TOTAL AIR ANALYSIS, INC.

SOURCE TEST REPORT

ANNUAL COMPLIANCE

ONE CEMS UNIT

MARIAN MEDICAL CENTER
SANTA MARIA, CA

Prepared For:

Janechek & Associates
248 Hill Place
Costa Mesa, CA 92627

FACILITY I.D. NO.: 10350
PERMIT TO OPERATE NO.: A 12038

Conducted By:

Total Air Analysis, Inc.
1210 East 223rd Street, Suite 314
Carson, CA 90745

Test Dates: April 12, 2013
Report Date: July 11, 2013
Report Identification No: JA-121062

Prepared by: _____
Mr. Juan A. Navarro, Air Quality Engineer

Reviewed by: _____
Mr. Russ P. Logan, President

Submitted To:

Santa Barbara County Air Pollution Control District
260 N San Antonio Rd, Suite A
Santa Barbara, CA 93110-1315

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1.0 SUMMARY OF RESULTS

Facility: Santa Maria I
Source: ICE #1
Load: Normal
Start Date: 4/12/2013
End Date: 4/12/2013

Parameter	Units	Run 1	Run 2	Run 3	Limits	Pass/ Fail
NO_x	ppmv	89.93	93.24	92.98		
NO_x @ 15% O_2	ppmv	**39.04**	**40.71**	**40.62**	43	Pass
Emission Rate	lb/hr	1.46	1.53	1.52		
Emission Rate	g/bhp-hr	**0.45**	**0.47**	**0.47**	0.60	Pass
CO	ppmv	311.70	330.98	331.33		
CO @ 15% O_2	ppmv	**135.31**	**144.52**	**144.73**	293	Pass
Emission Rate	lb/hr	3.08	3.30	3.29		
Emission Rate	g/bhp-hr	**0.95**	**1.02**	**1.02**	2.50	Pass
Outlet ROCs						
NMOC, as methane	ppmv	18.39	26.33	24.39		
NMOC @ 15% O_2	ppmv	**7.98**	**11.49**	**10.66**	83	Pass
NMOC, as hexane	ppmv	3.06	4.39	4.07		
NMOC, as hexane @ 3% O_2	ppmv	**4.01**	**5.78**	**5.36**	20	Pass
Emission Rate	lb/hr	0.102	0.148	0.136		
Emission Rate	g/bhp-hr	**0.032**	**0.046**	**0.042**	0.4	Pass
Inlet Sulfur, TRS as H_2S	ppmv	-	-	58.0		
Exhaust Sulfur, as SO_2	ppmv	-	-	**8.29**	10.0	Pass
O_2	%	7.24	7.32	7.33	-	
CO_2	%	11.65	11.63	11.59	-	
Fuel Usage	SCFM	320.3	320.8	319.9	-	
Heat Input	MMBtu/hr	**9.15**	**9.16**	**9.14**	9.80	Pass
BHP, Rated	bhp	1,468	1,468	1,468	-	
Flow, Calculated	dscfm	2,232	2,248	2,243	-	

1.1 SUMMARY OF RESULTS - PAHs, Formaldehyde

Facility: Marian Medical Center
Source: ICE - Landfill Gas
Load: Normal
Start Date: 4/12/2013

PAHs - CARB 429		ppmv	lb/hr	Lb/MMscf
Naphthalene		2.187E-03	1.07E-04	7.384E-04
Benzo (a) anthracene		2.654E-06	2.31E-07	1.596E-06
Chrysene		9.764E-06	8.51E-07	5.871E-06
Benzo (b) fluoranthene		7.353E-07	7.06E-08	4.880E-07
Benzo (k) fluoranthene		4.066E-07	3.89E-08	2.699E-07
Benzo (a) pyrene		4.061E-07	3.89E-08	2.699E-07
Indeno (1,2,3-cd) pyrene		3.712E-07	3.89E-08	2.699E-07
Dibenz (a,h) anthracene		3.681E-07	3.89E-08	2.699E-07
Formaldehyde		1.876E+01	2.142E-01	1.49E+00

Results are average of three samples
Non-Detect (nd) from Laboratory uses detection limit for calculations shown.

1.2 SUMMARY OF RESULTS - Toxics

Facility: Marian Medical Center
Source: ICE - Landfill Gas
Load: Normal
Start Date: 4/12/2013

Parameters	Exhaust		
	ppbv	lb/hr	Lb/MMscf
1,1,1-Trichloroethane	0.32	1.593E-05	1.11E-04
1,2-Dibromoethane (CAS# 106-93-4)	0.23	1.617E-05	1.12E-04
Benzene	46.00	1.365E-03	9.48E-03
Carbon tetrachloride	0.28	1.637E-05	1.14E-04
Chloroform	0.36	1.633E-05	1.13E-04
Methylene Chloride	0.50	1.874E-05	1.30E-04
Tetrachloroethene	1.25	7.897E-05	5.48E-04
Trichloroethene	4.31	2.144E-04	1.49E-03
Vinyl chloride	0.99	2.351E-05	1.63E-04

Results are average of three samples
Non-Detect (nd) from Laboratory uses detection limit for calculations shown.

2.0 Introduction

Total Air Analysis, Inc. was contracted by Janechek & Associates to perform a compliance source test program on one I.C. Engine at the Marian Medical Center in Santa Maria. The purpose of the test program was to determine the emissions of Nitrogen Oxides (NO_x), Carbon Monoxide (CO), Oxygen (O_2), Non-Methane Organic Compounds (NMOCs), and Total Sulfurs. In addition, testing for Poly Aromatic Hydrocarbons (PAHs), Formaldehyde and Toxics were performed this year for emission factors. The test program was conducted on April 12, 2013.

Testing was performed by Mr. Russ P. Logan and Ron A. Lintz of Total Air Analysis, Inc. Arrangements for the source testing were made through Mr. Alan Janechek of Janechek & Associates. Total Air Analysis performed the test program using standard EPA and CARB test methods demonstrated in the previously approved protocol and shown in the following table.

Table 1

Scope of Work Performed

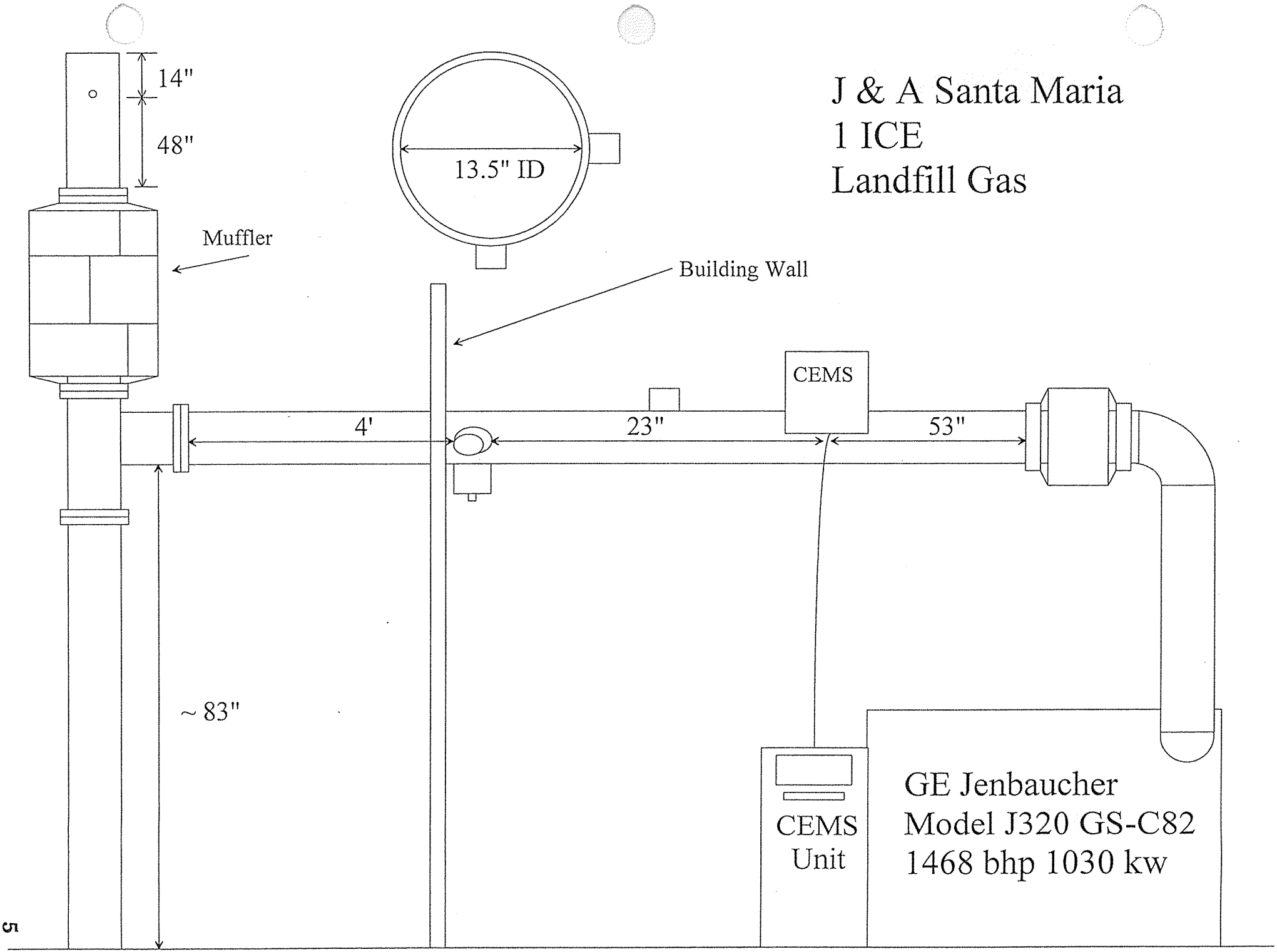
Parameter	*Method*	*Sampling Location*	*Number/ Duration of Runs*
NMOC's	EPA 18	Outlet	Triplicate, 40 min.
Fuel Analysis	ASTM 3588	Inlet	Single, 1 sample/Day
NO_x, CO, CO_2, O_2	CARB 100	Outlet	Triplicate, 40 min.
Calculated Exhaust Gas Flow Rate	EPA 19 Fuel usage	Inlet Fuel	Triplicate, 40 min.
Total Sulfur as H_2S	SCAQMD 307-91	Inlet Fuel	Single, 1 sample/Day
Formaldehyde	EPA 323	Outlet	Triplicate, 1 hr runs
PAHs	CARB 429	Outlet	Triplicate, 2 hr runs
Toxics with Benzene	TO-15	Outlet	Triplicate samples

Contracting Firm: *Mr. Alan Janechek* *949/ 887-5422*

3.0 Process Description

The I.C. engine was tested on April 12, 2013 while firing on landfill gas at normal load.

The resource recovery system consists of a Jenbacher, model JMS C320, Landfill gas fired, lean burn, turbocharged, aftercooled, 20 cylinders, four-cycle, 1468 bhp, driving a 1030 KW electrical generator.


J & A Santa Maria
1 ICE
Landfill Gas
14"
48"
13.5" ID
Muffler
Building Wall
CEMS
4'
23"
53"
~ 83"
CEMS
Unit
GE Jenbaucher
Model J320 GS-C82
1468 bhp 1030 kw

The I.C. engine is operated on landfill gas to generate electrical power.

4.0 Rule/Compliance Requirements

The I.C. engine was source tested to ascertain whether it meets the requirements of Santa Barbara County APCD Permit to Operate No. A 12038.

5.0 Operating Parameters

The I.C. engine was tested at a normal load condition for all parameters. Facility Process data showing fuel usages and operating rates (SCFM of fuel and KW Output) throughout the test program are shown in Appendix G – Operating Parameters.

6.0 Test Methods and References

6.1 CARB Method 100 – Continuous Gaseous Emissions Sampling

A continuous gas sample was extracted from the stack through a coarse filter, heated stainless steel probe, and Teflon line attached to our iced sample conditioner followed by the electronic thermal cooler. The sample is then drawn via 3/8" Teflon line into the climate controlled Mobile Emission Laboratory and delivered to the analyzers through the manifold, dedicated valves, and pressure indicators.

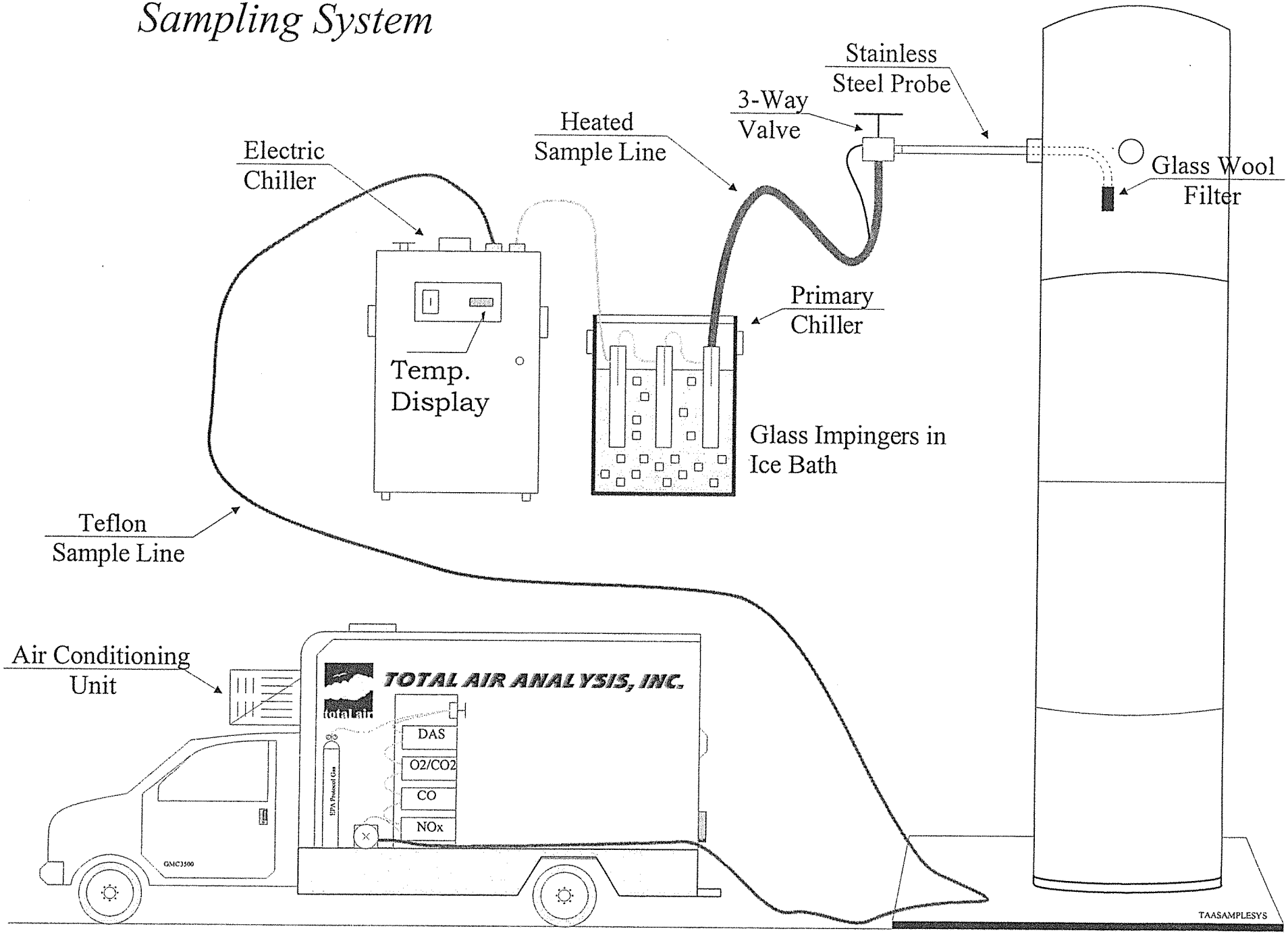
Prior to beginning of testing, a system leak check, calibration error, and system bias check was performed. The leak check was accomplished by plugging the probe tip and drawing at least 20" Hg vacuum on the entire sampling system. When all flow meters indicate 0.0 SCFH flow, the system is proven to be free of any leaks.

