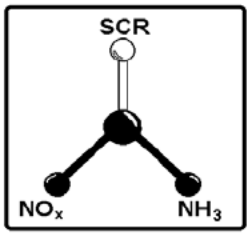

AIR QUALITY ENGINEERING, INC.

Emissions Measurement & Regulatory Compliance

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SOURCE TEST REPORT FOR THE TRANSMIX HEATER

Source Location:

[redacted]

Equipment Tested:

Transmix Heater

SCAQMD Device ID – D69

Prepared for:

Submitted to:

Monitoring and Engineering

Monitoring and Analysis Branch

South Coast Air Quality Management District

21865 Copley Drive

Diamond Bar, California 91765-4182

Prepared by:

Air Quality Engineering, Inc.

1618 French Street

Santa Ana, California 92701

Contact: Sean H. Nguyen

Phone: 714-647-1285

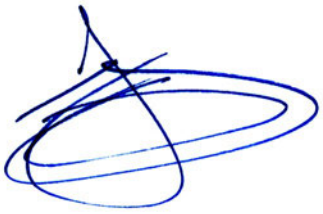
AQE Project No.: 20-911

Issue Date: June 6, 2021

Revision: 0

REPORT CERTIFICATION

I certify that this report and all attachments were prepared under my direction and/or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the test information submitted. Based on my inquiry of the person or persons who performed the sampling and analysis relating to the performance test, the information submitted in this report is, to the best of my knowledge and belief, true, accurate, and complete. All exceptions are listed and explained in the test report.



Signature: _____ Printed Name: Sean H. Nguyen

Title: Manager Date: June 6, 2021

SOURCE TEST REPORT SUMMARY

Legal owner name and address:	
Equipment location:	
Unit tested:	Transmix Heater
Facility ID:	
Devices ID:	D69
SCAQMD STE Source Test File:	P 20355
District Permit Engineer:	Ms. Linda Dejbakhsh Phone: 909-396-2614
District Source Test Engineer:	Mr. Colin Eckerle Phone: 909-396-2476
Objective(s):	To conduct the source emission testing for the determination of oxides of nitrogen (NO_x) and oxygen (O_2), and flow RAA. Also, process gas samples were collected and analyzed for sulfur contents according to SCAQMD Rule 431.1 and Method 307.91
Date tested:	April 28, 2021
Test performed by:	AQE
Test Method(s):	SCAQMD Method 2.1 – Flow Rate SCAQMD Method 4.1 – Moisture SCAQMD Method 100.1 – NO_x, CO, CO_2, and O_2 SCAQMD Method 307.91 – Sulfur Contents
Number of Replications:	One continuous 60-minute traverse-sampled for NO_x, CO, O_2, CO_2 concentrations, and three (3) runs volumetric flow rate RAA tests during normal operating load as described in the Facility Permit to Operate, Condition D182.1. Ancillary testing included CO_2, temperature, flow rate, and water

vapor. Heater operating conditions were monitored and controlled by representative.

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APPENDICES

1.0 INTRODUCTION

hired Air Quality Engineering, Inc. (AQE) to source test the Transmix heater at its facility in California for NO_x, CO, O_2, and CO_2 in addition to flow relative accuracy audit (RAA). The reason for testing was to determine compliance with the SCAQMD RECLAIM Rule 2012 concentration limits of 7 ppmv for NO_x and 400 ppmv for CO, both at 3% O_2. Flow relative accuracy audit (RAA) of 15% was also confirmed.

This report documents the compliance test results obtained from testing conducted on April 28, 2021. The AQE test team consisted of T. Pham, Tung Vo, and Sean Nguyen. Ms. Cinnamon Smith requested and coordinated the test program for . Mr. Colin Eckerle of the SCAQMD was notified about the source test. The source test was conducted following an approved SCAQMD test protocol prepared for KM by AQE and approved by the SCAQMD dated February 2, 2021.

The source test consisted of one (1) 60-minute continuous emission monitoring measurement of NO_x, CO, O_2, and CO_2. Also, triplicate volumetric flow rate relative accuracy was conducted to verify the heater fuel flow meter accuracy.

The test results are summarized in Table 1. Results summary and discussion are detailed in Section 2.0. Section 3.0 simplified the Transmix heater process description. Reference methodologies utilized for data collection and reporting are summarized in Section 4.0. Section 5.0 describes AQE's QA/QC program. Calculations and reference conditions are presented in Section 6.0. The glossary of terms, abbreviations, and acronyms is detailed in Section 7.0. The appendices included AQE's SCAQMD LAP and CARB certifications, field data sheets, laboratory results, calculation spreadsheets, and a certificate of "no conflict of interest."

2.0 RESULTS SUMMARY

Reference temperature and pressure of 60 °F and 29.92 inches (") mercury (Hg) were used to correct from actual to standard conditions. Concentrations reported are also corrected to 3% O_2 when applicable.

Parameter	Results	Limit	Applicable Rules
Oxides of Nitrogen, ppmv @ 3% O_2	6.25	7	2012
Oxides of Nitrogen, lb/MMScf	7.97	8.38	2012
Carbon Monoxide, ppmv @ 3% O_2	<2.00	100	1313(g)
Carbon Dioxide, %	10.3	NA[1]	NA
Oxygen, %	3.52	NA	NA
Volumetric Flow Rate RAA, %	0.2	15	2012

To confirm that the sampling locations are suitable for testing, a velocity traverse and cyclonic flow check were performed on the Transmix heater stack. Sampling locations were acceptable for testing per method requirements as documented in Appendix D.

An alternative to stratification testing, stack gas concentrations test for NO_x, CO, O_2, and CO_2 was traversed sample. O_2, CO_2, and NO_x concentrations detected during the test period were within 20-95 percent of the selected range for each analyzer. The heater average CO concentrations measured were well below the 20% of the analyzer range of 0-10 ppmvd full-scale. CO concentrations at the stack were less than the concentration limit of 100 ppm. The gaseous emissions data show that the heat was operating steadily during the test period.

During testing, the heater operating conditions were monitored and recorded by Ms. Kathy Obergfell of R. A. Nichols Engineering. The fuel flowmeter was last calibrated on February 22, 2021 and current until February 22, 2022. (See calibration certificate in Appendix C). The operating load of the equipment was established using the following recorded data during the source test:

- Natural gas flow rate, mscfh (FT-405 Hour)
- Process gas flow rate, mscfh (FI-411). Flow rate too low to register on the flow meter during run.
- Total gas flow rate, mscfh = (FIT-405) + (FI-411)
- Stack temperature, °F = TI-215
- Firing rate
- Burner damper positions during test, % = B1-B3

[1] NA – Not Applicable

Process gas flow rate was too low to register on the flow meter during the test run. The above data can be found in Appendix C.

Reference Method 100.1 NO_x analyzer converter was greater than 90 percent efficient (See Appendix E). The system response time test is in Appendix E. Calibration error, system drift, and system bias checks were less than 2, 3, and 5 percent, respectively (see Appendix E).

In addition, fuel gas samples were also collected and analyzed for sulfur contents per Method 307.91. One 30 minutes sample was collected in a new Tedlar bag for each operating hour. A total of four samples were collected over four operating hours. The samples were immediately delivered to Quantum and analyzed within an 8-hour holding time as required by the method. Rule 431.1 sulfur results can be found in Appendix F.

3.0 PROCESS DESCRIPTION

The [redacted] Terminal receives gasoline and diesel fuel via pipeline from the south bay refineries and operates bulk loading stations to transfer the product into tanker trucks. Besides, Transmix, which is a gasoline/diesel blend, is processed at the [redacted]. The gasoline/diesel blend is separated via flash distillation in the Transmix processing plant. This process produces gasoline and diesel fractions, and a product gas containing lighter ends C1-C5 range. A gas-fired Callidus Technologies heater provides the heat for the distillation process. The heater is rated at 12.5 MMBtu/hr and equipped with three new Clearsign Core ultra-low NO_x burners. Figure 1 simplifies the Transmix Heater process flow diagram.

4.0 TEST PROCEDURES

4.1 Test Condition

The source test was conducted during normal operating conditions with the operating capacity of 75% of the rated input of 12.5 MMBtu/hr with the damper position registered at 47%. During testing, relevant operating parameters were observed and recorded by R. A. Nichol Engineering representative when applicable for inclusion in the report (see Appendix C).

4.2 Test Procedures

SCAQMD Methods 1.1 through 4.1 were followed to collect data to determine the volumetric flow rate. SCAQMD Method 100.1 was followed to collect data to determine gaseous concentrations for NO_x, CO, CO_2, and O_2. These procedures are consistent with those recommended in the SCAQMD *Source Test Manual*, California Air Resources Board (CARB) *Stationary Source Test Manual*, and SCAQMD Rule 2012. Brief discussions of each procedure are given below.

4.2.1 Traverse Points Determination - SCAQMD Method 1.1

The heater stack is circular, with a diameter of 27". Two (2) test ports spaced at 90° apart on a horizontal plane provided access to the flue gas stream. The sampling ports are located 72" (2.67 diameters) downstream and 144" (5.33 diameters) upstream from any disturbances.

Per SCAQMD Method 1.1, sampling from the heater stack was conducted at 16 traverse points using 8 sampling points on each diagonal. The individual traverse point locations are shown in Figure 2.

The absence of a cyclonic flow test was verified per Method 1.1, Section 2.4 by positioning the Pitot tube at each traverse point, in succession, so that the planes of the faces openings of the Pitot tube are perpendicular to the stack cross-sectional plane (the "O° reference"). The Pitot tube was rotated until the differential pressure reading indicated a null reading of zero. The value of the rotation angle was determined and recorded to the nearest degree on standardized datasheets. After this null technique was applied at each traverse point, the average of the absolute values of the rotation angles, assigning a value of O° to those points for which no rotation is required, was calculated and recorded on the datasheets. The stack cyclonic flow conditions at the reference test locations were acceptable since the average angle of the Pitot tube at the null reading was less than 10°.

4.2.2 Volumetric Flow Rate - SCAQMD Method 2.1

After determining the number and location of the traverse points for each port, SCAQMD Method 2.1 was followed to obtain data to calculate the volumetric flow rate. Since the stack with ΔP is less than 0.05" of H_2O, a Shortridge Instruments Air Data Multimeter electronic micromanometer with a NIST traceable resolution of 0.0001" of H_2O was used to obtain the velocity pressure. For each test run, the standard Pitot tube and thermocouple were positioned sequentially at each of the traverse points determined by Method 1.1. Differential pressure and temperature readings were observed and recorded on standardized datasheets.

Before beginning each test run, a system leak check was performed by introducing air to the total and static pressure holes of the Pitot tube to obtain a pressure of 2-3" of water. Each pressure port of the Pitot tube was then sealed and the pressure drop was observed for approximately 1 to 2 minutes. If no pressure change was detected, the system leak check was considered a success. At the end of each test run, a post-test leak check following the same procedure as above was also completed to confirm that no leaks developed in the system during the test run. During testing, leak checks were a success. Additionally, disconnecting the positive port on the manometer to the static pressure connection of the Pitot tube and leaving the negative port exposed to ambient pressure measured the static gas pressure of the stack. The Pitot was then inserted into the flue gas stream. The resulting pressure differential was observed and recorded as static pressure.

4.2.3 Molecular Weight - SCAQMD Method 3.1

Instead of SCAQMD Method 3.1, Method 100.1 was followed to determine the concentrations of CO_2 and O_2 in the stack gas. These values were used for the subsequent calculation of stack gas molecular weight.

4.2.4 Moisture Content - SCAQMD Method 4.1

The moisture content for the stack was determined for each run using a wet impinger sampling train configured and operated following SCAQMD Method 4.1. According to Method 4.1, a known quantity of stack gas was pulled through a chilled impinger train by way of an airtight vacuum pump connected to a calibrated dry gas meter. The quantity of condensed water was determined gravimetrically and volumetrically before and after each sampling run. By relating the amount of water collected and the volume of stack gas pulled through the moisture train, the total moisture content for the stack was calculated. The dry gas meter and vacuum pump are integral components of the stack sampler. (See Figure 3)

4.2.5 Instrumental Reference Method Measurements - SCAQMD Method 100.1

The concentrations of the sample gas components were determined by instrumental methods according to SCAQMD Method 100.1. A representative sample of the exhaust gas stream was continuously extracted, conditioned, and conveyed to instrument analyzers in AQE's mobile lab. A schematic of this system is shown in Figure 4. AQE's analyzers meet or exceed minimum acceptable standards for method detection, sensitivity, noise, precision, linearity, and interference. Unless otherwise noted in the test results discussion, the analytical range for each of the analyzers was selected such that the measured emission concentrations were within 20-95% of the selected range. Unless otherwise noted, all fittings and sample lines that contacted the sample gas were constructed of stainless steel and/or Teflon.

Sample gas was extracted using a 50 micron sintered NUPRO stainless steel in-stack filter connected to a ⅜" 316 stainless steel probe. The probe was connected to a knock out impinger using heat-traced Teflon tubing. Both the probe and the Teflon tubing were heated to a temperature of at least 200°F to prevent condensation. Following the knock-out impinger was a BEI (Baldwin Environmental, Inc.) thermoelectric gas cooler Model 5210S that reduced the moisture content of the sample gas such that its dew point became less than 37°F. Next came a Teflon-lined diaphragm sample pump that was used to draw the sample gas through the filter, probe, knock-out impinger, and gas cooler.

From the sample pump, the dry clean sample gas was transported using ⅜" Teflon tubing to analyzers in AQE's fully insulated and air-conditioned mobile lab. Before the introduction to the analyzers, additional particulate matter was removed from the sample gas using a 5.0 Balston filter. Sample gas flow was controlled by a series of flowmeters, valves, and regulators upstream of the instrument manifold. Excess sample gas was vented through a backpressure regulator that maintained a constant pressure of 5-6 psig and flow of 2 scfh through each analyzer rotameter. Instrument responses were permanently recorded using a microprocessor-based Yokogawa hybrid paperless recorder with mathematical functions for averaging and other related calculations. Specifications of the analyzers used in AQE's mobile lab are presented in Table 2.

For the following performance tests, all calibration gases used were certified according to EPA Protocol 1, or certified to an analytical accuracy of ±1% and were NIST traceable. Calibration gas concentration values were recorded on both the continuous monitor strip chart and field datasheets. Calibration gas certificates of analysis are included in Appendix E.

4.2.6 Total Reduced Sulfur – SCAQMD Method 307.91

Four fuel samples were collected in a new Tedlar bag. Following sampling, the sample bag was sealed and enclosed in an opaque bag to prevent sunlight from initiating photosensitive reactions with the captured species within the bag. The sample bags were immediately transported to the lab under COC for analysis via gas chromatography equipped with a chemiluminescence detector to provide the lowest possible reporting limit.

5.0 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

The objective of AQE's Quality Assurance (QA) Program was to ensure the accuracy and precision, as well as reliability, of the data collected and generated for AQE's clients and to meet the data quality objectives of regulatory or accrediting bodies. Management, administrative, statistical, investigative, preventative, and corrective techniques were employed to maximize the reliability of data.

5.1 Sampling Equipment QC Procedures

The sampling equipment used was calibrated before and after each field effort according to manufacturers' specifications; *The EPA Quality Assurance Handbook for Air Pollution Measurement Systems*, Volume III (EPA-600/4-7-027b); 40 CFR 60; and the SCAQMD *Source Test Manual*, Chapter III, Amended September 19, 1991. Calibrations were performed with standards that are NIST traceable when applicable.

Before actual on-site sampling, all sampling equipment to be used was thoroughly checked and calibrated to ensure that each component is clean and operable. Each of the equipment calibration data forms was reviewed for completeness and adequacy to ensure the acceptability of the equipment.

5.2 QC Procedures for Velocity/Volumetric Flow Rate

- The Pitot tube was visually inspected and calibrated (when applicable) before field sampling.
- Both the low-pressure and high-pressure sides of the Pitot tube were leak-checked before and after field sampling.
- The oil manometer gauge used to indicate the differential pressure (ΔP) across the Pitot tube was leveled and zeroed in the field before sampling.
- The number and location of the sampling traverse points were checked before taking measurements and satisfying minimum requirements.
- Thermocouples and temperature thermometer devices were calibrated before field sampling.
- Sampling data and calculations were recorded on standardized datasheets.

5.3 QC Procedures for Moisture Determination

- Each impinger was weighed to the nearest 0.1 gram before and after sampling.
- The sampling train, including impingers, was leak-checked before and after sampling.

- Ice was maintained in the ice bath (impinger bucket) throughout the run to keep the condensation system below the minimum specified temperature.
- Dry gas meters for measuring sample volume were calibrated before the testing event.

5.4 QC Procedures for Gaseous Measurement

Gaseous pollutants and/or diluents of interest are continuously monitored according to Method 100.1 and applicable SCAQMD rules and permit conditions. This monitoring scheme requires the following QA/QC:

5.4.1 NO_2 to NO Conversion Efficiency Test

The NO_2 to NO conversion efficiency was determined for the NO_x analyzer following SCAQMD recommended guidelines.

5.4.2 System Leak Check

The sampling system was plugged and evacuated to a minimum of 20" Hg for 5 minutes. The resultant loss of vacuum was less than 1" Hg during this period, the leak check was deemed successful. During the field test, the sampling system leak check was a success.

5.4.3 Analyzer Response Time Checks

Response time was defined as the time required for an analyzer to display a 95% step change in gas concentration on the data recorder. Zero and span gases were introduced to the system on an alternating basis. The upscale and downscale response times were recorded and the longer of the two (2) was reported as the system response time.

5.4.4 Analyzer Calibration Error Checks

Zero, mid (40-60% of range), and high (80-100%) span gases were introduced to each analyzer and the responses were recorded. The analyzer responses were within ±2% of the analyzer range for each of the calibration gases. The calibration error checks were deemed successful.

5.4.5 System Bias Checks

To determine the effect of the sample lines, pump, and sample cooler on the analyzer readings, a 3-way valve was used to introduce calibration gases (zero and upscale concentrations) to the sampling system at a point directly following the probe. The analyzer responses were then recorded and

compared to the responses recorded when calibration gases were introduced directly to the analyzers for the analyzer calibration checks. The system bias checks were successful since the difference between the readings was within ±5% of the analyzer range for each of the calibration gases.

5.4.6 System Drift

During the field test, the system drift was less than 3%.

6.0 CALCULATIONS

The following equations and constants were used in calculating all intermediate and final results (including lab results when applicable). Reference temperature and pressure of 60 °F and 29.92 "Hg was used to correct from actual to standard conditions.

6.1 Sample Volume, Velocity, and Volumetric Flow Rate

6.1.1 Sample Gas Volume

$$V_{m,std} = 0.03342 V_m \left(P_{bar} + \frac{H}{13.6} \right) \left(\frac{T_{ref}}{T_m} \right) (y)$$

Where:

$V_{m,\,std}$	=	Gas volume metered at standard conditions, cu. ft.
V_m	=	Volume of gas sample through the dry gas meter, cu.ft.
T_m	=	Average dry gas meter temperature, $(T_m + 460)$ °R
P_{bar}	=	Barometric pressure at the orifice meter, inches Hg
ΔH	=	Average pressure drop across the orifice meter, inches H_2O
13.6	=	Specific gravity of mercury
P_{std}	=	Absolute pressure at standard conditions, 29.92 inches Hg.
Y	=	Gas meter correction factor

6.1.2 Water Vapor Volume

$$Vwstd = V_{lc} \left(\frac{\rho_{H_2O}}{M_{H_2O}} \right) \left(\frac{RT_{std}}{P_{std}} \right) = \frac{0.0464 ft^3}{ml} \bullet V_{lc}$$

Where:

$V_{w\,std}$	=	Volume of water vapor in the sample gas at standard conditions, ft^3.
V_{lc}	=	Volume of liquid collected in impingers and silica gel, ml
ρ_{H2O}	=	Density of water, lb/ml
M_{H2O}	=	Molecular weight of water, 18 lb/lb-mole
R	=	Ideal gas constant, 379.48 cu. ft./lb-mole
T_{std}	=	Absolute temperature at standard conditions, 528 °R
P_{std}	=	Absolute pressure at standard conditions, 29.92" Hg

6.1.3 Moisture Content

$$B_{wo} = \left(\frac{V_{w,std}}{V_{m,std} + V_{w,std}} \right)$$

Where:

B_{wo} = Proportion by volume of water vapor in the gas stream

6.1.4 Stack Gas Molecular Weight

$$MW_{dry} = 0.44(\%CO_2) + 0.32(\%O_2) + 0.28(\%N_2)$$
$$MW_{wet} = MW_{dry}(1 - B_{wo}) + 18(B_{wo})$$

Where:

M_{dry} = Dry molecular weight, lb/lb-mole
M_{wet} = Wet molecular weight, lb/lb-mole

6.1.5 Absolute Stack Pressure

$$P_s = \left(P_{bar} + \frac{P_{sg}}{13.6} \right)$$

Where:

P_s = Absolute stack pressure, "Hg
P_{bar} = Barometric pressure at measurement site, "Hg
P_{static} = Stack static pressure, "Hg

6.1.6 Stack Velocity

$$V_s = 2.90 C_p \sqrt{\Delta P T_s} \sqrt{\left(\frac{29.92}{P_s} \right)\left(\frac{28.95}{MW_{wet}} \right)}$$

Where:

$V_{s\,avg}$ = Average stack gas velocity, feet per second (fps)

C_p = Pitot tube coefficient, dimensionless
$T_{s\,avg}$ = Average absolute stack temperature, °R
ΔP_{avg} = Average velocity head of stack gas, inches H_2O
P_s = Absolute stack pressure, inches Hg
M_w = Wet molecular weight of stack gas, lb/lb-mole

6.1.7 Actual Stack Flow Rate

$$Q = (V_s)(A_s)(60)$$

Where:

Q = Stack gas volumetric flow rate, cfm
A_s = Stack cross sectional area, ft^2

6.1.8 Standard Stack Gas Flow Rate

$$Q_{std} = Q(1 - B_{wo})\left(\frac{T_{ref}}{T_s}\right)\left(\frac{P_s}{29.92}\right)$$

Where:

Q_{sd} = Dry standard stack gas volumetric flow rate, dscfm

6.2 Method 100.1 Calculations

Effluent gas concentration, dry basis, drifts corrected, ppmv and percent.

$$C_{gas} = (\bar{C} - C_o)\left(\frac{C_{ma}}{C_m - C_o}\right)$$

Where:

C_{gas} = Effluent gas concentration, dry basis
$\bar{c}$ = Avg. gas concentration indicated by gas analyzer, dry basis, ppmv or %
C_{ma} = Actual concentration of the upscale calibration gas, ppmv or %
C_m = Avg. of initial and final system bias check responses for the upscale gas
C_o = Avg. of initial and final system bias responses for the zero gas

6.3 Gaseous Emissions

6.3.1 Emission rate, lb/hr.

$$M = (ppmv)(10^{-6})\left(\frac{MW_i \text{ lb/lb-mole}}{SV}\right)(Q_{std})(60 \text{ min/hr})$$

Where:

SV	=	specific molar volume of an ideal gas
SV	=	385.3 ft^3/lb-mole for T_{ref} = 528 °R
SV	=	379.5 ft^3/lb-mole for T_{ref} = 520 °R
MW_i	=	Molecular weight of species i: NO_x = 46; SO_x = 64; CO = 28

6.4 Relative Accuracy Audit (RAA) Calculations

6.4.1 Flow Meter Accuracy, %

$$RA = \frac{C_m - C_a}{C_a} \times 100$$

Where:

A	=	Absolute value of the mean of differences
C_m	=	Absolute value of the confidence coefficient
C_a	=	Average RM value

6.5 Oxygen Correction

Compute using the following:

$$C_{O_2} = \frac{20.9 - 3}{20.9 - O_2 \text{ Measured}} \times C_{\text{Measured}}$$

Where:

C_{O2}	=	Gaseous concentration (ppm) corrected to 3% O_2

7.0 GLOSSARY OF TERMS, ABBREVIATIONS, AND ACRONYMS

acfm	Actual Cubic Foot Per Minute
AIG	Ammonia Injection Grid
AQE	Air Quality Engineering, Inc.
ARB or CARB	California Air Resources Board
AST	Applied Science and Technology
ASTM	American Society for Testing Material
B	Boiler
BACT	Best Available Control Technology
Btu	British thermal unit
CEMS	Continuous Emission Monitoring System
cfh	Actual Cubic Foot Per Hour
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO_2	Carbon Dioxide
COC	Chain-Of-Custody
CPMS	Continuous Process Monitoring System
DAS	Data Acquisition System
DB	Duct Burner
dscfm	Dry Standard Cubic Foot Per Minute
ECM	Emission Control Module
°F	Degree Fahrenheit
FID	Flame Ionization Detector
g	Gram
gal	Gallon
GC	Gas Chromatography
gr/dscf	Grain Per Dry Standard Cubic Foot
GT	Gas Turbine
H	Heater
Hg	Mercury
ID	Inside Diameter
lb/hr	Pound Per Hour
lb/MMBtu	Pound Per Million Btu
ml	Milliliter
Mlb/hr	Thousand Pounds Per Hour
Mol/hr	Mole Per Hour
MSCFH	Thousand Standard Cubic Feet Per Hour
MW	Megawatt
N	Normality
NG	Natural Gas
NH_3	Ammonia
NIST	National Institute of Standards and Technology
NO	Nitric Oxide

7.0 GLOSSARY OF TERMS, ABBREVIATIONS, AND ACRONYMS (CONT.)

NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
O_2	Oxygen
ppmv	Parts Per Million, Volume Dry Basis
PTO	Permit To Operate
QA/QC	Quality Assurance/Quality Control
RECLAIM	REgional CLean Air Incentive Market
SCAQMD	South Coast Air Quality Management District
scf	Standard Cubic Foot
SCR	Selective Catalytic Reduction
SO_2	Sulfur Dioxide
SO_X	Sulfur Oxides
SR	Stoichiometric Molar Ratio
TCA	Total Combustion Analysis
TGNMO	Total Gaseous Non-Methane Organics
TOC	Total Organic Carbon
wacfm	Wet Actual Cubic Foot Per Minute
wscfm	Wet Standard Cubic Foot Per Minute

TABLE 1

NO_x AND FLOW RAA RESULTS SUMMARY

[redacted]

		Test Run ID			Average		
		1	2	3			
Date Tested		28-Apr-21	28-Apr-21	28-Apr-21			
Start and Stop Time		8:05-10:09	8:05-10:09	8:05-10:09			
Barometric Pressure	"Hg	30.07	30.07	30.07			
Barometric Pressure	psia	14.77	14.77	14.77			
Stack Temperature	°F	608	610	610	609		
Stack Moisture	%	14.67	14.67	14.67	14.7		
Oxygen	%	3.52	3.52	3.52	3.52		
Carbon Dioxide	%	10.27	10.27	10.27	10.3		
Reference Method Flow	dscfm	1,617	1,687	1,692	1,665		
Transmix Heater Operating Data During Test (1)							
Damper	%, Open	47	47	47	47		
Fuel Gas Usage	mscfh	8.9	8.9	8.9	8.9		
Fuel Gas Heating Value	Btu/scf	1,050	1,050	1,050	1,050		
Fuel F-Factor	dscf/MMBtu	8,710	8,710	8,710	8,710		
CEMS - Stack Flow	dscfm	1,720	1,661	1,620	1,667		
Rated Capacity	MMBtu/hr	12.5	12.5	12.5	13		
Operating Load	MMBtu/hr	9.3	9.3	9.3	9.35		
Operating Capacity	%	75	75	75	75		
Oxides of Nitrogen as NO_2						**Limits**	**Rules**
	ppmv	6.07	6.07	6.07	6.07		
	ppmv @ 3% O_2	6.25	6.25	6.25	6.25	7	2012
	lb/hr	0.07	0.07	0.07	0.07		
	lb/MMscf	7.97	7.97	7.97	7.97	8.38	2012
Carbon Monoxide							
as found	ppmv	1.53	1.53	1.53	1.53		
at 20% of analyzer Range	ppmv	2.00	2.00	2.00	2.00		
Concentration reported	ppmv	2.00	2.00	2.00	2.00		
	ppmv @ 3% O_2	2.06	2.06	2.06	2.1	100	1313(g)
	lb/hr	0.01	0.01	0.01	0.01		
Volumetric Flow Rate RAA							
	%	-6.3	1.5	4.3	-0.2	15	2012

(1) Appendix B contains the operating data recorded during the source test.

TABLE 2

AQE'S INSTRUMENTAL REFERENCE METHOD SYSTEMS SPECIFICATIONS

NO_x Chemiluminescent Analyzer - CAI Model 600

Response time (0-90%)	~1.5 seconds NO mode
	~1.7 second NO_X mode
Reproducibility	1% of full scale
Minimum detectable conc.	0.05 ppm
Linearity	±1% from 0.05 to 10,000 ppm
Converter	Vitreous Carbon
Zero stability	±1 ppm in 24 hours
Span stability	±1% 24 hours
Output	0-10V, 5V, 1V, and 100mV

SO_2 Ultraviolet Analyzer - BOVAR Western Research Model 922

Response time (0-90%)	Less than 30 second
Repeatability	1.0% of reading
Zero drift	±1 ppm per hour
Span drift	±1 ppm per hour
Linearity	±1% from 0.05 to 2,000 ppm
Data output	0-0.1 VDC, 0-1 VDC, 0-10 VDC
	4 to 20 mA (0 to 1000 Ω)

O_2 Electrochemical Fuel Cell Analyzer - California Analytical Instruments Model 100

Response time (0-90%)	3.0 seconds
Zero drift	Less than 1% of full scale per 24 hours
Span drift	Less than 1% of full scale per 24 hours
Noise	Less than 1% of full scale
Ranges	0-5, 0-10, and 0-25%
Output	0-10V, 4-20mA

CO_2 Nondispersive Infrared Analyzer - California Analytical Instruments Model 3300A

Response time (0-90%)	1.0 second
Repeatability	Within "0.5% of full scale
Zero drift	Less than 1% of full scale per 24 hours
Span drift	Less than 1% of full scale per 24 hours
Display	Digital (32 digits)
Linearizer	Within 1% of full scale
Output	0.1, 1.0, 5.0, and 10.0 VDC

TABLE 2

AQE'S INSTRUMENTAL REFERENCE METHOD SYSTEMS SPECIFICATIONS (CONT.)

