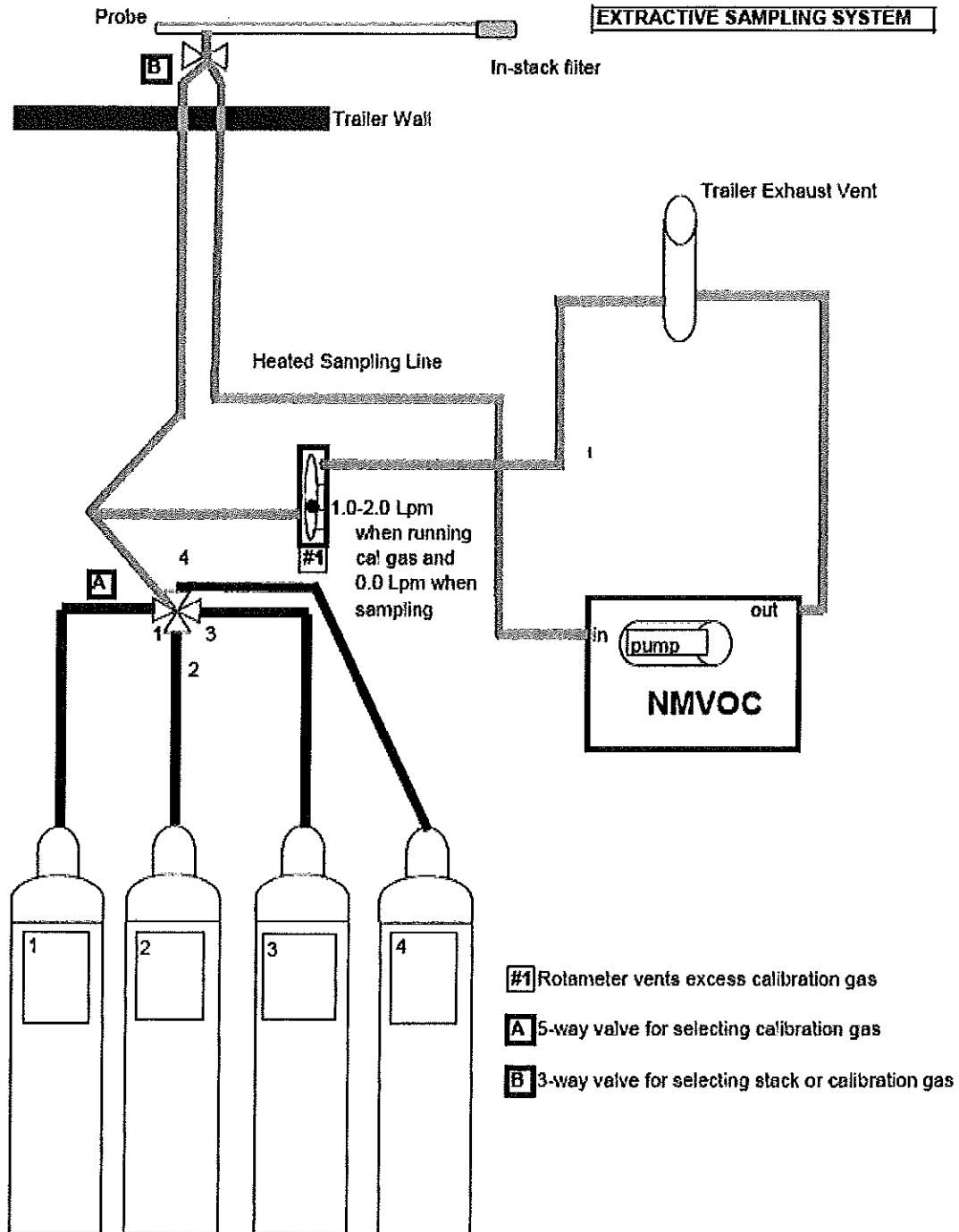


FIGURE 5.1
VOC OR NMVOC EXTRACTIVE SAMPLING SYSTEM

SECTION 6

QUALITY ASSURANCE / QUALITY CONTROL

All manual stack gas sampling equipment was calibrated before the test program in accordance with the procedures outlined in the *Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III*, EPA-600/4-72-027B. The stack gas sampling equipment calibrations that were performed in preparation for this project are summarized in Table 6.1. The dry gas meter system was calibrated after the test. Calibration data are included in Appendix H.

TABLE 6.1
FIELD EQUIPMENT CALIBRATION SUMMARY

Field Equipment	Calibrated Against	Allowable Error
Method 5 Dry Gas Meter	Stainless Steel Critical Orifice Set	$Y \pm 0.02 Y$ $\Delta H @ \pm 0.15$ Post Test $Y \pm 0.05 Y$
Pitot Tube	Geometric Specifications	See EPA Method 2
Thermocouple	ASTM – 3F thermometer	$\pm 1.5\%$
Condenser Thermometer	ASTM – 3F thermometer	$\pm 2^{\circ}\text{F}$
Dry Gas Thermometer	ASTM – 3F thermometer	$\pm 5^{\circ}\text{F}$
Barometer	NBS Traceable Barometer	± 0.01 in. Hg

PERFORMANCE SPECIFICATIONS

The preparation and calibration of source sampling equipment are essential to maintain data quality. AQS strictly follows referenced calibration procedures and documents all results. Table 6.2 summarizes the quality assurance/quality control (QA/QC) limits and the results of the QA checks that were performed for this test program. All QA checks were within the allowable limits.