The calibration error check was performed as follows: After zeroing all analyzers, CARB Protocol No. 1 gases are used to calibrate each analyzer within 80-100% of full scale of the selected range. Then a 40%-60% of the selected range gas is introduced to each analyzer. Additionally, a system bias calibration check is performed by passing CARB protocol I zero and calibration gases through the entire sampling system using a three-way valve located at the probe tip. Sampling system bias checks are determined by comparing the external calibration values to that of the values when introduced directly to each instrument.

The specifications of the instruments used for CARB Method 100 sampling are as follows:

TOTAL AIR ANALYSIS, INC.

Sampling System

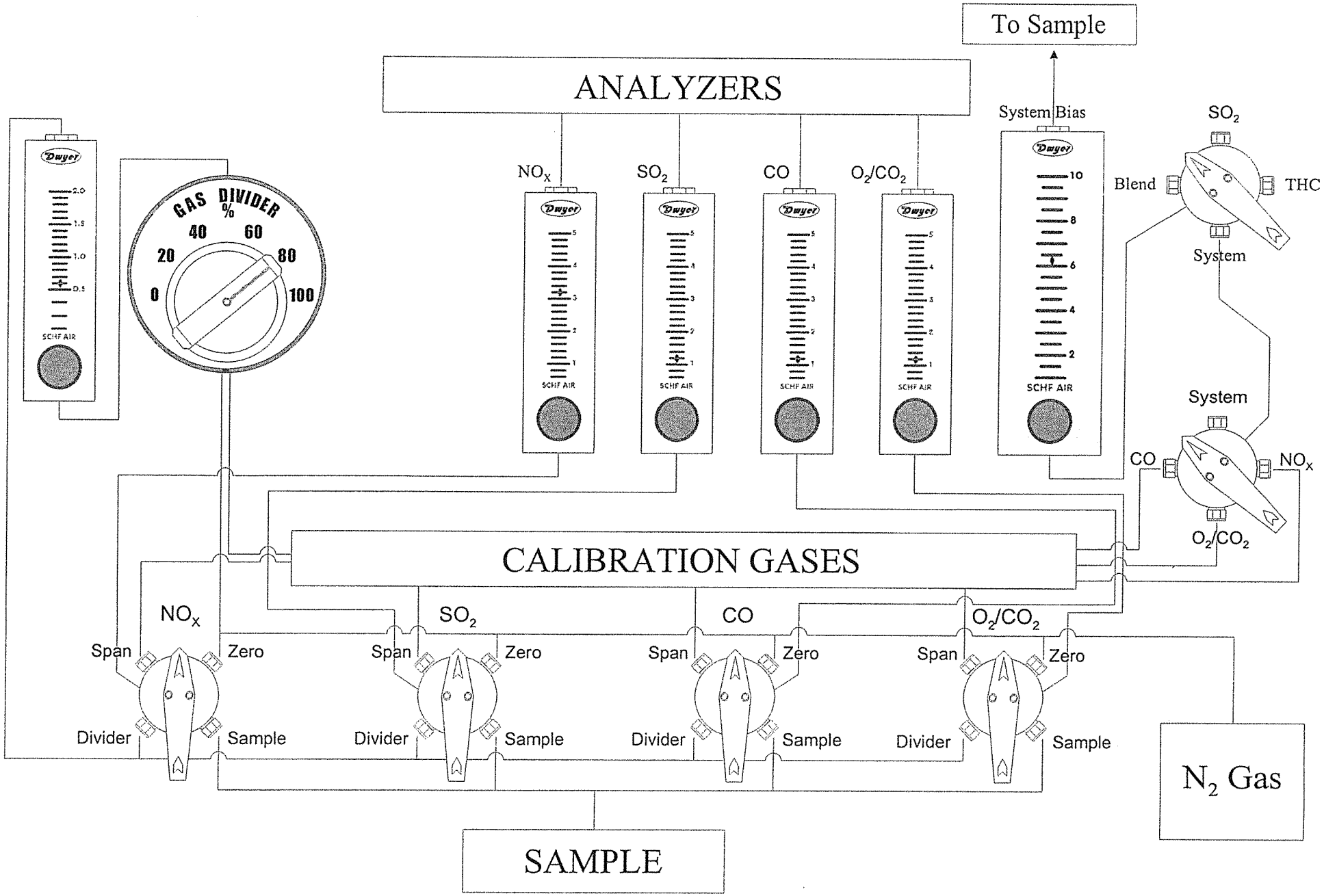


NO_x CHEMILUMINESCENT ANALYZER	*MODEL 600* *Serial No. U09024*
Ranges	0-3 ppm, up to 0-3,000 ppm
Output	0-10V / 4-20mA
Linearity	Better than 0.5% of full scale
Operating Temperature	5-40 °C
Converter (Vitreous Carbon) Temp	205 °C > 95% efficiency
Detection Limit	0.1 ppm
Response Time (0%-90%)	Typically < 2 Seconds in NO_x mode
Repeatability	Better than 0.5% of full scale
Zero + Spam Drift	< 1% full scale
Sample Flow Rate	Typically 1.5-2.5 LPM

CO_2 ANALYZER *Non-Dispersive Infrared (NDIR)*	*SERVOMEX, Model 1400 B* *Serial No. 4363*
Ranges	0%-25%, single range
Output	0-1 V or 4-20 mA (isolated)
Linearity	+/- 1% of full scale
Operating Temperature	0 to 40°C
Detection Limit	0.1%
Response Time (0%-90%)	<30 Seconds
Accuracy	+/- 1% of full scale
Repeatability	+/- 1% of full scale
Drift	<1% of full scale per 24 hours
Sample Flow Rate	0.5 – 1 li./min

CO, California Analytical Instruments *(CAI) Non-Dispersive Infrared (NDIR)*	*Model 602* *Serial No. 512011*
Ranges	0-25 ppm, 0-10,000 ppm
Output	0-10V
Linearity	+/- 0.5%
Operating Temperature	5-45°C
Detection Limit	1.0 ppm
Response Time (0%-90%)	20 seconds
Accuracy	+/- 0.1%
Repeatability	< 1.0% of full scale
Noise	< 1.0% of full scale
Drift	<+/- 1% of full scale per 24 hours
Sample Flow Rate	0.5 – 2.0 l pm

MANIFOLD SCHEMATIC



O_2 ANALYZER, PARAMAGNETIC	*SERVOMEX, Model 1400*
Ranges	Selectable from 0%-1% up to 0%-100%
Output	0-1 V
Linearity	+/- 1% of full scale
Operating Temperature	5 to 50°C
Detection Limit	0.1%
Response Time (0%-90%)	<15 Seconds
Accuracy	+/- 0.1%
Repeatability	+/- 0.1%
Drift	<0.1%
Sample Flow Rate	1-2 li./min

THERMAL ELECTRIC SAMPLE COOLER	*BALDWIN TESTER CHOICE Model No. 5210*
Maximum Inlet Gas Temperature	+ 450 °F
Maximum Inlet Gas Dewpoint	+138 °F
Maximum Inlet Water Concentration	30% by volume
Maximum Ambient Temperature	+104 °F
Maximum Inlet Pressure	50 psig
Maximum Sample Gas Flow Rate	8 li/min (12.9 scfh)
Ambient Temperature Range	+40 to 104 °F
Outlet Sample Gas Dewpoint	<36 °F +/- 1 °F
Power	740 Watts
Water Removal	Peristaltic Drain Pump

STRIP CHART RECORDER	*YOKOGAWA Model HR 2400*
Scan Cycle Time	1-60 Seconds
Scanning Rate	60 ms/Channel
Input Bias	Less than 10mA
Chart Speed	1-15,000 mm/hr
Maximum Allowable Input Voltage	60 VDC
Recording Accuracy	+/- 0.1 of effective range
Chart Speed Accuracy	+/- 0.1% recordings greater than 1 m
Data Acquisition System	Varilink Digital Software

MOBILE EMISSIONS LABORATORY	*GMC 15' BOX VAN*
Insulation	Fully Insulated
Air Conditioning	1 Full-size Coleman Air Conditioner
Computer	IBM Compatible System

Calculations:

Corrected Concentrations = (Raw Conc. – Avg. Zero) x Cal. Gas Value/(Avg. Span – Avg. Zero)
ppm NO_x @ 15% O_2 = Corrected Concentrations x 5.95/(20.95 - %O_2 drift corr.)
LB/hr, Emission Rate = Corrected Concentrations x $\frac{\mathbf{1.583 \times 10^{-7}\ @\ 60\ °F}}{1.552 \times 10^{-7}\ @\ 70\ °F}$ x DSCFM x M_d
1.558×10^{-7} @ 68 °F
M_d = Dry Molecular Weight of NO_x and CO = 46 and 28
g/Bhp-hr = lb/hr * (453.6 g/lb)/(Bhp-eng.)
Actual BHP = (Actual KW / 0.746) / 0.95
NO_2 Conversion Efficiency, % CE = $(D_3 - D_2/D_1) \times 100$
Where: D_1 = ppmv, NO_2 (cylinder)
D_2 = ppmv, reading NO mode
D_3 = ppmv, NO_2, NO_x mode

6.2 *EPA Method 18 - NMOC Emissions Determination (Low Level)*

The apparatus consists of a stainless steel probe connected by Teflon line to an evacuated 6-liter Summa canister. Sample gas is drawn into the canister through a flow controller at approximately 150 mls per minute.

On completion of each run, the sample is sealed and transported to the laboratory. Sample is then drawn through a septum and injected into the GC for EPA Method 18 analysis, $C_1 - C_6+$.

Calculations:

$$\frac{lb}{} = \text{ppmvd} * \text{DSCFM} * \text{C.F.} * \text{M.W.}$$

Where:

ppmvd = parts per million (volume) dry
DSCFM = Dry Standard Cubic Feet Per Minute
M.W. = Molecular Weight of Specific Hydrocarbon
C.F. = Conversion Factor = 1.558E-07 @ 68°F;
= 1.583E-07 @ 60°F
= 1.552E-07 @ 70°F

6.3 *SCAQMD 307-94 – Total Sulfur as H_2S*

A new three-liter Tedlar bag fitted with polypropylene valve or the equivalent was used for sample transportation and storage. The bags were leak checked and purged with ultra pure nitrogen and stored in a safe area. Prior to sampling the bags were conditioned to the fuel gas by filling and emptying the bags at least three times before the actual samples were taken. The sample was collected in a dark container to prevent sunlight from modifying the sample matrix.

The samples were analyzed within 24-hours of the sampling time. The Inlet samples were analyzed for Total Reduced Sulfur (TRS) as H_2S.

Calculations:

1) Calculating Total Sulfur from the Inlet = Total Sulfur Emission @ Outlet
   Since Total Sulfur In = Total Sulfur Out (mass emissions)
2) Calculate lb/hr (Inlet)
   lb/hr = ppm * scfm * 1.583×10^{-7} (60°) * 64 (M.W.)
3) Solve for ppm @ Outlet
   ppmv = lb/hr/dscfm *1583×10^{-7} (60°) * 64 (M.W.)

Where: 64 = M.W. of SO_2

6.4 *EPA Method 19 – Emission Rates Determination using Calculated Stack Gas Flowrate*

The fuel usage of the I.C. Engine was monitored and recorded for the duration of the test. The stack gas flowrate was then calculated stochiometrically based on the analyzed gas heating value for the day of testing (see Appendix G for Facility Operating Parameters).

Stack gas flowrate = Fuel Flow rate x Heat Content x F Factor x $(20.9/(20.9-O_2)$

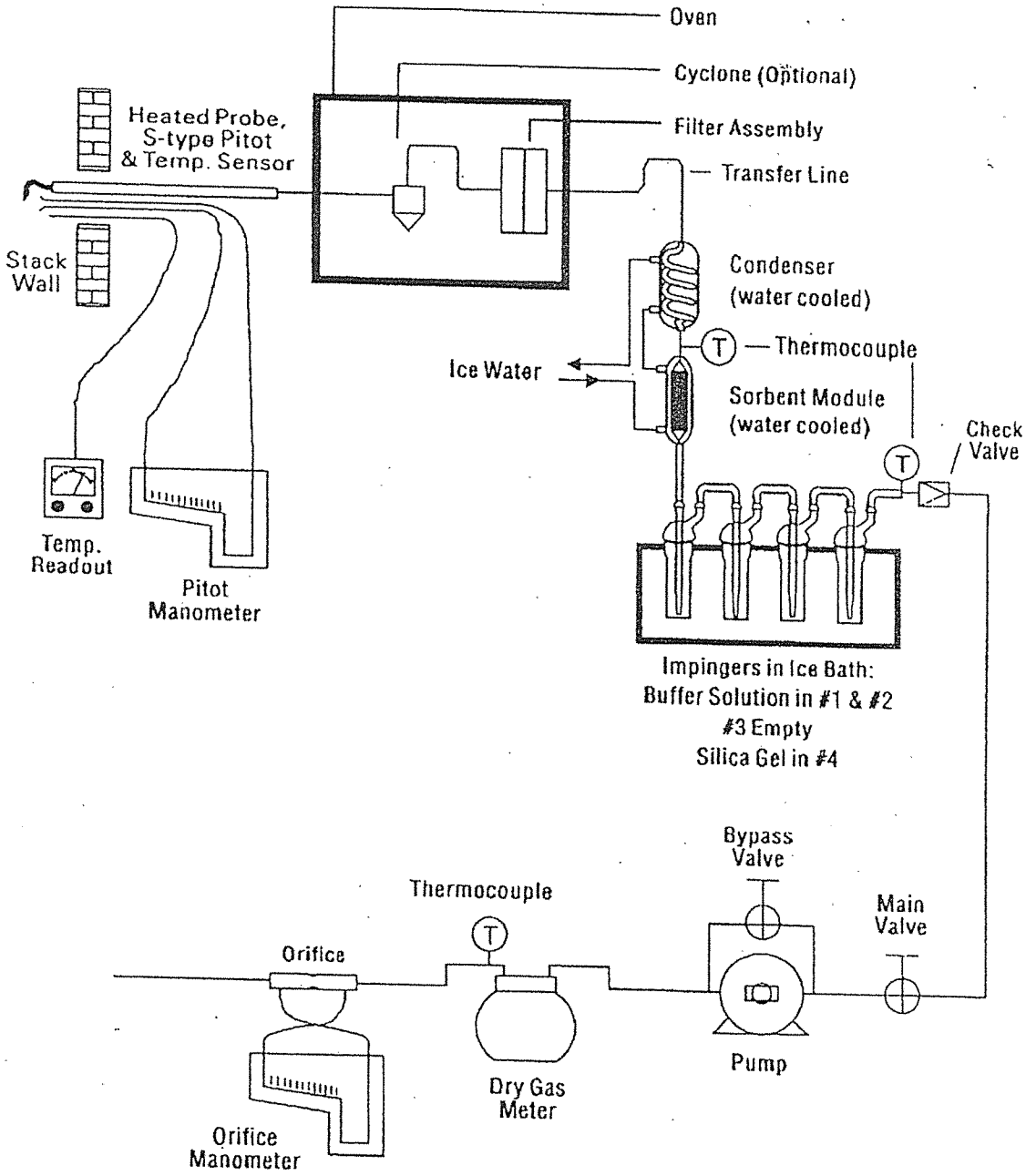
6.5 *CARB Method 429 – Poly Aromatic Hydrocarbons (PAHs) Emissions*

This method was used to determine nineteen polycyclic aromatic hydrocarbons (PAHs) in emissions from a stationary source. Particulates and gaseous phase PAH were extracted from the stack and collected on XAD-2 resin and impingers. The analytical method used was isotope dilution mass spectrometry combined with high-resolution gas chromatography.