CO Gas Filter Correlation Analyzer - CAI Model 600

Ranges	0-1, 2, 5, 10, 20, 50, 100, 200, 500, 1000ppm
Response time (0-95%)	30 seconds
Noise	0.05ppm RMS-with time constant of 30 seconds
Minimum detectable limit	0.10ppm
Zero drift	0.2ppm
Span drift	1.0% of full scale
Linearity	1%
Flow rate	0.5-2 lpm
Rejection ratio	Negligible interference from H_2O and CO_2
Output	0-1V, 0-5V, 0-10V, 0-10 mV, and 0-100mV

Microprocessor Hybrid Recorder - Yokogawa Model 2300

Number of inputs	30 plus 20 auxiliary channels
Scan cycle time	1 to 60 seconds selectable
Recording resolution	Analog trend - 0.04% of span
A-D integration time	20ms (50Hz), 16.7ms (60Hz), and 100ms (50/60Hz)
Temperature coefficient	Zero drift; 0.01% of range per ^{O}C
Temperature coefficient	Span drift; 0.01% of range per ^{O}C
Recording accuracy	"0.2% of effective recording span
Chart speeds	1 to 1,500 mm/hr
Start time	Programmable for measurement (scan) and printing start time or T log interval
Differential calculation	Between any channels (within the same range)
Moving average	For every 8 scans
Interface	RS-232C
Math function	Statistical

Mobile Lab

Fully insulated and air-conditioned

FIGURE 1

TRANSMIX HEATER SIMPLIFIED PROCESS FLOW DIAGRAM

[redacted]

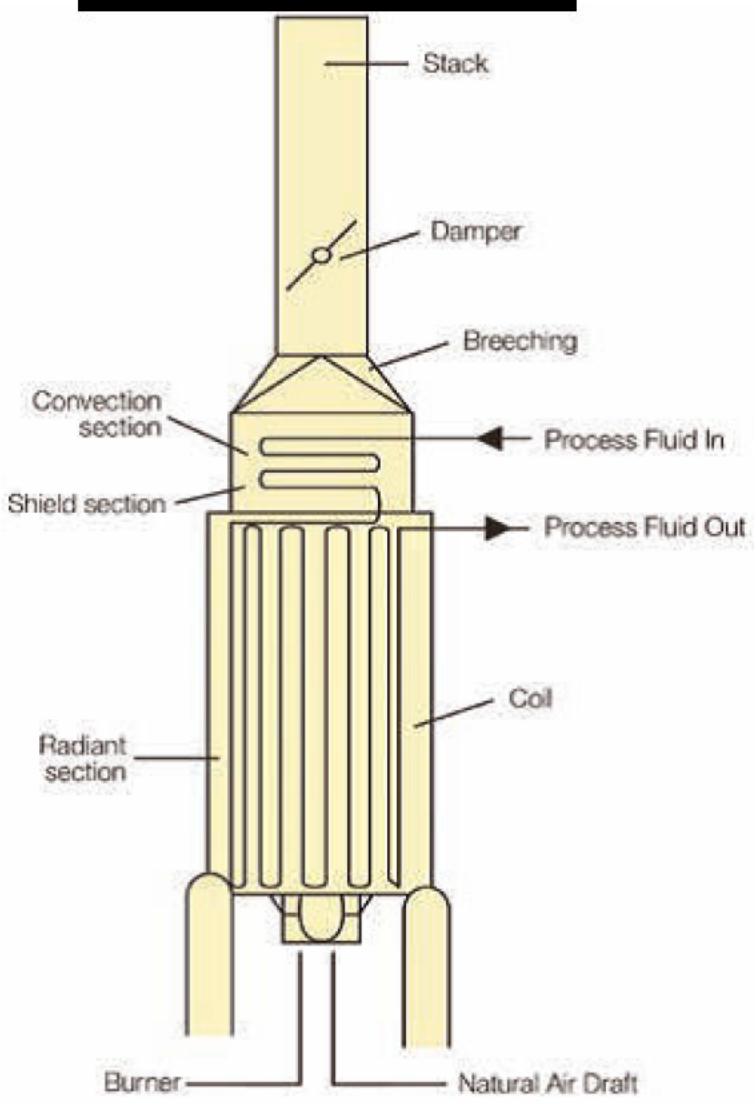
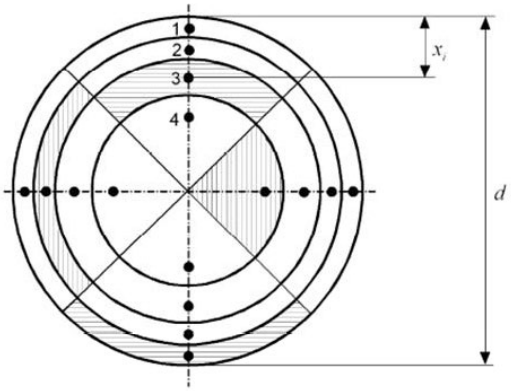
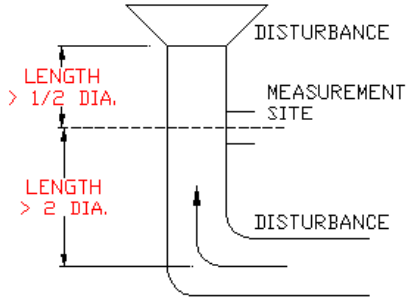


FIGURE 2

STACK TRAVERSE POINTS DIAGRAM



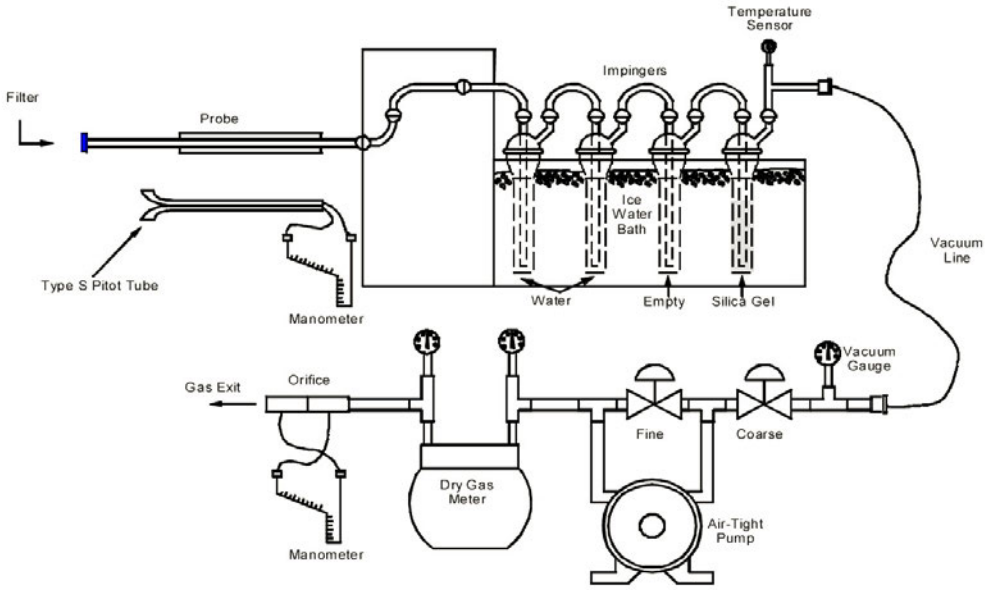


Stack/Duct Diameter (ft):	**27"**	Stack/Duct Orientation:	**Horizontal**
Upstream Distance (ft):	**144"**	No. of Sample Ports:	**2**
Downstream Distance (ft):	**72"**	No. of Traverse Points:	**16**

Traverse Point	% of Stack Diameter Inside Wall	Traverse Distance (in.)
1	3.2	0.86
2	10.5	2.84
3	19.4	5.24
4	32.3	8.72
5	67.7	18.3
6	80.6	21.8
7	89.5	24.2
8	96.8	26.1

FIGURE 3

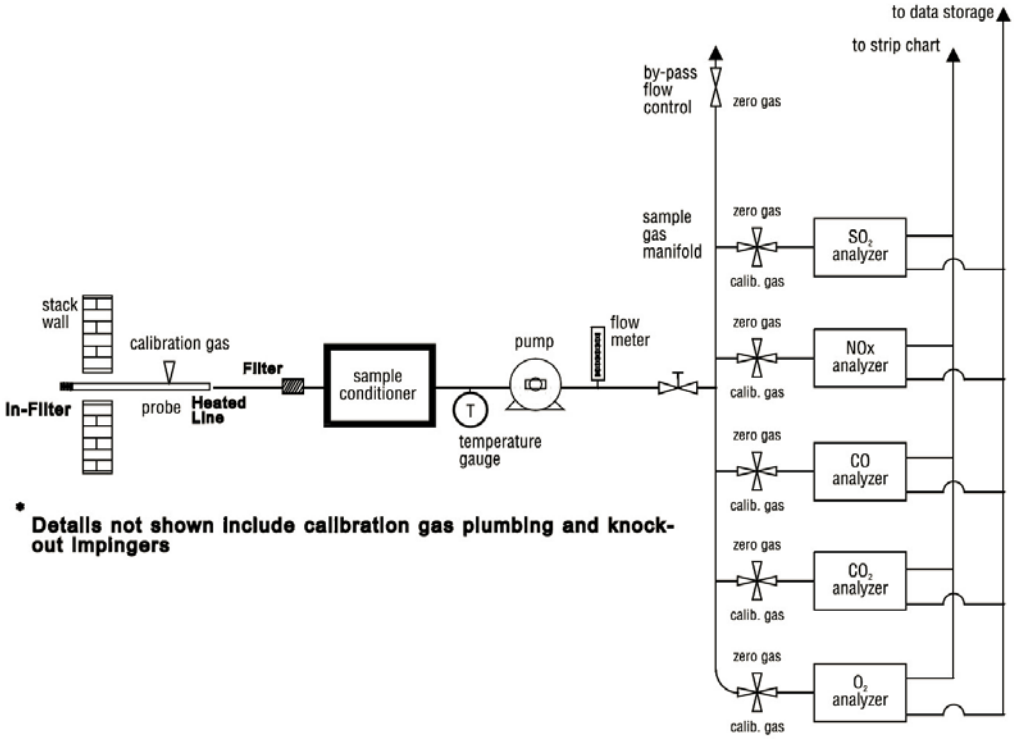
SCAQMD METHOD 2.1-4.1 SAMPLING TRAIN DIAGRAM



1. Impinger 1 – 100ml Water
2. Impinger 2 – 100ml Water
3. Impinger 3 – Empty
4. Impinger 4 – Silica Gel

FIGURE 4

SCAQMD METHOD 100.1 SAMPLING TRAIN DIAGRAM



APPENDIX A

CARB AND SCAQMD CERTIFICATION CERTIFICATES

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

September 9, 2020

Sean Nguyen
Air Quality Engineering, Inc.
1618 French Street
Santa Ana, CA 92701

Subject: LAP Approval Notice
Reference # 94LA1201

Dear Mr. Nguyen:

We completed our review of the renewal application you submitted for approval under the South Coast Air Quality Management District's Laboratory Approval Program (LAP). We are pleased to inform you that your firm is approved for the period beginning September 30, 2020, and ending September 30, 2021 for the following methods:

Methods 1-4
Method 100.1
Methods 5.1, 5.2, and 6.1 (Sampling & Analysis)
Rule 1420/ 1420.1/ 1420.2 – (Lead) Source Sampling

Thank you for participating in the LAP. Your cooperation helps us to achieve the goal of the LAP: to maintain high standards of quality in the sampling and analysis of source emissions. You may direct any questions or information to LAP Coordinator, Glenn Kasai. He may be reached by telephone at (909) 396-2271, or via e-mail at gkasai@aqmd.gov.

Sincerely,

D. Sarkar

Dipankar Sarkar
Program Supervisor
Source Test Engineering

DS:GK/gk

200909 LapRenewal.doc

State of California

Air Resources Board

Approved Independent Contractor

Air Quality Engineering, Incorporated

This is to certify that the company listed above has been approved by the California Air Resources Board to conduct compliance testing pursuant to California Code of Regulations, title 17, section 91207, through June 30, 2021, for those test methods listed below:

CARB Source Test Methods:
1, 2, 3, 4, 5, 100 (CO, CO_2, NO_x, O_2, SO_2)
U.S. EPA Test Method 205

Catherine Dunwoody, Chief
Monitoring and Laboratory Division

APPENDIX B

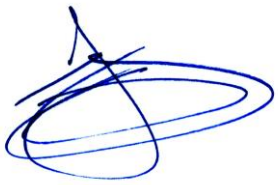
AQE'S STATEMENT OF "NO CONFLICT OF INTEREST"

CERTIFICATE OF NO CONFLICT OF INTEREST

Air Quality Engineering, Inc. (AQE) is an independent source testing firm that is currently certified by the California Air Resources Board (CARB) and approved by the South Coast Air Quality Management District (SCAQMD) to perform compliance testing per Regional Clean Air Incentive Market (RECLAIM) rules and regulatory requirements.

AQE has no ownership or financial interest in or any of its subsidiaries.

AQE has no conflict of interest and complies with the conditions established by SCAQMD Rule 304.



Signature	**Sean H. Nguyen** Printed Name
Manager Title	**June 6, 2021** Date

APPENDIX C

TRANSMIX HEATER OPERATING DATA

Date/Time	Heater: STACK FLOW (RECLAIM) (mps) (NA) Raw Value	Heater: STACK FLOW DRY (RECLAIM) (SCFH) Raw Value	Heater: STACK FLOW WET (RECLAIM) (SCFH) Raw Value	Heater: STACK TEMPERATURE (DEGF) Raw Value
4/28/2021 8:05	5.72	106,751	127,846	613.8
4/28/2021 8:06	5.67	105,818	126,728	613.8
4/28/2021 8:07	5.69	106,191	127,175	613.8
4/28/2021 8:08	5.72	106,781	127,881	613.5
4/28/2021 8:09	5.7	106,408	127,434	613.5
4/28/2021 8:10	5.7	106,437	127,470	613.2
4/28/2021 8:11	5.65	105,474	126,316	613.5
4/28/2021 8:12	5.66	105,631	126,505	613.8
4/28/2021 8:13	5.68	106,005	126,952	613.8
4/28/2021 8:14	5.58	104,168	124,752	613.5
4/28/2021 8:15	5.4	100,779	120,694	613.8
4/28/2021 8:16	5.48	102,272	122,482	613.8
4/28/2021 8:17	5.49	102,459	122,705	613.8
4/28/2021 8:18	5.41	100,994	120,951	613.5
4/28/2021 8:19	5.51	102,832	123,152	613.8
4/28/2021 8:20	5.52	103,019	123,376	613.8
4/28/2021 8:21	5.51	102,861	123,187	613.5
4/28/2021 8:22	5.45	101,741	121,845	613.5
4/28/2021 8:23	5.46	101,975	122,126	613
4/28/2021 8:24	5.39	100,667	120,560	613
4/28/2021 8:25	5.46	101,956	122,103	613.2
4/28/2021 8:26	5.49	102,535	122,797	613
4/28/2021 8:27	5.44	101,620	121,701	612.8
4/28/2021 8:28	5.48	102,367	122,596	612.8
4/28/2021 8:29	5.4	100,873	120,806	612.8
4/28/2021 8:30	5.45	101,807	121,925	612.8
4/28/2021 8:31	5.5	102,741	123,043	612.8
4/28/2021 8:32	5.44	101,677	121,769	612.2
4/28/2021 8:33	5.41	101,135	121,120	612
4/28/2021 8:34	5.4	100,901	120,840	612.5
Run #1	**5.528666667**	**103229.1667**	**123627.9**	**613.2866667**
	dscfm	**1,720**		
4/28/2021 8:35	5.38	100,556	120,426	612.2
4/28/2021 8:36	5.38	100,593	120,471	611.8
4/28/2021 8:37	5.35	100,032	119,799	611.8
4/28/2021 8:38	5.38	100,621	120,505	611.5
4/28/2021 8:39	5.5	102,866	123,192	611.5
4/28/2021 8:40	5.43	101,557	121,625	611.5
4/28/2021 8:41	5.41	101,154	121,143	611.8
4/28/2021 8:42	5.41	101,154	121,143	611.8
4/28/2021 8:43	5.4	100,967	120,919	611.8
4/28/2021 8:44	5.41	101,154	121,143	611.8
4/28/2021 8:45	5.43	101,509	121,568	612
4/28/2021 8:46	5.43	101,528	121,591	611.8
4/28/2021 8:47	5.38	100,593	120,471	611.8
4/28/2021 8:48	5.36	100,219	120,023	611.8
4/28/2021 8:49	5.34	99,808	119,531	612.2
4/28/2021 8:50	5.43	101,490	121,545	612.2
4/28/2021 8:51	5.41	101,060	121,030	612.8
4/28/2021 8:52	5.36	100,126	119,911	612.8
4/28/2021 8:53	5.35	99,939	119,687	612.8
4/28/2021 8:54	5.36	100,126	119,911	612.8
4/28/2021 8:55	5.4	100,873	120,806	612.8
4/28/2021 8:56	5.39	100,667	120,560	613
4/28/2021 8:57	5.28	98,613	118,099	613
4/28/2021 8:58	5.24	97,866	117,205	613
4/28/2021 8:59	5.08	94,878	113,626	613
4/28/2021 9:00	5.17	96,559	115,639	613
4/28/2021 9:01	5.12	95,625	114,521	613
4/28/2021 9:02	5.18	96,745	115,863	613
4/28/2021 9:03	5.11	95,438	114,297	613
4/28/2021 9:04	5.14	95,998	114,968	613
Run #2	**5.333666667**	**99677.13333**	**119373.9333**	**612.3433333**
	dscfm	**1,661**		
4/28/2021 9:05	5.21	97,288	116,512	613.2
4/28/2021 9:06	5.12	95,625	114,521	613
4/28/2021 9:07	5.15	96,185	115,192	613
4/28/2021 9:08	5.18	96,745	115,863	613
4/28/2021 9:09	5.17	96,559	115,639	613
4/28/2021 9:10	5.17	96,541	115,618	613.2
4/28/2021 9:11	5.22	97,492	116,757	613
4/28/2021 9:12	5.16	96,390	115,437	612.8
4/28/2021 9:13	5.2	97,137	116,332	612.8
4/28/2021 9:14	5.2	97,137	116,332	612.8
4/28/2021 9:15	5.19	96,950	116,108	612.8
4/28/2021 9:16	5.14	96,043	115,022	612.5
4/28/2021 9:17	5.16	96,462	115,523	612
4/28/2021 9:18	5.19	97,023	116,195	612
4/28/2021 9:19	5.2	97,228	116,440	611.8
4/28/2021 9:20	5.21	97,415	116,664	611.8
4/28/2021 9:21	5.18	96,881	116,025	611.5
4/28/2021 9:22	5.2	97,255	116,473	611.5
4/28/2021 9:23	5.18	96,881	116,025	611.5
4/28/2021 9:24	5.19	97,068	116,249	611.5
4/28/2021 9:25	5.19	97,068	116,249	611.5
4/28/2021 9:26	5.24	98,030	117,402	611.2
4/28/2021 9:27	5.24	98,049	117,424	611
4/28/2021 9:28	5.18	96,926	116,079	611
4/28/2021 9:29	5.23	97,843	117,178	611.2
4/28/2021 9:30	5.25	98,190	117,593	611.5
4/28/2021 9:31	5.22	97,693	116,997	610.8
4/28/2021 9:32	5.26	98,469	117,927	610.5
4/28/2021 9:33	5.25	98,282	117,703	610.5
4/28/2021 9:34	5.25	98,254	117,670	610.8
Run #3	**5.197666667**	**97170.3**	**116371.6333**	**611.9566667**
	dscfm	**1,620**		

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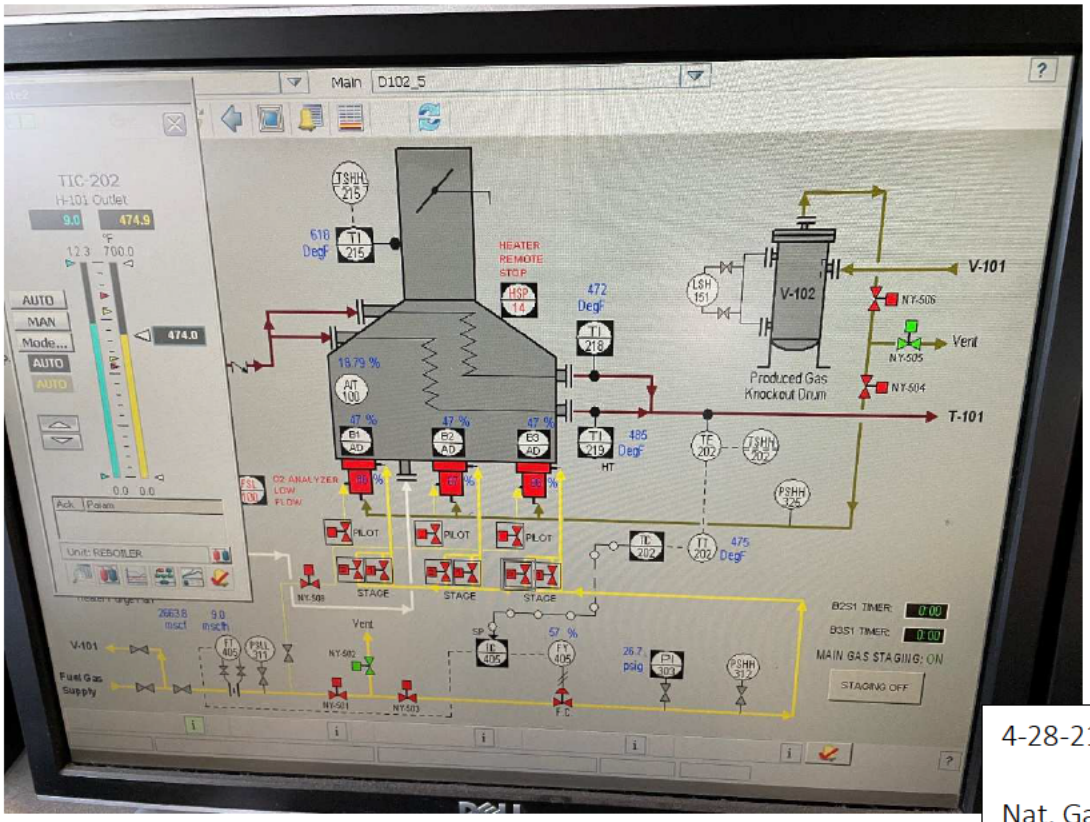
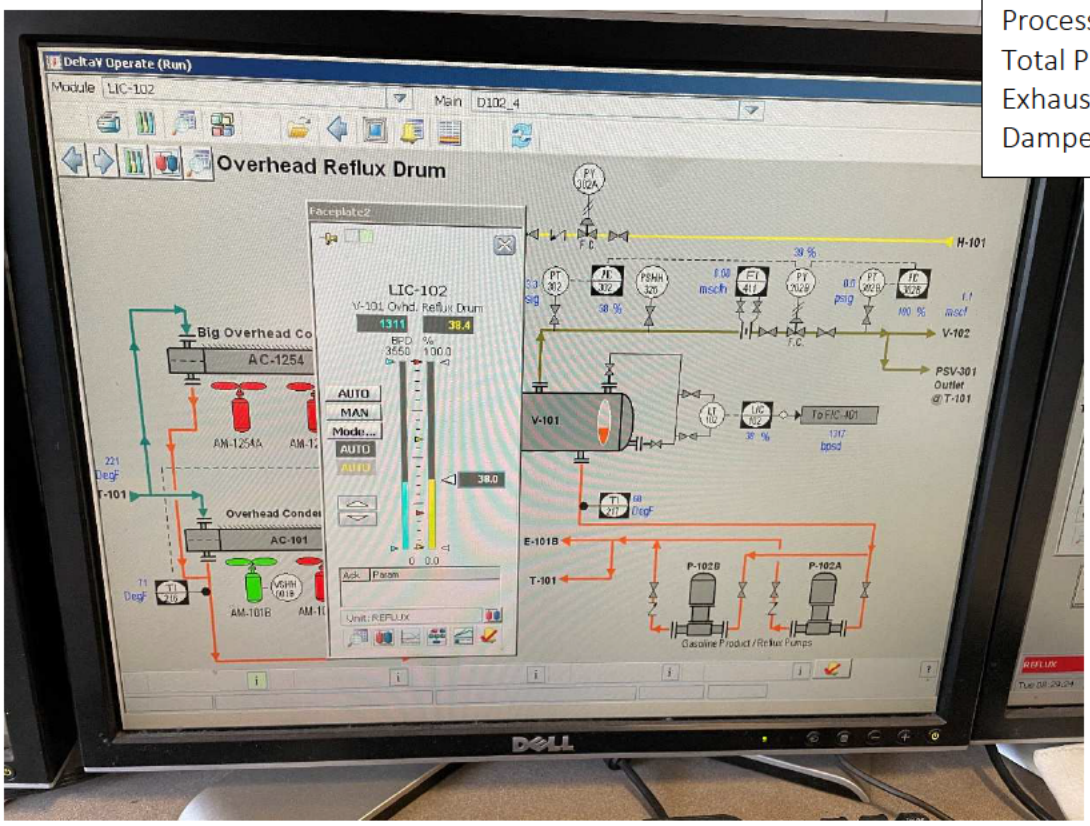
Transmix Heater Efficiency and RATA Test Screen Shots, 4-28-21



4-28-21 @ 07:29 AM

Nat. Gas Flow=9.0mscfh
Process Gas Flow = 0.0mscfh
Total Process = 9.0mscfh
Exhaust Temp = 618°F
Dampers @ 47% Open



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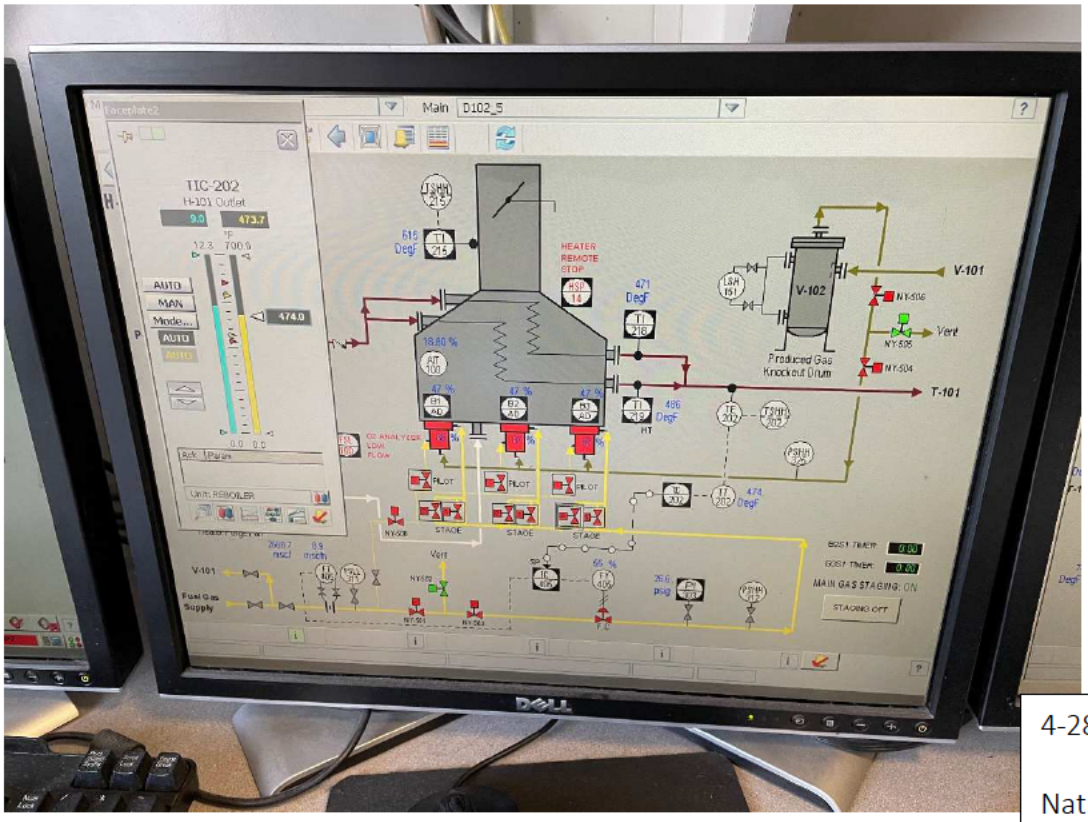
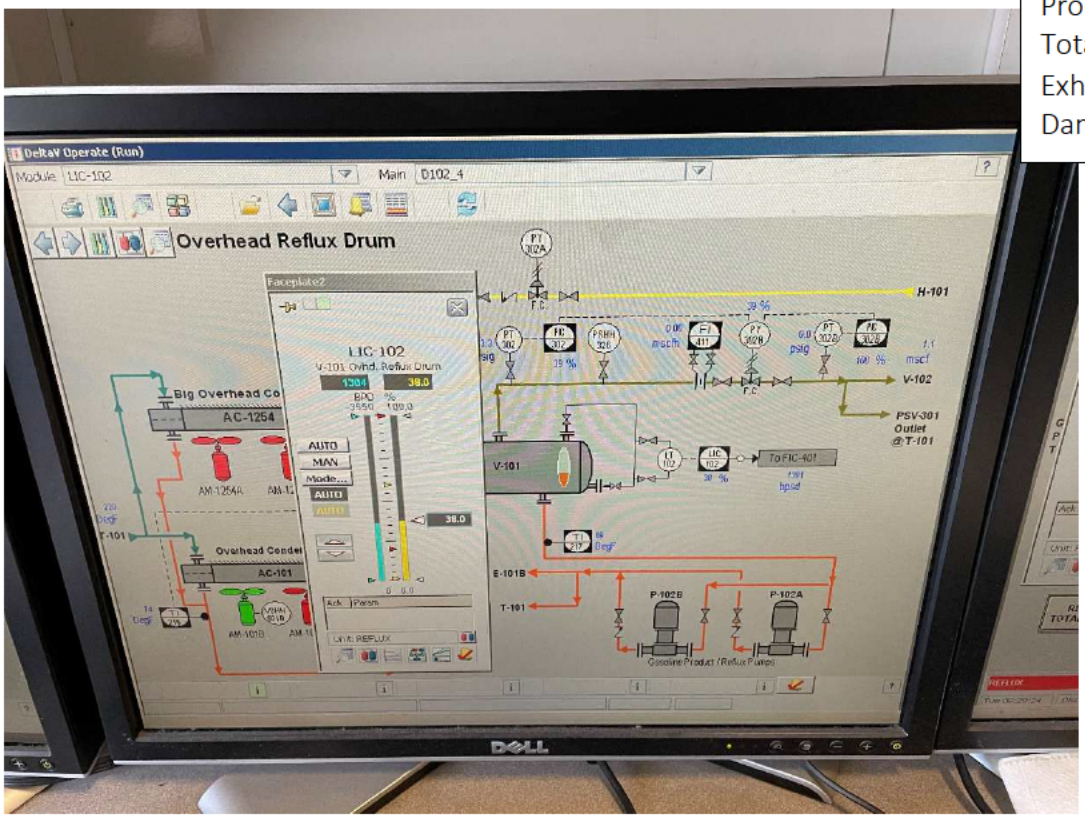
Transmix Heater Efficiency and RATA Test Screen Shots, 4-28-21



4-28-21 @ 07:59 AM

Nat. Gas Flow=8.9mscfh
Process Gas Flow = 0.0mscfh
Total Process = 8.9mscfh
Exhaust Temp = 615°F
Dampers @ 47% Open



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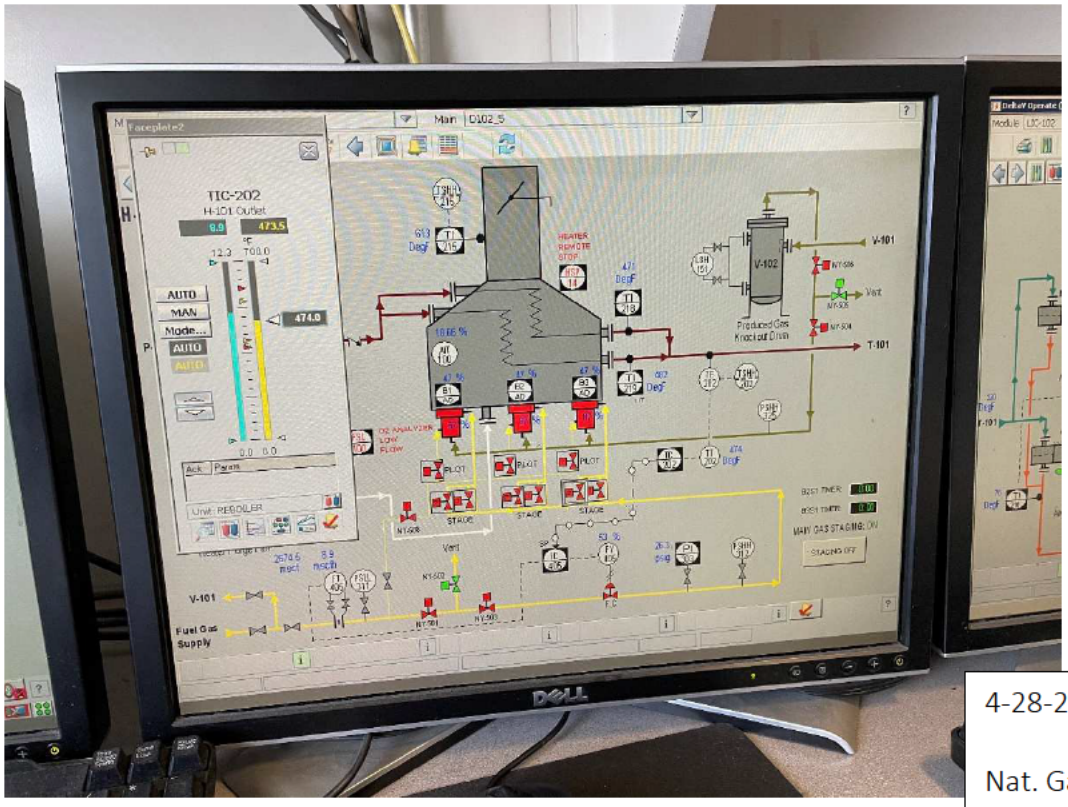
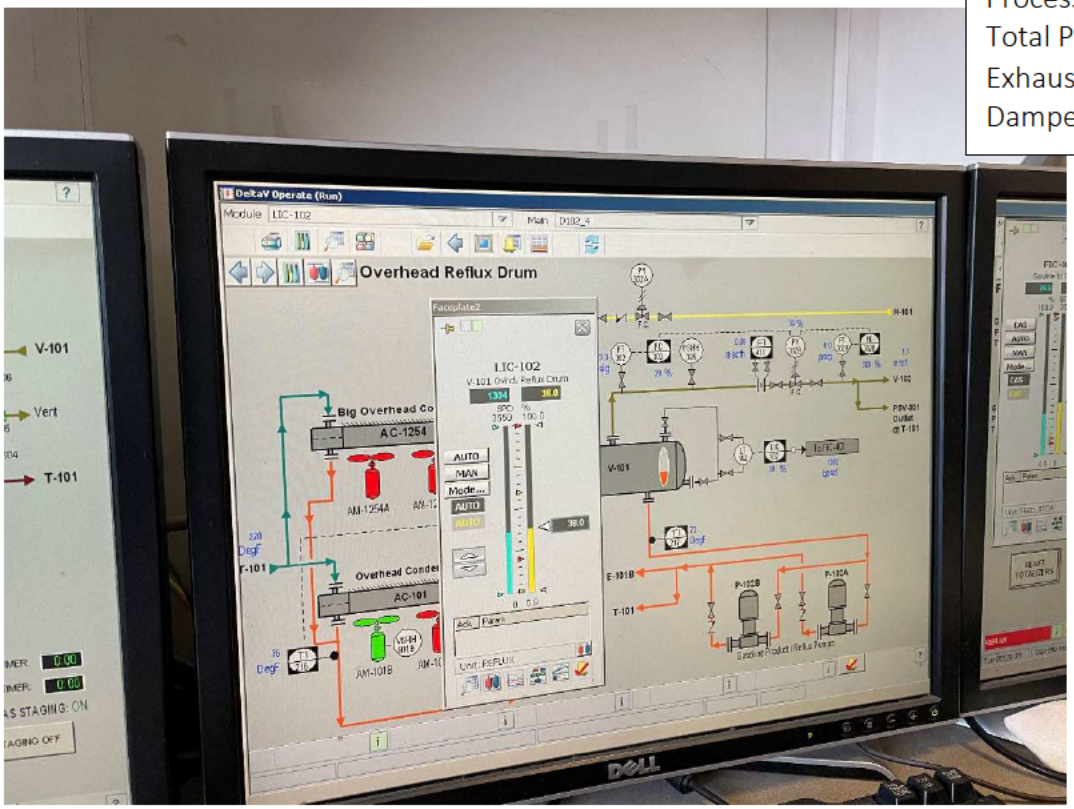