PRE-TEST PREPARATION AND CALIBRATION

Before the instruments were brought to the test site, each analyzer was checked in the laboratory following the analyzer manufacturers recommended procedures. The check included, at a minimum, examining the analyzer's overall status for any obvious component damage, verifying secure placement of electronic cards, and checking filters, gauges, and rotameters for wear or damage.

Each analyzer was plumbed to accept calibration gas as it would in field operation. The calibration gases were injected at the same flow rate and pressure at which an effluent sample would enter the analyzer. If the analyzer is flow- and/or pressure-sensitive, then flow- and/or pressure-sensing devices were used during all analyzer operations. Settings were recorded and maintained to ensure that valid data were obtained. A zero gas and a high-range calibration gas were injected one at a time. Then the analyzer's output was adjusted and recorded on the recording device until both gases could be injected and the proper response obtained without analyzer adjustments. All flow and pressure settings were maintained at appropriate levels throughout the calibration procedures.

ANALYZER FIELD SETUP

Analyzer Calibration Error Test

The analyzers were allowed to warm up a minimum of one (1) hour before initiating any calibration procedures. The length of the warm up period depends on the type of analyzer being used. A zero gas and a high-range calibration gas (80-90% of scale) were introduced into each analyzer, one at a time. The analyzer's output was adjusted, as necessary, to match the concentration of the calibration gases. This process was repeated until the proper response to both gases was obtained without analyzer adjustment.

Once the analyzer setup procedures were completed, the calibration error (CE) test was performed as follows. Zero, low-, mid-, and high-range calibration gases (as defined in the test method) were introduced into each analyzer and the response recorded. No adjustments were made to the analyzer's output. The analyzer flow rate and/or pressure settings were maintained at their original recorded set-points as required throughout this process.

The analyzer's CE response for each calibration gas was recorded. The difference between the recorded gas concentration displayed by the gas analyzer and the known calibration gas tag value for each cylinder did not exceed the allowable calibration error of $\pm 5\%$ of the specific calibration gas value. The following equation was used to calculate the CE for each gas:

$$\text{CE} = \frac{\text{Analyzer Response} - \text{Predicted Response}}{\text{Calibration Gas Value}} \times 100$$

The maximum CE values observed during the testing program are presented in Table 6.2. Individual CE values are contained in Appendix E.

Sampling Systems Response Time

To determine the response time of the analyzer system, a sample from the effluent gas stream was analyzed and the effluent concentration was recorded. Once a stable effluent gas reading was obtained, a system calibration check was performed using zero gas. The analyzer's output was allowed to stabilize before returning to sampling the effluent stream. The time it took for

the output of each analyzer to reach 95% of the difference between the original effluent concentration and the zero gas response was recorded. This test was repeated three (3) times recording the average of the slowest analyzer's response as the system's response time. Once the system's response time had been determined, the system was allowed to sample the effluent gas for twice the system's response times before recording any data.

Zero and Calibration Drift Checks

System calibrations were used to evaluate the integrity of the sampling system. During a test, the difference between the pre-test and post-test zero responses and the pre-test and post-test upscale calibration responses were calculated to determine the zero and calibration drift, respectively. The error limit for zero and calibration drift is less than $\pm 3\%$ of the analyzer span. The maximum zero and calibration drift values observed during the testing program are presented in Table 6.2. Results for each run are contained in Appendix E.

**TABLE 6.2
PERFORMANCE SPECIFICATIONS FOR METHOD 25A**

Parameter	Performance Test	Maximum Value	Specifications
Paint Kitchen VOC RTO Inlet	Zero Drift	0.287%	$\pm 3\%$ of span over test run period
	Upscale Calibration Drift	1.56%	$\pm 3\%$ of span over test run period
	Analyzer Calibration Error	2.38%	$\pm 5\%$ of span for low and mid-range calibration gases
Paint Room and Oven VOC RTO Inlet	Zero Drift	0.31%	$\pm 3\%$ of span over test run period
	Upscale Calibration Drift	1.42%	$\pm 3\%$ of span over test run period
	Analyzer Calibration Error	1.69%	$\pm 5\%$ of span for low and mid-range calibration gases
NMVOC RTO Outlet	Zero Drift	1.67%	$\pm 3\%$ of span over test run period
	Upscale Calibration Drift	1.83%	$\pm 3\%$ of span over test run period
	Analyzer Calibration Error	0.46%	$\pm 5\%$ of span for low and mid-range calibration gases

AQS' stack testing policies and practices conform to ASTM D7036-04 "Standard Practice for Competence of Air Emission Testing Bodies" for emission testing programs affected by the requirements of 40 CFR 75.21(f), as performed on Part 72 sources and Part 75 sources. Although not required for this test program, the requirements of ASTM D7036-04 were met.

ASTM D7036-04 notwithstanding, it is our mission to be a trusted provider of air-related environmental services. We aspire to exceed client expectations by imparting exceptional quality and value in meeting corporate needs and fulfilling regulatory requirements.

The AQS Quality Objectives are:

- to continually monitor and improve our ability to deliver the scope of services
- to assign qualified test personnel to satisfy the needs of our clients
- to comply with quality control procedures established in test methods, in the AQS Quality Manual, and by regulatory agencies that have jurisdiction over test programs
- to prepare reports that clearly communicate test program results
- to utilize recordkeeping systems that allow for data retrieval and reconstruction
- to keep clients apprised of project progress and promptly respond to concerns