The sampling train consisted of nozzle, probe, heated particulate filter, condenser, and sorbent module followed by three impingers and a silica gel drying cartridge. The sample transfer line was Teflon (1/4 in. O.D. x 1/32 in. wall) with connecting fittings that were capable of forming leak-free, vacuum tight connections without using sealing greases.

The sorbent module used was made of glass with connecting fittings that were able to form leak-free, vacuum tight seals without the use of sealant greases. A coil-type condenser, also oriented vertically, with circulating cold water, preceded the vertical resin trap. Gas entering the sorbent module was cooled to 20°C (68°F) or less. The gas temperature was monitored by a thermocouple placed either at the inlet or exit of the sorbent trap. The sorbent bed was firmly packed and secured in place by the lab to prevent settling or channeling during sample collection. Ground glass caps (or equivalent) were used to seal the sorbent-filled trap both prior to and following sampling.

Four impingers in series with ground glass fittings able to form leak-free, vacuum tight seals without sealant greases were connected. The impingers were Greenburg-Smith design modified by replacing the tip with a 1.3 cm (1/2 in.) I.D. glass tube extending to 1.3 cm (1/2 in.) from the bottom of the flask.



PAH Sampling Train

M-429

The first and second impingers contained 100 mL of 3 mM sodium bicarbonate ($NaHCO_3$) and 2.4 mM sodium carbonate (Na_2CO_3). The third impinger was empty. Silica gel was added to the fourth impinger.

Front half (probe rinse and filter) and back half (condenser rinse and resin trap) samples were combined and analyzed using high resolution GC/MS. As part of the method QA/QC, all of the resin traps were pre-spiked with isotopically labeled PAH's, and a sampling train blank (consisting of all sampling materials and reagents) was prepared and submitted along with the samples for identical analysis. All sample analysis and preparation was performed by Vista Analytical Laboratory in El Dorado Hills, CA.

6.6 EPA Method 323 – Draft Formaldehyde Emissions Determination

An emission sample from the combustion exhaust was drawn through a midget impinger train containing chilled reagent water to absorb formaldehyde. The sample rate was set at 0.4 l/min for 60 minutes for a total of 24 liters. Each sample was recovered by rinsing the line and glassware and placing in a 25 ml vial with no headspace. Triplicate samples were obtained for each source. A field duplicate and field blank was also performed. The samples were chilled and transported to the laboratory. The laboratory results showed the standards used and calibration linearity. An analytical blank and duplicate was also conducted per sample set. The formaldehyde concentration in the impinger was determined by reaction with acetyl acetone to form a colored derivative, which was measured colorimetrically. A spectrophotometer was utilized for formaldehyde analysis and measured absorbance at 412 nm. The concentration of formaldehyde in the liquid sample was determined according to the following equation:

$$\mu g/Sample = Absorbance * Calibration\ Factor * (Vt/Va)$$

Where: Absorbance = 0.605 from Engine #1, Run #1
Calibration Factor = 15.546 from Calibration Linearity
Vt = Volume of Total Liquid Sample, 25 mls
Va = Volume of Liquid Analyzed, 0.2 mls

6.7 CARB Method 410 – Toxics Determination with Benzene

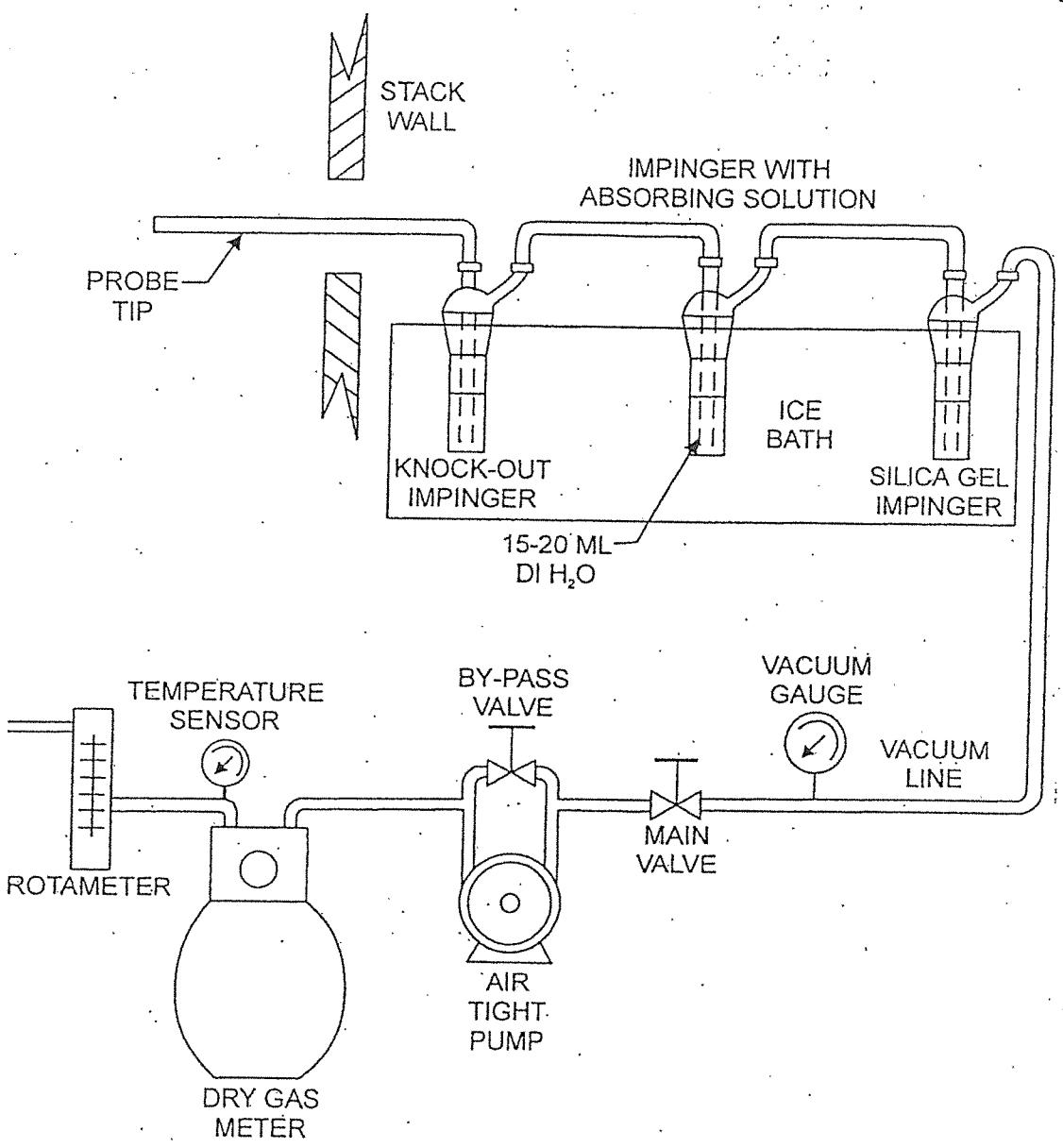
An integrated gas sample was collected in a Summa canister for approximately 30 minutes and transported to Columbia Analytical laboratory in Simi Valley, CA. The sample was then analyzed by a GC/MS for a list of 75 toxic compounds as shown in Appendix F – CARB Method 410.

7.0 Test Results and Discussion

The compliance test was conducted at the outlet of the I.C. engine for emissions of Nitrogen Oxides (NO_x), Carbon Monoxide (CO), Oxygen (O_2), Non-Methane Organic Compounds (NMOC) and total Sulfur content. In addition, PAHs, Formaldehyde and Toxics were measured to determine emission factors. This additional testing was performed after the compliance testing was completed. The instruments were left on to show NOx, CO, CO2, and O2 during the emission factors test. The ICE remained steady during the additional testing.

Formaldehyde Emissions Determination

EPA Method 323



Chilled Impinger Train Sampling System

All testing was performed at normal operating conditions as found on April 12, 2013.

Internal Calibrations, System Bias Checks, and an NO_2 converter test were conducted and the data can be found in Appendix A.

Sulfur Dioxide (SO_2) determination was derived from the fuel analysis and calculated from Total Sulfur compounds (see Appendix C – Total Sulfur).

All emissions are standardized to 60°F as required by SBCAPCD compliance requirements. Results of the compliance test are shown in the Summary of Results section.

8.0 Quality Assurance and Quality Control

Total Air Analysis, Inc. applies stringent quality control and quality assurance procedures to ensure the validity of measurements for all projects. Our procedures are documented in detailed quality assurance project plans similar to those used by the EPA, CARB, and Santa Barbara County APCD.

8.1 QA/QC Overview

Total Air Analysis, Inc.'s QA/QC procedures follow guidelines in *Quality Assurance Handbook for Air Pollution Measurement Systems*, Volumes I through III. These procedures outline pretest preparation and calibrations of sampling equipment, post-test sample handling, and post-test calibrations. Standardized, written procedures, calculator programs, and spreadsheets are used for test planning, pre-surveys, equipment checklists, preliminary calculations, data and sample collection, sample tracking, data analysis, and reporting. Pre-test preparations and maintenance include organization of the following equipment:

- Calibrated pitots, balances, TCs, control boxes, sampling train specific for moisture, sample probes suitable for type of sampling to be done, and support equipment such as tools, safety gear, radios, and spares.

Test procedures follow applicable CARB/EPA or other approved test methods. For non-continuous sampling systems (moisture train, etc.), these procedures specify the following:

- Pre-test and post-test leak checks on both pitot connections and moisture trains.
- Maintenance of pitot tubes in a horizontal attitude by employment of special rail systems or jigs.
- Proper configuration of moisture train.
- Sample and velocity traverses, number and location of sampling points, check for cyclonic flow; stratification checks.
- Minimum sample time and volume for moisture determination.
- Required temperature limitations.
- Other test method-specific procedures.

8.2 *QA/QC Equipment Calibration Procedures*

Table 2 contains the specific QA/QC equipment calibration requirements that are strictly followed by Total Air Analysis personnel.

Table 2
Quality Assurance / Quality Control Calibration Table

Component	*Frequency of Calibration*	*Requirements of Calibration*	*Limits of Calibration*
Pitots	Prior to each source testing program and semiannually	Visual inspection and measurements of angles and distances	C_p is assumed to be 0.84 if all measurements are within specification
Temperature Sensors	Bimonthly	Ice water, boiling water, and boiling oil	$\pm$ 1.5% deviation from referenced mercury in-glass thermometer
Barometer	Semiannual	Comparison to mercury in-glass barometer	$\pm$ 0.1 inches from deviation from referenced mercury in-glass thermometer
Reference Wet Test Meter	Semiannual	Calibrated against an NBS traceable orifice or NBS laminar flow element	$Y_m = 1.00 \pm 0.05$
Analyzer Linearity Checks	Daily Per Site	3 points – 0.%, 40% or 60% and 80% of full scale	Analyzer linearity = $\pm$ 2% from actual value
Gas Divider Verification	Daily Per Site	6 point linearity check followed by internal calibration	Gas divider = $\pm$ 2% from verification cylinder value
NO_2 Conversion Efficiency	Daily Per Site	NO_2 calibration gas direct to NO_x analyzer	Greater than 90% conversion efficiency

Appendix A

CARB METHOD 100
Calibrations, DAS, and Charts

Calibration Error, Bias, Drift & Drift-Corrected Concentration.

Run Number 1

CEM Operator: RPL

Facility: Santa Maria I
Source: ICE #1
Load: Normal
Start Date: 4/12/2013
End Date: 4/12/2013

Start Time: 11:00
End Time: 11:42

Species		NO_x	O_2	CO_2	CO
Concentration Unit		ppm	%	%	ppm
High-Range Gas Fraction of Span		0.82	0.88	0.72	0.89
Span		110	25	25	1000
Span Gas Concentration, Cma	HIGH	90.14	22.01	17.95	886.5
	MID	44.65	8.707	8.769	445.9
	ZERO	0.00	0.00	0.00	0.00
Initial Analyzer Calibration Check, Cai	HIGH	90.44	21.99	17.90	888.0
	MID	44.64	8.70	8.67	455.0
	ZERO	0.03	0.02	0.02	0.00
Response Time (seconds)		28	22	23	25
Initial Analyzer Calibration Error, Ei	HIGH	0.27	-0.08	-0.20	0.15
Ei = ((Cma - Cai)/Span)x100%	MID	-0.01	-0.03	-0.40	0.91
	ZERO	0.03	0.08	0.08	0.00
Initial Bias Check, Cbi	Upscale High (H) or Mid (M)?	H	M	H	M
	UPSCALE	90.88	8.58	17.82	459.00
(Select Upscale Calibration Gas Closest to Stack Gas Concentration)	ZERO	-0.13	0.06	0.04	8.00
Initial System Calibration Bias, Bi	UPSCALE	0.40	-0.48	-0.32	0.40
Bi = ((Cbi-Cai)/Span)x100%	ZERO	-0.15	0.16	0.08	0.80
Final Bias Check, Cbf	UPSCALE	87.80	8.44	17.80	454.00
(Select Upscale Calibration Gas Closest to Stack Gas Concentration)	ZERO	-0.40	0.16	0.05	7.00
Final System Calibration Bias, Bf	UPSCALE	-2.40	-1.04	-0.40	-0.10
Bf = ((Cbf - Cai)/(Span))x100%	ZERO	-0.39	0.56	0.12	0.70
Drift Check, D	UPSCALE	-2.80	-0.56	-0.08	-0.50
D = ((Cbf - Cbi)/(Span))x100%	ZERO	-0.25	0.40	0.04	-0.10
Average Bias Response for zero Gas, Co=(Cbi,zero+Cbf,zero)/2		-0.27	0.11	0.05	7.50
Average Bias Response for Upscale Gas, Cm=(Cbi,upscale+Cbf,upscale)/2		89.34	8.51	17.81	456.50
Average Measured Concentration, Cavg		89.14	7.10	11.58	321.36
Drift Corrected Concentration, Cgas=(Cavg-Co)xCma/(Cm-Co)		**89.93**	**7.24**	**11.65**	**311.70**

Calibration Error, Bias, Drift & Drift-Corrected Concentration.