4-28-21 @ 08:29 AM

Nat. Gas Flow=8.9mscfh
Process Gas Flow = 0.0mscfh
Total Process = 8.9mscfh
Exhaust Temp = 613°F
Dampers @ 47% Open



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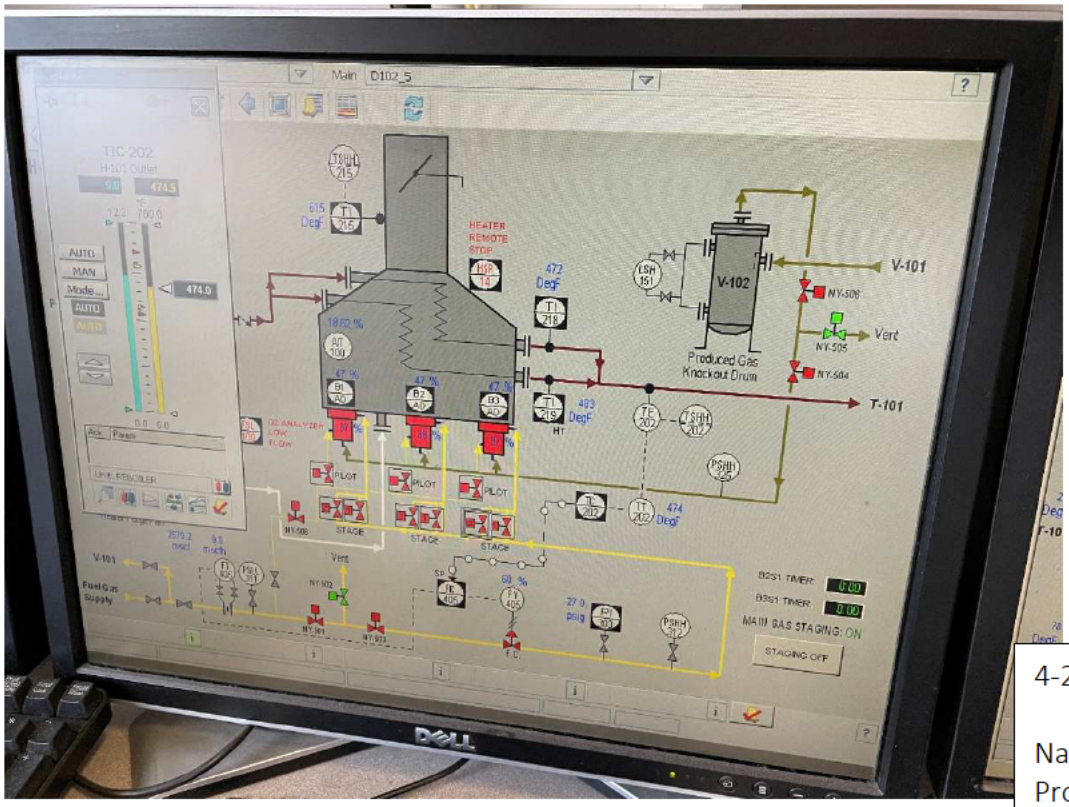
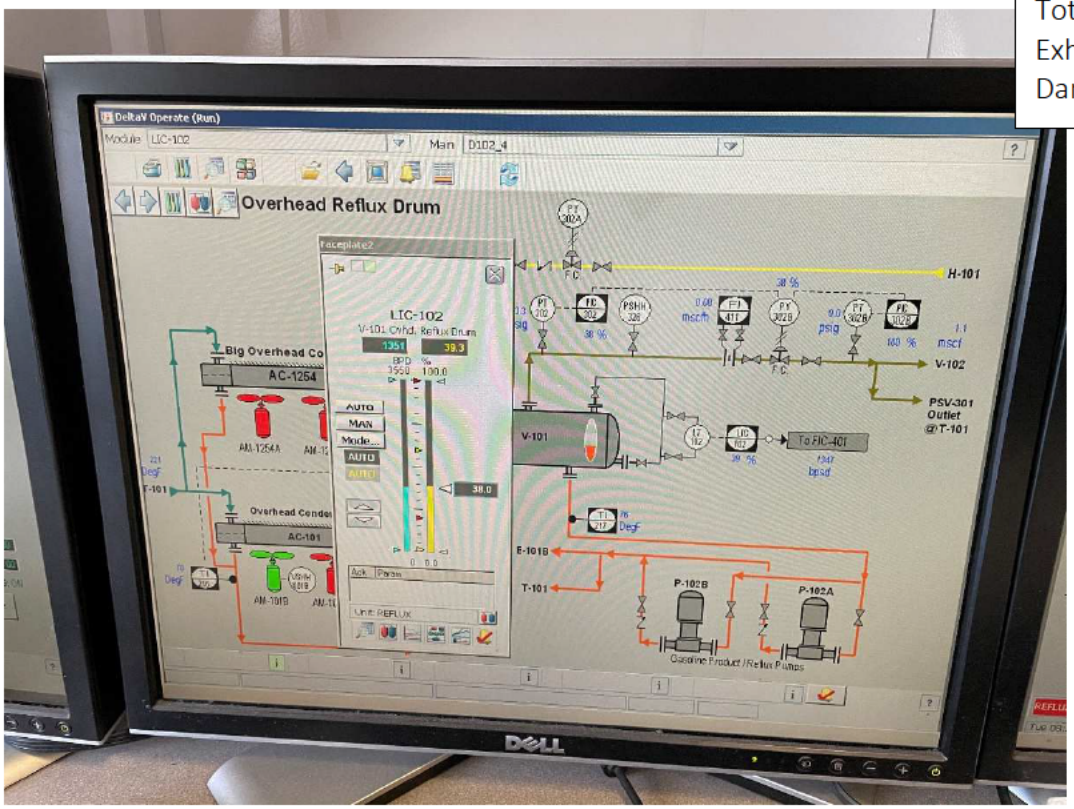
Transmix Heater Efficiency and RATA Test Screen Shots, 4-28-21



4-28-21 @ 08:59 AM

Nat. Gas Flow=9.0mscfh
Process Gas Flow = 0.0mscfh
Total Process = 9.0mscfh
Exhaust Temp = 615°F
Dampers @ 47% Open



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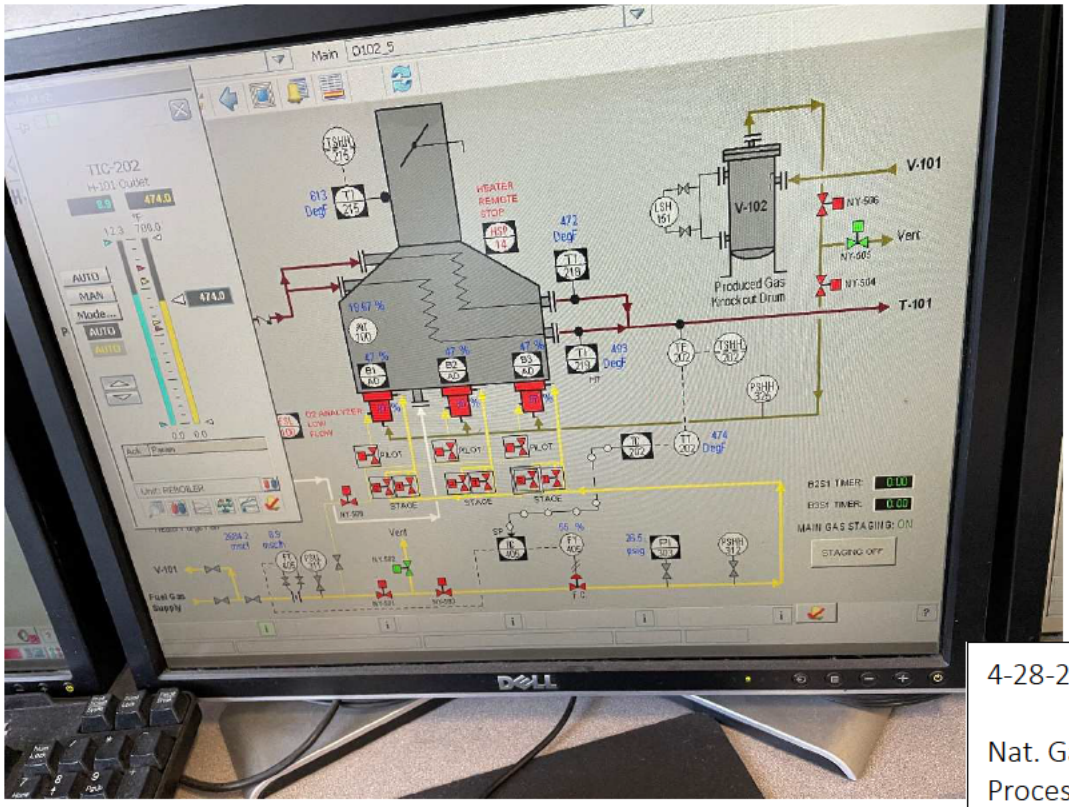
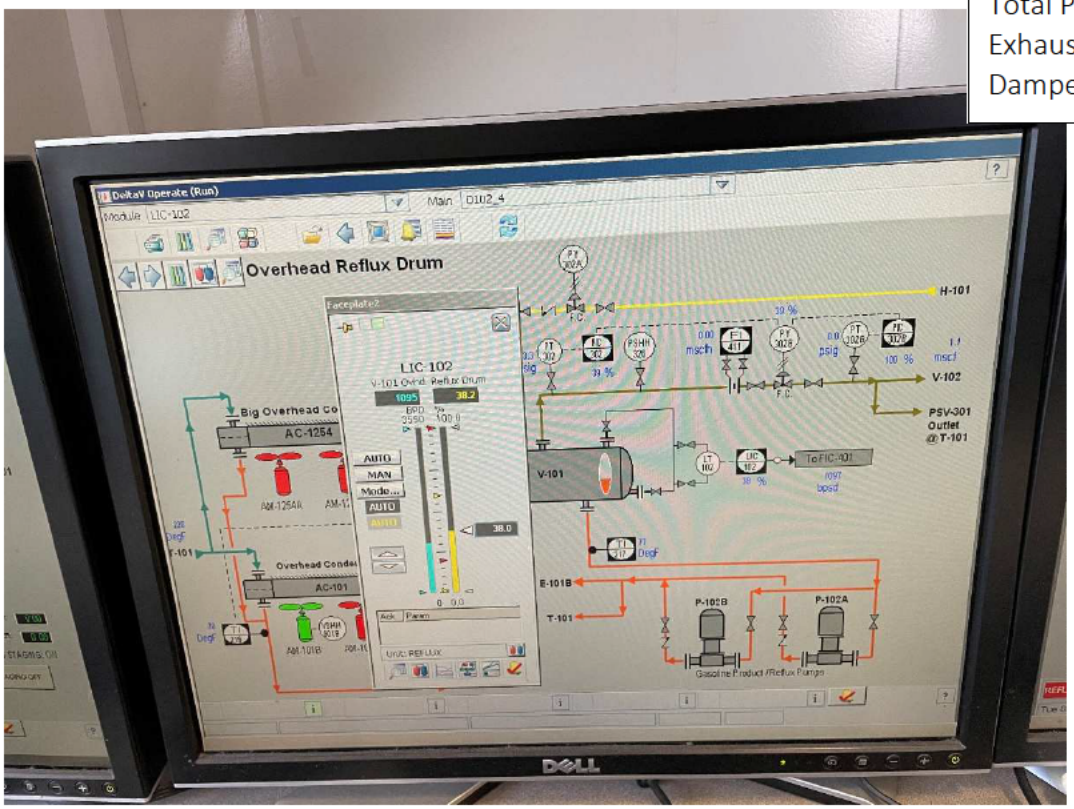
Transmix Heater Efficiency and RATA Test Screen Shots, 4-28-21



4-28-21 @ 09:29 AM

Nat. Gas Flow=8.9mscfh
Process Gas Flow = 0.0mscfh
Total Process = 8.9mscfh
Exhaust Temp = 613°F
Dampers @ 47% Open



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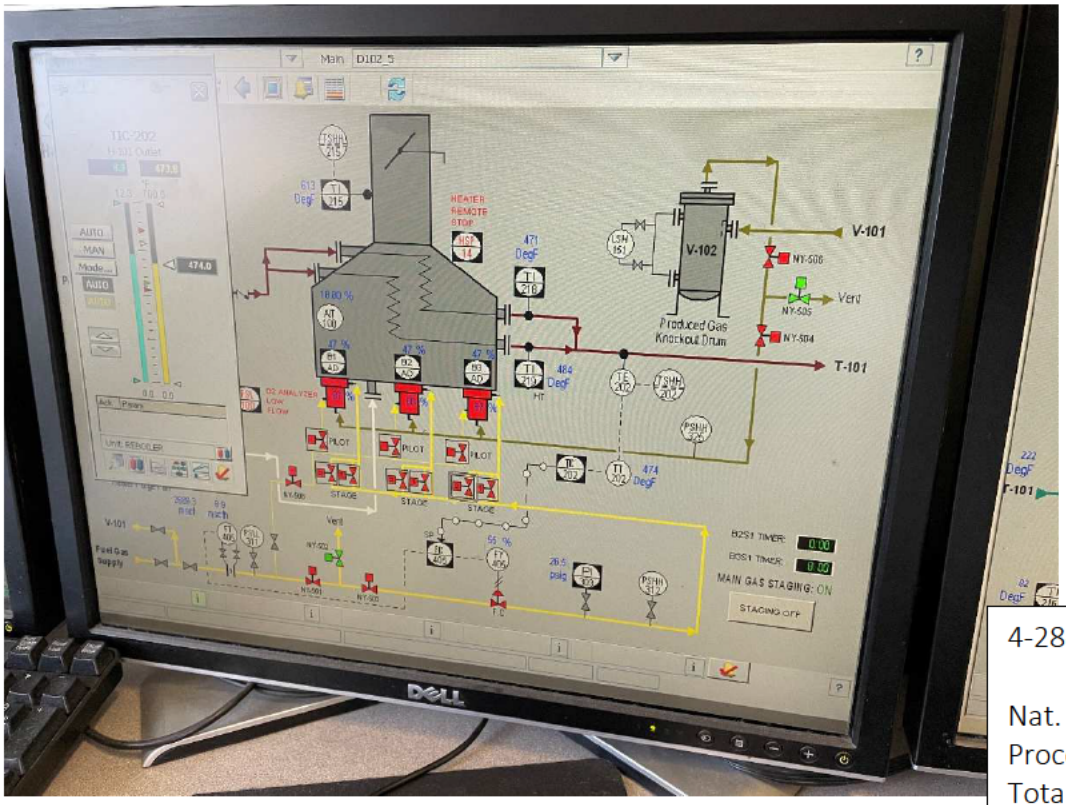
Transmix Heater Efficiency and RATA Test Screen Shots, 4-28-21



4-28-21 @ 09:59 AM

Nat. Gas Flow=8.9mscfh
Process Gas Flow = 0.0mscfh
Total Process = 8.9mscfh
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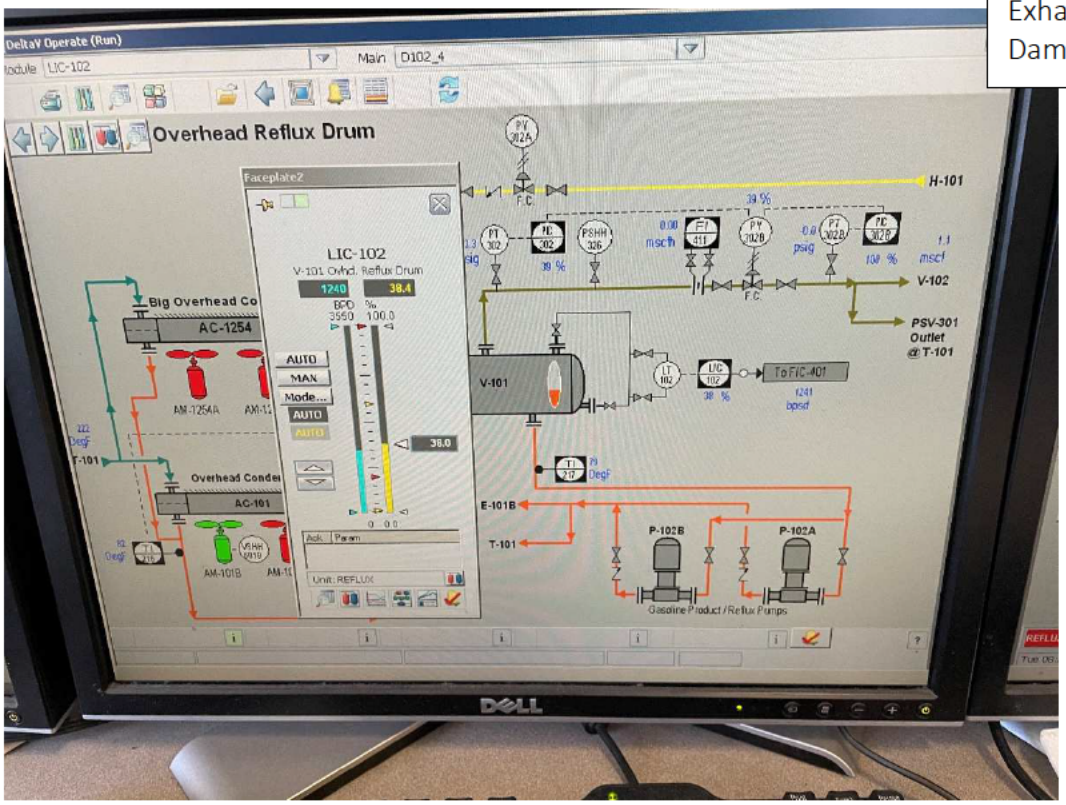
Dampers @ 47% Open



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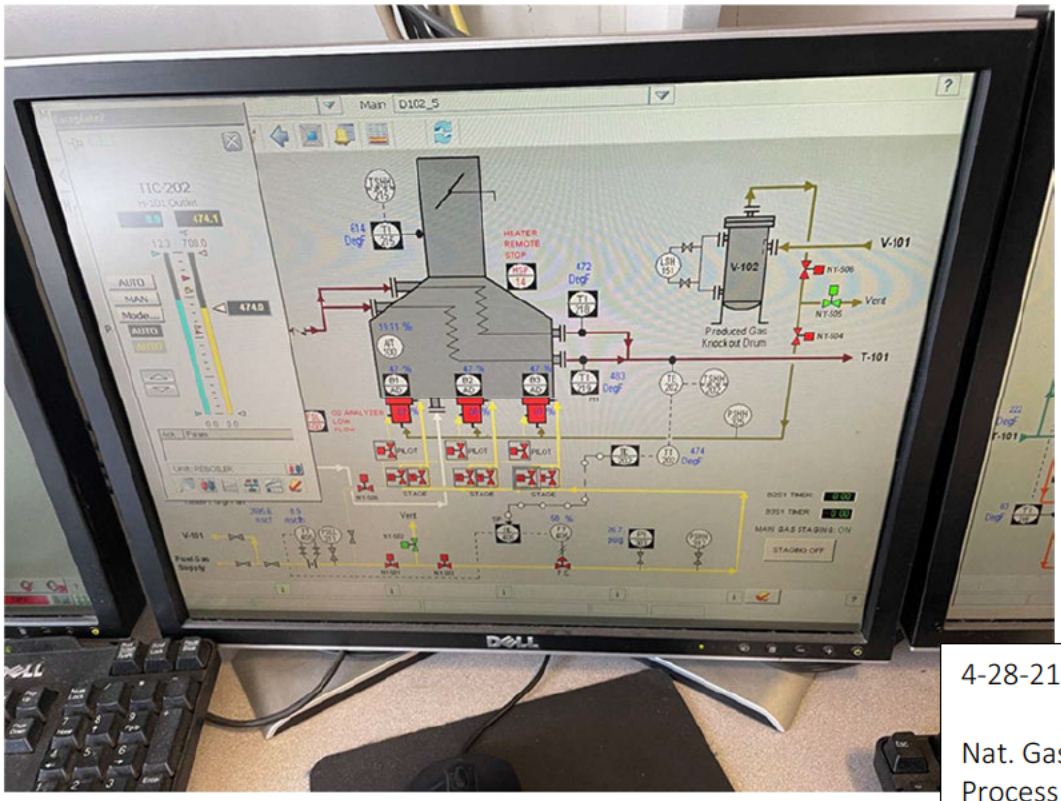
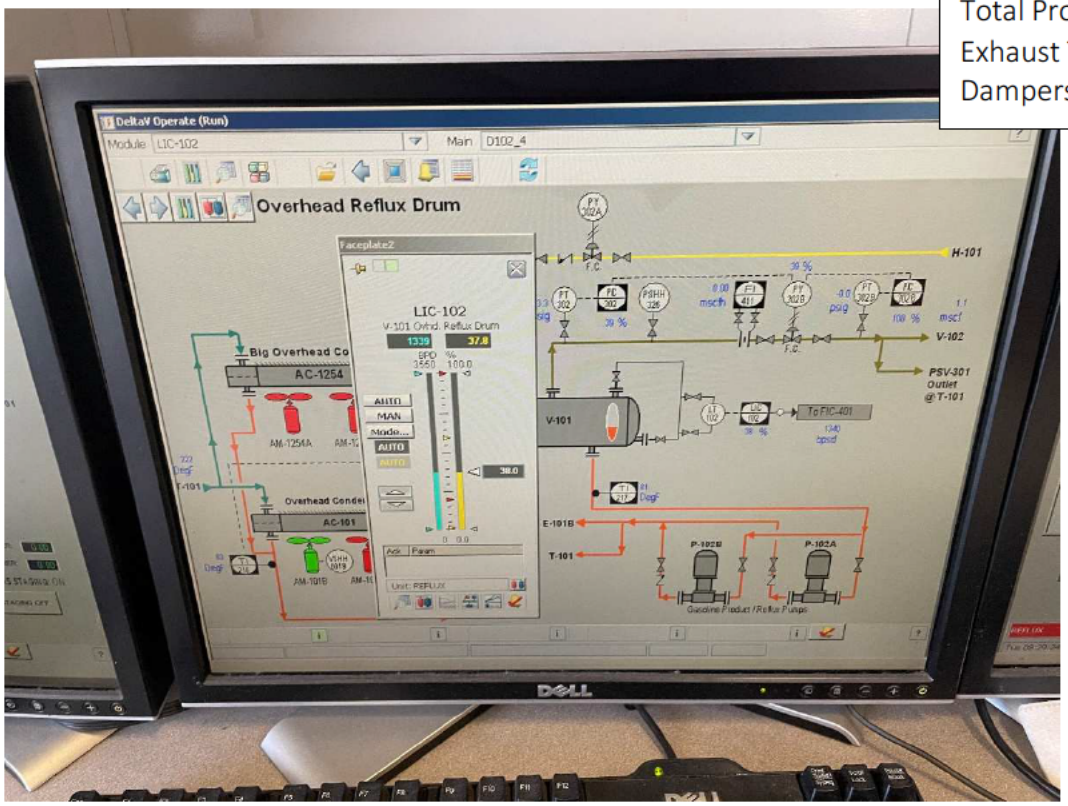
Transmix Heater Efficiency and RATA Test Screen Shots, 4-28-21



4-28-21 @ 10:29 AM

Nat. Gas Flow=8.9mscfh
Process Gas Flow = 0.0mscfh
Total Process = 8.9mscfh
Exhaust Temp = 614°F
Dampers @ 47% Open



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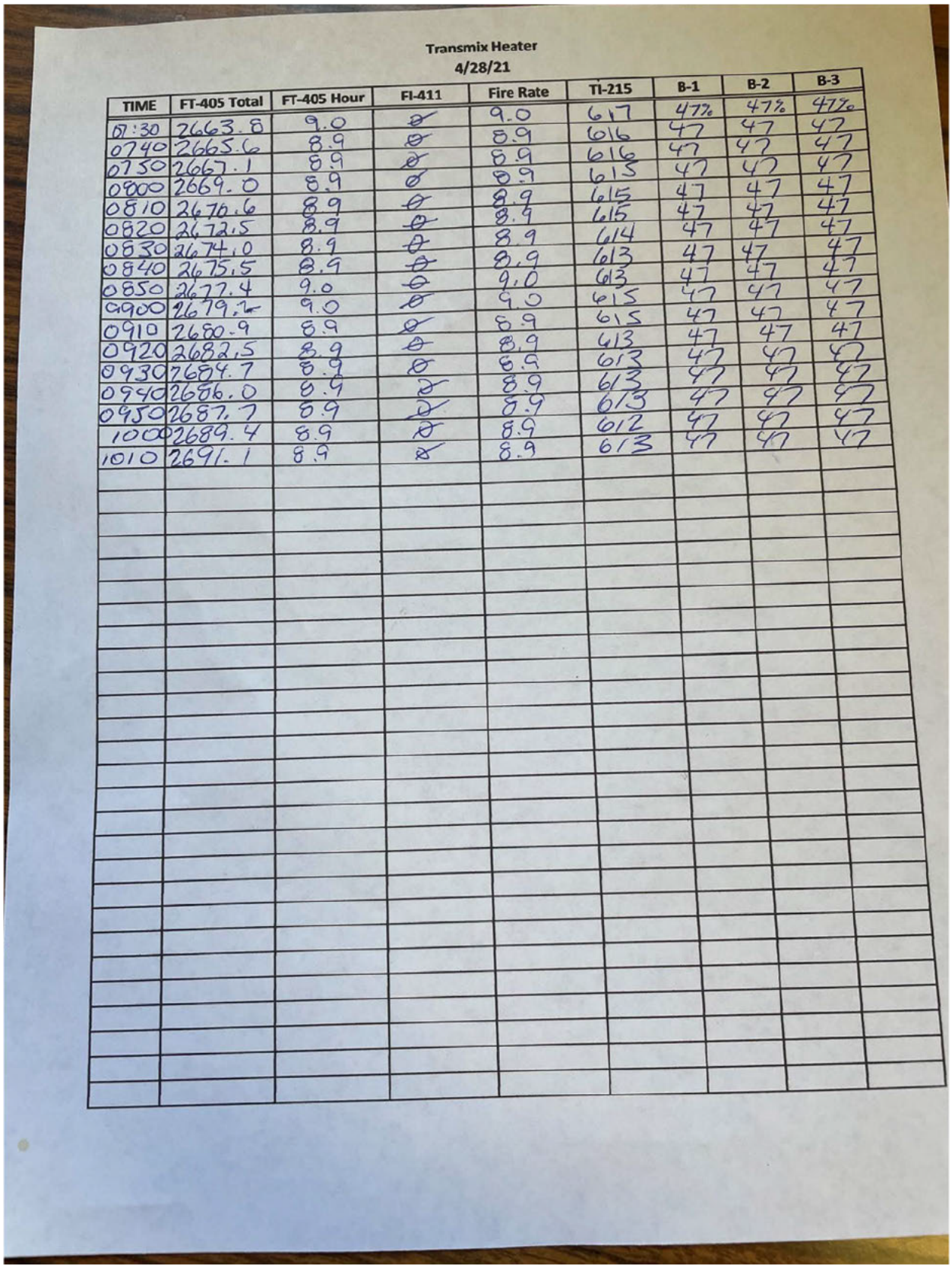
Transmix Heater Efficiency and RATA Test Screen Shots, 4-28-21

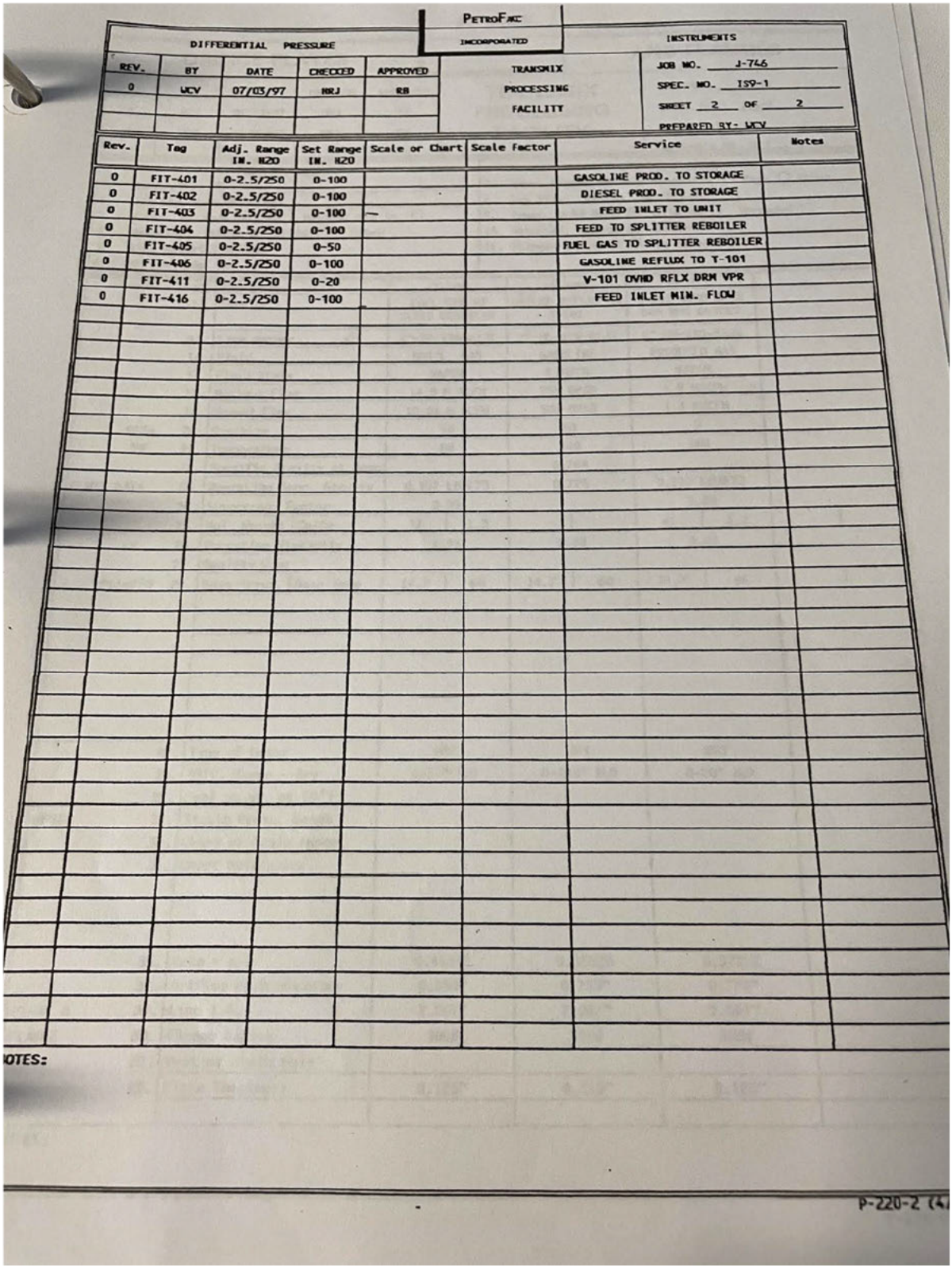


Transmix Heater
4/28/21

TIME	FT-405 Total	FT-405 Hour	FI-411	Fire Rate	TI-215	B-1	B-2	B-3
0730	2663.8	9.0	Ø	9.0	617	47%	47%	47%
0740	2665.6	8.9	Ø	8.9	616	47	47	47
0750	2667.1	8.9	Ø	8.9	616	47	47	47
0800	2669.0	8.9	Ø	8.9	615	47	47	47
0810	2670.6	8.9	Ø	8.9	615	47	47	47
0820	2672.5	8.9	Ø	8.9	615	47	47	47
0830	2674.0	8.9	Ø	8.9	614	47	47	47
0840	2675.5	8.9	Ø	8.9	613	47	47	47
0850	2677.4	9.0	Ø	9.0	613	47	47	47
0900	2679.2	9.0	Ø	9.0	615	47	47	47
0910	2680.9	8.9	Ø	8.9	615	47	47	47
0920	2682.5	8.9	Ø	8.9	613	47	47	47
0930	2684.7	8.9	Ø	8.9	613	47	47	47
0940	2686.0	8.9	Ø	8.9	613	47	47	47
0950	2687.7	8.9	Ø	8.9	613	47	47	47
1000	2689.4	8.9	Ø	8.9	612	47	47	47
1010	2691.1	8.9	Ø	8.9	613	47	47	47