Run Number 2

CEM Operator: RPL

Facility: Santa Maria I
Source: ICE #1
Load: Normal
Start Date: 4/12/2013
End Date: 4/12/2013

Start Time: 11:55
End Time: 12:35

Species		NO_x	O_2	CO_2	CO
Concentration Unit		ppm	%	%	ppm
High-Range Gas Fraction of Span		0.82	0.88	0.72	0.89
Span		110	25	25	1000
Span Gas Concentration, Cma	HIGH	90.14	22.01	17.95	886.5
	MID	44.65	8.707	8.769	445.9
	ZERO	0.00	0.00	0.00	0.00
Drift Check from Previous Run less than 3 %?	UPSCALE	Yes	Yes	Yes	Yes
Yes (Y) or No (N)	ZERO	Yes	Yes	Yes	Yes
Initial Analyzer Calibration Check, Cai	HIGH	90.44	21.99	17.90	888.0
(Must repeat if drift from previous test >=3%	MID	44.64	8.70	8.67	455.0
Otherwise, copy calibration check from most recent cal. error determinati	ZERO	0.03	0.02	0.02	0.00
Initial Analyzer Calibration Error, Ei	HIGH	0.27	-0.08	-0.20	0.15
Ei = ((Cma - Cai)/Span)x100%	MID	-0.01	-0.03	-0.40	0.91
	ZERO	0.03	0.08	0.08	0.00
Initial Bias Check, Cbi	Upscale High (H) or Mid (M)	H	M	H	M
	UPSCALE	87.80	8.44	17.80	454.00
(Select Upscale Calibration Gas Closest to Stack Gas Concentration)	ZERO	-0.40	0.16	0.05	7.00
Initial System Calibration Bias, Bi	UPSCALE	-2.40	-1.04	-0.40	-0.10
Bi = ((Cbi-Cai)/Span)x100%	ZERO	-0.39	0.56	0.12	0.70
Final Bias Check, Cbf	UPSCALE	87.71	8.39	17.79	460.00
(Select Upscale Calibration Gas Closest to Stack Gas Concentration)	ZERO	-0.72	-0.21	0.05	11.00
Final System Calibration Bias, Bf	UPSCALE	-2.48	-1.24	-0.44	0.50
Bf = ((Cbf - Cai)/(Span))x100%	ZERO	-0.68	-0.92	0.12	1.10
Drift Check, D	UPSCALE	-0.08	-0.20	-0.04	0.60
D = ((Cbf - Cbi)/(Span))x100%	ZERO	-0.29	-1.48	0.00	0.40
Average Bias Response for zero Gas, Co=(Cbi,zero+Cbf,zero)/2		-0.56	-0.03	0.05	9.00
Average Bias Response for Upscale Gas, Cm=(Cbi,upscale+Cbf,upscale)/2		87.76	8.42	17.80	457.00
Average Measured Concentration, Cavg		90.79	7.07	11.54	341.54
Drift Corrected Concentration, Cgas=(Cavg-Co)xCma/(Cm-Co)		**93.24**	**7.32**	**11.63**	**330.98**

Calibration Error, Bias, Drift & Drift-Corrected Concentration.

Run Number 3

CEM Operator: RPL

Facility: Santa Maria I
Source: ICE #1
Load: Normal
Start Date: 4/12/2013
End Date: 4/12/2013

Start Time: 12:36
End Time: 13:42

Concentration Unit High-Range Gas Fraction of Span		NOx ppm	O2 %	CO2 %	CO ppm
High-Range Gas Fraction of Span		0.82	0.88	0.72	0.89
Span		110	25	25	1000
Span Gas Concentration, Cma	HIGH	90.14	22.01	17.950	886.5
	MID	44.65	8.707	8.77	445.9
	ZERO	0.00	0.00	0.00	0.00
Drift Check from Previous Run less than 3 %?	UPSCALE	Yes	Yes	Yes	Yes
Yes (Y) or No (N)	ZERO	Yes	Yes	Yes	Yes
Initial Analyzer Calibration Check, Cai	HIGH	90.44	21.99	17.90	888.00
(Must repeat if drift from previous test >=3%	MID	44.64	8.70	8.67	455.00
Otherwise, copy calibration check from most recent cal. error determinati	ZERO	0.03	0.02	0.02	0.00
Initial Analyzer Calibration Error, Ei	HIGH	0.27	-0.08	-0.20	0.15
Ei = ((Cma - Cai)/Span)x100%	MID	-0.01	-0.03	-0.40	0.91
	ZERO	0.03	0.08	0.08	0.00
Initial Bias Check, Cbi	Upscale High (H) or Mid (M)?	H	M	H	M
	UPSCALE	87.8	8.44	17.80	454.00
(Select Upscale Calibration Gas Closest to Stack Gas Concentration)	ZERO	-0.4	0.16	0.05	7.00
Initial System Calibration Bias, Bi	UPSCALE	-2.40	-1.04	-0.40	-0.10
Bi = ((Cbi-Cai)/Span)x100%	ZERO	-0.39	0.56	0.12	0.70
Final Bias Check, Cbf	UPSCALE	87.71	8.39	17.79	460.00
(Select Upscale Calibration Gas Closest to Stack Gas Concentration)	ZERO	-0.72	-0.21	0.05	11.00
Final System Calibration Bias, Bf	UPSCALE	-2.48	-1.24	-0.44	0.50
Bf = ((Cbf - Cai)/(Span))x100%	ZERO	-0.68	-0.92	0.12	1.10
Drift Check, D	UPSCALE	-0.08	-0.20	-0.04	0.60
D = ((Cbf - Cbi)/(Span))x100%	ZERO	-0.29	-1.48	0.00	0.40
Average Bias Response for zero Gas, Co=(Cbi,zero+Cbf,zero)/2		-0.56	-0.03	0.05	9.00
Average Bias Response for Upscale Gas, Cm=(Cbi,upscale+Cbf,upscale)/2		87.76	8.42	17.80	457.00
Average Measured Concentration, Cavg		90.54	7.08	11.51	341.89
Drift Corrected Concentration, Cgas=(Cavg-Co)xCma/(Cm-Co)		**92.98**	**7.33**	**11.59**	**331.33**

RM-CEMS Calibration Error Check

Facility: Santa Maria I
Source: ICE #1
Load: Normal
Start Date: 4/12/2013
End Date: 4/12/2013

	Parameter		O_2	CO_2	NOx	CO
A	**Span Gas Concentration**	**HIGH**	22.01	17.950	90.14	886.50
B		**MID**	8.707	8.77	44.65	445.90
C	**Initial Analyzer Response**	**ZERO**	0.02	0.02	0.03	0.00
D		**HIGH**	21.99	17.90	90.44	888.00
E		**MID**	8.70	8.67	44.64	455.00
I	Analyzer Range		25	25	110	1000
J	*Linearity = {[B - ((E-C)(A/(D-C)))]/I} x 100*		*0.0*	*0.3*	*0.2*	*-0.8*
K	*Cal Error, Zero (%F.S.) = [(0-C)/I] x 100*		*-0.1*	*-0.1*	*0.0*	*0.0*
L	*Cal Error, Mid (%F.S.) = [(B-E)/I] x 100*		*0.0*	*0.4*	*0.0*	*-0.9*
M	*Cal Error, High (%F.S.) = [(A-D}/I] x 100*		*0.1*	*0.2*	*-0.3*	*-0.2*

F	**Final Analyzer Response**	**ZERO**	0.05	0.04	-0.14	4.00
G		**HIGH**	21.97	17.94	90.28	882.00
H		**MID**	8.67	8.71	44.61	455.00
I	Analyzer Range		25	25	110	1000
K	*Cal Error, Zero (%F.S.) = [(F-0)/I] x 100*		*0.2*	*0.2*	*-0.1*	*0.4*
L	*Cal Error, Mid (%F.S.) = [(H-B)/I] x 100*		*-0.1*	*-0.2*	*0.0*	*0.9*
M	*Cal Error, High (%F.S.) = [(G-A)/I] x 100*		*-0.2*	*0.0*	*0.1*	*-0.5*
N	*Average NOx Converter Test, (%) - (Stripchart)*		*95.4*			

Total Air Analysis Data Acquisition

Santa Maria ICE # 1 Run 1

Date	Time	RM O_2 (%)	RM CO_2 (%)	RM NOx (ppm)	RM CO (ppm)
4/12/2013	11:00:12	7.13	11.57	86.96	310.98
4/12/2013	11:01:12	7.12	11.58	88.15	311.9
4/12/2013	11:02:12	7.12	11.58	86.48	310.6
4/12/2013	11:03:12	7.13	11.56	85.66	309.77
4/12/2013	11:04:12	7.12	11.57	87.09	311.85
4/12/2013	11:05:12	7.13	11.55	85.14	310.35
4/12/2013	11:06:12	7.14	11.55	84.61	309.7
4/12/2013	11:07:12	7.15	11.54	82.78	307.6
4/12/2013	11:08:12	7.15	11.54	82.84	313.25
4/12/2013	11:09:12	7.13	11.56	85.28	321.83
4/12/2013	11:10:12	7.11	11.57	86.84	324.13
4/12/2013	11:11:12	7.11	11.57	85.65	324.32
4/12/2013	11:12:12	7.12	11.56	82.82	322.6
4/12/2013	11:13:12	7.1	11.57	85.97	328.15
4/12/2013	11:14:12	7.07	11.6	91.2	332.32
4/12/2013	11:15:12	7.09	11.59	90.34	329.75
4/12/2013	11:16:12	7.1	11.58	88.51	327.98
4/12/2013	11:17:12	7.09	11.59	90.09	330.43
4/12/2013	11:18:12	7.07	11.6	92.89	333.62
4/12/2013	11:19:12	7.1	11.57	88.97	330.15
4/12/2013	11:20:12	7.08	11.59	89.36	331.02
4/12/2013	11:21:12	7.08	11.59	90.67	333.2
4/12/2013	11:22:12	7.05	11.61	97.71	340.92
4/12/2013	11:23:12	7.1	11.58	90.98	333.68
4/12/2013	11:24:12	7.12	11.56	87.28	330.93
4/12/2013	11:25:12	7.1	11.57	89.26	332.68
4/12/2013	11:26:12	7.11	11.57	89.15	333.02
4/12/2013	11:27:12	7.09	11.58	91.3	334.73
4/12/2013	11:28:12	7.08	11.6	93.26	336.1
4/12/2013	11:29:12	7.09	11.59	91.37	333.92
4/12/2013	11:30:12	7.07	11.6	92.25	335.87
4/12/2013	11:31:12	7.08	11.6	92.62	334.9
4/12/2013	11:32:12	7.1	11.57	88.29	331.12
4/12/2013	11:33:12	7.11	11.57	88.61	331.48
4/12/2013	11:34:12	7.11	11.56	86.41	330.78
4/12/2013	11:35:12	7.08	11.58	89.83	336.08
4/12/2013	11:36:12	7.08	11.58	89.47	335.87
4/12/2013	11:37:12	7.07	11.6	95.42	341.68
4/12/2013	11:38:12	7.08	11.59	91.99	338.47
4/12/2013	11:39:12	7.08	11.58	89.97	337.33
4/12/2013	11:40:12	7.05	11.61	96.49	342.77
4/12/2013	11:41:12	7.07	11.59	96.15	323.33
4/12/2013	11:42:12	7.08	11.47	86.74	57.43
	Average	**7.10**	**11.58**	**89.14**	**321.36**

4/12/2013	11:43:12	8.72	10.08	64.91	110.8	
4/12/2013	11:44:12	2.55	0.92	65.62	31.32	Cals
4/12/2013	11:45:12	-0.15	0.06	87.59	7.03	
4/12/2013	11:46:12	-0.17	0.05	87.88	6.78	
4/12/2013	11:47:12	2.57	4.86	66.01	10.3	
4/12/2013	11:48:12	8.37	17.55	1.28	13.9	
4/12/2013	11:49:12	8.44	17.79	-0.3	13.88	
4/12/2013	11:50:12	7.49	16.15	0.46	57.08	
4/12/2013	11:51:12	0.39	1.42	-0.54	420.47	
4/12/2013	11:52:12	-0.17	0.08	-0.54	406.47	
4/12/2013	11:53:12	-0.2	0.11	4.37	21.08	
4/12/2013	11:54:12	1.86	2.13	9.31	292.87	

Total Air Analysis Data Acquisition

Santa Maria ICE # 1 Run 2

Date	Time	RM O_2 (%)	RM CO_2 (%)	RM NOx (ppm)	RM CO (ppm)	
4/12/2013	11:55:12	7.04	11.29	75.96	337.8	Start Run
4/12/2013	11:56:12	7.08	11.56	87.81	339.02	
4/12/2013	11:57:12	7.07	11.56	89	341.6	
4/12/2013	11:58:12	7.07	11.56	91.9	343.85	
4/12/2013	11:59:12	7.06	11.58	91.56	344.42	
4/12/2013	12:00:12	7.08	11.56	89.91	342.22	
4/12/2013	12:01:12	7.08	11.56	90.04	342.92	
4/12/2013	12:02:12	7.06	11.57	92.6	345.78	
4/12/2013	12:03:12	7.06	11.57	92.69	345.28	
4/12/2013	12:04:12	7.06	11.58	94.38	346.97	
4/12/2013	12:05:12	7.08	11.56	91.39	343.95	
4/12/2013	12:06:12	7.06	11.58	93.89	347.68	
4/12/2013	12:07:12	7.07	11.56	91.81	344.47	
4/12/2013	12:08:12	7.08	11.55	90.33	343.97	
4/12/2013	12:09:12	7.09	11.55	88.72	341.92	
4/12/2013	12:10:12	7.07	11.56	92.79	342.93	
4/12/2013	12:11:12	7.08	11.55	90.02	342.43	
4/12/2013	12:12:12	7.09	11.54	88.69	341	
4/12/2013	12:13:12	7.06	11.56	91.84	345.37	
4/12/2013	12:14:12	7.06	11.57	93.51	347.67	
4/12/2013	12:15:12	7.04	11.58	97.45	351.5	
4/12/2013	12:16:12	7.03	11.6	98.72	342.03	
4/12/2013	12:17:12	7.05	11.57	93.52	339.45	
4/12/2013	12:18:12	7.06	11.57	93.06	338.48	
4/12/2013	12:19:12	7.11	11.53	87.01	332.95	
4/12/2013	12:20:12	7.08	11.54	90.13	336.67	
4/12/2013	12:21:12	7.09	11.54	90.19	335.52	
4/12/2013	12:22:12	7.08	11.54	89.82	336.37	
4/12/2013	12:23:12	7.08	11.54	87.42	336	
4/12/2013	12:24:12	7.07	11.54	91.25	341.23	
4/12/2013	12:25:12	7.06	11.55	94.89	344.22	
4/12/2013	12:26:12	7.07	11.54	90.9	342.9	

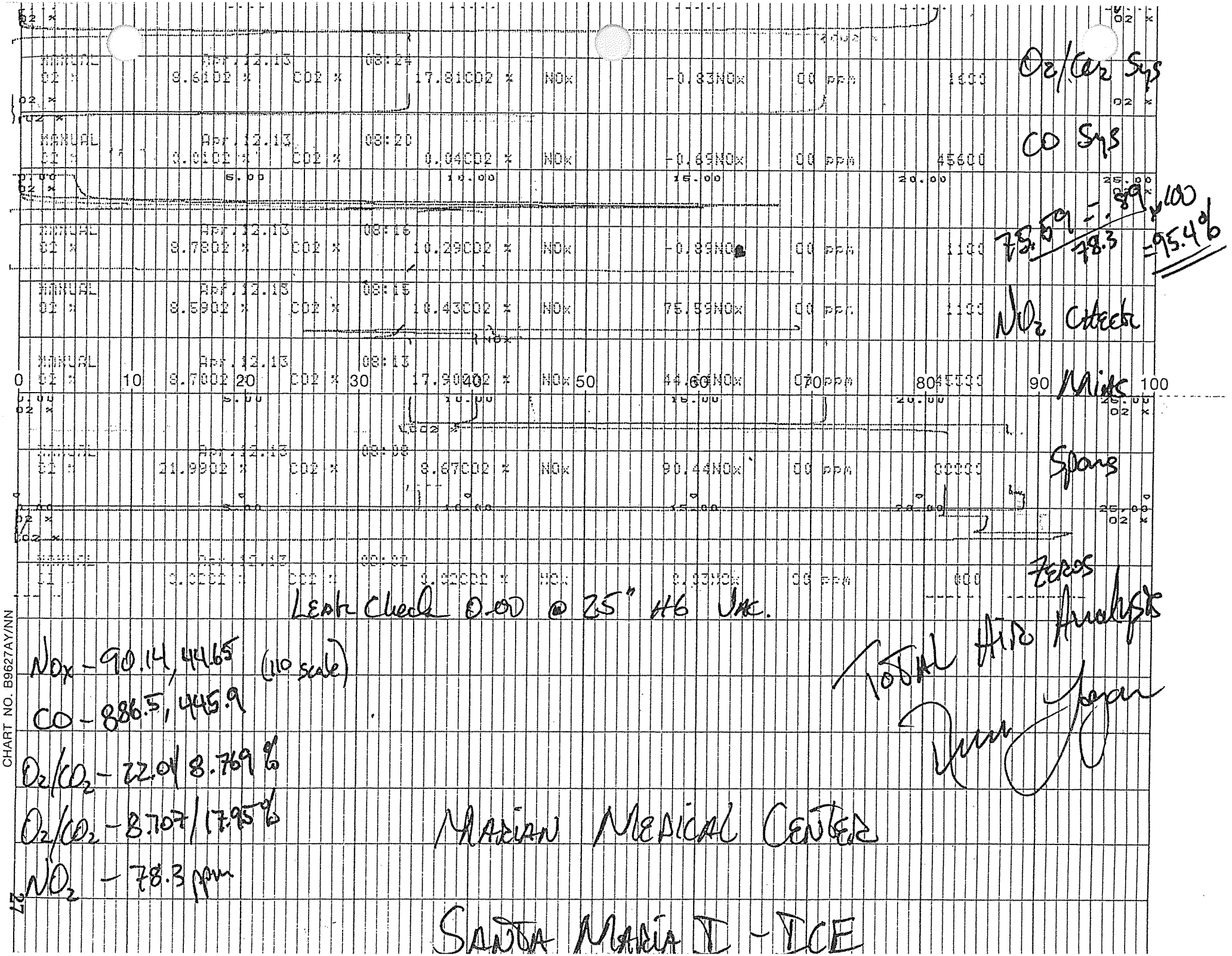
4/12/2013	12:27:12	7.05	11.56	92.7	345.27	
4/12/2013	12:28:12	7.09	11.52	89.25	341.35	
4/12/2013	12:29:12	7.08	11.53	91.29	344.02	
4/12/2013	12:30:12	7.09	11.53	90.16	341.12	
4/12/2013	12:31:12	7.11	11.51	88.33	338.1	
4/12/2013	12:32:12	7.09	11.52	89.87	337.68	
4/12/2013	12:33:12	7.09	11.52	89.37	336.5	
4/12/2013	12:34:12	7.09	11.51	89.5	335.45	
4/12/2013	12:35:12	7.1	11.52	88.78	335.23	End Run
	Average	**7.07**	**11.54**	**90.79**	**341.54**	

Total Air Analysis Data Acquisition

Santa Maria ICE # 1 Run 3

Date	Time	RM O_2 (%)	RM CO_2 (%)	RM NOx (ppm)	RM CO (ppm)
4/12/2013	12:36:12	7.09	11.52	88.12	334.6
4/12/2013	12:37:12	7.1	11.51	87.12	333.65
4/12/2013	12:38:12	7.09	11.51	88.56	336.15
4/12/2013	12:39:12	7.06	11.54	92.82	340.18
4/12/2013	12:40:12	7.06	11.54	91.46	337.4
4/12/2013	12:41:12	7.08	11.53	90.49	337.28
4/12/2013	12:42:12	7.08	11.52	90.46	337.17
4/12/2013	12:43:12	7.08	11.53	90.86	338.03
4/12/2013	12:44:12	7.08	11.52	90.51	338
4/12/2013	12:45:12	7.07	11.54	91.11	339.98
4/12/2013	12:46:12	7.07	11.53	89.66	338.82
4/12/2013	12:47:12	7.06	11.53	92.13	340.62
4/12/2013	12:48:12	7.07	11.53	91.34	340.52
4/12/2013	12:49:12	7.05	11.54	93.5	343.52
4/12/2013	12:50:12	7.04	11.55	96	345.65
4/12/2013	12:51:12	7.03	11.56	95.96	345.47
4/12/2013	12:52:12	7.03	11.56	95.09	346.03
4/12/2013	12:53:12	7.03	11.55	96.96	347.5
4/12/2013	12:54:12	7.05	11.54	95.3	345.87
4/12/2013	12:55:12	7.06	11.53	93.02	344.55
4/12/2013	12:56:12	7.07	11.51	91.66	341.93
4/12/2013	12:57:12	7.07	11.52	92.16	343.95
4/12/2013	12:58:12	7.05	11.53	94.68	347.22
4/12/2013	12:59:12	7.06	11.52	92.91	345.83
4/12/2013	13:00:12	7.07	11.51	90.8	344.75
4/12/2013	13:01:12	7.07	11.51	91.95	346.05
4/12/2013	13:02:12	7.07	11.52	91.62	346.35
4/12/2013	13:03:12	7.09	11.5	89.14	345.33
4/12/2013	13:04:12	7.11	11.49	86.3	344.83
4/12/2013	13:05:12	7.11	11.48	85.46	344.97
4/12/2013	13:06:12	7.11	11.48	86.08	345.88

4/12/2013	13:07:12	7.09	11.5	88.07	347.93
4/12/2013	13:08:12	7.1	11.48	86.87	348.98
4/12/2013	13:09:12	7.08	11.5	90.88	352.3
4/12/2013	13:10:12	7.07	11.5	93.13	354.85
4/12/2013	13:11:12	7.06	11.52	94.95	354.95
4/12/2013	13:12:12	7.11	11.48	87.76	346.45
4/12/2013	13:13:12	7.11	11.48	84.68	342.1
4/12/2013	13:14:12	7.13	11.46	83.73	340.58
4/12/2013	13:15:12	7.11	11.48	86.5	343.9
4/12/2013	13:16:12	7.1	11.48	89.17	346.35
4/12/2013	13:17:12	7.1	11.49	89.33	346.27
4/12/2013	13:18:12	7.1	11.49	88.06	345.5
4/12/2013	13:19:12	7.11	11.48	86.39	344.1
4/12/2013	13:20:12	7.1	11.49	87.54	345.8
4/12/2013	13:21:12	7.1	11.48	87.81	346.1
4/12/2013	13:22:12	7.07	11.5	91.57	350.7
4/12/2013	13:23:12	7.06	11.51	93.87	353.25
4/12/2013	13:24:12	7.05	11.53	95.8	354.37
4/12/2013	13:25:12	7.07	11.51	92.65	351.02
4/12/2013	13:26:12	7.08	11.5	92.09	351.98
4/12/2013	13:27:12	7.08	11.51	90.6	351.08
4/12/2013	13:28:12	7.08	11.51	91.25	351.62
4/12/2013	13:29:12	7.08	11.5	91.39	351.68
4/12/2013	13:30:12	7.08	11.51	91.37	352.2
4/12/2013	13:31:12	7.08	11.51	90.03	350.9
4/12/2013	13:32:12	7.08	11.51	91.14	352.03
4/12/2013	13:33:12	7.09	11.5	90.2	351.03
4/12/2013	13:34:12	7.08	11.5	90.04	351.43
4/12/2013	13:35:12	7.08	11.51	91.18	352.38
4/12/2013	13:36:12	7.1	11.49	89.19	350.8
4/12/2013	13:37:12	7.07	11.51	90.62	353.8
4/12/2013	13:38:12	7.07	11.52	93.44	356.58
4/12/2013	13:39:12	7.09	11.5	92.47	355.33
4/12/2013	13:40:12	7.11	11.48	87.12	349.97
4/12/2013	13:41:12	7.11	11.48	87.14	333.38
4/12/2013	13:42:12	7.08	11.41	84.81	66.88
	Average	**7.08**	**11.51**	**90.54**	**341.89**


O2/Co2 Sys
CO Sys
NO2 Correct
Mins
Spans
Zeros
Analysis
Leak Check 0.00 @ 25" Hg OK.
NOx - 90.14, 44.65 (110 scale)
CO - 886.5, 445.9
O2/CO2 - 22.04 / 8.769 %
O2/CO2 - 8.707 / 17.95 %
NO2 - 78.3 ppm
78.59 - .89 / 78.3 x 100 = 95.4%
TOTAL HIS
MARIAN MEDICAL CENTER
SANTA MARIA, CA - DCE
CHART NO. B9627AY/NN