[redacted]

Transmix Heater Efficiency and RATA Test Screen Shots, 4-28-21



PETROFAC INCORPORATED

DIFFERENTIAL PRESSURE INSTRUMENTS

REV.	BY	DATE	CHECKED	APPROVED
0	WCV	07/03/97	MRJ	RB

TRANSMIX PROCESSING FACILITY

JOB NO. J-746
SPEC. NO. IS9-1
SHEET 2 OF 2
PREPARED BY- WCV

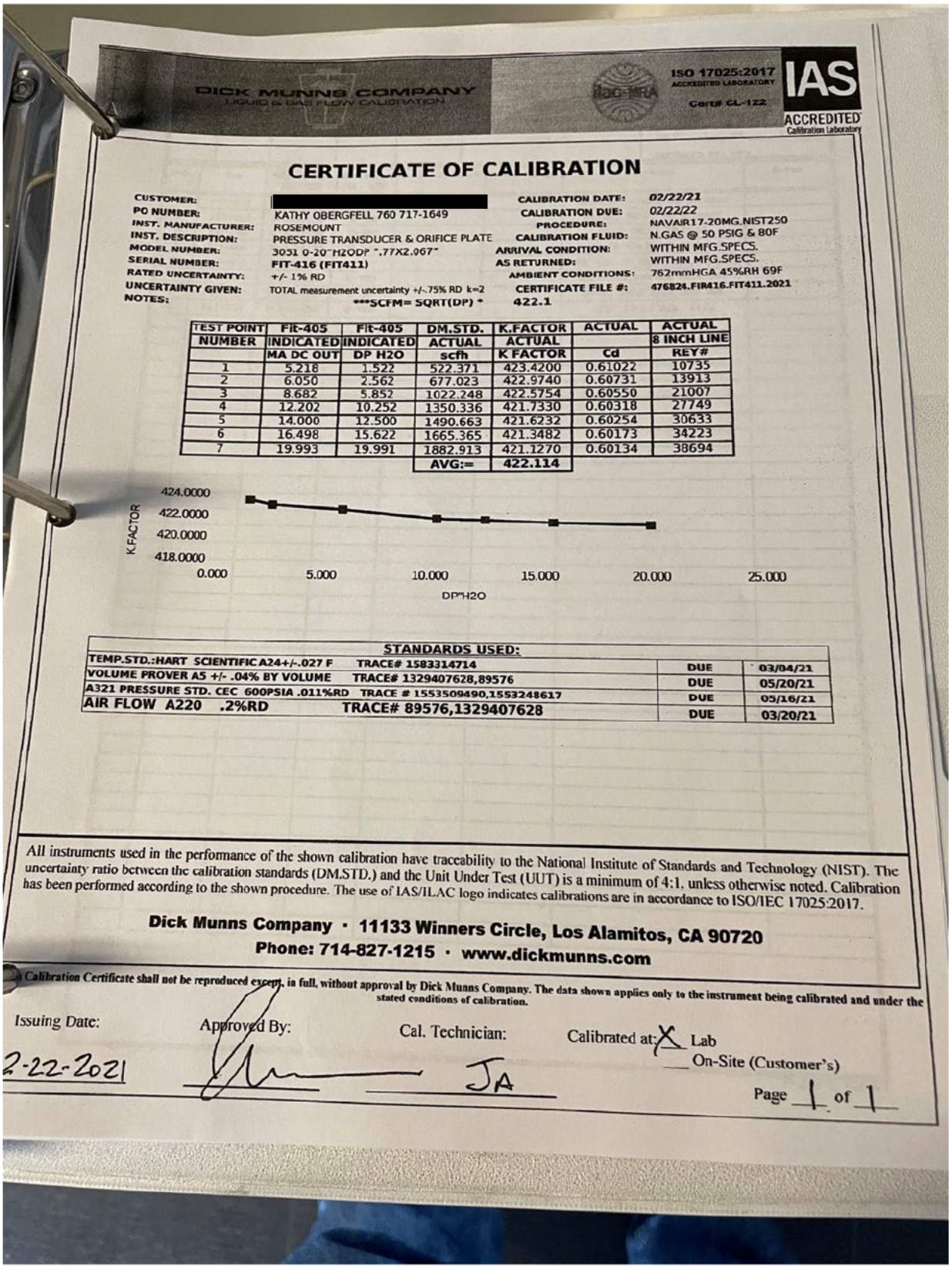
Rev.	Tag	Adj. Range IN. H2O	Set Range IN. H2O	Scale or Chart	Scale Factor	Service	Notes
0	FIT-401	0-2.5/250	0-100			GASOLINE PROD. TO STORAGE	
0	FIT-402	0-2.5/250	0-100			DIESEL PROD. TO STORAGE	
0	FIT-403	0-2.5/250	0-100	—		FEED INLET TO UNIT	
0	FIT-404	0-2.5/250	0-100			FEED TO SPLITTER REBOILER	
0	FIT-405	0-2.5/250	0-50			FUEL GAS TO SPLITTER REBOILER	
0	FIT-406	0-2.5/250	0-100			GASOLINE REFLUX TO T-101	
0	FIT-411	0-2.5/250	0-20			V-101 OVHD RFLX DRM VPR	
0	FIT-416	0-2.5/250	0-100			FEED INLET MIN. FLOW	

OTES:

P-220-2 (4

[redacted]

Transmix Heater Efficiency and RATA Test Screen Shots, 4-28-21



DICK MUNNS COMPANY
LIQUID & GAS FLOW CALIBRATION

ISO 17025:2017 ACCREDITED LABORATORY Cert# CL-122

IAS ACCREDITED Calibration Laboratory

CERTIFICATE OF CALIBRATION

CUSTOMER:	[redacted]	CALIBRATION DATE:	02/22/21
PO NUMBER:	KATHY OBERGFELL 760 717-1649	CALIBRATION DUE:	02/22/22
INST. MANUFACTURER:	ROSEMOUNT	PROCEDURE:	NAVAIR17-20MG.NIST250
INST. DESCRIPTION:	PRESSURE TRANSDUCER & ORIFICE PLATE	CALIBRATION FLUID:	N.GAS @ 50 PSIG & 80F
MODEL NUMBER:	3051 0-20"H2ODP ".77X2.067"	ARRIVAL CONDITION:	WITHIN MFG.SPECS.
SERIAL NUMBER:	FIT-416 (FIT411)	AS RETURNED:	WITHIN MFG.SPECS.
RATED UNCERTAINTY:	+/- 1% RD	AMBIENT CONDITIONS:	762mmHGA 45%RH 69F
UNCERTAINTY GIVEN:	TOTAL measurement uncertainty +/-.75% RD k=2	CERTIFICATE FILE #:	476824.FIR416.FIT411.2021
NOTES:	***SCFM= SQRT(DP) * 422.1		

TEST POINT NUMBER	Fit-405 INDICATED MA DC OUT	Fit-405 INDICATED DP H2O	DM.STD. ACTUAL scfh	K.FACTOR ACTUAL K FACTOR	ACTUAL Cd	ACTUAL 8 INCH LINE REY#
1	5.218	1.522	522.371	423.4200	0.61022	10735
2	6.050	2.562	677.023	422.9740	0.60731	13913
3	8.682	5.852	1022.248	422.5754	0.60550	21007
4	12.202	10.252	1350.336	421.7330	0.60318	27749
5	14.000	12.500	1490.663	421.6232	0.60254	30633
6	16.498	15.622	1665.365	421.3482	0.60173	34223
7	19.993	19.991	1882.913	421.1270	0.60134	38694
			AVG:=	422.114		

STANDARDS USED:			
TEMP.STD.:HART SCIENTIFIC A24+/-.027 F	TRACE# 1583314714	DUE	03/04/21
VOLUME PROVER A5 +/- .04% BY VOLUME	TRACE# 1329407628,89576	DUE	05/20/21
A321 PRESSURE STD. CEC 600PSIA .011%RD	TRACE # 1553509490,1553248617	DUE	05/16/21
AIR FLOW A220 .2%RD	TRACE# 89576,1329407628	DUE	03/20/21

All instruments used in the performance of the shown calibration have traceability to the National Institute of Standards and Technology (NIST). The uncertainty ratio between the calibration standards (DM.STD.) and the Unit Under Test (UUT) is a minimum of 4:1, unless otherwise noted. Calibration has been performed according to the shown procedure. The use of IAS/ILAC logo indicates calibrations are in accordance to ISO/IEC 17025:2017.

Dick Munns Company · 11133 Winners Circle, Los Alamitos, CA 90720
Phone: 714-827-1215 · www.dickmunns.com

This Calibration Certificate shall not be reproduced except, in full, without approval by Dick Munns Company. The data shown applies only to the instrument being calibrated and under the stated conditions of calibration.

Issuing Date: 2-22-2021 Approved By: Cal. Technician: JA Calibrated at: X Lab ___ On-Site (Customer's)

Page 1 of 1

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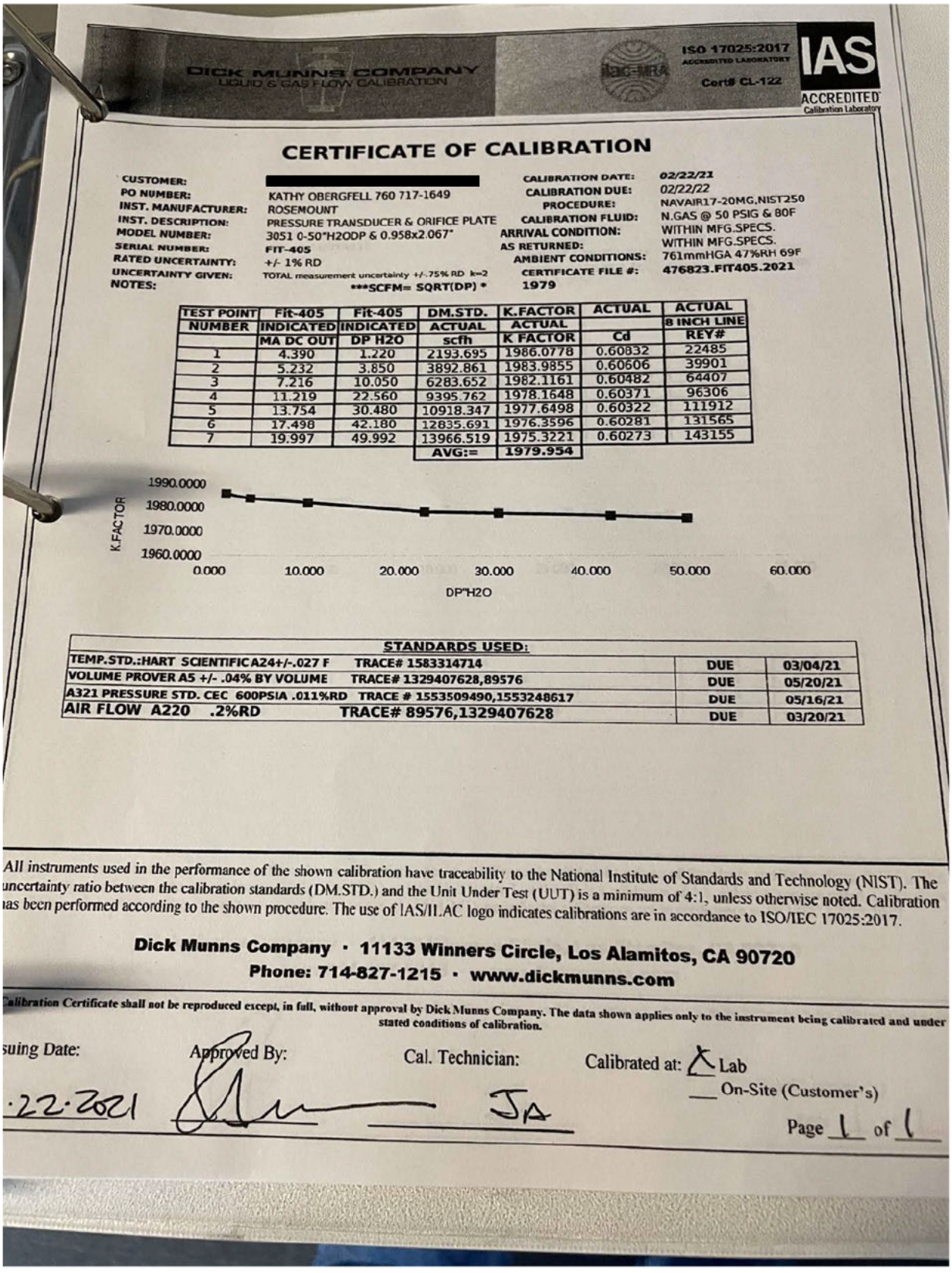
Transmix Heater Efficiency and RATA Test Screen Shots, 4-28-21



DICK MUNNS COMPANY
LIQUID & GAS FLOW CALIBRATION

ISO 17025:2017 ACCREDITED LABORATORY
Cert# CL-122
IAS ACCREDITED Calibration Laboratory

CERTIFICATE OF CALIBRATION

CUSTOMER:	[redacted]	CALIBRATION DATE:	02/22/21
PO NUMBER:	KATHY OBERGFELL 760 717-1649	CALIBRATION DUE:	02/22/22
INST. MANUFACTURER:	ROSEMOUNT	PROCEDURE:	NAVAIR17-20MG,NIST250
INST. DESCRIPTION:	PRESSURE TRANSDUCER & ORIFICE PLATE	CALIBRATION FLUID:	N.GAS @ 50 PSIG & 80F
MODEL NUMBER:	3051 0-50"H2ODP & 0.958x2.067"	ARRIVAL CONDITION:	WITHIN MFG.SPECS.
SERIAL NUMBER:	FIT-405	AS RETURNED:	WITHIN MFG.SPECS.
RATED UNCERTAINTY:	+/- 1% RD	AMBIENT CONDITIONS:	761mmHGA 47%RH 69F
UNCERTAINTY GIVEN:	TOTAL measurement uncertainty +/-.75% RD k=2	CERTIFICATE FILE #:	476823.FIT405.2021
NOTES:	***SCFM= SQRT(DP) *	1979	

TEST POINT NUMBER	Fit-405 INDICATED MA DC OUT	Fit-405 INDICATED DP H2O	DM.STD. ACTUAL scfh	K.FACTOR ACTUAL K FACTOR	ACTUAL Cd	ACTUAL 8 INCH LINE REY#
1	4.390	1.220	2193.695	1986.0778	0.60832	22485
2	5.232	3.850	3892.861	1983.9855	0.60606	39901
3	7.216	10.050	6283.652	1982.1161	0.60482	64407
4	11.219	22.560	9395.762	1978.1648	0.60371	96306
5	13.754	30.480	10918.347	1977.6498	0.60322	111912
6	17.498	42.180	12835.691	1976.3596	0.60281	131565
7	19.997	49.992	13966.519	1975.3221	0.60273	143155
			AVG:=	1979.954		

STANDARDS USED:			
TEMP.STD.:HART SCIENTIFIC A24+/-.027 F	TRACE# 1583314714	DUE	03/04/21
VOLUME PROVER A5 +/- .04% BY VOLUME	TRACE# 1329407628,89576	DUE	05/20/21
A321 PRESSURE STD. CEC 600PSIA .011%RD	TRACE # 1553509490,1553248617	DUE	05/16/21
AIR FLOW A220 .2%RD	TRACE# 89576,1329407628	DUE	03/20/21

All instruments used in the performance of the shown calibration have traceability to the National Institute of Standards and Technology (NIST). The uncertainty ratio between the calibration standards (DM.STD.) and the Unit Under Test (UUT) is a minimum of 4:1, unless otherwise noted. Calibration has been performed according to the shown procedure. The use of IAS/ILAC logo indicates calibrations are in accordance to ISO/IEC 17025:2017.

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Issuing Date: 2.22.2021 Approved By: Cal. Technician: JA Calibrated at: X Lab ___ On-Site (Customer's)

Page 1 of 1

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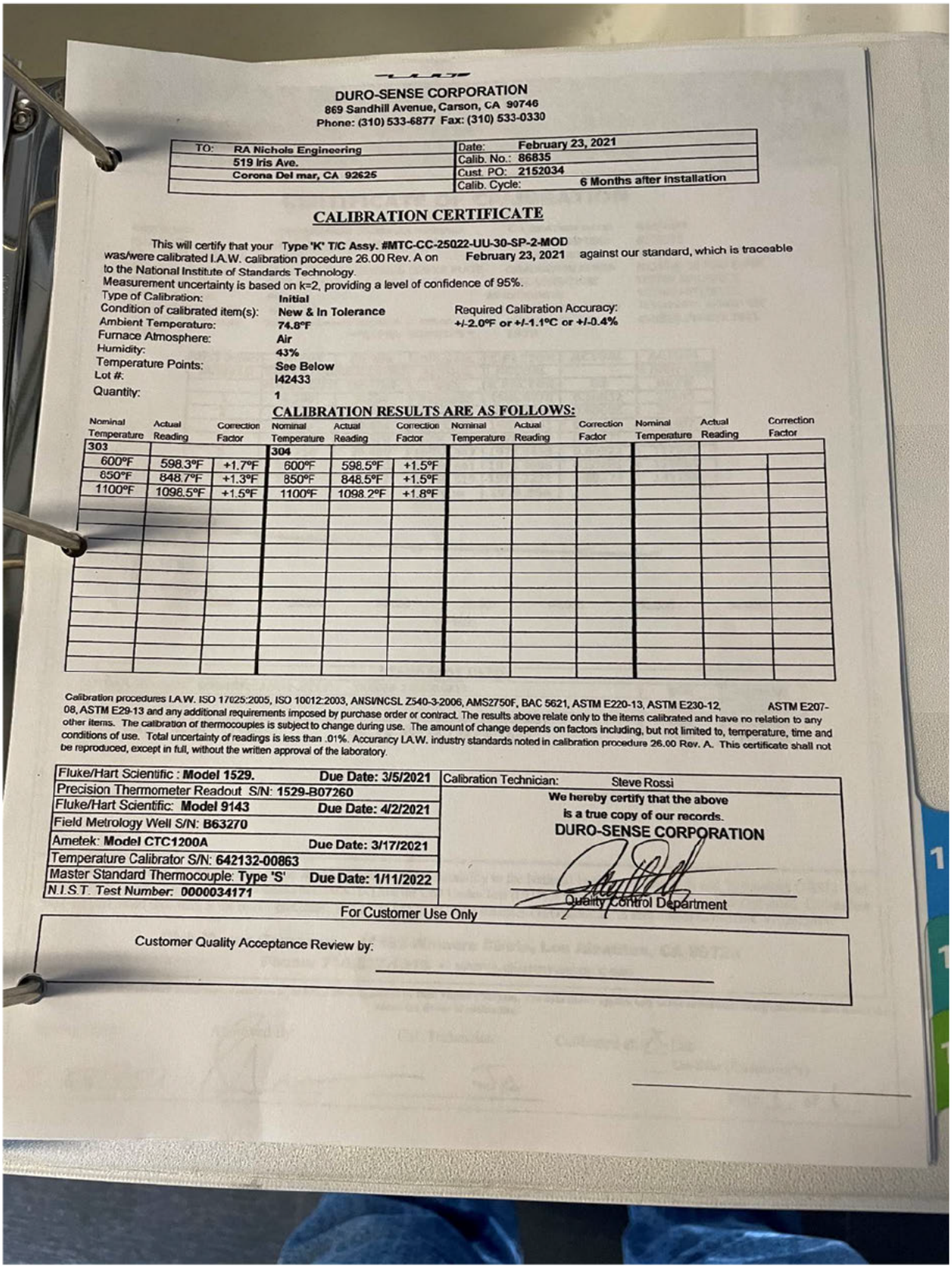
Transmix Heater Efficiency and RATA Test Screen Shots, 4-28-21



DURO-SENSE CORPORATION
869 Sandhill Avenue, Carson, CA 90746
Phone: (310) 533-6877 Fax: (310) 533-0330

TO: RA Nichols Engineering 519 Iris Ave. Corona Del mar, CA 92625	Date: February 23, 2021 Calib. No.: 86835 Cust. PO: 2152034 Calib. Cycle: 6 Months after installation

CALIBRATION CERTIFICATE

This will certify that your Type 'K' T/C Assy. #MTC-CC-25022-UU-30-SP-2-MOD was/were calibrated I.A.W. calibration procedure 26.00 Rev. A on February 23, 2021 against our standard, which is traceable to the National Institute of Standards Technology.
Measurement uncertainty is based on k=2, providing a level of confidence of 95%.

Type of Calibration: Initial
Condition of calibrated item(s): New & In Tolerance
Ambient Temperature: 74.8°F
Furnace Atmosphere: Air
Humidity: 43%
Temperature Points: See Below
Lot #: I42433
Quantity: 1

Required Calibration Accuracy: +/-2.0°F or +/-1.1°C or +/-0.4%

CALIBRATION RESULTS ARE AS FOLLOWS:

Nominal Temperature	Actual Reading	Correction Factor	Nominal Temperature	Actual Reading	Correction Factor	Nominal Temperature	Actual Reading	Correction Factor	Nominal Temperature	Actual Reading	Correction Factor
303			304								
600°F	598.3°F	+1.7°F	600°F	598.5°F	+1.5°F						
850°F	848.7°F	+1.3°F	850°F	848.5°F	+1.5°F						
1100°F	1098.5°F	+1.5°F	1100°F	1098.2°F	+1.8°F						

Calibration procedures I.A.W. ISO 17025:2005, ISO 10012:2003, ANSI/NCSL Z540-3-2006, AMS2750F, BAC 5621, ASTM E220-13, ASTM E230-12, ASTM E207-08, ASTM E29-13 and any additional requirements imposed by purchase order or contract. The results above relate only to the items calibrated and have no relation to any other items. The calibration of thermocouples is subject to change during use. The amount of change depends on factors including, but not limited to, temperature, time and conditions of use. Total uncertainty of readings is less than .01%. Accuracy I.A.W. industry standards noted in calibration procedure 26.00 Rev. A. This certificate shall not be reproduced, except in full, without the written approval of the laboratory.

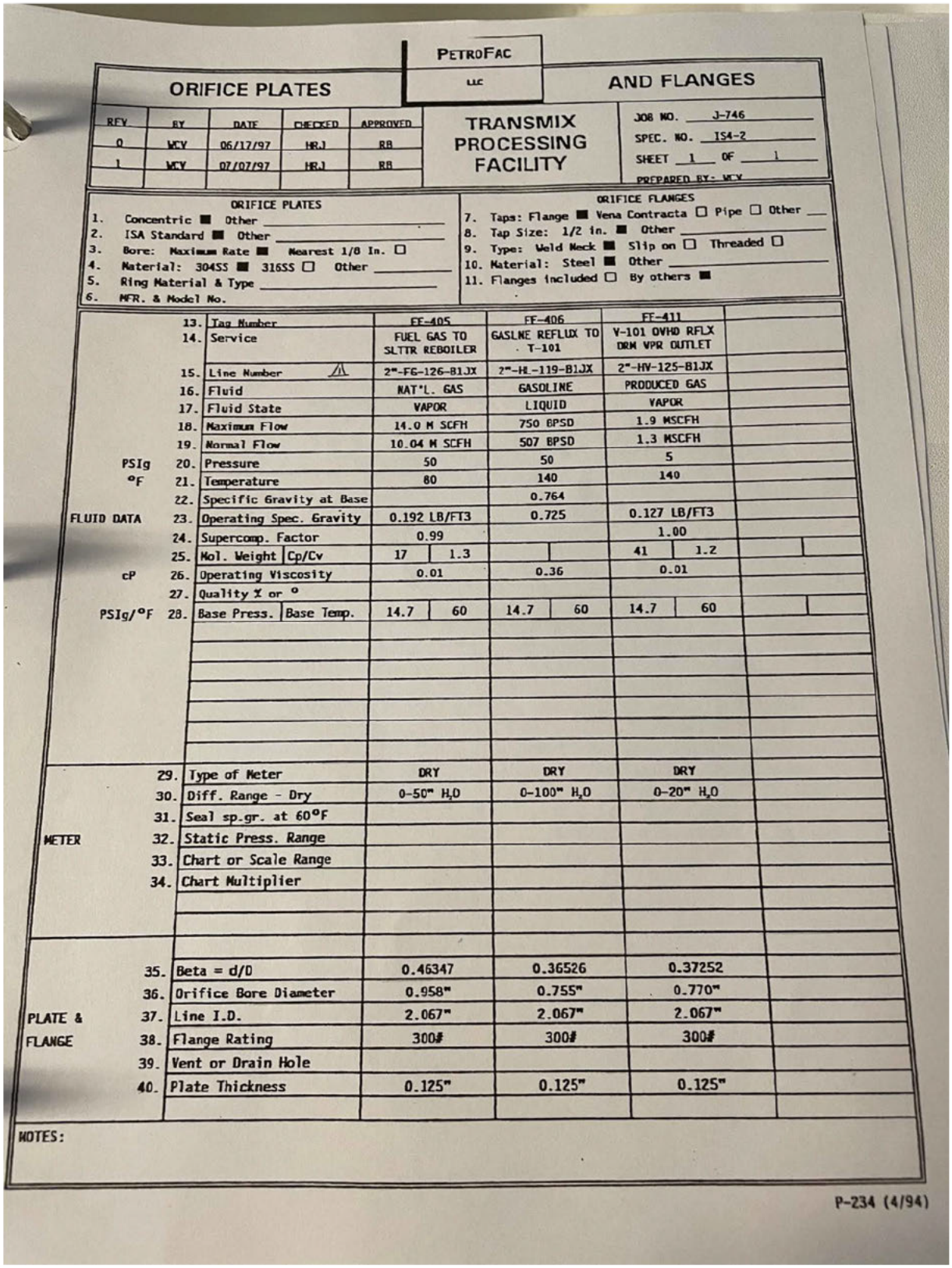
Fluke/Hart Scientific : Model 1529. Due Date: 3/5/2021 Precision Thermometer Readout S/N: 1529-B07260 Fluke/Hart Scientific: Model 9143 Due Date: 4/2/2021 Field Metrology Well S/N: B63270 Ametek: Model CTC1200A Due Date: 3/17/2021 Temperature Calibrator S/N: 642132-00863 Master Standard Thermocouple: Type 'S' Due Date: 1/11/2022 N.I.S.T. Test Number: 0000034171	Calibration Technician: Steve Rossi We hereby certify that the above is a true copy of our records. DURO-SENSE CORPORATION Quality Control Department

For Customer Use Only

Customer Quality Acceptance Review by: _____

[redacted]

Transmix Heater Efficiency and RATA Test Screen Shots, 4-28-21



PETROFAC LLC

ORIFICE PLATES AND FLANGES

REV	BY	DATE	CHECKED	APPROVED
0	WCV	06/17/97	HRJ	RB
1	WCV	07/07/97	HRJ	RB

TRANSMIX PROCESSING FACILITY

JOB NO. J-746
SPEC. NO. IS4-2
SHEET 1 OF 1
PREPARED BY: WCV

ORIFICE PLATES
1. Concentric ■ Other
2. ISA Standard ■ Other
3. Bore: Maximum Rate ■ Nearest 1/8 In. □
4. Material: 304SS ■ 316SS □ Other
5. Ring Material & Type
6. MFR. & Model No.

ORIFICE FLANGES
7. Taps: Flange ■ Vena Contracta □ Pipe □ Other
8. Tap Size: 1/2 in. ■ Other
9. Type: Weld Neck ■ Slip on □ Threaded □
10. Material: Steel ■ Other
11. Flanges included □ By others ■

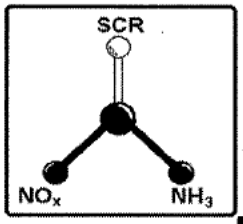
			FF-405	FF-406	FF-411	
	13.	Tag Number				
	14.	Service	FUEL GAS TO SLTTR REBOILER	GASLNE REFLUX TO T-101	V-101 OVHD RFLX DRM VPR OUTLET	
	15.	Line Number ⚠	2"-FG-126-B1JX	2"-HL-119-B1JX	2"-HV-125-B1JX	
	16.	Fluid	NAT'L. GAS	GASOLINE	PRODUCED GAS	
	17.	Fluid State	VAPOR	LIQUID	VAPOR	
	18.	Maximum Flow	14.0 M SCFH	750 BPSD	1.9 MSCFH	
	19.	Normal Flow	10.04 M SCFH	507 BPSD	1.3 MSCFH	
PSIg	20.	Pressure	50	50	5	
°F	21.	Temperature	80	140	140	
	22.	Specific Gravity at Base		0.764		
FLUID DATA	23.	Operating Spec. Gravity	0.192 LB/FT3	0.725	0.127 LB/FT3	
	24.	Supercomp. Factor	0.99		1.00	
	25.	Mol. Weight | Cp/Cv	17 | 1.3	|	41 | 1.2	|
cP	26.	Operating Viscosity	0.01	0.36	0.01	
	27.	Quality % or °				
PSIg/°F	28.	Base Press. | Base Temp.	14.7 | 60	14.7 | 60	14.7 | 60	|
	29.	Type of Meter	DRY	DRY	DRY	
	30.	Diff. Range - Dry	0-50" H_2O	0-100" H_2O	0-20" H_2O	
	31.	Seal sp.gr. at 60°F				
METER	32.	Static Press. Range				
	33.	Chart or Scale Range				
	34.	Chart Multiplier				
	35.	Beta = d/D	0.46347	0.36526	0.37252	
	36.	Orifice Bore Diameter	0.958"	0.755"	0.770"	
PLATE &	37.	Line I.D.	2.067"	2.067"	2.067"	
FLANGE	38.	Flange Rating	300#	300#	300#	
	39.	Vent or Drain Hole				
	40.	Plate Thickness	0.125"	0.125"	0.125"	

NOTES:

P-234 (4/94)

APPENDIX D

SCAQMD METHODS 2.1-4.1 DATA



AIR QUALITY ENGINEERING, INC.

Emissions Measurements and Regulatory Compliance

VELOCITY TRAVERSE

Client: [redacted] Date: 4-28-21 Tester(s): TV/TP

Facility: [redacted] Test No.: N/A Barometric Pressure (P_b), "Hg: 30.07

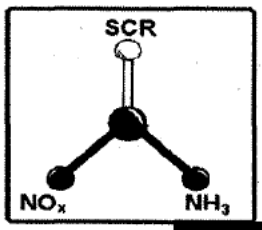
Test Location: [redacted] Pitot Coefficient (C_p): 0.84 Pitot/TC Probe ID: 048

Project No.: 20-911 Static Pressure (Pg): -0.0046 "H_2O Time (24-hr): 706-7:33

Stack/Duct Dimension: 27" Width: NA in. Area: NA ft^2

Pre-Test and Post-Test Leak Checks: 0 / 0 Pressure Sensor ID: ADM860

Traverse Point	Position Inch	ΔP Inch H_2O	Stack Temp T_s °F	Cyclonic Flow Verfification	
				ΔP @ O° Reference	Angle (α) Yield Null ΔP
A-1	0.86	0.013	607	0	0
2	2.84	0.014	606	0	0
3	5.24	0.039	606	0	0
4	8.72	0.041	607	0	0
5	18.3	0.032	607	0.002	2°
6	21.8	0.033	606	0	0
7	24.2	0.028	607	0	0
8	26.1	0.019	607	0	0
B-1	0.86	0.013	608	0.001	2°
2	2.84	0.031	608	0	0
3	5.24	0.031	608	0	0
4	8.72	0.032	607	0.003	3°
5	18.3	0.041	607	0	0
6	21.8	0.039	608	0	0
7	24.2	0.025	608	0	0
8	26.1	0.029	608	0	0
				Average angle (α), α ≤ 10°	



AIR QUALITY ENGINEERING, INC.

Emissions Measurements and Regulatory Compliance

VELOCITY TRAVERSE

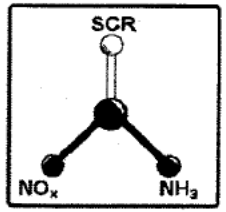
Client: [redacted]
Facility: [redacted]
Project #: 20-911
Unit ID: TRANSMIX HEATER
Test Location: Stack

Test Date: 4/28/2021
Recorded By: TV
Pitot ID: 093
Stack/Duct Dimension(in.): 27
Pressure Sensor ID: ADM860

P-bar "Hg: 30.07
Pitot Tube Cp: 0.99

Traverse		Run # 1		Run # 2		Run # 3	
		P-Static:	-.0053	P-Static:	-.0138	P-Static:	-.0083
		Leak Check		Leak Check		Leak Check	
		Pre	Post	Pre	Post	Pre	Post
		0	0	0	0	0	0
Point	Distance	ΔP "H_2O	Temp, T_S °F	ΔP "H_2O	Temp, T_S °F	ΔP "H_2O	Temp, T_S °F
A-1	0.86	.0126	608	.0193	606	.0159	608
2	2.84	.0160	605	.0232	609	.0218	610
3	5.24	.0480	608	.0355	608	.0347	610
4	8.72	.0470	608	.0303	610	.0365	611
5	18.28	.0319	609	.0428	610	.0398	612
6	21.76	.0326	611	.0462	609	.0425	613
7	24.17	.0277	611	.0302	612	.0401	609
8	26.14	.0208	608	.0342	610	.0266	609
B-1	0.86	.0116	604	.0190	609	.0179	607
2	2.84	.0334	606	.0275	613	.0255	608
3	5.24	.0305	608	.029	609	.0328	610
4	8.72	.038	607	.0409	610	.0398	611
5	18.28	.043	611	.0384	608	.0435	612
6	21.76	.042	608	.0393	610	.0419	609
7	24.17	.0214	609	.033	609	.0326	611
8	26.14	.0286	606	.0274	610	.0299	610

Note(s):



AIR QUALITY ENGINEERING, INC.