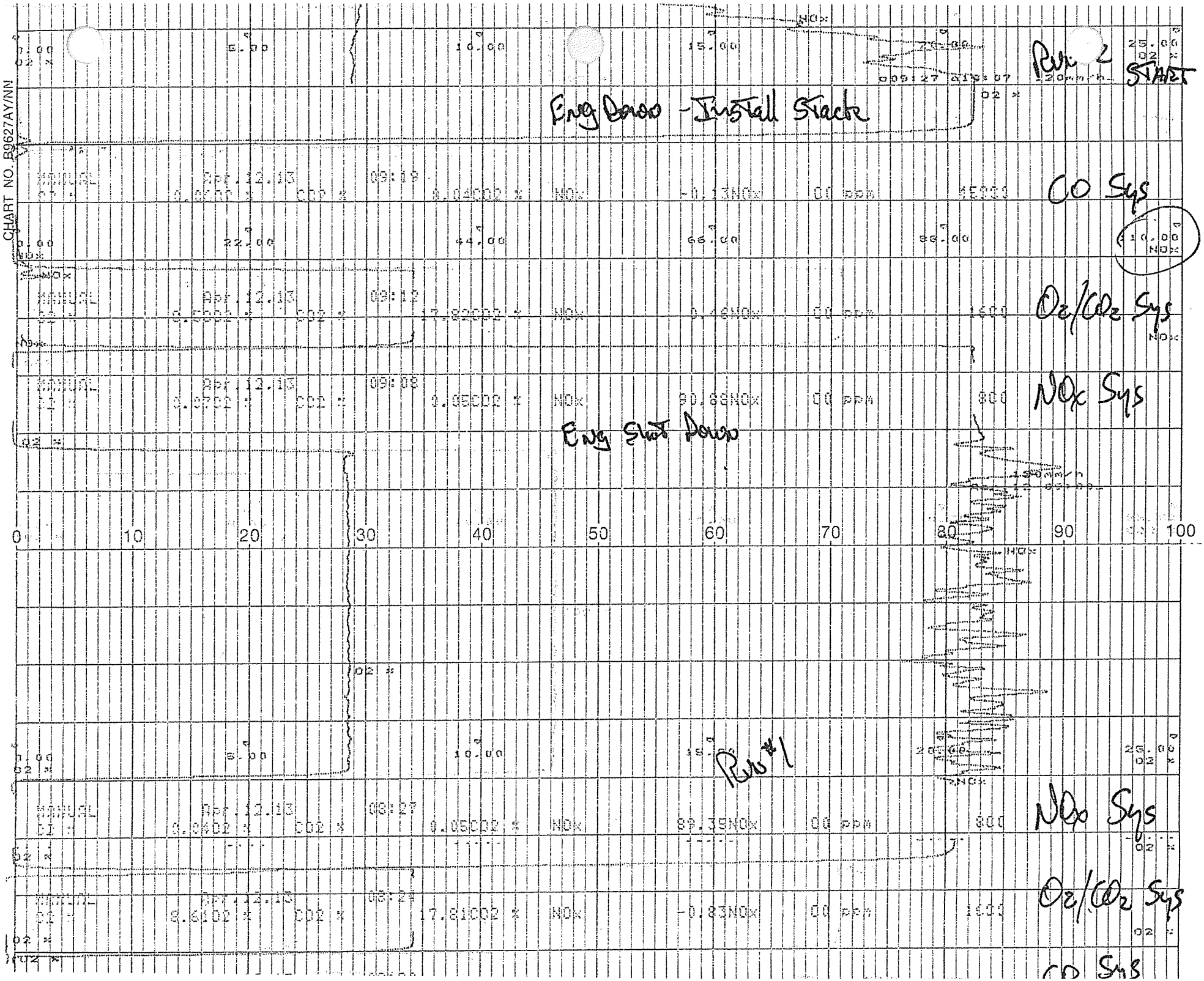
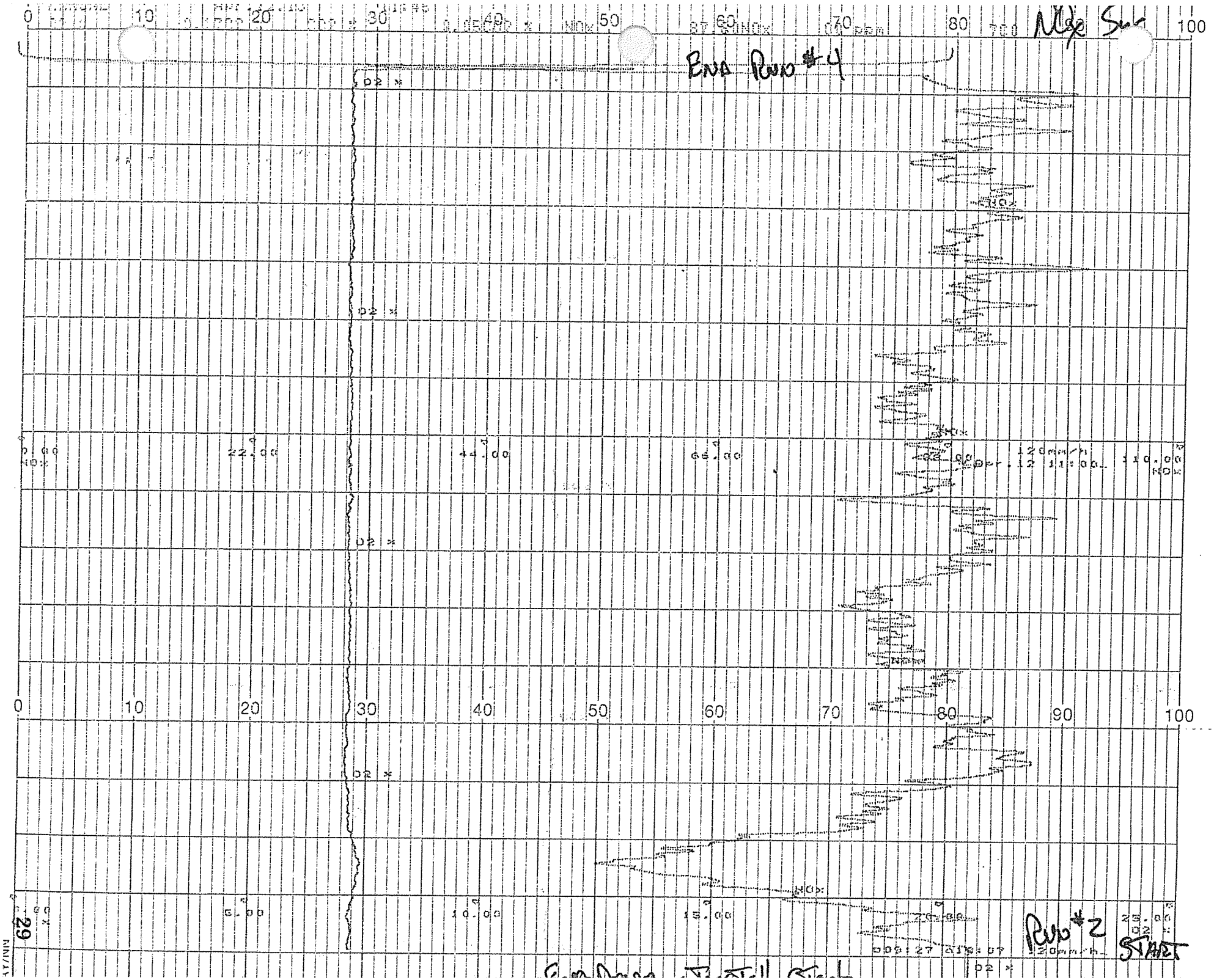
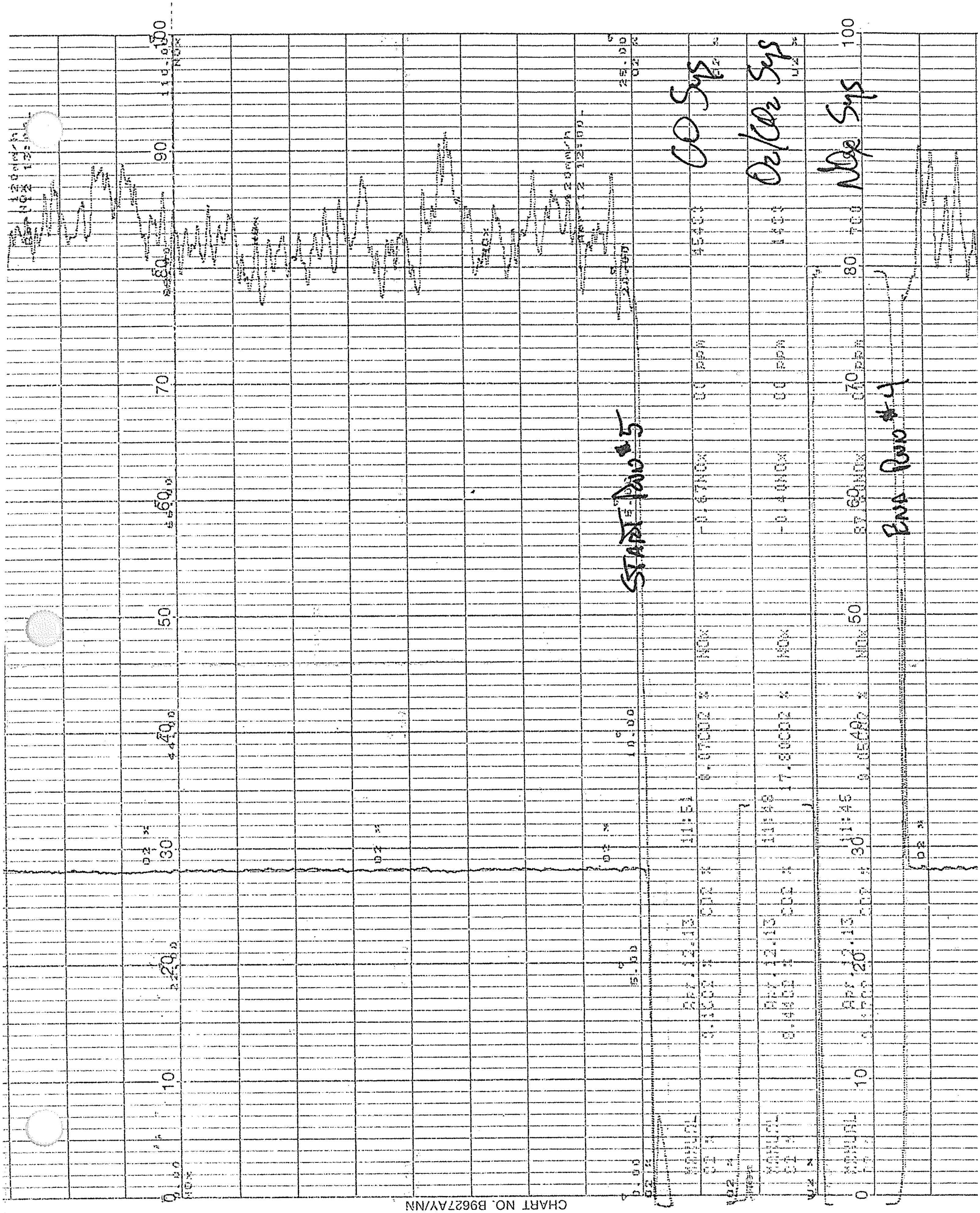
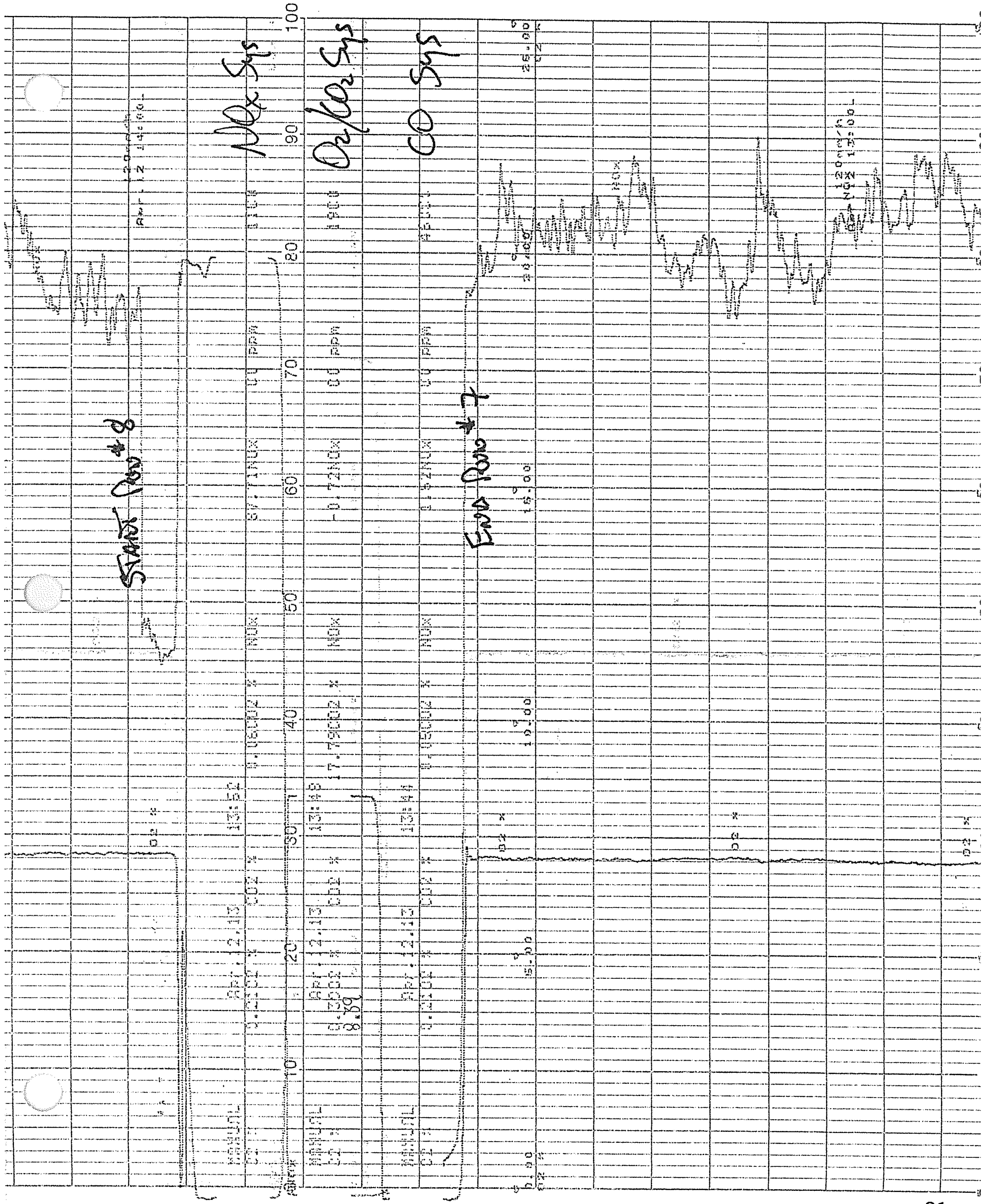
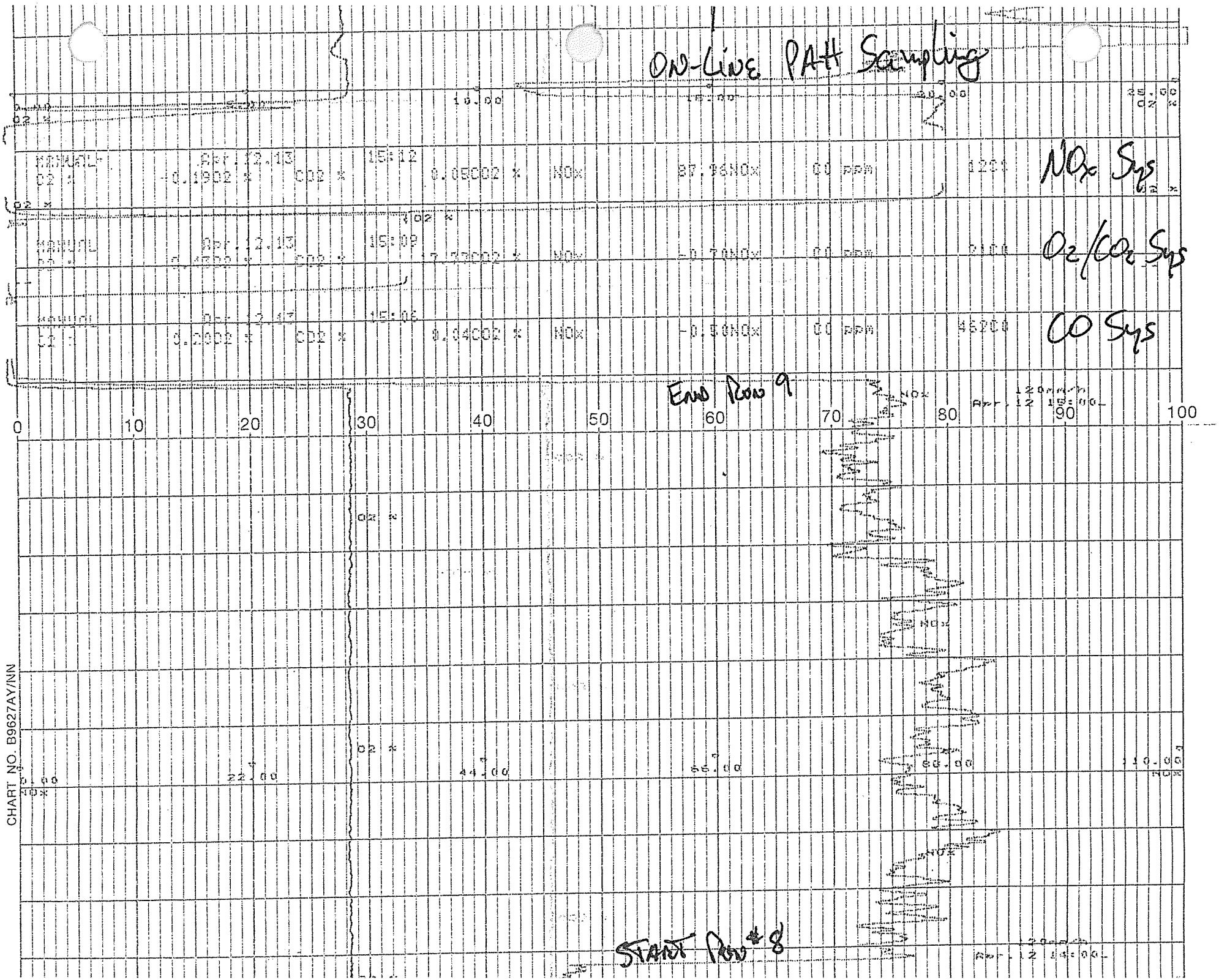


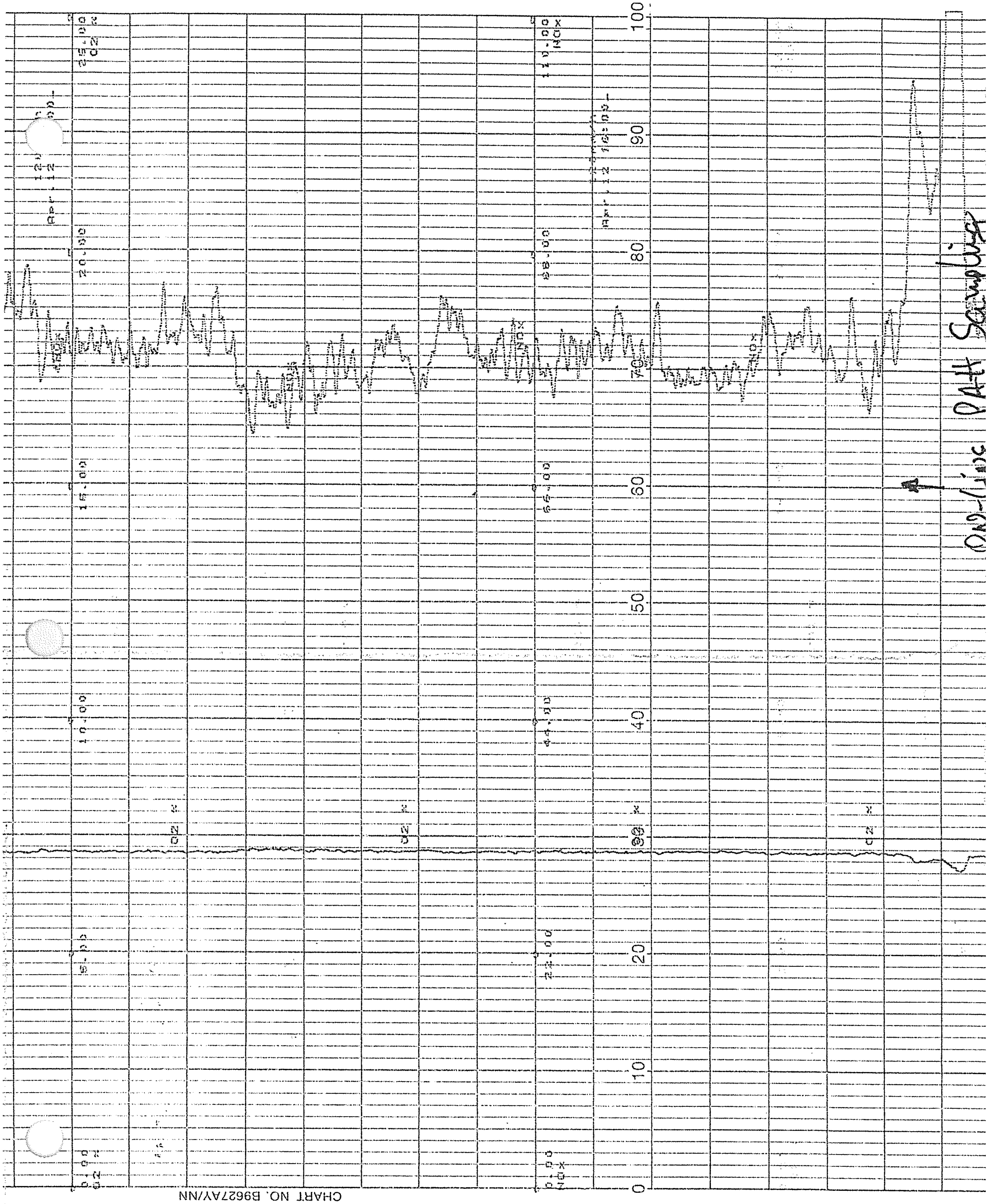
CHART NO. B9627AY/NN
Run 2 START
Eng Down - Install Stack
CO Sys
O2/CO2 Sys
NOx Sys
Eng Start Down
0
10
20
30
40
50
60
70
80
90
100
Run #1
NOx Sys
O2/CO2 Sys
CO Sys

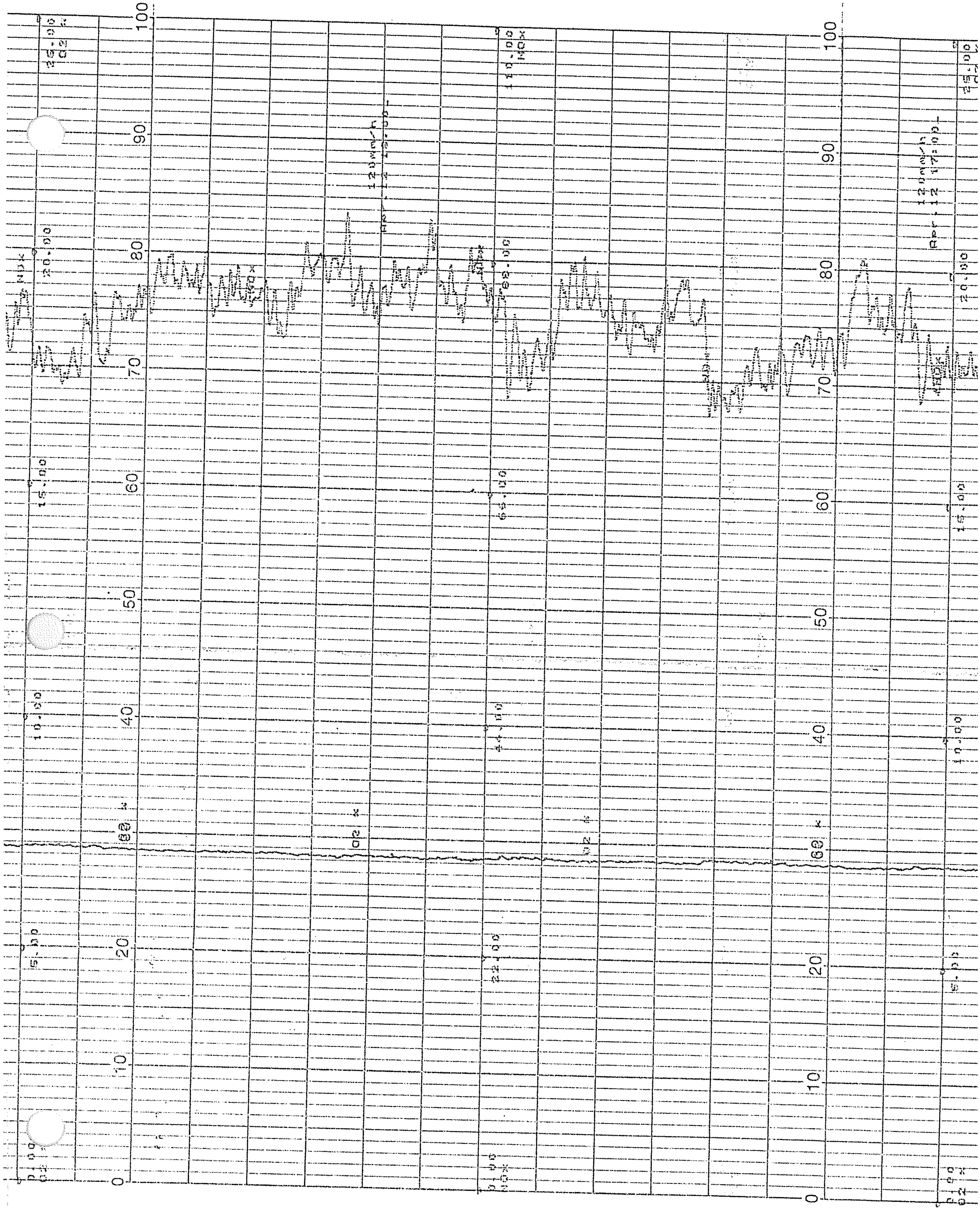

END RUN #4
RUN #2
START
0
10
20
30
40
50
60
70
80
90
100
NOx


CO Sys
O2/CO2 Sys
NOx Sys
START RUN #5
END RUN #4
CHART NO. B9627AY/NN


NOx Sys
O2/CO2 Sys
CO Sys
Start Run #8
End Run #7


ON-LINE PAH Sampling
NOx Sys
O2/CO2 Sys
CO Sys
END Row 9
START Row #8
CHART NO. B9627AY/NN


On-line PAH Sampling
CHART NO. B9627AY/NN
100
90
80
70
60
50
40
30
20
10
0
NOx
O2



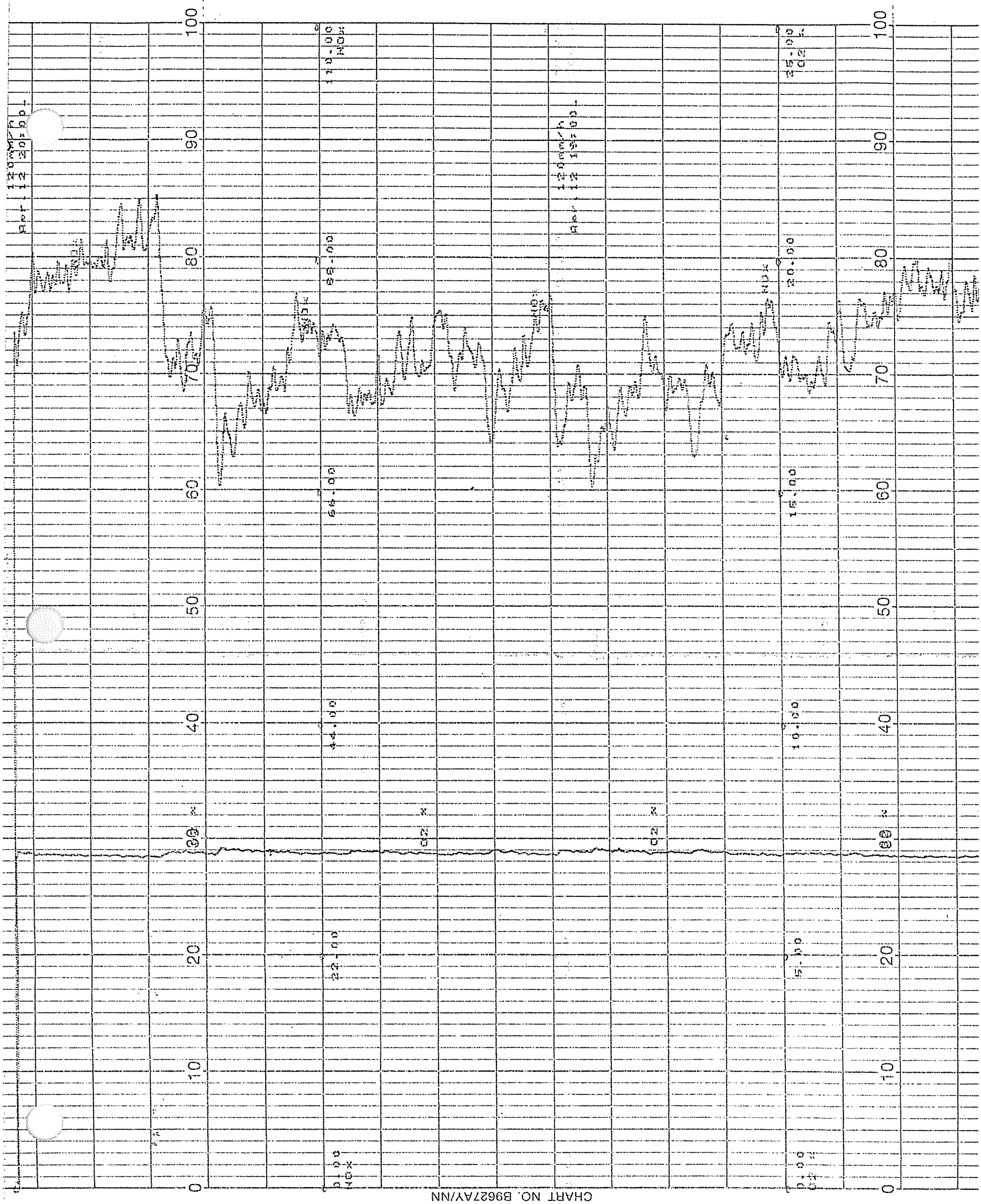
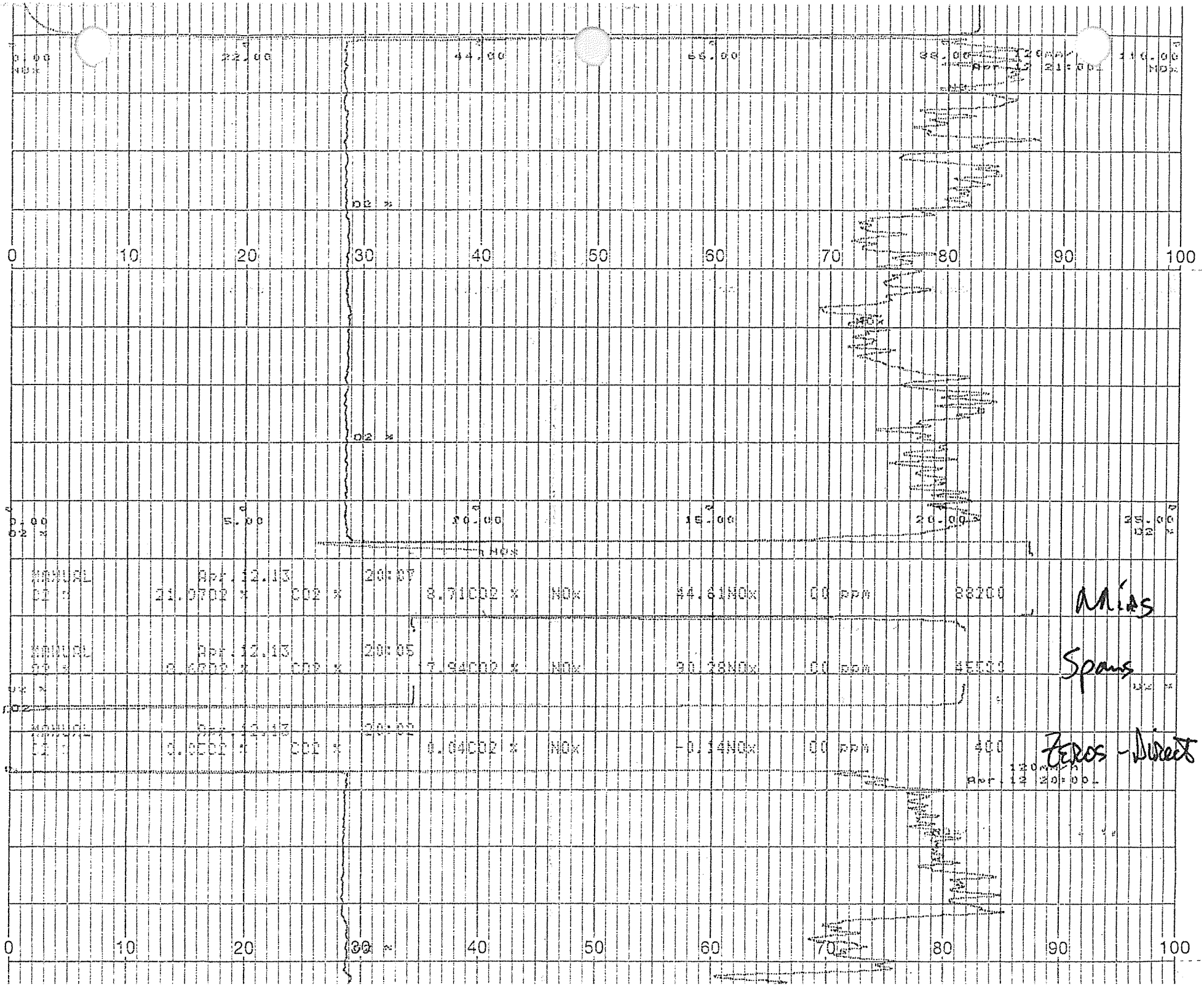


CHART NO. B9627AY/NN


Mids
Spans
Zeros - Direct

Appendix B

EPA METHOD 18
NMOC's (Low Level) - Calculations and Lab Analysis

EPA Method 18 Data Calculation Sheet

Facility: Santa Maria I
Source: ICE #1
Load: Normal
Start Date: 4/12/2013

Parameter/Run No.	Units	1	2	3	Average
Stack Gas Flowrate	dscfm	2,232	2,248	2,243	2,241
bhp	hp	1,468	1,468	1,468	1,468
Oxygen Concentration	%	7.24	7.32	7.33	7.30
Methane	ppmv	2,380	2,320	2,420	2,373
C2	ppmv	5.2	7.8	8.2	7.07
C3	ppmv	0.34	0.35	0.37	0.35
C4	ppmv	0.34	0.35	0.37	0.35
C5	ppmv	0.34	0.35	0.37	0.35
C6	ppmv	0.34	0.95	0.37	0.55
C6+	ppmv	0.70	0.70	0.75	0.72
Total (C2 - C6+)	ppmv	7.3	10.5	10.4	9.4
Total, as Methane	ppmv	18.4	26.3	24.4	23.0
Hydrocarbons, ROCs	lb/hr	0.102	0.148	0.136	0.129
Hydrocarbons, ROCs	g/bhp-hr	0.032	0.046	0.042	0.040

*Note: half the detection limit used for parameters less than detection limit.

LABORATORY REPORT

July 22, 2013

Russ Logan
Total Air Analysis, Inc.
1210 E. 223rd Street, Suite 314
Carson, CA 90745

RE: Santa Maria I / JA-121062

Dear Russ:

Your report number P1301566 has been amended for the samples submitted to our laboratory on April 15, 2013. The EPA TO-15 analyte list has been revised to follow the client specified list for this site. The revised pages have been indicated by the "Revised Page" footer located at the bottom right of the page.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kelly M Horiuchi
By Kelly Horiuchi at 12:12 pm, Jul 22, 2013

Kelly Horiuchi
Laboratory Director

Client: Total Air Analysis, Inc.
Project: Santa Maria I / JA-121062

Service Request No: P1301566

CASE NARRATIVE

The samples were received intact under chain of custody on April 15, 2013 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Fixed Gases Analysis

The samples were analyzed for fixed gases (hydrogen, oxygen/argon, nitrogen, carbon monoxide, methane and carbon dioxide) according to modified EPA Method 3C (single injection) using a gas chromatograph equipped with a thermal conductivity detector (TCD). This method is not included on the laboratory's NELAP scope of accreditation.

C1 through C6 Hydrocarbon Analysis

The samples were also analyzed per modified EPA Method TO-3 for C1 through >C6 hydrocarbons using a gas chromatograph equipped with a flame ionization detector (FID). This method is not included on the laboratory's NELAP scope of accreditation.