Emissions Measurement and Regulatory Compliance

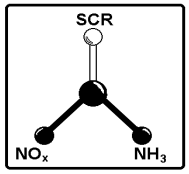
WET IMPINGEMENT TEST DATA

Client: [redacted]
Project No.: [redacted]
Date: [redacted]
Unit Description: Transmix Heater
Test Location: Stack
Facility Name: [redacted]
Operator: T. pham
Test Run ID: SCAQMD M4.1-Run # 1
Meter Box ID: AQE #2
Pb, in. Hg: 30.07
Del H, in H_2O: 1.6700
Meter Y_d: 1.0193

Leak-Test Data	CFM	Vac	By	Time
Pre-test	0.0	8.5	TP/TV	7:25
Post-test	0.0	11.5	TP/TV	9:38

Moisture Data	Material	Gross, g	Tare, g	Net, g
1	Water	1532.7	1352.0	
2	Water	1418.8	1353.0	
3	Empty	1308.1	1300.0	
4	Silica Gel	1569.1	1557.1	
5				
6				
7				
Total				

Time (24-hour)	Elapse Time (Minute)	Orifice Meter Del H, in. H_2O	Meter Volume (Ft^3 or M^3)	Pump Vacuum (in. Hg)	Temperature (°F) Meter	Temperature (°F) Impinger	Note(s)
8:05	0		754.321				
	10	2.0		4"	73	55	
	20	2.0		4"	77	52	
	30	2.0		4"	80	50	
	40	2.0		4"	83	54	
	50	2.0		4"	86	53	
	60	2.0		4"	90	50	
	70	2.0		4"	95	54	
	80	2.0		4"	98	52	
9:34	90	2.0	857.871	4"	101	56	



AIR QUALITY ENGINEERING, INC.

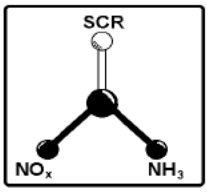
DRY GAS METER ANNUAL CALIBRATION DATA

DATE: 1/6/2021
DRY GAS METER: AQE2
DRY GAS METER SN: 80797
PRETEST Y_i: 1.0407

CALIBRATED BY: Tpham
STANDARD METER SN: 2961854
LEAK TEST: Yes CFM 22 "Hg
P BAR: 30.08 (in Hg)

DGM BEG VOL (FT^3)	DGM END VOL (FT^3)	DGM VOL (Vm) (FT^3)	STD BEG VOL (FT^3)	STD END VOL (FT^3)	STD VOL (Vms) (FT^3)	TIME (min)	MTR BOX TEMP °F	STD TEMP °F	MTR BOX DELTA H (in H2O)	DGM Yi	DGM DELTA H@
615.525	621.252	5.727	746.356	752.000	5.644	25.00	66.0	69.0	0.15	1.02087	1.650
621.252	626.976	5.724	752.000	757.632	5.632	25.00	68.0	69.0	0.15	1.01863	1.651
626.976	632.702	5.726	757.632	763.256	5.624	25.00	69.0	69.0	0.15	1.01851	1.652
634.215	639.956	5.741	764.475	770.032	5.557	12.00	71.0	69.0	0.60	1.03073	1.554
639.956	645.690	5.734	770.032	775.584	5.552	12.00	73.0	69.0	0.60	1.02654	1.551
645.690	651.436	5.746	775.584	781.142	5.558	12.00	75.0	69.0	0.60	1.02373	1.542
653.105	658.900	5.795	782.548	788.225	5.677	7.00	77.0	69.0	2.10	1.01077	1.753
658.900	664.681	5.781	788.225	793.900	5.675	7.00	79.0	69.0	2.10	1.00494	1.748
664.681	670.460	5.779	793.900	799.562	5.662	7.00	81.0	69.0	2.10	1.00317	1.750
672.256	677.933	5.677	801.057	806.532	5.475	5.00	82.0	69.0	3.80	1.02151	1.724
677.933	683.605	5.672	806.532	812.000	5.468	5.00	82.0	69.0	3.80	1.02192	1.729
683.605	689.316	5.711	812.000	817.456	5.456	5.00	82.5	69.0	3.80	1.03026	1.735
									AVERAGE	**1.0193**	**1.6700**

YFM VALUE BETWEEN 0.95 AND 1.05	PASS
AVERAGE YFM DIVIDED BY 4 INDIVIDUAL YFM BETWEEN 0.98 AND 1.02	PASS
ΔH @ ±0.20 "H_2O	PASS
SAMPLE VOLUME @ EACH FLOW RATE ≥5.0 FT^3	PASS
PRETEST CAL TO POSTTEST CAL <5%	PASS



AIR QUALITY ENGINEERING, INC.

Emissions Measurements & Regulatory Compliance

Stack Temperature Sensor - Calibration Data

Thermocouple ID: TC-093	**Date Calibrated:** 4/22/2021
Ambient Temperature (°F): 71	**Reference Thermometer:** T-851722
Barometric Pressure in. Hg: 30	**Calibrated By:** tp

CALIBRATION POINT	TEST THERMOMETER ID	T_R, REFERENCE THERMOMETER, °F	T_T, TEST THERMOMETER, °F	ABSOLUTE % DIFFERENCE IN TEMPERATURE (<=1.5%)
Ice Water	93	35.4	41.0	1.13
Ice Water	93	35.3	41.0	1.15
Ice Water	93	35.3	42.0	1.35
AVERAGE		**35.3**	**41.3**	**1.21**
Boiling Water	93	217.0	222.0	0.74
Boiling Water	93	217.0	222.0	0.74
Boiling Water	93	218.0	222.0	0.59
AVERAGE		**217.3**	**222.0**	**0.69**
Boiling Oil	93	498.0	502.0	0.42
Boiling Oil	93	498.0	505.0	0.73
Boiling Oil	93	499.0	505.0	0.63
AVERAGE		**498.3**	**504.0**	**0.59**

$$\leq 1.5\% = \frac{(T_R + 460) - (T_T + 460)}{T_R + 460} x100$$

DICK MUNNS COMPANY
LIQUID & GAS FLOW CALIBRATION

ISO 17025:2017
ACCREDITED LABORATORY
Cert# CL-122

IAS ACCREDITED Calibration Laboratory

CERTIFICATE OF CALIBRATION

CUSTOMER:	**AIR QUALITY ENG.**	**CALIBRATION DATE:**	03/08/2021
PO NUMBER:	N/A	**CALIBRATION DUE:**	03/08/2022
INST. MANUFACTURER:	SHORTRIDGE	**PROCEDURE:**	NAVAIR 17-20MG-02
INST. DESCRIPTION:	AIR DATA MULTIMETER	**CALIBRATION FLUID:**	AIR @ 14.7 PSI 70°F
MODEL NUMBER:	ADM-860	**RECEIVED CONDITIONS:**	WITHIN MFG. SPECS
SERIAL NUMBER:	M97382	**LEFT CONDITIONS:**	WITHIN MFG. SPECS
RATED ACCURACY:	**PRESS:** ± 2% RD; ± .01" H2O	**AMBIENT CONDITIONS:**	763mmHGA 48% RH 69°F
UNCERTAINTY GIVEN:	± 0.796% RD K=2	**CERTIFICATE FILE #:**	443140.2021
NOTES:			

Q.MANUAL IM 1.5 REV 2017.1 DATED 7-18-2017 ** DECISION RULE : NO PFA% ****

ADM 860 INDICATED "H2O	DM STD. ACTUAL "H2O
0.00	0.0000
0.0005	0.0005
0.0012	0.0013
0.0050	0.0051
0.0108	0.0110
0.0521	0.0529
0.1152	0.1159
0.5106	0.5110
0.7197	0.7205
5.1029	5.1125
24.862	24.980
45.215	45.439
59.990	60.313

STANDARDS USED:		
A321: CEC PRESSURE STD. 0 – 600 PSIA | ± 0.011% RD | TRACE# 1553509490,1553248617	DUE	05/16/2021

All instruments used in the performance of the shown calibration have traceability to the National Institute of Standards and Technology (NIST). The uncertainty ratio between the calibration standards (DM.STD.) and the Unit Under Test (UUT) is a minimum of 4:1, unless otherwise noted. Calibration has been performed according to the shown procedure. The use of IAS/ILAC logo indicates calibrations are in accordance to ISO/IEC 17025:2017.

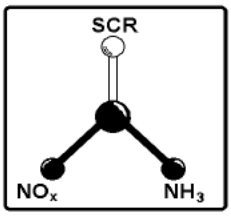
Dick Munns Company · 11133 Winners Circle, Los Alamitos, CA 90720
Phone: 714-827-1215 · www.dickmunns.com

Issuing Date: 03/08/2021 Approved By: Michael Munns D.C. Cal. Technician:

Calibrated at: ✓ Lab
___ On-Site (Customer's)

APPENDIX E

SCAQMD METHOD 100.1 DATA



Air Quality Engineering, Inc.

Emissions Measurement and Regulatory Compliance

NO_x CONVERTER EFFICIENCY CHECK

Client:
Project No.: **20-911**
Date: **4/28/2021**
Test Cond.: **As Found**

Unit Description: **Transmix Heater**
Test Location: [redacted]
Facility Name: [redacted]
Test Performed by: [redacted]

1. Calibration Gas Information

Parameter	Conc., ppm	Cylinder ID	Expiration Date
C_O - NO_2 Audit Gas	8.927	CC500716	2/20/2022
C_{NO} - NO in Audit Gas	0.00	CC500716	2/20/2022
NO_x - Span Gas (Mid)	5.410	CC716555	11/26/2022
NO_x - Span Gas (Span)	8.372	CC197765	10/16/2022

NO_x - for reference only

2. Analyzer Information/Responses

Manufacturer	Model	Serial No.	Converter Type
CAI	600 SERIES	V08019	Moly

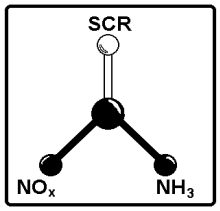
Analyzer Responses			Standardize Concentration		
C_O (Audit Gas)	= 8.927	ppm	$C_1 = \lvert C_{NO\text{-}M} - C_{NO} \rvert$ =	0.03	ppm
$C_{NO\text{-}M}$ (NO Mode)	= 0.03	ppm	$C_2 = \lvert C_{NOx\text{-}M} - C_{NO\text{-}M} \rvert$ =	8.67	ppm
$C_{NOx\text{-}M}$ (NO_x Mode)	= 8.70	ppm	$C_3 = \lvert C_o \times 0.05 \rvert$ =	0.45	ppm

% CE = $\{C_2/C_o\} \times 100$ = **97.1%** $C_1 < C_3$? (Y/N) = **Yes**

3. Criteria for Acceptability of CE

a. % CE must be larger than 90%.
b. C_1 must be less than C_3

Note: Select the NO_2 Audit Gas within 10% of expected sample concentration in the exhaust.



AIR QUALITY ENGINEERING, INC.

CYCLE RESPONSE TIME TEST
EPA 40 CFR, PART 60, APPENDIX A

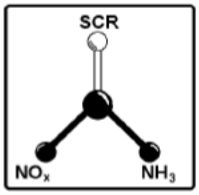
Client: _____ **Test Date:** 4/28/2021

Facility: [redacted] **Location:** Stack

Unit: Transmix Heater **Proj No.:** 20-911

			ANALYZER ZERO TO UPSCALE RESPONSE				ANALYZER UPSCALE TO ZERO RESPONSE			
Pollutant/Diluent Monitor(s)	**Analyzer FS Range**	**Upscale Gas Conc. ppm/%**	**Time**	**Start/Stop Time, min:sec**	**Upscale Target Value, ppm/%**	**Analyzer Response, ppm/%**	**Time**	**Start/Stop Time, min:sec**	**Upscale Target Value, ppm/%**	**Analyzer Response, ppm/%**
O_2	25	8.77	7:10	0:42	8.33	8.69	7:12	0:40	0.44	0.01
CO_2	10	17.96	7:14	0:35	17.06	17.99	7:16	0:36	0.90	0.17
NO_x	10	8.37	7:18	0:45	7.95	8.53	7:20	0:43	0.42	0.09
CO	10	8.78	7:22	0:57	8.34	8.79	7:25	1:02	0.44	0.05

Upscale Target Value = Upscale Reference Gas Value x 0.95
Downscale Target Value = Upscale Reference Gas Value - (0.95 x Upscale Reference Gas Value)



AIR QUALITY ENGINEERING, INC.

Emissions Measurement and Regulatory Compliance
Reference Method 100.1 Analyzer(s) Linearity

Client:		Unit Description:	Transmix Heater
Project No.:	20-911	Test Location:	Stack
Test Date:	4/28/2021	Facility Name:	[redacted]
Test Condition:	As Found	Test Performed by:	Tpham/RS

Analyzer	O_2		O_2 Analyzer Response						
Span Range, %	10		Certified Conc. (%)	Time (hh:min)	Pre	Time (hh:min)	Post	Average	
Make	CAI		0	7:30	0.00	10:31	0.00	0.0	
Analyzer Model	CAI 100		8.77	7:35	8.78	10:37	8.80	8.8	
Analyzer SN	4H11001		4.52	7:45	4.54	10:42	4.53	4.5	
Reference Gases Information			Slope (m)		1.0013		1.0035	1.0024	
	High Level	Mid Level	Y-Intercept (b)		0.0000		0.0000	0.0000	
Certified Conc.	8.77	4.52	Formula		y=m(x) + b				
Cylinder ID	CC208343	CC259553	Predicted Value		4.52		4.53	4.53	Limit
Expiration Date	10/24/26	07/13/28	Linearity (%)		-0.16		0.04	-0.06	±1%FS
Supplier	Airgas	Airgas							

Analyzer	CO_2		CO_2 Analyzer Response						
Span Range, %	20		Certified Conc. (%)	Time (hh:min)	Pre	Time (hh:min)	Post	Average	
Make	CAI		0	7:30	-0.01	10:31	0.01	0.0	
Analyzer Model	CAI 3300		17.96	7:35	17.99	10:37	18.02	18.0	
Analyzer SN	N3P1281T		9.01	7:45	9.06	10:42	9.03	9.0	
Reference Gases Information			Slope (m)		1.0022		1.0028	1.0025	
	High Level	Mid Level	Y-Intercept (b)		-0.0100		0.0100	0.0000	
Certified Conc.	17.96	9.01	Formula		y=m(x) + b				
Cylinder ID	CC208343	CC259553	Predicted Value		9.02		9.05	9.04	Limit
Expiration Date	10/24/26	46947.00	Linearity (%)		-0.18		0.10	-0.04	±1%FS
Supplier	Airgas	Airgas							

Analyzer	NO_x		NO_x Analyzer Response						
Span Range, ppm	10		Certified Conc. (ppm)	Time (hh:min)	Pre	Time (hh:min)	Post	Average	
Make	CAI		0	7:30	-0.01	10:31	0.01	0.0	
Analyzer Model	CAI 600		8.37	7:35	8.41	10:37	8.41	8.4	
Analyzer SN	U09023		5.41	7:45	5.44	10:42	5.43	5.4	
Reference Gases Information			Slope (m)		1.0057		1.0033	1.0045	
	High Level	Mid Level	Y-Intercept (b)		-0.0100		0.0100	0.0000	
Certified Conc.	8.37	5.41	Formula		y=m(x) + b				
Cylinder ID	CC197765	CC716555	Predicted Value		5.43		5.44	5.43	Limit
Expiration Date	10/16/22	11/26/22	Linearity (%)		-0.09		0.08	0.00	±1%FS
Supplier	Airgas	Airgas							

Analyzer	CO		CO Analyzer Response						
Span Range, ppm	10		Certified Conc. (ppm)	Time (hh:min)	Pre	Time (hh:min)	Post	Average	
Make	CAI		0	7:30	0.02	10:31	0.02	0.0	
Analyzer Model	CAI 600		8.78	7:35	8.80	10:37	8.77	8.8	
Analyzer SN	S12021		4.69	7:45	4.70	10:42	4.73	4.7	
Reference Gases Information			Slope (m)		1.0001		0.9967	0.9984	
	High Level	Mid Level	Y-Intercept (b)		0.0200		0.0200	0.0200	
Certified Conc.	8.78	4.69	Formula		y=m(x) + b				
Cylinder ID	CC476535	CC313087	Predicted Value		4.71		4.69	4.70	Limit
Expiration Date	07/14/25	07/11/24	Linearity (%)		0.11		-0.35	-0.12	±1%FS
Supplier	Airgas	Praxair							

Air Quality Engineering, Inc.
Chart Recorder Data

Client:		Unit Description:	**Transmix Heater**
Project No.:	**20-911**	Test Location:	[redacted]
Test Date:	**4/28/2021**	Facility Name:	[redacted]
Test Condition:	**As Found**	Test Performed by:	[redacted]
Run #:	**West Port**		

Data Point	Time hh:mm	% O_2	% CO_2	ppm NO_x	ppm CO	ppm SO2
		Concentration				
1	8:05	3.60	10.06	6.29	0.53	
2	8:06	3.60	10.08	6.43	0.06	
3	8:07	3.59	10.02	6.34	0.04	
4	8:08	3.55	10.08	6.36	0.14	
5	8:09	3.47	10.12	6.39	0.07	
6	8:10	3.58	10.09	6.47	0.24	
7	8:11	3.55	10.15	6.29	0.27	
8	8:12	3.48	10.14	6.19	0.15	
9	8:13	3.60	10.12	6.13	0.39	
10	8:14	3.63	10.15	6.23	0.20	
11	8:15	3.62	10.03	6.24	0.18	
12	8:16	3.54	10.14	6.21	0.06	
13	8:17	3.52	10.11	6.25	0.19	
14	8:18	3.63	10.02	6.34	0.07	
15	8:19	3.54	10.14	6.34	0.08	
16	8:20	3.63	10.06	6.35	0.10	
17	8:21	3.61	10.09	6.21	0.07	
18	8:22	3.58	10.18	6.15	0.09	
19	8:23	3.45	10.13	6.28	0.13	
20	8:24	3.60	10.10	6.25	0.20	
21	8:25	3.53	10.09	6.27	0.21	
22	8:26	3.57	10.08	6.13	0.12	
23	8:27	3.50	10.12	6.17	0.20	
24	8:28	3.53	10.14	6.30	0.09	
25	8:29	3.72	10.05	6.21	0.14	
26	8:30	3.69	10.19	6.14	0.11	
27	8:31	3.49	10.22	6.09	0.25	
28	8:32	3.68	10.04	6.01	0.21	
29	8:33	3.57	10.13	5.99	0.10	
30	8:34	3.55	10.17	6.01	0.09	
31	8:35	3.73	10.05	5.98	0.01	
32	8:36	3.64	10.08	6.13	0.04	
33	8:37	3.62	10.11	6.14	0.07	
34	8:38	3.56	10.19	6.14	0.07	
35	8:39	3.61	10.20	6.15	0.73	
36	8:40	3.65	10.19	6.09	0.70	
37	8:41	3.65	10.21	6.03	1.04	
38	8:42	3.53	10.23	6.03	2.81	
39	8:43	3.56	10.25	6.17	2.58	
40	8:44	3.55	10.31	6.17	0.76	
41	8:45	3.66	10.19	6.18	1.10	
42	8:46	3.57	10.24	6.09	1.11	
43	8:47	3.69	10.17	6.11	0.62	
44	8:48	3.49	10.40	6.18	1.34	
45	8:49	3.15	10.55	6.33	5.07	
46	8:50	3.31	10.49	6.30	6.76	
47	8:51	3.31	10.55	6.36	4.84	
48	8:52	3.40	10.37	6.20	5.44	
49	8:53	3.35	10.51	6.18	5.67	
50	8:54	3.34	10.50	6.26	5.25	
51	8:55	3.30	10.39	6.25	4.34	
52	8:56	3.27	10.41	6.21	5.66	
53	8:57	3.39	10.58	6.19	6.25	
54	8:58	3.11	10.63	6.32	6.73	
55	8:59	3.33	10.41	6.27	4.91	
56	9:00	3.26	10.45	6.19	1.69	
57	9:01	3.28	10.51	6.11	5.74	
58	9:02	3.35	10.46	6.16	4.76	
59	9:03	3.40	10.44	6.15	1.75	
60	9:04	3.34	10.51	6.16	1.37	
Average		**3.51**	**10.23**	**6.20**	**1.57**	**#DIV/0!**

Air Quality Engineering, Inc.
Chart Recorder Data

Client:		Unit Description:	[redacted]
Project No.:	**20-911**	Test Location:	[redacted]
Test Date:	**4/28/2021**	Facility Name:	[redacted]
Test Condition:	**As Found**	Test Performed by:	[redacted]
Run #:	**South Port**		

	Time	Concentration				
Data Point	**hh:mm**	**% O_2**	**% CO_2**	**ppm NO_x**	**ppm CO**	**ppm SO2**
1	9:10	3.56	10.25	6.05	1.58	
2	9:11	3.52	10.27	6.07	0.45	
3	9:12	3.46	10.31	6.16	0.72	
4	9:13	3.56	10.29	6.18	1.57	
5	9:14	3.60	10.26	6.11	1.01	
6	9:15	3.61	10.33	6.08	0.84	
7	9:16	3.53	10.31	6.19	0.84	
8	9:17	3.60	10.24	6.19	0.26	
9	9:18	3.68	10.29	6.24	0.25	
10	9:19	3.62	10.22	6.19	0.62	
11	9:20	3.61	10.26	6.23	0.65	
12	9:21	3.65	10.27	6.14	0.04	
13	9:22	3.64	10.26	6.17	0.11	
14	9:23	3.64	10.26	6.17	0.24	
15	9:24	3.64	10.25	6.09	0.16	
16	9:25	3.62	10.31	6.12	0.18	
17	9:26	3.57	10.36	6.18	0.39	
18	9:27	3.50	10.44	6.33	0.39	
19	9:28	3.60	10.37	6.31	0.21	
20	9:29	3.41	10.39	6.23	0.14	
21	9:30	3.47	10.43	6.25	0.55	
22	9:31	3.56	10.46	6.37	0.53	
23	9:32	3.35	10.52	6.39	1.54	
24	9:33	3.56	10.40	6.35	1.79	
25	9:34	3.60	10.51	6.42	0.54	
26	9:35	3.53	10.41	6.36	0.62	
27	9:36	3.32	10.61	6.45	3.85	
28	9:37	3.53	10.49	6.35	4.17	
29	9:38	3.57	10.40	6.21	0.78	
30	9:39	3.66	10.40	6.14	0.29	
31	9:40	3.61	10.36	6.05	0.77	
32	9:41	3.65	10.35	6.12	1.26	
33	9:42	3.58	10.56	6.05	2.76	
34	9:43	3.21	10.60	6.06	9.02	
35	9:44	3.41	10.40	5.97	5.19	
36	9:45	3.63	10.43	6.03	2.30	
37	9:46	3.63	10.27	5.87	0.62	
38	9:47	3.52	10.34	5.92	2.77	
39	9:48	3.58	10.35	5.87	4.71	
40	9:49	3.54	10.30	5.93	2.22	
41	9:50	3.58	10.30	5.88	2.82	
42	9:51	3.67	10.20	5.85	0.81	
43	9:52	3.62	10.31	5.88	0.88	
44	9:53	3.62	10.30	5.97	1.65	
45	9:54	3.66	10.27	5.88	1.48	
46	9:55	3.65	10.37	5.95	1.46	
47	9:56	3.61	10.25	5.90	1.69	
48	9:57	3.61	10.25	5.83	1.95	
49	9:58	3.66	10.24	5.91	1.12	
50	9:59	3.74	10.24	5.88	0.73	
51	10:00	3.66	10.36	5.97	0.91	
52	10:01	3.67	10.27	6.06	1.02	
53	10:02	3.52	10.38	6.05	2.82	
54	10:03	3.58	10.29	6.02	4.51	
55	10:04	3.60	10.31	5.94	3.25	
56	10:05	3.66	10.26	5.94	0.73	
57	10:06	3.63	10.31	6.05	1.00	
58	10:07	3.71	10.27	6.01	1.08	
59	10:08	3.74	10.33	6.12	1.64	
60	10:09	3.69	10.27	6.14	2.29	
Average		**3.58**	**10.34**	**6.10**	**1.51**	**#DIV/0!**

Air Quality Engineering, Inc.
Source Test Calculations

Method(s): AQMD 100.1

Client:
Facility: [redacted]
Unit Descrp: [redacted]
Proj Number: [redacted]
Run #: 1

Test Date: 04/28/21
Location: Stack
Test Cond: As Found

		O_2 (%)	CO_2 (%)	NO_x (ppmv)	CO (ppmv)
A. Analyzer Range		10	20	10	10
Cal Gas Values					
B. Zero		0.00	0.00	0.00	0.00
C. Mid		4.52	9.01	5.41	4.69
D. High		8.77	17.96	8.37	8.78
Cal Gas Pct of Range					
E. Zero [100 x B/A] (<0.25%)		0.00	0.00	0.00	0.00
F. Mid [100 x C/A] (40-60%)		45.18	45.07	54.10	46.90
G. High [100 x D/A] (80-100%)		87.69	89.80	83.72	87.79
Anal Resp, Initial	**Time**				
H. Zero	7:30	0.00	-0.01	-0.01	0.02
I. Mid	7:45	4.54	9.06	5.44	4.70
J. High	7:35	8.78	17.99	8.41	8.80
Anal Cal Error, Initial (±2%)					
K. Zero [100 x (H-B)/A]		0.0	-0.1	-0.1	0.2
L. Mid [100 x (I-C)/A]		0.2	0.2	0.3	0.1
M. High [100 x (J-D)/A]		0.1	0.1	0.4	0.2
Sys Bias Resp, Initial					
N. Upscale Gas, Mid or High		Mid	Mid	Mid	Mid
O. Zero	7:50-8:00	0.01	0.06	0.01	0.01
P. Upscale	7:50-8:00	4.55	9.05	5.46	4.73
Sys Bias Error, Initial (±5%)					
Q. Zero [100 x (O-H)/A]		0.1	0.4	0.2	-0.1
R. Upscale [100 x (P-(I or J))/A]		0.1	0.0	0.2	0.3
Data Point					
1	8:05-9:04	3.51	10.23	6.20	1.57
2	9:10-10:09	3.58	10.34	6.10	1.51
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
Sys Bias Resp, Final					
S. Zero	10:16-10:28	0.01	0.07	0.01	0.00
T. Upscale	10:16-10:28	4.56	9.02	5.50	4.67
Sys Bias Error, Final (±5%)					
U. Zero [100 x (S-W)/A]		0.1	0.4	0.2	-0.2
V. Upscale [100 x (T-(X or Y))/A]		0.2	-0.2	0.6	-0.3
Anal Resp, Final					
W. Zero	10:31	0.00	0.01	0.01	0.02
X. Mid	10:42	4.53	9.03	5.43	4.73
Y. High	10:37	8.80	18.02	8.41	8.77
Anal Cal Error, Final (±2%)					
Z. Zero [100 x (W-B)/A]		0.0	0.1	0.1	0.2
AA. Mid [100 x (X-C)/A]		0.1	0.1	0.2	0.4
BB. High [100 x (Y-D)/A]		0.3	0.3	0.4	-0.1
System Drift (±3%)					
CC. Zero [100 x (S-O)/A]		0.0	0.1	0.2	0.0
DD. Mid [100 x (T-P)/A]		-0.1	-0.2	-0.1	0.3
		0.2	0.2	0.0	-0.3
FF. Actual Avg Conc					
GG. Actual Drift Corr Conc		3.547	10.284	6.151	1.540
		3.516	10.270	6.074	1.533
HH. Correct to What Pct?					
II. O2 or CO2?		N/A	N/A	3	3
JJ. Corrected Concentration		N/A	N/A	O2	O2
		N/A	N/A	6.254	1.579

Notes: GG = {(FF - Avg(O+S)) x [(F or G)/(Avg(P+T) - Avg(O+S)]}
JJ (Cor to Pct O2) = GG x (20.9 - HH)/(20.9 - O2 Conc)
(Cor to Pct CO2) = GG x HH/CO2 Conc

Air Quality Engineering, Inc.
Source Test Calculations

Method(s): AQMD 100.1

Client:
Facility: [redacted]
Unit Descrp: [redacted]
Proj Number: [redacted]
Run #: 2

Test Date: 04/28/21
Location: Stack
Test Cond: As Found

		O_2 (%)	CO_2 (%)	NO_x (ppmv)	CO (ppmv)
A. Analyzer Range		10	20	10	10
Cal Gas Values					
B. Zero		0.00	0.00	0.00	0.00
C. Mid		4.52	9.01	5.41	4.69
D. High		8.77	17.96	8.37	8.78
Cal Gas Pct of Range					
E. Zero [100 x B/A] (<0.25%)		0.00	0.00	0.00	0.00
F. Mid [100 x C/A] (40-60%)		45.18	45.07	54.10	46.90
G. High [100 x D/A] (80-100%)		87.69	89.80	83.72	87.79
Anal Resp, Initial	**Time**				
H. Zero	7:30	0.00	-0.01	-0.01	0.02
I. Mid	7:45	4.54	9.06	5.44	4.70
J. High	7:35	8.78	17.99	8.41	8.80
Anal Cal Error, Initial (±2%)					
K. Zero [100 x (H-B)/A]		0.0	-0.1	-0.1	0.2
L. Mid [100 x (I-C)/A]		0.2	0.2	0.3	0.1
M. High [100 x (J-D)/A]		0.1	0.1	0.4	0.2
Sys Bias Resp, Initial					
N. Upscale Gas, Mid or High		Mid	Mid	Mid	Mid
O. Zero	7:50-8:00	0.01	0.06	0.01	0.01
P. Upscale	7:50-8:00	4.55	9.05	5.46	4.73
Sys Bias Error, Initial (±5%)					
Q. Zero [100 x (O-H)/A]		0.1	0.4	0.2	-0.1
R. Upscale [100 x (P-(I or J))/A]		0.1	0.0	0.2	0.3
Data Point					
1	8:05-9:04	3.51	10.23	6.20	1.57
2	9:10-10:09	3.58	10.34	6.10	1.51
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
Sys Bias Resp, Final					
S. Zero	10:16-10:28	0.01	0.07	0.01	0.00
T. Upscale	10:16-10:28	4.56	9.02	5.50	4.67
Sys Bias Error, Final (±5%)					
U. Zero [100 x (S-W)/A]		0.1	0.4	0.2	-0.2
V. Upscale [100 x (T-(X or Y))/A]		0.2	-0.2	0.6	-0.3
Anal Resp, Final					
W. Zero	10:31	0.00	0.01	0.01	0.02
X. Mid	10:42	4.53	9.03	5.43	4.73
Y. High	10:37	8.80	18.02	8.41	8.77
Anal Cal Error, Final (±2%)					
Z. Zero [100 x (W-B)/A]		0.0	0.1	0.1	0.2
AA. Mid [100 x (X-C)/A]		0.1	0.1	0.2	0.4
BB. High [100 x (Y-D)/A]		0.3	0.3	0.4	-0.1
System Drift (±3%)					
CC. Zero [100 x (S-O)/A]		0.0	0.1	0.2	0.0
DD. Mid [100 x (T-P)/A]		-0.1	-0.2	-0.1	0.3
		0.2	0.2	0.0	-0.3
FF. Actual Avg Conc					
GG. Actual Drift Corr Conc		3.547	10.284	6.151	1.540
		3.516	10.270	6.074	1.533
HH. Correct to What Pct?					
II. O2 or CO2?		N/A	N/A	3	3
JJ. Corrected Concentration		N/A	N/A	O2	O2
		N/A	N/A	6.254	1.579

Notes: GG = {(FF - Avg(O+S)) x [(F or G)/(Avg(P+T) - Avg(O+S)]}
JJ (Cor to Pct O2) = GG x (20.9 - HH)/(20.9 - O2 Conc)
(Cor to Pct CO2) = GG x HH/CO2 Conc

Air Quality Engineering, Inc.
Source Test Calculations

Method(s): AQMD 100.1

Client:
Facility: [redacted]
Unit Descrp: [redacted]
Proj Number: [redacted]
Run #: 3

Test Date: 04/28/21
Location: Stack
Test Cond: As Found

		O_2 (%)	CO_2 (%)	NO_x (ppmv)	CO (ppmv)
A. Analyzer Range		10	20	10	10
Cal Gas Values					
B. Zero		0.00	0.00	0.00	0.00
C. Mid		4.52	9.01	5.41	4.69
D. High		8.77	17.96	8.37	8.78
Cal Gas Pct of Range					
E. Zero [100 x B/A] (<0.25%)		0.00	0.00	0.00	0.00
F. Mid [100 x C/A] (40-60%)		45.18	45.07	54.10	46.90
G. High [100 x D/A] (80-100%)		87.69	89.80	83.72	87.79
Anal Resp, Initial	**Time**				
H. Zero	7:30	0.00	-0.01	-0.01	0.02
I. Mid	7:45	4.54	9.06	5.44	4.70
J. High	7:35	8.78	17.99	8.41	8.80
Anal Cal Error, Initial (±2%)					
K. Zero [100 x (H-B)/A]		0.0	-0.1	-0.1	0.2
L. Mid [100 x (I-C)/A]		0.2	0.2	0.3	0.1
M. High [100 x (J-D)/A]		0.1	0.1	0.4	0.2
Sys Bias Resp, Initial					
N. Upscale Gas, Mid or High		Mid	Mid	Mid	Mid
O. Zero	7:50-8:00	0.01	0.06	0.01	0.01
P. Upscale	7:50-8:00	4.55	9.05	5.46	4.73
Sys Bias Error, Initial (±5%)					
Q. Zero [100 x (O-H)/A]		0.1	0.4	0.2	-0.1
R. Upscale [100 x (P-(I or J))/A]		0.1	0.0	0.2	0.3
Data Point					
1	8:05-9:04	3.51	10.23	6.20	1.57
2	9:10-10:09	3.58	10.34	6.10	1.51
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
Sys Bias Resp, Final					
S. Zero	10:16-10:28	0.01	0.07	0.01	0.00
T. Upscale	10:16-10:28	4.56	9.02	5.50	4.67
Sys Bias Error, Final (±5%)					
U. Zero [100 x (S-W)/A]		0.1	0.4	0.2	-0.2
V. Upscale [100 x (T-(X or Y))/A]		0.2	-0.2	0.6	-0.3
Anal Resp, Final					
W. Zero	10:31	0.00	0.01	0.01	0.02
X. Mid	10:42	4.53	9.03	5.43	4.73
Y. High	10:37	8.80	18.02	8.41	8.77
Anal Cal Error, Final (±2%)					
Z. Zero [100 x (W-B)/A]		0.0	0.1	0.1	0.2
AA. Mid [100 x (X-C)/A]		0.1	0.1	0.2	0.4
BB. High [100 x (Y-D)/A]		0.3	0.3	0.4	-0.1
System Drift (±3%)					
CC. Zero [100 x (S-O)/A]		0.0	0.1	0.2	0.0
DD. Mid [100 x (T-P)/A]		-0.1	-0.2	-0.1	0.3
		0.2	0.2	0.0	-0.3
FF. Actual Avg Conc					
GG. Actual Drift Corr Conc		3.547	10.284	6.151	1.540
		3.516	10.270	6.074	1.533
HH. Correct to What Pct?					
II. O2 or CO2?		N/A	N/A	3	3
JJ. Corrected Concentration		N/A	N/A	O2	O2
		N/A	N/A	6.254	1.579

Notes: GG = {(FF - Avg(O+S)) x [(F or G)/(Avg(P+T) - Avg(O+S)]}
JJ (Cor to Pct O2) = GG x (20.9 - HH)/(20.9 - O2 Conc)
(Cor to Pct CO2) = GG x HH/CO2 Conc

AIR QUALITY ENGINEERING, INC.

Device Type	DX200
Serial No.	12BC20473
File Message	AIR QUALITY ENGINEERING
Start Time	2021/04/28 06:24:00
Stop Time	2021/04/28 10:44:00

Date	Time	CH01 O2 % MAX	CH02 CO2 % MAX	CH03 NOx PPM MAX	CH04 CO ppm MAX	NOTE
2021/04/28	06:24:00	0.04	0.01	0.26	0.10	
2021/04/28	06:25:00	0.02	0.00	0.26	0.03	
2021/04/28	06:26:00	0.01	0.00	0.06	0.01	
2021/04/28	06:27:00	0.01	0.00	0.02	0.03	
2021/04/28	06:28:00	0.01	-0.01	0.10	0.03	
2021/04/28	06:29:00	0.00	-0.01	0.02	0.03	
2021/04/28	06:30:00	0.00	-0.01	0.08	0.03	
2021/04/28	06:31:00	0.00	-0.01	0.06	0.02	
2021/04/28	06:32:00	0.00	-0.01	0.03	0.04	
2021/04/28	06:33:00	0.00	-0.01	0.03	0.07	**NOX ZERO GAS**
2021/04/28	06:34:00	0.00	-0.01	0.08	0.07	
2021/04/28	06:35:00	0.00	-0.01	0.05	0.02	
2021/04/28	06:36:00	0.00	0.19	1.50	0.02	
2021/04/28	06:37:00	8.27	15.58	8.37	8.54	
2021/04/28	06:38:00	8.11	14.29	8.46	8.68	
2021/04/28	06:39:00	8.39	16.51	8.52	8.81	
2021/04/28	06:40:00	8.54	17.81	8.35	8.86	
2021/04/28	06:41:00	8.58	18.10	8.37	8.86	
2021/04/28	06:42:00	8.59	18.21	8.42	8.82	
2021/04/28	06:43:00	8.60	18.25	8.41	8.85	**NOX SPAN GAS**
2021/04/28	06:44:00	8.77	18.08	8.36	8.78	
2021/04/28	06:45:00	0.16	0.31	8.44	0.44	
2021/04/28	06:46:00	0.02	0.20	5.42	0.02	
2021/04/28	06:47:00	0.01	0.13	5.42	0.02	
2021/04/28	06:48:00	0.01	0.09	5.42	0.02	
2021/04/28	06:49:00	0.01	0.06	5.44	0.01	
2021/04/28	06:50:00	0.00	0.04	5.44	0.01	**NOX MID GAS**
2021/04/28	06:51:00	0.00	0.02	8.49	0.02	
2021/04/28	06:52:00	0.00	0.01	8.72	0.66	
2021/04/28	06:53:00	0.00	0.01	8.79	1.19	
2021/04/28	06:54:00	0.00	0.00	8.72	1.10	
2021/04/28	06:55:00	0.00	-0.01	8.72	1.04	
2021/04/28	06:56:00	-0.01	-0.01	8.70	0.74	
2021/04/28	06:57:00	0.00	-0.01	8.70	0.57	**NO2GNOX**
2021/04/28	06:58:00	3.61	9.36	8.70	0.50	
2021/04/28	06:59:00	3.95	9.44	0.08	0.15	
2021/04/28	07:00:00	3.86	4.30	0.06	0.05	
2021/04/28	07:01:00	0.00	0.04	0.02	0.52	
2021/04/28	07:02:00	0.00	0.02	0.03	0.52	**NO2GNO**
2021/04/28	07:03:00	-0.01	0.01	-0.01	0.23	
2021/04/28	07:04:00	-0.01	0.00	0.04	0.19	
2021/04/28	07:05:00	-0.01	0.00	0.15	0.01	
2021/04/28	07:06:00	-0.01	-0.01	0.03	-0.01	
2021/04/28	07:07:00	-0.01	-0.01	8.26	-0.04	
2021/04/28	07:08:00	-0.01	-0.01	0.11	-0.31	
2021/04/28	07:09:00	8.68	17.63	0.10	-0.09	
2021/04/28	07:10:00	8.69	17.62	0.05	-0.03	**RT-O2 SPAN GAS**
2021/04/28	07:11:00	8.68	17.51	0.06	-0.02	
2021/04/28	07:12:00	0.01	0.13	0.06	-0.01	**RT-O2 ZERO GAS**
2021/04/28	07:13:00	8.66	17.86	0.06	0.00	
2021/04/28	07:14:00	8.77	17.99	0.03	0.01	**RT-CO2 SPAN GAS**
2021/04/28	07:15:00	8.77	17.98	0.08	0.01	
2021/04/28	07:16:00	0.02	0.17	-0.02	0.02	**RT-CO2 ZERO GAS**

AIR QUALITY ENGINEERING, INC.

Device Type	DX200
Serial No.	12BC20473
File Message	AIR QUALITY ENGINEERING
Start Time	2021/04/28 06:24:00
Stop Time	2021/04/28 10:44:00

Date	Time	CH01 O2 % MAX	CH02 CO2 % MAX	CH03 NOx PPM MAX	CH04 CO ppm MAX	NOTE
2021/04/28	07:17:00	0.01	0.11	8.44	0.02	
2021/04/28	07:18:00	0.00	0.07	8.53	0.02	**RT-NOX SPAN GAS**
2021/04/28	07:19:00	0.00	0.05	8.43	0.02	
2021/04/28	07:20:00	0.00	0.03	0.09	0.12	**RT-NOX ZERO GAS**
2021/04/28	07:21:00	-0.01	0.01	0.10	8.71	
2021/04/28	07:22:00	-0.01	0.00	0.13	8.79	**RT-CO SPAN GAS**
2021/04/28	07:23:00	-0.01	0.00	0.05	8.81	
2021/04/28	07:24:00	-0.01	0.00	0.08	5.29	
2021/04/28	07:25:00	-0.01	-0.01	0.05	0.05	**RT-CO ZERO GAS**
2021/04/28	07:26:00	-0.01	-0.01	0.10	0.02	
2021/04/28	07:27:00	0.00	-0.01	0.00	0.01	
2021/04/28	07:28:00	0.00	-0.01	0.01	0.01	
2021/04/28	07:29:00	0.00	-0.01	0.01	0.01	
2021/04/28	07:30:00	0.00	-0.01	-0.01	0.02	**CE-ZERO GAS**
2021/04/28	07:31:00	8.78	17.85	8.34	4.65	
2021/04/28	07:32:00	8.78	17.85	8.44	8.81	
2021/04/28	07:33:00	8.79	18.00	8.43	8.88	
2021/04/28	07:34:00	8.78	18.00	8.51	8.78	
2021/04/28	07:35:00	8.78	17.99	8.41	8.80	**CE-SPAN GAS**
2021/04/28	07:36:00	8.77	18.00	8.39	8.80	
2021/04/28	07:37:00	8.77	18.00	8.45	10.88	
2021/04/28	07:38:00	4.92	7.61	5.60	10.88	
2021/04/28	07:39:00	4.37	8.13	5.45	10.88	
2021/04/28	07:40:00	4.52	8.73	5.48	10.88	
2021/04/28	07:41:00	4.54	9.08	5.64	4.72	
2021/04/28	07:42:00	4.55	9.08	5.45	4.69	
2021/04/28	07:43:00	4.54	9.05	5.45	4.68	
2021/04/28	07:44:00	4.54	9.06	5.44	4.68	
2021/04/28	07:45:00	4.54	9.06	5.44	4.70	**CE-MID GAS**
2021/04/28	07:46:00	4.54	9.99	5.43	4.67	
2021/04/28	07:47:00	4.55	9.91	0.12	0.46	
2021/04/28	07:48:00	4.55	9.05	0.12	0.01	
2021/04/28	07:49:00	4.55	9.05	-0.02	0.01	
2021/04/28	07:50:00	4.55	9.05	0.01	0.01	**CB-O2+CO2**
2021/04/28	07:51:00	4.55	9.06	0.02	0.02	
2021/04/28	07:52:00	4.54	9.05	5.48	0.02	
2021/04/28	07:53:00	0.02	0.14	5.49	0.02	
2021/04/28	07:54:00	0.01	0.10	5.49	0.03	
2021/04/28	07:55:00	0.01	0.06	5.46	0.02	**CB-NOX**
2021/04/28	07:56:00	0.01	0.04	5.50	0.02	
2021/04/28	07:57:00	0.01	0.03	5.23	4.65	
2021/04/28	07:58:00	0.01	0.02	0.01	4.72	
2021/04/28	07:59:00	0.00	0.01	-0.01	4.73	
2021/04/28	08:00:00	0.00	0.01	-0.01	4.73	**CB-CO**
2021/04/28	08:01:00	0.00	0.00	-0.02	4.77	
2021/04/28	08:02:00	3.50	9.86	6.32	4.77	
2021/04/28	08:03:00	3.62	9.92	6.35	2.10	
2021/04/28	08:04:00	3.50	10.06	6.29	0.51	
2021/04/28	08:05:00	3.60	10.06	6.29	0.53	**START TEST**
2021/04/28	08:06:00	3.60	10.08	6.43	0.06	
2021/04/28	08:07:00	3.59	10.02	6.34	0.04	
2021/04/28	08:08:00	3.55	10.08	6.36	0.14	
2021/04/28	08:09:00	3.47	10.12	6.39	0.07	

AIR QUALITY ENGINEERING, INC.

Device Type	DX200
Serial No.	12BC20473
File Message	AIR QUALITY ENGINEERING
Start Time	2021/04/28 06:24:00
Stop Time	2021/04/28 10:44:00

		CH01	CH02	CH03	CH04		
		O2	CO2	NOx	CO		
		%	%	PPM	ppm		
Date	Time	MAX	MAX	MAX	MAX		**NOTE**
2021/04/28	08:10:00	3.58	10.09	6.47	0.24		
2021/04/28	08:11:00	3.55	10.15	6.29	0.27		
2021/04/28	08:12:00	3.48	10.14	6.19	0.15		
2021/04/28	08:13:00	3.60	10.12	6.13	0.39		
2021/04/28	08:14:00	3.63	10.15	6.23	0.20		
2021/04/28	08:15:00	3.62	10.03	6.24	0.18		
2021/04/28	08:16:00	3.54	10.14	6.21	0.06		
2021/04/28	08:17:00	3.52	10.11	6.25	0.19		
2021/04/28	08:18:00	3.63	10.02	6.34	0.07		
2021/04/28	08:19:00	3.54	10.14	6.34	0.08		
2021/04/28	08:20:00	3.63	10.06	6.35	0.10		
2021/04/28	08:21:00	3.61	10.09	6.21	0.07		
2021/04/28	08:22:00	3.58	10.18	6.15	0.09		
2021/04/28	08:23:00	3.45	10.13	6.28	0.13		
2021/04/28	08:24:00	3.60	10.10	6.25	0.20		
2021/04/28	08:25:00	3.53	10.09	6.27	0.21		
2021/04/28	08:26:00	3.57	10.08	6.13	0.12		
2021/04/28	08:27:00	3.50	10.12	6.17	0.20		
2021/04/28	08:28:00	3.53	10.14	6.30	0.09		
2021/04/28	08:29:00	3.72	10.05	6.21	0.14		
2021/04/28	08:30:00	3.69	10.19	6.14	0.11		
2021/04/28	08:31:00	3.49	10.22	6.09	0.25		
2021/04/28	08:32:00	3.68	10.04	6.01	0.21		
2021/04/28	08:33:00	3.57	10.13	5.99	0.10		
2021/04/28	08:34:00	3.55	10.17	6.01	0.09		
2021/04/28	08:35:00	3.73	10.05	5.98	0.01		
2021/04/28	08:36:00	3.64	10.08	6.13	0.04		
2021/04/28	08:37:00	3.62	10.11	6.14	0.07		
2021/04/28	08:38:00	3.56	10.19	6.14	0.07		
2021/04/28	08:39:00	3.61	10.20	6.15	0.73		
2021/04/28	08:40:00	3.65	10.19	6.09	0.70		
2021/04/28	08:41:00	3.65	10.21	6.03	1.04		
2021/04/28	08:42:00	3.53	10.23	6.03	2.81		
2021/04/28	08:43:00	3.56	10.25	6.17	2.58		
2021/04/28	08:44:00	3.55	10.31	6.17	0.76		
2021/04/28	08:45:00	3.66	10.19	6.18	1.10		
2021/04/28	08:46:00	3.57	10.24	6.09	1.11		
2021/04/28	08:47:00	3.69	10.17	6.11	0.62		
2021/04/28	08:48:00	3.49	10.40	6.18	1.34		
2021/04/28	08:49:00	3.15	10.55	6.33	5.07		
2021/04/28	08:50:00	3.31	10.49	6.30	6.76		
2021/04/28	08:51:00	3.31	10.55	6.36	4.84		
2021/04/28	08:52:00	3.40	10.37	6.20	5.44		
2021/04/28	08:53:00	3.35	10.51	6.18	5.67		
2021/04/28	08:54:00	3.34	10.50	6.26	5.25		
2021/04/28	08:55:00	3.30	10.39	6.25	4.34		
2021/04/28	08:56:00	3.27	10.41	6.21	5.66		
2021/04/28	08:57:00	3.39	10.58	6.19	6.25		
2021/04/28	08:58:00	3.11	10.63	6.32	6.73		
2021/04/28	08:59:00	3.33	10.41	6.27	4.91		
2021/04/28	09:00:00	3.26	10.45	6.19	1.69		
2021/04/28	09:01:00	3.28	10.51	6.11	5.74		
2021/04/28	09:02:00	3.35	10.46	6.16	4.76		

AIR QUALITY ENGINEERING, INC.

Device Type	DX200
Serial No.	12BC20473
File Message	AIR QUALITY ENGINEERING
Start Time	2021/04/28 06:24:00
Stop Time	2021/04/28 10:44:00

		CH01	CH02	CH03	CH04	
		O2	CO2	NOx	CO	
		%	%	PPM	ppm	
Date	Time	MAX	MAX	MAX	MAX	**NOTE**
2021/04/28	09:03:00	3.40	10.44	6.15	1.75	
2021/04/28	09:04:00	3.34	10.51	6.16	1.37	
2021/04/28	09:05:00	3.53	10.50	6.16	2.67	
2021/04/28	09:06:00	3.50	10.38	6.03	1.88	
2021/04/28	09:07:00	14.59	10.32	5.96	1.79	
2021/04/28	09:08:00	14.58	10.20	1.36	-0.33	**SWITCH PORT**
2021/04/28	09:09:00	5.92	10.28	6.32	2.07	
2021/04/28	09:10:00	3.56	10.25	6.05	1.58	**CONTINUE**
2021/04/28	09:11:00	3.52	10.27	6.07	0.45	
2021/04/28	09:12:00	3.46	10.31	6.16	0.72	
2021/04/28	09:13:00	3.56	10.29	6.18	1.57	
2021/04/28	09:14:00	3.60	10.26	6.11	1.01	
2021/04/28	09:15:00	3.61	10.33	6.08	0.84	
2021/04/28	09:16:00	3.53	10.31	6.19	0.84	
2021/04/28	09:17:00	3.60	10.24	6.19	0.26	
2021/04/28	09:18:00	3.68	10.29	6.24	0.25	
2021/04/28	09:19:00	3.62	10.22	6.19	0.62	
2021/04/28	09:20:00	3.61	10.26	6.23	0.65	
2021/04/28	09:21:00	3.65	10.27	6.14	0.04	
2021/04/28	09:22:00	3.64	10.26	6.17	0.11	
2021/04/28	09:23:00	3.64	10.26	6.17	0.24	
2021/04/28	09:24:00	3.64	10.25	6.09	0.16	
2021/04/28	09:25:00	3.62	10.31	6.12	0.18	
2021/04/28	09:26:00	3.57	10.36	6.18	0.39	
2021/04/28	09:27:00	3.50	10.44	6.33	0.39	
2021/04/28	09:28:00	3.60	10.37	6.31	0.21	
2021/04/28	09:29:00	3.41	10.39	6.23	0.14	
2021/04/28	09:30:00	3.47	10.43	6.25	0.55	
2021/04/28	09:31:00	3.56	10.46	6.37	0.53	
2021/04/28	09:32:00	3.35	10.52	6.39	1.54	
2021/04/28	09:33:00	3.56	10.40	6.35	1.79	
2021/04/28	09:34:00	3.60	10.51	6.42	0.54	
2021/04/28	09:35:00	3.53	10.41	6.36	0.62	
2021/04/28	09:36:00	3.32	10.61	6.45	3.85	
2021/04/28	09:37:00	3.53	10.49	6.35	4.17	
2021/04/28	09:38:00	3.57	10.40	6.21	0.78	
2021/04/28	09:39:00	3.66	10.40	6.14	0.29	
2021/04/28	09:40:00	3.61	10.36	6.05	0.77	
2021/04/28	09:41:00	3.65	10.35	6.12	1.26	
2021/04/28	09:42:00	3.58	10.56	6.05	2.76	
2021/04/28	09:43:00	3.21	10.60	6.06	9.02	
2021/04/28	09:44:00	3.41	10.40	5.97	5.19	
2021/04/28	09:45:00	3.63	10.43	6.03	2.30	
2021/04/28	09:46:00	3.63	10.27	5.87	0.62	
2021/04/28	09:47:00	3.52	10.34	5.92	2.77	
2021/04/28	09:48:00	3.58	10.35	5.87	4.71	
2021/04/28	09:49:00	3.54	10.30	5.93	2.22	
2021/04/28	09:50:00	3.58	10.30	5.88	2.82	
2021/04/28	09:51:00	3.67	10.20	5.85	0.81	
2021/04/28	09:52:00	3.62	10.31	5.88	0.88	
2021/04/28	09:53:00	3.62	10.30	5.97	1.65	
2021/04/28	09:54:00	3.66	10.27	5.88	1.48	
2021/04/28	09:55:00	3.65	10.37	5.95	1.46	

AIR QUALITY ENGINEERING, INC.

Device Type	DX200
Serial No.	12BC20473
File Message	AIR QUALITY ENGINEERING
Start Time	2021/04/28 06:24:00
Stop Time	2021/04/28 10:44:00

Date	Time	CH01 O2 % MAX	CH02 CO2 % MAX	CH03 NOx PPM MAX	CH04 CO ppm MAX	NOTE
2021/04/28	09:56:00	3.61	10.25	5.90	1.69	
2021/04/28	09:57:00	3.61	10.25	5.83	1.95	
2021/04/28	09:58:00	3.66	10.24	5.91	1.12	
2021/04/28	09:59:00	3.74	10.24	5.88	0.73	
2021/04/28	10:00:00	3.66	10.36	5.97	0.91	
2021/04/28	10:01:00	3.67	10.27	6.06	1.02	
2021/04/28	10:02:00	3.52	10.38	6.05	2.82	
2021/04/28	10:03:00	3.58	10.29	6.02	4.51	
2021/04/28	10:04:00	3.60	10.31	5.94	3.25	
2021/04/28	10:05:00	3.66	10.26	5.94	0.73	
2021/04/28	10:06:00	3.63	10.31	6.05	1.00	
2021/04/28	10:07:00	3.71	10.27	6.01	1.08	
2021/04/28	10:08:00	3.74	10.33	6.12	1.64	
2021/04/28	10:09:00	3.69	10.27	6.14	2.29	
2021/04/28	10:10:00	3.68	10.20	5.97	2.54	
2021/04/28	10:11:00	4.51	10.18	5.90	0.58	
2021/04/28	10:12:00	4.55	8.83	0.01	-0.42	
2021/04/28	10:13:00	4.59	9.31	0.02	-0.12	
2021/04/28	10:14:00	4.61	9.39	0.04	-0.05	
2021/04/28	10:15:00	4.58	9.01	0.01	-0.03	
2021/04/28	10:16:00	4.56	9.02	0.01	0.00	**CB-O2+CO2**
2021/04/28	10:17:00	4.56	9.02	6.08	0.00	
2021/04/28	10:18:00	0.03	0.15	5.44	0.00	
2021/04/28	10:19:00	0.02	0.11	5.44	0.01	
2021/04/28	10:20:00	0.01	0.07	5.50	0.01	**CB-NOX**
2021/04/28	10:21:00	0.01	0.05	5.54	0.02	
2021/04/28	10:22:00	0.01	0.04	5.37	2.65	
2021/04/28	10:23:00	0.01	0.03	0.10	4.67	
2021/04/28	10:24:00	0.01	0.02	0.02	4.68	
2021/04/28	10:25:00	0.01	0.01	0.04	4.67	
2021/04/28	10:26:00	0.01	0.01	0.05	4.68	
2021/04/28	10:27:00	0.01	0.01	0.06	4.67	
2021/04/28	10:28:00	0.01	0.00	0.03	4.67	**CB-CO**
2021/04/28	10:29:00	0.01	0.00	0.02	0.28	
2021/04/28	10:30:00	0.00	0.00	0.02	0.02	
2021/04/28	10:31:00	0.00	0.00	0.01	0.02	**CE-ZERO GAS**
2021/04/28	10:32:00	0.00	0.00	0.08	0.03	
2021/04/28	10:33:00	8.69	17.74	8.17	8.13	
2021/04/28	10:34:00	8.69	17.99	8.44	8.86	
2021/04/28	10:35:00	8.79	18.27	8.43	8.86	
2021/04/28	10:36:00	8.81	18.27	8.40	8.77	
2021/04/28	10:37:00	8.80	18.02	8.41	8.77	**CE-SPAN GAS**
2021/04/28	10:38:00	8.79	17.99	8.45	8.83	
2021/04/28	10:39:00	8.78	17.99	8.43	8.84	
2021/04/28	10:40:00	4.57	9.05	5.41	6.64	
2021/04/28	10:41:00	4.53	9.08	5.44	4.73	
2021/04/28	10:42:00	4.53	9.03	5.43	4.73	**CE-MID GAS**
2021/04/28	10:43:00	4.54	9.06	5.52	4.71	
2021/04/28	10:44:00	4.54	9.05	5.47	4.71	

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA, LLC
630 United Drive
Durham, NC 27713
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number:	E02NI99E15AC651	Reference Number:	122-401657601-1
Cylinder Number:	CC716555	Cylinder Volume:	144.3 CF
Laboratory:	124 - Durham (SAP) - NC	Cylinder Pressure:	2015 PSIG
PGVP Number:	B22019	Valve Outlet:	660
Gas Code:	NO,NOX,BALN	Certification Date:	Nov 26, 2019

Expiration Date: Nov 26, 2022

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.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	5.500 PPM	5.410 PPM	G1	+/- 1.0% NIST Traceable	11/19/2019, 11/26/2019
NITRIC OXIDE	5.500 PPM	5.395 PPM	G1	+/- 0.9% NIST Traceable	11/19/2019, 11/26/2019
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	16060645	CC442676	50.42 PPM NITRIC OXIDE/NITROGEN	+/- 0.8	Jun 27, 2020
NTRM	16060645	CC442676 NOx	50.49 PPM NOx/NITROGEN	+/- 0.8	Jun 27, 2020

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
THERMO NO 42I-1308857345	Chemiluminescence	Nov 07, 2019
THERMO NOX 42I-1308857345	Chemiluminescence	Nov 07, 2019

Triad Data Available Upon Request

Signature on file

Approved for Release

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA, LLC
11711 S. Alameda Street
Los Angeles, CA 90059
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number:	E02NI99E15AC0A0	Reference Number:	48-401606659-1
Cylinder Number:	CC197765	Cylinder Volume:	144.3 CF
Laboratory:	124 - Los Angeles (SAP) - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32019	Valve Outlet:	660
Gas Code:	NO,NOX,BALN	Certification Date:	Oct 16, 2019

Expiration Date: Oct 16, 2022

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.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	8.500 PPM	8.372 PPM	G1	+/- 1.1% NIST Traceable	10/08/2019, 10/16/2019
NITRIC OXIDE	8.500 PPM	8.233 PPM	G1	+/- 1.0% NIST Traceable	10/08/2019, 10/16/2019
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	16060753	CC465104	10.08 PPM NITRIC OXIDE/NITROGEN	+/- 1.0%	Oct 16, 2022
NTRM	16060753	CC465104-NOX	10.08 PPM NOx/NITROGEN	+/- 1.0%	Oct 16, 2022

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Thermo 42-iLS 1115848421 NO	Chemiluminescence	Oct 04, 2019
Thermo 42-iLS 1115848421 NOx	Chemiluminescence	Oct 04, 2019

Triad Data Available Upon Request

Signature on file
Approved for Release

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA, LLC
11711 S. Alameda Street
Los Angeles, CA 90059
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number:	E02AI99E15WC022	Reference Number:	48-401421492-1
Cylinder Number:	CC500716	Cylinder Volume:	146.2 Cubic Feet
Laboratory:	124 - Los Angeles (SAP) - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32019	Valve Outlet:	660
Gas Code:	NO2,BALA	Certification Date:	Feb 20, 2019

Expiration Date: Feb 20, 2022

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.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NITROGEN DIOXIDE	9.000 PPM	8.927 PPM	G1	+/- 1.0% NIST Traceable	02/13/2019, 02/20/2019
AIR	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
GMIS	401085385110	CC511345	14.14 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Aug 15, 2021
PRM	12376	D562879	10.01 PPM NITROGEN DIOXIDE/AIR	+/- 2.0%	Aug 17, 2018

The SRM, PRM or RGM noted above is only in reference to the GMIS used in the assay and not part of the analysis.

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
MKS FTIR NO2 018335821	FTIR	Feb 19, 2019

Triad Data Available Upon Request

Signature on file
Approved for Release

PRAXAIR

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Tel: (323) 585-2154 Fax:(714) 542-6689
PGVPID: F22016

DocNumber: 000096218

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

PRAXAIR WHSE SANTA ANA CA
1545 E EDINGER AVE
SANTA ANA CA 927050

Praxair Order Number: 34529715
Customer P. O. Number: 06064636
Customer Reference Number:

Fill Date: 6/29/2016
Part Number: NI CO4.7ME-AS
Lot Number: 109618101
Cylinder Style & Outlet: AS CGA 350
Cylinder Pressure & Volume: 2000 psig 140 cu. ft.

Certified Concentration:

Expiration Date:	**7/11/2024**		NIST Traceable
Cylinder Number:	**CC316087**		Analytical Uncertainty:
4.69	**ppm**	**CARBON MONOXIDE**	± 2 %
	Balance	**NITROGEN**	

Certifcation Information: *Certification Date:* 7/11/2016 *Term:* 96 Months *Expiration Date:* 7/11/2024

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1. Do Not Use this Standard if Pressure is less than 100 PSIG.

Analytical Data: *(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)*

1. Component: CARBON MONOXIDE

Requested Concentration: 4.7 ppm
Certified Concentration: 4.69 ppm
Instrument Used: Horiba VIA-510 S/N 576876015
Analytical Method: NDIR
Last Multipoint Calibration: 6/29/2016

First Analysis Data:						**Date:**	7/11/2016
Z:	0	**R:**	66.9	**C:**	39.4	**Conc:**	4.772
R:	65.4	**Z:**	0	**C:**	38.5	**Conc:**	4.663
Z:	0	**C:**	38.2	**R:**	65.2	**Conc:**	4.626
UOM:	ppm			**Mean Test Assay:**			4.687 ppm

Reference Standard Type: GMIS
Ref. Std. Cylinder # : CC196524
Ref. Std. Conc: 7.973 ppm
Ref. Std. Traceable to SRM # : 1677c
SRM Sample # : 5-J-42
SRM Cylinder # : 1677c

Second Analysis Data:						**Date:**	
Z:	0	**R:**	0	**C:**	0	**Conc:**	0
R:	0	**Z:**	0	**C:**	0	**Conc:**	0
Z:	0	**C:**	0	**R:**	0	**Conc:**	0
UOM:	ppm			**Mean Test Assay:**			0 ppm

Analyzed by: Ying Yu

Certified by: Maria Soberanis

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA, LLC
11711 S. Alameda Street
Los Angeles, CA 90059
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number:	E02NI99E15AC002	Reference Number:	48-124623843-1
Cylinder Number:	CC476535	Cylinder Volume:	144.3 CF
Laboratory:	124 - Los Angeles (SAP) - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32017	Valve Outlet:	350
Gas Code:	CO,BALN	Certification Date:	Jun 14, 2017

Expiration Date: Jun 14, 2025

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.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON MONOXIDE	8.500 PPM	8.779 PPM	G1	+/- 0.4% NIST Traceable	06/14/2017
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	12062825	CC366934	9.766 PPM CARBON MONOXIDE/NITROGEN	+/- 0.3%	Sep 07, 2018

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Thermo 48i-TLE 1132250557 CO	NDIR	May 19, 2017

Triad Data Available Upon Request

Signature on file
Approved for Release

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA, LLC
11711 S. Alameda Street
Los Angeles, CA 90059
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number:	E03NI86E15A62Q5	Reference Number:	48-401853600-1
Cylinder Number:	CC259553	Cylinder Volume:	149.7 CF
Laboratory:	124 - Los Angeles (SAP) - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32020	Valve Outlet:	580
Gas Code:	CO2,O2,BALN	Certification Date:	Jul 13, 2020

Expiration Date: Jul 13, 2028

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.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
OXYGEN	4.500 %	4.518 %	G1	+/- 0.4% NIST Traceable	07/13/2020
CARBON DIOXIDE	9.000 %	9.014 %	G1	+/- 0.6% NIST Traceable	07/13/2020
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	14060633	CC437002	4.794 % OXYGEN/NITROGEN	+/- 0.4%	Oct 29, 2025
NTRM	08010611	K005428	13.94 % CARBON DIOXIDE/NITROGEN	+/- 0.6%	Jan 30, 2024

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
SIEMENS 6E CO2	NDIR	Jul 10, 2020
SIEMENS OXYMAT 6	PARAMAGNETIC	Jul 02, 2020

Triad Data Available Upon Request

Signature on file
Approved for Release

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA, LLC
11711 S. Alameda Street
Los Angeles, CA 90059
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number:	E03NI73E15A3831	Reference Number:	48-401328980-1
Cylinder Number:	CC208343	Cylinder Volume:	156.4 CF
Laboratory:	124 - Los Angeles (SAP) - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32018	Valve Outlet:	590
Gas Code:	CO2,O2,BALN	Certification Date:	Oct 24, 2018

Expiration Date: Oct 24, 2026

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.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
OXYGEN	8.750 %	8.769 %	G1	+/- 0.7% NIST Traceable	10/24/2018
CARBON DIOXIDE	18.00 %	17.96 %	G1	+/- 0.7% NIST Traceable	10/24/2018
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	98051001	SG9168397	12.05 % OXYGEN/NITROGEN	+/- 0.7%	Dec 14, 2023
NTRM	12061520	CC354777	19.87 % CARBON DIOXIDE/NITROGEN	+/- 0.6%	Dec 27, 2018

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
SIEMENS 6E CO2	NDIR	Sep 26, 2018
SIEMENS OXYMAT 6	PARAMAGNETIC	Sep 24, 2018

Triad Data Available Upon Request

Signature on file
Approved for Release

APPENDIX F

SCAQMD METHOD 307.91 DATA

Quantum Analytical Services Inc.
www.quantumairlab.com
1210 E. 223rd Street, Suite #314 • Carson, California 90745 • 310/830-2226 • Fax 310/830-2227

CLIENT: [redacted]
CLIENT PROJ NO: [redacted]
LABORATORY NO: 21-351
SAMPLING DATE: 04/28/21
RECEIVING DATE: 04/28/21
ANALYSIS DATE: 04/28/21
REPORT DATE: 04/30/21

Laboratory Analysis Report

Analysis Method	SCAQMD 307-91		
Detection Limits	0.05PPMV		
Analyte	Client ID	S-1 Process Gas	S-2 Process Gas
	Sampling Date	04/28/21	04/28/21
	Sampling Time	0730	0830
	Lab ID	11821-4	11821-5
	Units	PPMV	PPMV
Hydrogen Sulfide		0.14	0.18
Carbonyl Sulfide		<0.05	<0.05
Methyl Mercaptan		0.05	<0.05
Ethyl Mercaptan		0.08	0.11
t-Butyl Mercaptan		0.61	0.63
Tetrahydrothiophene		0.78	0.78
Un-Identified S Compounds		0.08	0.14
Total Sulfur as H_2S		**1.75**	**1.85**

Dr. Andrew Kitto
President

Quantum Analytical Services Inc.
www.quantumairlab.com
1210 E. 223rd Street, Suite #314 • Carson, California 90745 • 310/830-2226 • Fax 310/830-2227

CLIENT: [redacted]
CLIENT PROJ NO: [redacted]
LABORATORY NO: 21-351
SAMPLING DATE: 04/28/21
RECEIVING DATE: 04/28/21
ANALYSIS DATE: 04/28/21
REPORT DATE: 04/30/21

Laboratory Analysis Report

Analysis Method	SCAQMD 307-91	
Detection Limits	0.05PPMV	
Client ID	S-3 Process Gas	S-4 Process Gas
Sampling Date	04/28/21	04/28/21
Sampling Time	0930	1030
Lab ID	11821-6	11821-7
Analyte / Units	PPMV	PPMV
Hydrogen Sulfide	0.29	0.24
Carbonyl Sulfide	<0.05	<0.05
Methyl Mercaptan	0.06	0.06
Ethyl Mercaptan	0.19	0.15
t-Butyl Mercaptan	0.87	0.81
Tetrahydrothiophene	0.75	0.67
Un-Identified S Compounds	0.15	0.13
Total Sulfur as H_2S	**2.31**	**2.05**

Dr. Andrew Kitto
President

Quantum Analytical Services Inc.
www.quantumairlab.com
1210 E. 223rd Street, Suite #314 • Carson, California 90745 • 310/830-2226 • Fax 310/830-2227

CLIENT: [redacted]
CLIENT PROJ NO: [redacted]
LABORATORY NO: 21-351
SAMPLING DATE: 04/28/21
RECEIVING DATE: 04/28/21
ANALYSIS DATE: 04/28/21
REPORT DATE: 04/30/21

Quality Assurance Report

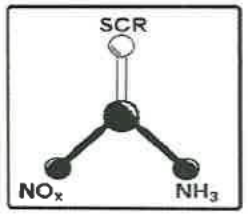
Duplicate Analysis

Sample ID: S-4 Process Gas **Lab ID: 11821-7**

Analysis Method		SCAQMD 307-91		
Detection Limit		**0.05 PPMV**		
Analyte	**Aver. Conc. PPMV**	**Dil. Factor Ambient Air**	**DF*A/CF PPMV**	**% Sample Recovery**
Hydrogen Sulfide	0.24	1	0.24	100
Carbonyl Sulfide	<0.05	1	<0.05	N/A
Methyl Mercaptan	0.05	1	0.05	99.1
Ethyl Mercaptan	0.15	1	0.15	101
t-Butyl Mercaptan	0.81	1	0.82	100
Tetrahydrothiophene	0.68	1	0.69	102
Unidentified S Compounds	0.14	1	0.14	105
Total Sulfur as H2S	**2.08**	**1**	**2.10**	**101**

N/A: Not Applicable

Dr. Andrew Kitto
President



AIR QUALITY ENGINEERING, INC.

Emissions Measurements and Regulatory Compliance

1618 French Street • Santa Ana, California 92701

Tel: (714) 647-1285 • Fax: (714) 647-1287

21-351

CHAIN OF CUSTODY RECORD

Date:

Page of

TURNAROUND TIME	RELINQUISHED BY (Signature):	RECEIVED BY (Signature):	DATE:	TIME:
☐ 24 Hr ☐ 48 Hr ☐ 72 Hr ☐ 5 Days ☑ Standard				
PROJECT NAME: [redacted]	RELINQUISHED BY (Signature):	RECEIVED BY (Signature):	DATE:	TIME:
PROJECT CONTACT: Sean H. Nguyen	RELINQUISHED BY (Signature):	RECEIVED BY (Signature):	DATE:	TIME:
SAMPLER SIGNATURE:	RELINQUISHED BY (Signature):	RECEIVED BY (Signature):	DATE: 04/28/21	TIME: 1:35

Special Instructions:

SAMPLE ID	SAMPLE DENCRIPTION/LOCATION		No. of Cont.	COLLECTED DATE	COLLECTED TIME	Test ID	ANALYSIS REQUESTED M307.91	Note(s)
S-1	Process Gas	Produced Gas K.O. Drum	1	4/28/2021	7:20	1	X	LAB ID # 11821-4
S-2	Process Gas	Produced Gas K.O. Drum	1	4/28/2021	8:30	2	X	-5
S-3	Process Gas	Produced Gas K.O. Drum	1	4/28/2021	9:30	3	X	-6
S-4	Process Gas	Produced Gas K.O. Drum	1	4/28/2021	10:30	4	X	-7

APPENDIX G

SOURCE TEST NOTIFICATION

From:
To:
Cc:

Subject:
Date:

Good afternoon,

This email is a notification of an upcoming source test for the Transmix Heater at located at [redacted] The source test is anticipated to start at approximately 9:00 am PDT on April 28, 2021. The source test will be performed in accordance with the conditionally approved protocol dated December 28, 2020, Reference #P20335 (STE Source Test File) and the Permit to Construct (A/N 617290). In addition to the source test, a Relative Accuracy Audit (RAA) will be conducted and samples will be collected for sulfur content analysis.

Please let me know if there are any questions regarding this notification.

Respectfully,

[redacted]

APPENDIX H

SOURCE TEST PROTOCOL APPROVAL

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

M E M O R A N D U M

DATE: February 2, 2021

TO: Thomas Liebel

FROM: Bill Welch GK for BW

SUBJECT: Evaluation of Source Test Protocol:
(Requested by Marilyn Potter, December 29, 2020)

IDENTIFICATION: [redacted] **(FacID 800129)**
COMPANY: [redacted]
EQUIPMENT: [redacted]

REFERENCE: P 20335 (STE Source Test File)

Source Test Engineering has completed the evaluation of the subject source test protocol for testing at [redacted] and has concluded that it is:

CONDITIONALLY ACCEPTABLE
Some of the applicable Rules and/or Permit Conditions, may not have been acceptably addressed, and/or the proposed sampling locations, and/or the proposed sampling and analytical methods will need to be modified before testing can commence. Refer to the attached evaluation for a complete discussion concerning the modifications that must be implemented into this existing source test protocol.

The attached evaluation has not been forwarded to the facility or the source testing firm. It is the responsibility of the requestor to review the attached evaluation and forward it to the parties involved, if you concur with our findings. If there are any questions, please contact Colin Eckerle at Ext. 2476.

GK:CE

Attachment

cc: Colin Eckerle
Glenn Kasai
Marilyn Potter
Linda Dejbakhsh

P20335 Evaluation.doc Rev: 1/7/2021

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Monitoring & Analysis Division/ Source Test Engineering

SOURCE TEST PROTOCOL EVALUATION

S/T ID: **P 20335**

IDENTIFICATION: **(A/N 617290)** **(FacID 800129)**

COMPANY: [redacted]
EQUIPMENT: [redacted]
LOCATION: [redacted]

TYPE OF TEST: **Performance/ Compliance Protocol**

REASON FOR TEST: *(Rule, Permit, Or Specified Conditions)*:
- CO 100 PPMV (Rule 1313(g))
- CO 400 PPMV (Rule 1146)
- CO 2000 PPMV (Rule 407)
- NOx 7 PPMV (Rule 2012)
- NOx 9 PPMV (Rule 1146)
- NOx 40 PPMV (Rule 2012)
- NOx 8.38 lb/MMScf Natural Gas (Rule 2012)
- H_2S (Rule 431.1)
- Permit Condition D29.2 & D182.1

REQUESTED EVAL: **NOx, CO, TRS, H_2S**
REQUESTED BY: **Marilyn Potter (Memo Dated December 29, 2020)**

TEST FIRM: **Air Quality Engineering, Inc.**
DOCUMENT DATE **December 20, 2020**

STE EVALUATOR: **Colin Eckerle** *EXT:* **2476** *REVIEW DATE:* **February 2, 2021**

OVERVIEW OF EVALUATION:

OVERALL CONFIDENCE IN SOURCE TEST PROPOSAL:	☐ **ACCEPTABLE**	☒ **CONDITIONALLY ACCEPTABLE**	☐ **UNACCEPTABLE** ☐ **NOT REVIEWED**
DEFICIENCIES IDENTIFIED:	• Deficiency noted concerning proposed **NOx, CO, TRS and H_2S** emission testing. • Deficiency noted concerning proposed sampling location(s) and/or representativeness with respect to process and required testing. • Deficiency noted concerning proposed stack velocity and/or fuel flow measurements.		

SOURCE TEST PROTOCOL EVALUATION

MODIFICATIONS OR REMEDIAL MEASURES REQUIRED:	• There are some important reminders concerning proposed testing. • This source test proposal must be modified to address the deficiencies described in the following section of this evaluation, and the source testing which incorporates these modifications may proceed without further discussion.

(REFER TO NEXT SECTION FOR COMPLETE DISCUSSION OF THESE DEFICIENCIES)

S P E C I F I C R E Q U I R E M E N T S

This source test protocol has been reviewed by the Source Test Engineering Branch staff. The following item(s) specifically explain the required modifications to the existing source test protocol which must be implemented, or items requiring further discussion or explanation, before testing can proceed:

- ☒ Completeness of Application/Protocol/Report
- ☒ Representativeness of Data & Process
- ☒ Rule/Permit Fulfillment
- ☒ Sampling & Analytical Methods
- ☒ Quality Assurance
- ☒ Calculations

COMPLETENESS OF PROTOCOL/ REPORT

1) The report shall be submitted in both hardcopy and electronic (pdf) formats. In addition, each page of the final test report (including raw analytical and field data, as well as other third-party reports) must have a unique and sequential page number which can be referenced in future correspondences.

2) An electronic copy of the Method 100.1 DAS output shall be submitted in Microsoft Excel (xls or xlsx) format with the test report. The output must be continuous, with data at one minute intervals, starting from the pre-test calibrations, and ending after the post-test calibrations. The spreadsheet shall include headers for each gas analyzed, and the date and time must be shown on each row of output.

3) Notification of the source test shall be made at least fourteen days prior to the source test. Notifications shall be directed to Air Quality Engineers Linda Dejbakhsh (Phone: (909) 396-2614, email: ldejbakhsh@aqmd.gov) and Colin Eckerle (Phone: (909) 396-2476, email: ceckerle@aqmd.gov), and shall include the facility name, ID number and address, and the date and time of the source test.

REPRESENTATIVENESS OF DATA & PROCESS

1) In order to establish the operating load of the equipment, the following parameters shall be monitored during sampling and documented in the final test report:

   - Natural gas and process gas flow rates measured using the facility fuel flow meters
   - Firing rate of the heater
   - Exhaust flow rate measured using the facility flow meter
   - Operating temperature of the heater

2) Prior to testing, gaseous stratification and cyclonic flow checks must be performed and documented in the test report. As an alternative to gaseous stratification testing, stack gases may be "traverse sampled" and properly documented in the test report. If a stack traverse is performed, both the DAS output and the stripchart must be marked with the traverse point location each time the probe is moved.

3) Since the fuel usage will be taken, the following information must be recorded during testing and provided in the final source test report:

- The fuel meter must be dedicated exclusively to that source or verified that only that source is operating during testing.
- The fuel meter must be clearly identified and documented as to type (turbine, orifice, volumetric, etc.), make, model, serial no., and min/max flow.
- A current meter calibration certificate or "meter proof" relative to a NIST traceable standard, or South Coast AQMD equivalent, or Method 1-4 Reference Method Velocity/Flowrate comparison (3-Run RAA).
- Fuel meter corrections to standard temperature and pressure, and other corrections, if applicable, must be clearly shown.
- Fuel readings are taken regularly throughout the testing interval, or at a minimum of start, mid, and finish of test for each operating load tested. Each meter reading interval shall not be less than 5 minutes or one meter revolution, whichever is more.

4) The tester shall confirm prior to testing that the dampener shown in Figure 1 of the test protocol is in the fully open position. The position of the dampener shall be documented in the final report.

5) The following NOx and CO emission limits listed in Section H of the permit are specified in terms of natural gas fuel:

- CO 100 PPMV Natural Gas (Rule 1313(g))
- NOx 7 PPMV Natural Gas (Rule 2012)
- NOx 9 PPMV Natural Gas (Rule 1146)
- NOx 40 PPMV Natural Gas (Rule 2012)
- NOx 8.38 lbs/MMScf Natural Gas (Rule 2012)

This is inconsistent with Permit Condition B59.1, which lists process gas and natural gas as permitted fuels for the heater (Device D69). During normal operation, the heater is typically fired on a combination of natural gas and process gas. The requestor is notified that, since only natural gas is specified in the above emission limits, it is unclear whether compliance determinations can be made while the equipment is fired on process gas.

SPECIFIC REQUIREMENTS

RULE/PERMIT FULFILLMENT

1) Testing must be conducted pursuant to the following Rule/Permit Conditions:
   - Permit Condition No. D29.2 & D182.1

2) Rule 431.1 requires a 4 hour sample to demonstrate compliance for sulfur emissions. To comply with the rule's sampling requirement, AQE noted in their January 11, 2021 email that they will collect one 30 minute sample each operating hour. A total of four samples will be collected over four operating hours.

SAMPLING & ANALYTICAL METHODS

1) Stack oxygen concentrations greater than, or equal to 19% shall employ either the CO_2 procedure for calculating oxygen corrected pollutant concentrations (see *Source Test Protocol For Determining Oxygen Corrected Pollutant Concentrations From Combustion Sources With High Stack Oxygen Content Based On Carbon Dioxide Emissions*), or the equivalent pound per million Btu procedure described in Section 8.0 of the Rule 1146 and 1146.1 protocol (see *Compliance Protocol For The Measurement Of Nitrogen Oxides, Carbon Monoxide, And Oxygen From Sources Subject To South Coast Air Quality Management Rules 1146 And 1146.1*). The final test report must include all data and calculations required by the procedure used during the test.

2) Both the DAS and stripchart outputs are required for Method 100.1 documentation. The DAS output shall be at 1 minute intervals. Both the DAS and stripchart shall continuously record data beginning from the pre-test calibrations to the final post-test calibrations. The chart speed and the date and time stamps must be clearly visible on the output. Any time gaps in the output will be viewed with suspicion. For example, the NO_2 to NO converter efficiency check or the field portion of the Method 205 dilution check must be part of the continuous DAS and stripchart output.

3) Although Method 100.1 defines the quantifiable range as between 20 and 95 percent of the analyzer range, low level (non-zero) calibration gas may be injected before and after each test run to extend the lower quantifiable limit to 10 percent of the analyzer range. The low-level calibration gas concentration must be approximately 10 percent of the range, and shall be injected directly at the analyzer (calibration error), and at the probe (system bias). The low-level gas injections must meet the calibration error, system bias, and drift performance criteria of Method 100.1. For very low pollutant concentrations, the procedures described in the South Coast AQMD's August 21, 2013 letter shall be considered for Method 100.1 measurements (see heading Exhaust Concentrations With High Dilution Of Ambient Air).

4) The DAS data shall be used to calculate the Method 100.1 performance criteria. The DAS must be annotated so that the injection route (i.e.- direct to analyzer or system bias) is identified. Additionally, the DAS values used to check the performance criteria shall be highlighted so that the calculations may be verified.

5) The following attachments highlight the requirements whenever Method 100.1 testing is specified or utilized:
ATTACHMENT A **GENERAL CONTINUOUS GAS MONITORING REQUIREMENTS**
ATTACHMENT B **SAMPLE CONDITIONING REQUIREMENTS FOR METHOD 100.1**
ATTACHMENT C **NO_2 TO NO CONVERSION TEST PROCEDURE**

6) Reminder concerning continuous gas monitoring (Method 100.1): A large number of source test reports concerning continuous gas monitoring Method 100.1 are being rejected because the reported gas values are below acceptable analyzer range limits. Be sure your gas analyzers can monitor source gas concentrations within 20-95% of analyzer full-scale ranges, and that appropriate calibration gases are on hand to validate these analyzer ranges. Failure to do this may result in the rejection of all or part of the reported gaseous emission data, with a retest being the only remediation.

7) As a reminder for velocity pressure measurements (as described in Section 2.1.2 of Method 2.1) using typical 10-inch water column inclined-vertical manometers and Magnehelics, readings are not considered accurate if:

- Average readings are less than 0.05" wc;
- More than 10% of points are less than 0.05" wc (for traverses with more than 12 points); and,
- More than one point is less than 0.05" wc (for traverses less than 12 points).

8) As a further reminder, a standard Pitot tube shall be used for flow velocities that are less than 600 fpm.

9) As noted in AQE's January 25, 2021 email, the helium tracer gas procedure will only be conducted if the stack velocity pressure is unmeasurable using a standard Pitot tube and a Shortridge micro-electronic manometer. Otherwise, South Coast AQMD Methods 1.1-4.1 will be followed to determine the heater flow RAA.

10) If helium tracer gas testing is conducted, AQE shall adhere to the procedures outlined in their January 25, 2021 email. As was noted in their January 25 email, the presence of stratification shall also be addressed. Following the EPA Method 205 field verification with oxygen, a canister sample shall be collected through the Environics instrument to produce 50% He with the remainder being the dilution (non-oxygen) gas used in the Method 205 field verification. This canister sample must be analyzed by the same laboratory that will be analyzing the tracer gas samples collected in the exhaust stack. The difference between the expected and

measured He results must be discussed in the Test Critique section of the final report.

QUALITY ASSURANCE

1) All applicable pieces of source test and process equipment used directly or indirectly for measurement of source test emission data must be calibrated, and the calibrations included in the final report (this includes gas meters, Pitot tubes, pressure gages, nozzles, temperature devices, calibration gases, fuel usage meters, totalizers, etc.).

2) Where appropriate, field blanks, reagent blanks and recovery spikes must be performed, and the information submitted with the source test report. Only reagent blanks may be deducted for emission calculations.

3) All raw data field data sheets, as well as recorder strip charts, must accompany the test report. Additionally, all gas cylinders used to calibrate the analyzers must be certified, and a copy of the gas certificates shall be submitted with the report.

4) Where laboratory instrument analysis is required, instrument raw stripcharts, calibrations and standards, and limit of detection must be included in the source test report. This also includes equipment transfer and "chain-of-custody" form clearly describing all equipment and laboratory ID numbers, dates and times, required analysis, and the signature/initials of persons involved in transfers. TCA analyses must also include trap burn-outs from previous test, if applicable.

5) The terms "non-detect" or "non-detectable" are no longer used for emission reporting purposes. Instead, non-detectable results are reported with respect to the limit of detection of the analytical instrument or method (e.g. report "<10 micrograms/liter", if detection limit is 10 micrograms/liter). Non-detectable emission results must have supporting documentation to show that acceptable sample volume was collected pursuant to rule or permit limits and analytical method limit of detection.

CALCULATIONS

1) All calculations concerning intermediate process, emission, and/or flow information must be shown and included in the final report. This also applies to calculations concerning laboratory analyses.

FINAL TEST REPORT

The final Source Test Report must include the following information:

1. Signed "Statement of Non-Conflict as an Independent Laboratory" (Rule 304(k)) and CARB Lab Approval or South Coast AQMD Lab Approval Program (LAP) document (if applicable).

2. A brief opening statement identifying the Facility I.D., the equipment A/N, P/O, or Device I.D. and the reason(s) for testing (applicable rules permit conditions, etc.). Include a copy of the Permit-to-Construct, Permit-to-Operate, or Facility Permit. Also identify the test dates, the personnel on hand for the test, names, titles and phone numbers of responsible test firm and facility personnel.

3. A summary of the Source Test results, including applicable rules and permit conditions (show allowable standards) and source test data properly formatted to satisfy these requirements.

4. A brief process description. Indicate equipment operation during testing; as well as any other information which may influence the final report.

5. A "self-critique" of anything that transpired during the test which you feel is useful in the interpretation of the test results.

6. A simple schematic diagram of the process, showing the sampling location, with respect to the upstream and downstream flow disturbances. Also include a cross- sectional diagram of the stack or duct at the sampling location, depicting the sampling points with respect to compass direction.

7. The sampling and analytical procedures. Be specific about all aspects of sampling and analysis. Include diagrams of test equipment and methods.

8. Complete raw field data, including production data indicative of the testing interval, lab analyses, and the test results (show all calculations).

9. Current calibration data regarding all sampling and measuring equipment utilized during testing. This also includes all laboratory calibrations, as well as facility fuel meter calibrations (see Source Testing Manual, Chapter III).

ATTACHMENT A

GENERAL CONTINUOUS GAS MONITORING REQUIREMENTS

(p20335 evaluation 01072021_gk.doc : REV 2/2/2021 5:08:00 PM)

The South Coast AQMD requires continuous gas monitoring equipment employing sample extraction and conditioning, and electronic detection, to be conducted strictly according to Method 100.1, with the emphasis upon representativeness, documentation, and quality assurance. This includes, in part:

1. Gas analyzers must meet minimum acceptable standards for method of detection, sensitivity, noise, precision, linearity, and interference (see TABLE 100.1-1 for details). Also, the gas sample extraction and conditioning equipment (probe, filter, pump, conditioner, connective plumbing, etc., and data acquisition and logging equipment shall meet minimum acceptable specifications, as described in Method 100.1.

2. It is recommended that the entire sampling system for continuous gas monitoring instruments should be leak checked before and after each test run by evacuating the system to a minimum of 20 in. Hg vacuum, and plugging for a period of 5 minutes. The resultant loss of vacuum can not exceed 1 in. Hg during this period.

3. Calibration of all analyzers must be accomplished at zero, mid span (40-60% of full scale range), and high span (80-95% of full scale range). The lowest practicable range should be selected for monitoring, so that the measured emission values are within 20-95% of the range. If a significant amount of the data are outside of this range, the data may be rejected, depending upon the application.

4. The calibration gases must be certified according to EPA Protocol Number 1, or certified to an analytical accuracy of ±1% and be NIST traceable (except cal gases used for system bias check), following EPA-600/R93/224, "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards", TABLE 2-2. Superblend or multi-component blend gas recertifications are based upon the individual component(s) with the shortest recertification date.

5. Field calibrations employing gas dilution systems (mass flow or critical orifice) must be performed in accordance with EPA Method 205, "Gas Dilution Verification Protocol", or available "Draft" South Coast AQMD Method, and supported with appropriate documentation. A 5-point check is required.

6. A calibration error check, and zero/span drift check must be performed before and after each test run. Calibration error must be less than ±2% of the range of measurement for zero, mid, and high range calibration gases. Zero/span drift must be less than ±3% of the range of measurement.

7. A system bias check must be performed before and after each test run by alternately introducing cal gases to the entire sampling system, then to the gas analyzer(s), for comparison. The difference can not exceed ±5% of the analyzer range.

8. Semi-annual analyzer certifications consisting of linearity plot, calibration curve, response time, and interference response must be furnished with the other calibrations to satisfy Q/A documentational requirements.

ATTACHMENT A **(GENERAL CONTINUOUS GAS MONITORING REQUIREMENTS)**

9. NO_X measurement must be performed in the NO_X mode of the analyzer. An NO_2 to NO converter is required if NO_2 constitutes 5% or more of the total NO_X in the sample stream, or the rule or permit condition requires "NO_X" monitoring. The NO_2 to NO converter must be at least 90% efficient (use the NO_2 to NO converter efficiency procedure). The converter should be high temperature (650°C) stainless steel, if no NH_3 is present. If NH_3 is present in the sample stream, then a low temperature (350°C) molybdenum catalyst must be used in the converter. This check must be done at the beginning of the test.

10. The connective tubing from the probe to the sample conditioner must be heated above the dewpoint and the dewpoint reported. The sample conditioner must be able to maintain a dewpoint temperature of 37°F or less. (Refer to the "Sample Conditioning Requirements for Method 100.1" Addendum, for details)

11. Data recorder resolution must be at least 0.5% of the range of measurement. A data point for each contaminant/diluent monitored must be recorded at least once/minute. Analog chart recorders must have a minimum 10-inch chart width, with 100 minor divisions.

12. All facets of testing must be continuously recorded. This includes the 3-point calibration, system bias, calibration error, and zero/span drift checks, which must precede and conclude each test run.

13. All chart traces, or digital printouts, must be included in the final report and must be clearly identified as to:

    - location/source
    - operator initials
    - date/running times
    - actual test interval
    - contaminant/diluent
    - range changes
    - range of measurement
    - calibrations
    - cal gas concentration/cyl. no.
    - range of calibration

14. When more than one gas trace is shown on a chart, the individual traces must be distinguishable by color coding or some other means (original charts may be submitted, and returned following evaluation). If a gas measurement range has been "offset" from zero, or zero has been "transposed to the right side of the recorder chart, it must be clearly identified. this offset should not be more than 5-small divisions of the chart. This data must be corrected using the ratio of the offset.

15. Gaseous measurements must be conducted a minimum of 15 continuous minutes at each load or specified condition, after the readings have stabilized (RECLAIM reference method sampling requires a minimum of 30 continuous minutes at each load for RATAs). Processes having multiple exhausts exhibiting non-cyclic (i.e. steady- state) characteristics may alternatively be monitored using the above criteria. Otherwise, simultaneous sampling may be required.

16. Sampling locations not meeting the minimum site selection standards for Method 1 must be tested for absence of stratification. (A gaseous constituent concentration profile differing more than 10% between any two monitoring points within the same cross-sectional plane of a stack or duct indicates stratification.) If stratification is present, and alternate approved site selection or modification is not possible, then special monitoring (see Chapter X of the Source Testing Manual) will be required.

ATTACHMENT B

ADDENDUM TO "General Continuous Gas Monitoring Requirements"

SAMPLE CONDITIONING REQUIREMENTS FOR METHOD 100.1

For Method 100.1 tests, proper sample conditioning is essential for representative sampling. Sample conditioning includes removal of particulate matter and moisture present in the sample gas stream. The design of the sample conditioning system must be such that during the process of particulate and moisture removal, the pollutants of interest are not also removed from the gas stream. Method 100.1 requires that the tester select a system which will have a minimum "scrubbing" effect. In particular, NO_2 and SO_2 are more susceptible to scrubbing than, for example NO or CO, because of their high solubility in water. Since Method 100.1 is a reference method, it is required that a sample conditioning system cause only minimum loss of these pollutants.

The South Coast AQMD recommends a gas sampling system which can be used universally[1] (i.e. under all testing conditions). The set-up includes a heated 1/4-inch stainless steel probe with a 50-80 micron size, sintered 316 stainless steel or ceramic filter at the tip; and a short (not more than 6 feet) heated Teflon line to the sample conditioning system. The temperature of the probe and the Teflon line should be maintained at about 250°F. The conditioning system consists of a pair of standard Greenburg-Smith impingers with the stems cut to about 1-inch length from the top, immersed in a bath containing water and dry ice pellets, and immediately followed by a thermo-electric cooler or permeation drier. The gas temperature at the outlet of the impinger shall be less than 60°F and the gas at the drier outlet shall be maintained at a dew point less than 37°F. If the drier can not be directly connected to the impinger outlet, then a Teflon line heated to 10°F above the impinger outlet gas temperature can be used for connection. Another particulate filter (about 5 microns) should be in the line right after the cooler/drier. All the temperatures should be measured and recorded, preferably on a strip chart recorder. If the moisture content of the exhaust gas is below 5% and the sample gas flow rate is less than 10 liters/minute, the impinger set-up need not be used, as long as no moisture condensation occurs in the system and the conditioned sample is maintained at the required dew point.

PRECAUTIONS: Never allow the water in the impingers to accumulate more than 1/4 of the impinger height. Don't allow the water bath to become frozen around the impingers, or cracking of the glassware may result. Assure that the thermo-electric cooler/permeation drier has adequate design capacity. Follow a good maintenance schedule for the cooler/drier gas conditioning system.

Other systems may be used, upon approval, emphasizing the requirements that water is removed immediately after separation from the gas stream, and minimal water contact with the gas stream is assured.

1. An example of a non-universally applicable water removal system is based on the refrigerated cooling coil principle. A refrigerated cooling coil system can scrub out a high percentage of water soluble pollutants due to a comparatively long residence time, and intimate contact between the sample gases and the water droplets collected on the inside of the coil. Consequently, it will show a high bias for the CEMS being tested if the sample gas contains a significant amount of NO_2, compared to NOx or SO_2, and therefore it may not be suitable in all cases.

ATTACHMENT C
ADDENDUM TO "General Continuous Gas Monitoring Requirements"

NO_2 TO NO CONVERSION TEST PROCEDURE

(Alternative to O_3 Titration Method-40 CFR 50.1, Appendix F)

1. NO_x Analyzer Requirements
- a. Full span range 0-20 ppm or 0-25 ppm
- b. Equipped with NO and NO_x modes

2. Auditing Gas Requirements
- a. NO_2 in air (or N_2): Use NO_2 in air for a stainless steel converter.
- b. Concentration of NO_2: 15 to 18 ppm ($C_{0,\ ppm}$)
- c. Recertification: An audit gas should be recertified after six months.

3. Calibration Gas Requirements
- a. Concentration: NO (17 to 19 ppm) with less than 0.1 ppm NO_2 – High Span
  NO (10 to 13 ppm) with less than 0.1 ppm NO_2 – Mid Span
- b. Zero Gas: High purity N_2

4. Calibration of Analyzer:
- a. Calibrate NO mode with the NO calibration gases.
- b. Calibrate NO_x mode with the same gases without any gain adjustment.
- b1. If the analyzer is equipped with two independent gain adjusting circuits, skip 4.b., then repeat 4.a. for the NO_x mode.

5. Conversion Efficiency (CE) Test
- a. Analyze the audit gas with NO mode. Read and standardize concentration. ($C_{1,\ ppm}$)
- b. Analyze the audit gas with NO_x mode. Read and standardize concentration. ($C_{2,\ ppm}$)

6. Calculation for Conversion Efficiency:

$$\%CE = \frac{|C_2 - C_1|}{C_0} x100$$

7. Criteria for Acceptability of CE
- a. $\%CE$ must be larger than 90%.
- b. C_1 must be less than 5% of total NO_x (NO + NO_2) in the NO_2 audit gas (Section 2b).

NOTE: NO_2 audit gas concentration of higher value than what is specified in *Section 2.* may be required where NO_2 present in the exhaust gas being measured is greater than 30 ppm. Select the NO_2 gas within 10% of the expected NO_2 concentration in the exhaust.

APPENDIX I

SCAQMD FACILITY PERMIT TO OPERATE

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

November 18, 2020

[redacted]

[redacted]

Enclosed are the revised Title Page, Table of Contents, Section H, and Section K of your Title V/RECLAIM Facility Permit. The revised sections reflect the changes as follows:

SECTION H: Permit to Construct and Temporary Permit to Operate

New Appl. No.	*Previous Appl. No*	*Description/Modification*
617290	328098	Process 4: Transmix Processing System 5: Transmix Processing Heater Device D69: Heater Replace existing burners with new, ultra-low NOx ClearSign Core burners

SECTION K: Title V Administration

This section was updated with applicable Rule 1100.

This revision is covered under A/N 617291 (minor revision) to the Title V/RECLAIM permit previously dated January 1, 2020. The EPA review period began November 12, 2020. Although EPA's 45-day review will expire on December 27, 2020, EPA has performed an expedited review of the proposed permit and has no comments at this time, and the permit is eligible for issuance. Please note that although the EPA has terminated their review early, the 60-day period for the public to

[redacted] - 2 - November 18, 2020

petition the Administrator to object to the permit begins the day after EPA's 45 day review period would otherwise end. Also note, that if the permit is later found to require corrective steps (including, but not limited to, reopening the permit for cause), the expiration of both EPA's review period and the public petition period without EPA objection does not compromise the Agency's authority to take such measures.

Please review the attached sections carefully. Insert the enclosed sections into your Title V/RECLAIM Facility Permit and discard the earlier versions.

The operation of your facility is bound by the conditions and/or requirements stated in the facility Permit to Operate. If you determine that there are administrative errors, or if you have any questions concerning changes to your permit, please contact Ms. Linda Dejbakhsh, Air Quality Engineer, at (909) 396-2614 within 30 days of the receipt of your permit.

Sincerely,

Thomas G. Liebel

Thomas G. Liebel
Senior Engineering Manager
Engineering and Permitting

TGL:AS:MP:LLD
Enclosures

cc: Gerardo Rios, EPA Region IX
Central File
TV Application File (A/N 617291)
A/N 617290 (cover letter)

South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178

Title Page
Facility ID: [redacted]
Revision #: 22
Date: November 18, 2020

FACILITY PERMIT TO OPERATE

[redacted]

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR A COPY THEREOF MUST BE KEPT AT THE LOCATION FOR WHICH IT IS ISSUED.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT SHALL NOT BE CONSTRUED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF ANY OTHER FEDERAL, STATE OR LOCAL GOVERNMENTAL AGENCIES.

Wayne Nastri
Executive Officer

By Thomas M. Liebel for
Amir Dejbakhsh
Deputy Executive Officer
Engineering and Permitting

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FACILITY PERMIT TO OPERATE
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FACILITY PERMIT TO OPERATE
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SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 4: TRANSMIX PROCESSING					
System 5: TRANSMIX PROCESSING HEATER					
HEATER, CALLIDUS TECHNOLOGIES, WITH INTERNAL FLUE GAS RECIRCULATION, NATURAL GAS, PROCESS GAS, 12.5 MMBTU/HR WITH A/N: 617290 Permit to Construct Issued: 11/18/20	D69		NOX: LARGE SOURCE**	**CO**: 100 PPMV NATURAL GAS (7) **[RULE 1313(g), 12-7-1995]**; **CO**: 400 PPMV (5) **[RULE 1146, 11-1-2013;** *RULE 1146, 12-7-2018*]; **CO**: 2000 PPMV (5A) **[RULE 407, 4-2-1982]**; **NOX**: 7 PPMV NATURAL GAS (3) **[RULE 2012, 2-5-2016]**; **NOX**: 8.38 LBS/MMSCF NATURAL GAS (1A) **[RULE 2012, 2-5-2016]**; **NOX**: 9 PPMV NATURAL GAS (5) **[RULE 1146, 11-1-2013;** *RULE 1146, 12-7-2018*]; **NOX**: 40 PPMV (3) **[RULE 2012, 5-6-2005]**; **PM**: (9) **[RULE 404, 2-7-1986]** **PM**: 0.1 GRAINS/SCF (5) **[RULE 409, 8-7-1981]**	B59.1, C1.62, D12.5, D28.2, D29.2, D182.1, E448.14, H23.11, H23.19
BURNER, REPLACING 3 CALLIDUS TECH LOW NOX BURNERS, 12.6 MMBTU/HR, WITH 3 CLEARSIGN CORE, ULTRA LOW NOX BURNERS, NATURAL DRAFT, EACH 4.167 MMBTU/HR, MODEL CL-CPB-1-050X					

* (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit (4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit (6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements

** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

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SECTION H: DEVICE ID INDEX

The following sub-section provides an index to the devices that make up the facility description sorted by device ID.

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SECTION H: DEVICE ID INDEX

Device Index For Section H			
Device ID	**Section H Page No.**	**Process**	**System**
D69	1	4	5

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SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

FACILITY CONDITIONS

F9.1 Except for open abrasive blasting operations, the operator shall not discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:

(a) As dark or darker in shade as that designated No.1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or

(b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subparagraph (a) of this condition.

[RULE 401, 3-2-1984; RULE 401, 11-9-2001]

F14.1 The operator shall not purchase diesel fuel containing sulfur compounds in excess of 15 ppm by weight as supplied by the supplier.

[RULE 431.2, 5-4-1990; RULE 431.2, 9-15-2000]

F14.2 The operator shall not use fuel oil containing sulfur compounds in excess of 0.05 percent by weight.

[RULE 431.2, 5-4-1990; RULE 431.2, 9-15-2000]

F52.1 This facility is subject to the applicable requirements of the following rules or regulation(s):

40 CFR 63 Subpart R, #2 (Minor Sources)

40CFR 63 Subpart BBBBBB

RULE 466

RULE 466.1

[RULE 466, 10-7-1983; RULE 466.1, 5-2-1980; RULE 466.1, 3-16-1984; **40CFR 63 Subpart BBBBBB, 1-24-2011; 40CFR 63 Subpart R, 4-6-2006]**

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SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

SYSTEM CONDITIONS

S1.1 The operator shall limit the throughput to no more than 180,000 barrel(s) in any one calendar month.

For the purpose of this condition, throughput shall be defined as transmix fed to the Transmix Processing System.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

[Systems subject to this condition : Process 4, System 1]

S1.6 The operator shall limit the throughput to no more than 5,100,000 gallon(s) per day.

For the purpose of this condition, throughput shall be defined as total volume of gasoline and blending stock transferred to cargo tanks at loading racks, including throughput from adjacent facilities that are permitted to vent to the Vapor Recovery and Disposal System.

[RULE 462, 5-14-1999]

[Systems subject to this condition : Process 1, System 1 , 2 , 3 , 5 , 6; Process 6, System 1]

S31.1 The following BACT requirements shall apply to VOC service fugitive components associated with the devices that are covered by application number(s) 417493:

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SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Upon completion of construction, the operator shall furnish to the District a copy of the as built drawing showing the rating of all major equipment and a detailed count of all fugitive component sources for the system. This fugitive source count shall also indicate clearly the differences between the new and existing components prior to the systems modification.

The operator shall provide to the District, no later that 60 days after initial startup, a recalculation of the fugitive emissions based on actual components installed and removed from service. The valves and flanges shall be categorized by tag no., size, type, operating temperature, operating pressure, body material, application, and reasons why bellows sealed valves were not used.

All new valves and major components in VOC service as defined by Rule 1173, except those specifically exempted by Rule 1173 shall be distinctly identified from other components through their tag numbers (e.g., numbers ending in the letter "N"), and shall be noted in the records.

All new valves and major components in VOC service as defined by Rule 1173, except valves and flanges shall be inspected quarterly using EPA reference Method 21. All new valves and flanges in VOC service, except those specifically exempted by Rule 1173, shall be inspected monthly using EPA Method 21.

All new components in VOC service as defined in Rule 1173, except valves and flanges, shall be inspected quarterly using EPA reference Method 21. All new valves and flanges in VOC service, except those specifically exempted by Rule 1173, shall be inspected monthly using EPA Method 21.

If 98.0 percent or greater of the new valve and new flange population inspected is found to leak gaseous or liquid volatile organic compounds at a rate less than 500 ppmv for two consecutive months, the operation may change to a quarterly inspection program with the approval of the District. The operator shall revert to monthly inspection program if less than 98.0 percent of new valves and the new flange population inspected is found to leak gaseous or liquid organic compounds.

All components in VOC service, with a leak greater than 500 ppm but less than 1,000 ppm measured as methane above background using EPA Reference Method

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The operator shall comply with the terms and conditions set forth below:

21, shall be repaired within 14 days of detection. A leak of 1,000 ppm or greater shall be repaired according to Rule 1173.

The records of the monthly inspection, subsequent repairs and reinspections, if any, shall be maintained for two years in a format approved by the District, and shall be made available to District personnel upon request.

[**RULE 1303(a)(1)-BACT, 5-10-1996;** RULE 1303(a)(1)-BACT, 12-6-2002]

[Systems subject to this condition : Process 4, System 1]

S31.2 The following BACT requirements shall apply to VOC service fugitive components associated with the devices that are covered by application number(s) 530396:

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The operator shall comply with the terms and conditions set forth below:

All new valves in VOC service shall be bellows seal valves, except as approved by the District, in the following applications: Heavy liquid service, control valve, instrument piping/tubing, applications requiring torsional valve stem motion, applications where valve failure could pose safety hazard (E.G. Drain valves with valve stem in horizontal position), retrofits/special applications with space limitations, and valves not commercially available. Additional exceptions are stated in District Rule 1173.

All new valves and major components in VOC service as defined in Rule 1173, except those specifically exempted by Rule 1173 and those in Heavy Liquid service as defined in Rule 1173, shall be distinctly identified from other components through their tag number (e.g. numbers ending in the letter "n") and shall be noted in the records.

All new fugitive components in VOC service, except valves and flanges, shall be inspected quarterly using EPA reference method 21. All new valves and flanges in VOC service shall be inspected monthly using EPA method 21.

For all new fugitive components in VOC service, any leak greater than 180 PPM measured as methane above background, as measured using EPA Method 21, shall be repaired within 14 days of detection. Components shall be defined as any valve, fitting, pump, compressor, pressure relief valve, diaphragm, hatch, sight-glass, and meter.

If 98.0 percent or greater of the new (non-bellows-sealed) valves and the new flange population inspected is found to leak gaseous or liquid volatile organic compounds at a rate less than 180 ppm for two consecutive months than the operator shall revert to a quarterly inspection program with the approval of the District.

The operator shall revert from quarterly to monthly inspection program if less than 98.0 percent of the new (non-bellows seal) valves and the new flange population is found to leak gaseous or liquid volatile organic compounds at a rate of less than 180 ppm.

The operator shall keep records of the monthly inspection (and quarterly, where

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The operator shall comply with the terms and conditions set forth below:

applicable), subsequent repair, and reinspection, in a manner approved by the District.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

[Systems subject to this condition : Process 1, System 6]

S31.3 The following BACT requirements shall apply to VOC service fugitive components associated with the devices that are covered by application number(s) 417493:

The operator shall provide to the District, no later than 60 days after completion of construction, a recalculation of the fugitive emissions based on actual components installed and/or removed from service. The operator shall also provide complete, as built, piping and instrumentation diagram(s) with a listing of all non-leakless type valves categorized by tag no., size, type application, and reasons why leakless valves were not used.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

[Systems subject to this condition : Process 1, System 6]

S31.4 The following BACT requirements shall apply to VOC service fugitive components associated with the devices that are covered by application number(s) 496400:

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The operator shall comply with the terms and conditions set forth below:

All new valves and major components in VOC service as defined in Rule 1173, except those specifically exempted by Rule 1173 and those in Heavy Liquid service as defined in Rule 1173, shall be distinctly identified from other components through their tag number (e.g. numbers ending in the letter "n") and shall be noted in the records.

All new fugitive components in VOC service, except valves and flanges, shall be inspected quarterly using EPA reference method 21. All new valves and flanges in VOC service shall be inspected monthly using EPA method 21.

For all new fugitive components in VOC service, any leak greater than 500 PPM measured as methane above background, as measured using EPA Method 21, shall be repaired within 14 days of detection. Components shall be defined as any valve, fitting, pump, compressor, pressure relief valve, diaphragm, hatch, sight-glass, and meter.

If 98.0 percent or greater of the new (non-bellows-sealed) valves and the new flange population inspected is found to leak gaseous or liquid volatile organic compounds at a rate less than 500 ppm for two consecutive months than the operator shall revert to a quarterly inspection program with the written approval of the SCAQMD.

The operator shall revert from quarterly to monthly inspection program if less than 98.0 percent of the new (non-bellows seal) valves and the new flange population is found to leak gaseous or liquid volatile organic compounds at a rate of less than 500 ppm.

The operator shall keep records of the monthly inspection (and quarterly, where applicable), subsequent repair, and reinspection, in a manner approved by the SCAQMD.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

[Systems subject to this condition : Process 1, System 4]

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The operator shall comply with the terms and conditions set forth below:

DEVICE CONDITIONS

B. Material/Fuel Type Limits

B59.1 The operator shall only use the following material(s) in this device :

natural gas and process gas

[**RULE 1303(b)(2)-Offset, 5-10-1996;** RULE 1303(b)(2)-Offset, 12-6-2002; **RULE 1313(g), 12-7-1995;** RULE 1401, 9-1-2017]

[Devices subject to this condition : D69]

C. Throughput or Operating Parameter Limits

C1.62 The operator shall limit the fuel usage to no more than 7.68 MM cubic feet in any one calendar month.

To comply with this condition, the operator shall install and maintain a(n) non-resettable totalizing fuel meter to accurately indicate the fuel usage being supplied to the heater. Monthly readings of fuel usage shall be recorded.

[**RULE 1303(b)(2)-Offset, 5-10-1996;** RULE 1303(b)(2)-Offset, 12-6-2002; **RULE 1313(g), 12-7-1995;** RULE 1401, 9-1-2017]

[Devices subject to this condition : D69]

D. Monitoring/Testing Requirements

D12.5 The operator shall install and maintain a(n) stack flow monitor to accurately indicate the flow rate in the exhaust stack to provide continuous and cumulative actual flow volume. Such a stack flow monitor shall be certified by the South Coast AQMD pursuant to a South Coast AQMD-approved protocol..

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SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

[RULE 2012, 5-6-2005]

[Devices subject to this condition : D69]

D28.2 The operator shall conduct source test(s) in accordance with the following specifications:

The test shall be conducted to determine the NOx concentration at 3% oxygen and NOx in lb/hr at the outlet.

The test shall be conducted every three-year period with the period ending December 31, 1996.

The District shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted to demonstrate compliance with Rule 2012.

[RULE 2012, 2-5-2016; RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]

[Devices subject to this condition : D69]

D29.2 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
CO emissions	Method(s) specified in District Rule 1146	15 minutes	Outlet
NOX emissions	Method(s) specified in District Rule 1146	15 minutes	Outlet
oxygen concentration	Method(s) specified in District Rule 1146	15 minutes	Outlet

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The operator shall comply with the terms and conditions set forth below:

The test(s) shall be conducted at least once every three years.

Records shall be maintained and made available to the South Coast AQMD upon request.

[RULE 1146, 11-1-2013; RULE 1146, 12-7-2018]

[Devices subject to this condition : D69]

D182.1 The operator shall test this equipment in accordance with the following specifications:

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The operator shall comply with the terms and conditions set forth below:

Notice of date of construction completion and equipment start-up shall be submitted to the South Coast AQMD.

The test shall be conducted within 180 days after initial start-up (first fire).

The test shall be conducted to measure the NOx, CO, oxygen content, moisture content, temperature, and exhaust flow rate at the outlet of the equipment at normal operating load using the appropriate test methods specified in Rule 1146. The report shall present the emission data in pounds per hour and parts per million on a dry basis corrected to 3% oxygen.

The test shall be conducted according to the required protocol stated in Rule 1146, unless otherwise approved in writing by the South Coast AQMD.

A test shall be conducted to measure the H2S of the process gas to the heater in accordance with test methods in Rule 431.1.

Notice of the source test date shall be submitted to the South Coast AQMD at least 14 days prior to commencement of testing so that an observer may be present.

Sampling facilities shall comply with the South Coast AQMD guidelines for construction of sampling and testing facilities pursuant to Rule 217.

A testing laboratory certified by the South Coast AQMD in the required test methods for criteria pollutants measured, and in compliance with Rule 304 (no conflict of interest), shall conduct the test.

Test results shall be submitted to the South Coast AQMD within 60 days after completion of the source test, unless otherwise approved in writing by the South Coast AQMD.

[RULE 1146, 11-1-2013; RULE 1146, 12-7-2018; **RULE 1303(b)(2)-Offset, 5-10-1996;** RULE 1303(b)(2)-Offset, 12-6-2002; **RULE 431.1, 6-12-1998]**

[Devices subject to this condition : D69]

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The operator shall comply with the terms and conditions set forth below:

E. Equipment Operation/Construction Requirements

E448.14 The operator shall comply with the following requirements:

This Permit to Construct for the replacement of the burners and associated components shall expire November 17, 2021 unless an extension has been granted by the South Coast AQMD

[RULE 205, 1-5-1990]

[Devices subject to this condition : D69]

H. Applicable Rules

H23.11 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
Sulfur compounds	District Rule	431.1

[RULE 431.1, 6-12-1998]

[Devices subject to this condition : D69]

H23.19 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
CO	District Rule	1146
NOX	District Rule	1146
NOX	District Rule	1100

[RULE 1100, 1-10-2020; **RULE 1146, 11-1-2013;** RULE 1146, 12-7-2018]

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[Devices subject to this condition : D69]

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GENERAL PROVISIONS

1. This permit may be revised, revoked, reopened and reissued, or terminated for cause, or for failure to comply with regulatory requirements, permit terms, or conditions. [3004(a)(7)(C)]

2. This permit does not convey any property rights of any sort or any exclusive privilege. [3004(a)(7)(E)]

Permit Renewal and Expiration

3. (A) Except for solid waste incineration facilities subject to standards under section 129(e) of the Clean Air Act, this permit shall expire five years from the date that this Title V permit is issued. The operator's right to operate under this permit terminates at midnight on this date, unless the facility is protected by an application shield in accordance with Rule 3002(b), due to the filing of a timely and complete application for a Title V permit renewal, consistent with Rule 3003. [3004(a)(2), 3004(f)]

   (B) A Title V permit for a solid waste incineration facility combusting municipal waste subject to standards under Section 129(e) of the Clean Air Act shall expire 12 years from the date of issuance unless such permit has been renewed pursuant to this regulation. These permits shall be reviewed by the Executive Officer at least every five years from the date of issuance. [3004(f)(2)]

4. To renew this permit, the operator shall submit to the Executive Officer an application for renewal at least 180 days, but not more than 545 days, prior to the expiration date of this permit. [3003(a)(6)]

Duty to Provide Information

5. The applicant for, or holder of, a Title V permit shall furnish, pursuant to Rule 3002(d) and (e), timely information and records to the Executive Officer or designee within a reasonable time as specified in writing by the Executive Officer or designee. [3004(a)(7)(F)]

Payment of Fees

6. The operator shall pay all required fees specified in Regulation III - Fees. [3004(a)(7)(G)]

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Reopening for Cause

7. The Executive Officer will reopen and revise this permit if any of the following circumstances occur:

   (A) Additional regulatory requirements become applicable with a remaining permit term of three or more years. Reopening is not required if the effective date of the requirement is later than the expiration date of this permit, unless the permit or any of its terms and conditions has been extended pursuant to paragraph (f)(4) of Rule 3004.

   (B) The Executive Officer or EPA Administrator determines that this permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of this permit.

   (C) The Executive Officer or EPA Administrator determines that the permit must be revised or revoked to assure compliance with the applicable requirements. [3005(g)(1)]

COMPLIANCE PROVISIONS

8. The operator shall comply with all regulatory requirements, and all permit terms and conditions, except:

   (A) As provided for by the emergency provisions of condition no. 17 or condition no. 18, or

   (B) As provided by an alternative operating condition granted pursuant to a federally approved (SIP-approved) Rule 518.2.

   Any non-compliance with any federally enforceable permit condition constitutes a violation of the Federal Clean Air Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or revision; or denial of a permit renewal application. Non-compliance may also be grounds for civil or criminal penalties under the California State Health and Safety Code. [3004(a)(7)(A)]

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9. The operator shall allow the Executive Officer or authorized representative, upon presentation of appropriate credentials to:

   (A) Enter the operator's premises where emission-related activities are conducted, or records are kept under the conditions of this permit;

   (B) Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;

   (C) Inspect at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and

   (D) Sample or monitor at reasonable times, substances or parameters for the purpose of assuring compliance with the facility permit or regulatory requirements. [3004(a)(10)(B)]

10. All terms and conditions in this permit, including any provisions designed to limit a facility's potential to emit, are enforceable by the EPA Administrator and citizens under the federal Clean Air Act, unless the term or condition is designated as not federally enforceable. Each day during any portion of which a violation occurs is a separate offense. [3004(g)]

11. A challenge to any permit condition or requirement raised by EPA, the operator, or any other person, shall not invalidate or otherwise affect the remaining portions of this permit. [3007(b)]

12. The filing of any application for a permit revision, revocation, or termination, or a notification of planned changes or anticipated non-compliance does not stay any permit condition. [3004(a)(7)(D)]

13. It shall not be a defense for a person in an enforcement action, including those listed in Rule 3002(c)(2), that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit, except as provided for in "Emergency Provisions" of this section. [3004(a)(7)(H)]

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14. The operator shall not build, erect, install, or use any equipment, the use of which, without resulting in a reduction in the total release of air contaminants to atmosphere, reduces or conceals an emission which would otherwise constitute a violation of Chapter 3 (commencing with Section 41700) of Part 4, of Division 26 of the California Health and Safety Code or of AQMD rules. This rule shall not apply to cases in which the only violation involved is of Section 41700 of the California Health and Safety Code, or Rule 402 of AQMD Rules. [408]

15. Nothing in this permit or in any permit shield can alter or affect:

    (A) Under Section 303 of the federal Clean Air Act, the provisions for emergency orders;

    (B) The liability of the operator for any violation of applicable requirements prior to or at the time of permit issuance;

    (C) The applicable requirements of the Acid Rain Program, Regulation XXXI;

    (D) The ability of EPA to obtain information from the operator pursuant to Section 114 of the federal Clean Air Act;

    (E) The applicability of state or local requirements that are not "applicable requirements", as defined in Rule 3000, at the time of permit issuance but which do apply to the facility, such as toxics requirements unique to the State; and

    (F) The applicability of regulatory requirements with compliance dates after the permit issuance date. [3004(c)(3)]

16. For any portable equipment that requires an AQMD or state permit or registration, excluding a) portable engines, b) military tactical support equipment and c) AQMD-permitted portable equipment that are not a major source, are not located at the facility for more than 12 consecutive months after commencing operation, and whose operation does not conflict with the terms or conditions of this Title V permit: 1) the facility operator shall keep a copy of the AQMD or state permit or registration; 2) the equipment operator shall comply with the conditions on the permit or registration and all other regulatory requirements; and 3) the facility operator shall treat the permit or registration as a part of its Title V permit, subject to recordkeeping, reporting and certification requirements. [3004(a)(1)]

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EMERGENCY PROVISIONS

17. An emergency[1] constitutes an affirmative defense to an action brought for noncompliance with a technology-based emission limit only if:

    (A) Properly signed, contemporaneous operating records or other credible evidence demonstrate that:

        (1) An emergency occurred and the operator can identify the cause(s) of the emergency;

        (2) The facility was operated properly (i.e. operated and maintained in accordance with the manufacturer's specifications, and in compliance with all regulatory requirements or a compliance plan), before the emergency occurred;

        (3) The operator took all reasonable steps to minimize levels of emissions that exceeded emissions standard, or other requirements in the permit; and,

        (4) The operator submitted a written notice of the emergency to the AQMD within two working days of the time when the emissions limitations were exceeded due to the emergency. The notice shall contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken; and

    (B) The operator complies with the breakdown provisions of Rule 430 – Breakdown Provisions, or subdivision (i) of Rule 2004 – Requirements, whichever is applicable. [3002(g), 430, 2004(i)]

18. The operator is excused from complying with any regulatory requirement that is suspended by the Executive Officer during a state of emergency or state of war emergency, in accordance with Rule 118 - Emergencies. [118]

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1 "Emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the operator, including acts of God, which: (A) requires immediate corrective action to restore normal operation; and (B) causes the facility to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency; and (C) is not caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

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RECORDKEEPING PROVISIONS

19. In addition to any other recordkeeping requirements specified elsewhere in this permit, the operator shall keep records of required monitoring information, where applicable, that include:

    (A) The date, place as defined in the Title V permit, and time of sampling or measurements;

    (B) The date(s) analyses were performed;

    (C) The company or entity that performed the analyses;

    (D) The analytical techniques or methods used;

    (E) The results of such analyses; and

    (F) The operating conditions as existing at the time of sampling or measurement. [3004(a)(4)(B)]

20. The operator shall maintain records pursuant to Rule 109 and any applicable material safety data sheet (MSDS) for any equipment claimed to be exempt from a written permit by Rule 219 based on the information in those records. [219(t)]

21. The operator shall keep all records of monitoring data required by this permit or by regulatory requirements for a period of at least five years from the date of the monitoring sample, measurement, report, or application. [3004(a)(4)(E)]

REPORTING PROVISIONS

22. The operator shall comply with the following requirements for prompt reporting of deviations:

    (A) Breakdowns shall be reported as required by Rule 430 – Breakdown Provisions or subdivision (i) of Rule 2004 - Requirements, whichever is applicable.

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(B) Other deviations from permit or applicable rule emission limitations, equipment operating conditions, or work practice standards, determined by observation or by any monitoring or testing required by the permit or applicable rules that result in emissions greater than those allowed by the permit or applicable rules shall be reported within 72 hours (unless a shorter reporting period is specified in an applicable State or Federal Regulation) of discovery of the deviation by contacting AQMD enforcement personnel assigned to this facility or otherwise calling (800) CUT-SMOG.

(C) A written report of such deviations reported pursuant to (B), and any corrective actions or preventative measures taken, shall be submitted to AQMD, in an AQMD approved format, within 14 days of discovery of the deviation.

(D) All other deviations shall be reported with the monitoring report required by condition no. 23. [3004(a)(5)]

23. Unless more frequent reporting of monitoring results are specified in other permit conditions or in regulatory requirements, the operator shall submit reports of any required monitoring to the AQMD at least twice per year. The report shall include a) a statement whether all monitoring required by the permit was conducted; and b) identification of all instances of deviations from permit or regulatory requirements. A report for the first six calendar months of the year is due by August 31 and a report for the last six calendar months of the year is due by February 28. [3004(a)(4)(F)]

24. The operator shall submit to the Executive Officer and to the Environmental Protection Agency (EPA), an annual compliance certification. For RECLAIM facilities, the certification is due when the Annual Permit Emissions Program (APEP) report is due and shall cover the same reporting period. For other facilities, the certification is due on March 1 for the previous calendar year. The certification need not include the period preceding the date the initial Title V permit was issued. Each compliance certification shall include:

(A) Identification of each permit term or condition that is the basis of the certification;

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(B) The compliance status during the reporting period;

(C) Whether compliance was continuous or intermittent;

(D) The method(s) used to determine compliance over the reporting period and currently, and

(E) Any other facts specifically required by the Executive Officer to determine compliance.

The EPA copy of the certification shall be sent to: Director of the Air Division Attn: Air-3 USEPA, Region IX 75 Hawthorne St. San Francisco, CA 94105 [3004(a)(10)(E)]

25. All records, reports, and documents required to be submitted by a Title V operator to AQMD or EPA shall contain a certification of accuracy consistent with Rule 3003(c)(7) by a responsible official (as defined in Rule 3000). [3004(a)(12)]

PERIODIC MONITORING

26. All periodic monitoring required by this permit pursuant to Rule 3004(a)(4)(c) is based on the requirements and justifications in the AQMD document "Periodic Monitoring Guidelines for Title V Facilities" or in case-by-case determinations documented in the TitleV application file. [3004(a)(4)]

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FACILITY RULES

This facility is subject to the following rules and regulations

With the exception of Rule 402, 473, 477, 1118 and Rules 1401 through 1420, the following rules that are designated as non-federally enforceable are pending EPA approval as part of the state implementation plan. Upon the effective date of that approval, the approved rule(s) will become federally enforceable, and any earlier versions of those rules will no longer be federally enforceable.

RULE SOURCE	Adopted/Amended Date	FEDERAL Enforceability
RULE 109	5-2-2003	Federally enforceable
RULE 1100	1-10-2020	Non federally enforceable
RULE 1110.2	2-1-2008	Federally enforceable
RULE 1110.2	6-3-2016	Non federally enforceable
RULE 1113	2-5-2016	Federally enforceable
RULE 1113	6-3-2011	Federally enforceable
RULE 1118.1	1-4-2019	Non federally enforceable
RULE 1122	10-1-2004	Federally enforceable
RULE 1122	5-1-2009	Non federally enforceable
RULE 1140	8-2-1985	Federally enforceable
RULE 1146	11-1-2013	Federally enforceable
RULE 1146	12-7-2018	Non federally enforceable
RULE 1146.2	12-7-2018	Non federally enforceable
RULE 1146.2	5-5-2006	Federally enforceable
RULE 1149	5-2-2008	Federally enforceable
RULE 1166	5-11-2001	Non federally enforceable
RULE 1166	7-14-1995	Federally enforceable
RULE 1168	1-7-2005	Federally enforceable
RULE 1168	10-6-2017	Non federally enforceable
RULE 1171	2-1-2008	Federally enforceable
RULE 1171	5-1-2009	Non federally enforceable
RULE 1178	4-6-2018	Non federally enforceable

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RULE SOURCE	Adopted/Amended Date	FEDERAL Enforceability
RULE 1178	4-7-2006	Federally enforceable
RULE 118	12-7-1995	Non federally enforceable
RULE 1303(a)(1)-BACT	12-6-2002	Non federally enforceable
RULE 1303(a)(1)-BACT	5-10-1996	Federally enforceable
RULE 1303(a)-BACT	5-10-1996	Federally enforceable
RULE 1303(b)(2)-Offset	12-6-2002	Non federally enforceable
RULE 1303(b)(2)-Offset	5-10-1996	Federally enforceable
RULE 1303(b)(5)(D)(ii)	12-6-2002	Non federally enforceable
RULE 1303(b)(5)(D)(ii)	5-10-1996	Federally enforceable
RULE 1304(a)-Modeling an Offset Exemption	6-14-1996	Federally enforceable
RULE 1304(c)-Offset Exemption	6-14-1996	Federally enforceable
RULE 1313(d)	12-7-1995	Federally enforceable
RULE 1313(g)	12-7-1995	Federally enforceable
RULE 1401	9-1-2017	Non federally enforceable
RULE 1401	9-10-2010	Non federally enforceable
RULE 1402	10-7-2016	Non federally enforceable
RULE 1415	12-3-2010	Non federally enforceable
RULE 1418	9-10-1999	Non federally enforceable
RULE 1470	5-4-2012	Non federally enforceable
RULE 2012	2-5-2016	Federally enforceable
RULE 2012	5-6-2005	Federally enforceable
RULE 204	10-8-1993	Federally enforceable
RULE 205	1-5-1990	Federally enforceable
RULE 217	1-5-1990	Federally enforceable
RULE 219	4-6-2018	Non federally enforceable
RULE 219	9-4-1981	Federally enforceable
RULE 3002	11-5-2010	Federally enforceable
RULE 3003	11-5-2010	Federally enforceable
RULE 3004	12-12-1997	Federally enforceable
RULE 3004(a)(4)-Periodic Monitoring	12-12-1997	Federally enforceable

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RULE SOURCE	Adopted/Amended Date	FEDERAL Enforceability
RULE 3005	11-5-2010	Federally enforceable
RULE 3007	10-8-1993	Federally enforceable
RULE 304	5-3-2019	Non federally enforceable
RULE 401	11-9-2001	Non federally enforceable
RULE 401	3-2-1984	Federally enforceable
RULE 402	5-7-1976	Non federally enforceable
RULE 403	6-3-2005	Federally enforceable
RULE 404	2-7-1986	Federally enforceable
RULE 405	2-7-1986	Federally enforceable
RULE 407	4-2-1982	Federally enforceable
RULE 408	5-4-2018	Non federally enforceable
RULE 408	5-7-1976	Federally enforceable
RULE 409	8-7-1981	Federally enforceable
RULE 430	7-12-1996	Non federally enforceable
RULE 431.1	6-12-1998	Federally enforceable
RULE 431.2	5-4-1990	Federally enforceable
RULE 431.2	9-15-2000	Non federally enforceable
RULE 462	5-14-1999	Federally enforceable
RULE 463	11-4-2011	Federally enforceable
RULE 464	12-7-1990	Federally enforceable
RULE 466	10-7-1983	Federally enforceable
RULE 466.1	3-16-1984	Non federally enforceable
RULE 466.1	5-2-1980	Federally enforceable
RULE 701	6-13-1997	Federally enforceable
40CFR 60 Subpart K	10-17-2000	Federally enforceable
40CFR 60 Subpart Ka	12-14-2000	Federally enforceable
40CFR 60 Subpart Kb	10-15-2003	Federally enforceable
40CFR 60 Subpart XX	12-19-2003	Federally enforceable
40CFR 63 Subpart BBBBBB	1-24-2011	Federally enforceable
40CFR 63 Subpart BBBBBB_01	1-24-2011	Federally enforceable
40CFR 63 Subpart R	4-6-2006	Federally enforceable

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RULE SOURCE	Adopted/Amended Date	FEDERAL Enforceability
40CFR 63 Subpart R, #2 (Minor Sources)	12-22-2008	Federally enforceable
40CFR 63 Subpart XX	4-13-2005	Federally enforceable
40CFR 63 Subpart ZZZZ	2-27-2014	Federally enforceable
40CFR 82 Subpart F	6-25-2013	Federally enforceable
40CFR Part 64	10-22-1997	Federally enforceable