Volatile Organic Compound Analysis

The samples were also analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. The method was modified to include the use of helium as a diluent gas in place of zero-grade air for canister pressurization. When necessary, analytical sample volumes were adjusted by a correction factor for canisters pressurized with helium. A summary sheet has been included listing the affected samples. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

The Summa canisters were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

Columbia Analytical Services, Inc. dba ALS Environmental - Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L11-203
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	494864
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
nnsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-12-3
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA015272012-2
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.caslab.com, www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

DETAIL SUMMARY REPORT

Client: Total Air Analysis, Inc.
Project ID: Santa Maria I / JA-121062

Service Request: P1301566

Date Received: 4/15/2013
Time Received: 14:10

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	2nd Pi (psig)	2nd Pf (psig)	TO-3 Modified - C1C6+ Can	3C Modified - Fxd Gases Can	TO-15 - VOC Cans
ROG-Run 1	P1301566-001	Air	4/12/2013	11:00	1SC00311	0.07	5.33			X	X	X
ROG-Run 2	P1301566-002	Air	4/12/2013	11:30	1SC01113	-0.52	5.10	-1.69	3.85	X	X	X
ROG-Run 3	P1301566-003	Air	4/12/2013	12:30	1SC01115	-0.52	5.92			X	X	X

Columbia Analytical Services, Inc.

Sample Volume Correction for Helium Pressurization for SCAN Analysis

Sample ID	Pi1	Pf1	Pi2	Pf2	Sample Volume (L)	Adjusted Volume (L)
P1301566-001	0.07	5.33			0.362	0.400
P1301566-002	-0.52	5.10			0.360	0.400
P1301566-003	-0.52	5.92			0.357	0.400
P1301566-002DIL	-0.52	5.10	-1.69	3.85	0.200	0.237

Columbia Analytical Services

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

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Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

CAS Project No. P130515bb

Company Name & Address (Reporting Information): Total Air Analysts, Inc	Project Name: Santa Maria I
Project Manager: Russ Logan	Project Number: SA-121062
Phone: 310 518-5133	Fax: 310 518-5107
Email Address for Result Reporting: Total_Air@MSN.com	P.O. # / Billing Information
	Sampler (Print & Sign): Russ Logan

CAS Contact:

Analysis Method

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code #- FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	EPA 18 / TO-3 modified C1 - C6+	CARB M-410 / EPA TO-15 GC/MS SCAN	Comments e.g. Actual Preservative or specific instructions
Bag 2-Run 1	1-0.14	4-12-13	11:00	3369		29.0	1.0	1Li	✓	✓	Eng. Exhaust
Bag - Run 2	2-0.11	"	11:30	[redacted] 8685		29.0	1.0	"	✓	✓	from Landfill
Bag - Run 3	3-0.50	"	12:30	8687		28.5	1.0	"	✓	✓	GAS

6 of 23

Report Tier Levels - please select
Tier I - Results (Default if not specified) ____
Tier II (Results + QC Summaries) ____
Tier III (Results + QC & Calibration Summaries) X
Tier IV (Data Validation Package) 10% Surcharge ____

EDD required Yes / (No)
Type: ____

Project Requirements (MRLs, QAPP)

	Date	Time		Date	Time
Relinquished by: (Signature)	4-15-13	07:00	Received by: (Signature)	4-15-13	12:00
Relinquished by: (Signature)	4-15-13	14:10	Received by: (Signature)	4/15/13	14:10

Cooler / Blank Temperature ____ °C

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Sample Acceptance Check Form

Client: Total Air Analysis, Inc. Work order: P1301566

Project: Santa Maria I / JA-121062

Sample(s) received on: 4/15/13 Date opened: 4/15/13 by: MZAMORA

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by ALS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1301566-001.01	1.0 L Source Can					
P1301566-002.01	1.0 L Source Can					
P1301566-003.01	1.0 L Source Can					

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

RESULTS OF ANALYSIS

Client: **Total Air Analysis, Inc.**
Client Sample ID: **ROG-Run 1**
Client Project ID: **Santa Maria I / JA-121062**

CAS Project ID: P1301566
CAS Sample ID: P1301566-001

Test Code: EPA Method 3C Modified
Instrument ID: HP5890 II/GC1/TCD
Analyst: Jennifer Young
Sample Type: 1.0 L Summa Canister
Test Notes:
Container ID: 1SC00311

Date Collected: 4/12/13
Date Received: 4/15/13
Date Analyzed: 4/18/13
Volume(s) Analyzed: 0.10 ml(s)

Initial Pressure (psig): 0.07 Final Pressure (psig): 5.33

Canister Dilution Factor: 1.36

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
1333-74-0	Hydrogen	ND	0.14	
7782-44-7	**Oxygen +**			
7440-37-1	**Argon**	**8.43**	0.14	
7727-37-9	**Nitrogen**	**79.7**	0.14	
630-08-0	Carbon Monoxide	ND	0.14	
[illegible]2-8	**Methane**	**0.238**	0.14	
124-38-9	**Carbon Dioxide**	**11.6**	0.14	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

RESULTS OF ANALYSIS

Client: **Total Air Analysis, Inc.**
Client Sample ID: **ROG-Run 2**
Client Project ID: **Santa Maria I / JA-121062**

CAS Project ID: P1301566
CAS Sample ID: P1301566-002

Test Code: EPA Method 3C Modified
Instrument ID: HP5890 II/GC1/TCD
Analyst: Jennifer Young
Sample Type: 1.0 L Summa Canister
Test Notes:
Container ID: 1SC01113

Date Collected: 4/12/13
Date Received: 4/15/13
Date Analyzed: 4/18/13
Volume(s) Analyzed: 0.10 ml(s)

Initial Pressure (psig): -0.52 Final Pressure (psig): 5.10

Canister Dilution Factor: 1.40

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
1333-74-0	Hydrogen	ND	0.14	
7782-44-7	**Oxygen +**	**8.97**	0.14	
7440-37-1	**Argon**	**79.6**	0.14	
7727-37-9	**Nitrogen**	ND	0.14	
630-08-0	Carbon Monoxide	**0.232**	0.14	
[illegible]2-8	**Methane**	**11.2**	0.14	
124-38-9	**Carbon Dioxide**			

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

RESULTS OF ANALYSIS

Client: **Total Air Analysis, Inc.**
Client Sample ID: **ROG-Run 3**
Client Project ID: **Santa Maria I / JA-121062**

CAS Project ID: P1301566
CAS Sample ID: P1301566-003

Test Code: EPA Method 3C Modified
Instrument ID: HP5890 II/GC1/TCD
Analyst: Jennifer Young
Sample Type: 1.0 L Summa Canister
Test Notes:
Container ID: 1SC01115

Date Collected: 4/12/13
Date Received: 4/15/13
Date Analyzed: 4/18/13
Volume(s) Analyzed: 0.10 ml(s)

Initial Pressure (psig): -0.52 Final Pressure (psig): 5.92

Canister Dilution Factor: 1.45

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
1333-74-0	Hydrogen	ND	0.15	
7782-44-7	**Oxygen +**			
7440-37-1	**Argon**	**8.41**	0.15	
7727-37-9	**Nitrogen**	**79.7**	0.15	
[illegible]-08-0	Carbon Monoxide	ND	0.15	
[illegible]82-8	**Methane**	**0.242**	0.15	
124-38-9	**Carbon Dioxide**	**11.7**	0.15	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

RESULTS OF ANALYSIS

Client: **Total Air Analysis, Inc.**
Client Sample ID: **Method Blank**
Client Project ID: **Santa Maria I / JA-121062**

CAS Project ID: P1301566
CAS Sample ID: P130418-MB

Test Code: EPA Method 3C Modified
Instrument ID: HP5890 II/GC1/TCD
Analyst: Jennifer Young
Sample Type: 1.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/18/13
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
1333-74-0	Hydrogen	ND	0.10	
7782-44-7	Oxygen +			
7440-37-1	Argon	ND	0.10	
7727-37-9	Nitrogen	ND	0.10	
630-08-0	Carbon Monoxide	ND	0.10	
74-82-8	Methane	ND	0.10	
124-38-9	Carbon Dioxide	ND	0.10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

LABORATORY CONTROL SAMPLE SUMMARY

Client: **Total Air Analysis, Inc.**
Client Sample ID: **Lab Control Sample**
Client Project ID: **Santa Maria I / JA-121062**

CAS Project ID: P1301566
CAS Sample ID: P130418-LCS

Test Code: EPA Method 3C Modified
Instrument ID: HP5890 II/GC1/TCD
Analyst: Jennifer Young
Sample Type: 1.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/18/13
Volume(s) Analyzed: NA ml(s)

CAS #	Compound	Spike Amount ppmV	Result ppmV	% Recovery	CAS Acceptance Limits	Data Qualifier
1333-74-0	Hydrogen	40,000	**38,900**	**97**	75-117	
7782-44-7	Oxygen +					
7440-37-1	Argon	50,000	**54,600**	**109**	85-111	
7727-37-9	Nitrogen	50,000	**54,500**	**109**	85-114	
630-08-0	Carbon Monoxide	50,000	**53,300**	**107**	85-119	
[illegible]2-8	Methane	40,000	**41,300**	**103**	90-114	
124-38-9	Carbon Dioxide	50,000	**50,600**	**101**	84-113	

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RESULTS OF ANALYSIS

Client: **Total Air Analysis, Inc.**
Client Sample ID: **ROG-Run 1**
Client Project ID: **Santa Maria I / JA-121062**

CAS Project ID: P1301566
CAS Sample ID: P1301566-001

Test Code: EPA TO-3 Modified
Instrument ID: HP5890 II/GC8/FID
Analyst: Jennifer Young
Sampling Media: 1.0 L Summa Canister
Test Notes:
Container ID: 1SC00311

Date Collected: 4/12/13
Date Received: 4/15/13
Date Analyzed: 4/17/13
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): 0.07 Final Pressure (psig): 5.33

Canister Dilution Factor: 1.36

Compound	Result ppmV	MRL ppmV	Data Qualifier
C_2 as Ethane	**5.2**	0.68	
C_3 as Propane	ND	0.68	
C_4 as n-Butane	ND	0.68	
C_5 as n-Pentane	ND	0.68	
C as n-Hexane	ND	0.68	
as n-Hexane	ND	1.4	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

RESULTS OF ANALYSIS

Client: **Total Air Analysis, Inc.**
Client Sample ID: **ROG-Run 2**
Client Project ID: **Santa Maria I / JA-121062**

CAS Project ID: P1301566
CAS Sample ID: P1301566-002

Test Code: EPA TO-3 Modified
Instrument ID: HP5890 II/GC8/FID
Analyst: Jennifer Young
Sampling Media: 1.0 L Summa Canister
Test Notes:
Container ID: 1SC01113

Date Collected: 4/12/13
Date Received: 4/15/13
Date Analyzed: 4/17/13
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): -0.52 Final Pressure (psig): 5.10

Canister Dilution Factor: 1.40

Compound	Result ppmV	MRL ppmV	Data Qualifier
C_2 as Ethane	**7.8**	0.70	
C_3 as Propane	ND	0.70	
C_4 as n-Butane	ND	0.70	
C_5 as n-Pentane	ND	0.70	
[illegible] as n-Hexane	**0.95**	0.70	
[illegible] as n-Hexane	ND	1.4	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

RESULTS OF ANALYSIS

Client: **Total Air Analysis, Inc.**
Client Sample ID: **ROG-Run 3**
Client Project ID: **Santa Maria I / JA-121062**

CAS Project ID: P1301566
CAS Sample ID: P1301566-003

Test Code: EPA TO-3 Modified
Instrument ID: HP5890 II/GC8/FID
Analyst: Jennifer Young
Sampling Media: 1.0 L Summa Canister
Test Notes:
Container ID: 1SC01115

Date Collected: 4/12/13
Date Received: 4/15/13
Date Analyzed: 4/17/13
Volume(s) Analyzed: 1.0 ml(s)

Initial Pressure (psig): -0.52 Final Pressure (psig): 5.92

Canister Dilution Factor: 1.45

Compound	Result ppmV	MRL ppmV	Data Qualifier
C_2 as Ethane	**8.2**	0.73	
C_3 as Propane	ND	0.73	
C_4 as n-Butane	ND	0.73	
C_5 as n-Pentane	ND	0.73	
[illegible] as n-Hexane	ND	0.73	
[illegible] as n-Hexane	ND	1.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

RESULTS OF ANALYSIS

Client: **Total Air Analysis, Inc.**
Client Sample ID: **Method Blank**
Client Project ID: **Santa Maria I / JA-121062**

CAS Project ID: P1301566
CAS Sample ID: P130417-MB

Test Code: EPA TO-3 Modified
Instrument ID: HP5890 II/GC8/FID
Analyst: Jennifer Young
Sampling Media: 1.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/17/13
Volume(s) Analyzed: 1.0 ml(s)

Compound	Result ppmV	MRL ppmV	Data Qualifier
C_2 as Ethane	ND	0.50	
C_3 as Propane	ND	0.50	
C_4 as n-Butane	ND	0.50	
C_5 as n-Pentane	ND	0.50	
C_6 as n-Hexane	ND	0.50	
C_{6+} as n-Hexane	ND	1.0	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

LABORATORY CONTROL SAMPLE SUMMARY

Client: **Total Air Analysis, Inc.**
Client Sample ID: **Lab Control Sample**
Client Project ID: **Santa Maria I / JA-121062**

CAS Project ID: P1301566
CAS Sample ID: P130417-LCS

Test Code: EPA TO-3 Modified
Instrument ID: HP5890 II/GC8/FID
Analyst: Jennifer Young
Sampling Media: 1.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/17/13
Volume(s) Analyzed: NA ml(s)

Compound	Spike Amount ppmV	Result ppmV	% Recovery	CAS Acceptance Limits	Data Qualifier
Ethane	1,010	**1,040**	**103**	87-113	
Propane	1,010	**1,030**	**102**	85-113	
n-Butane	1,010	**946**	**94**	86-113	
n-Pentane	1,010	**941**	**93**	80-116	
n-Hexane	1,020	**872**	**85**	69-130	

Appendix C

SCAQMD 307-94
Total Sulfur as H_2S, Lab Analysis, and Calculations

Total Reduced Sulfur (TRS)

Facility: Santa Maria I
Source: ICE #1
Load: Normal
Start Date: 4/12/13

Parameter/Run No.	Units	ICE #1
Inlet Sulfur		
Fuel Gas Usage*	scfm	320.3
Total Reduced Sulfur as H2S	ppmv	**58**
Molecular Weight (H2S)		34
Molecular Weight (SO2)		64
Total Reduced Sulfur as SO2	ppmv	58.0
Sulfur Dioxide, mass	lb/hr	**0.188**
Outlet Sulfur		
Exhaust Flow rate	dscfm	2241
Total Reduced Sulfur as SO2	ppmv	**8.29**

Inlet Calculation: lb/hr = ppmv * scfm * 1.583 x 10-7 * MW
Outlet Calculation: ppmv = lb/hr / (dscfm * 1.583 x 10-7 * MW)
Note: Assuming Mass balance, Mass (lb/hr) In = Mass (lb/hr) Out
*Note: Fuel gas usage is average of 3 runs.

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

CLIENT:	**TOTAL AIR ANALYSIS, INC.**
LABORATORY NO:	**13-268**
SAMPLING DATE:	April 16, 2013
RECEIVING DATE:	April 17, 2013
ANALYSIS DATE:	April 17, 2013
REPORT DATE:	April 23, 2013

Laboratory Analysis Report

Analysis Method	SCAQMD 307-91	
Detection Limits	0.1 PPMV	
Analyte	Client ID	Fuel Sample
	Sampling Date	4/16/2013
	Sampling Time	-
	Lab ID	11213-12
	Units	PPMV
Hydrogen Sulfide		56
Carbonyl Sulfide		0.4
Methyl Mercaptan		0.4
Ethyl Mercaptan		0.1
Un-Identified S Compounds		1.1
TRS as H2S		58

TRS: Total Reduced Sulfur as Hydrogen Sulfide

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:	**TOTAL AIR ANALYSIS, INC.**
LABORATORY NO:	**13-268**
SAMPLING DATE:	April 16, 2013
RECEIVING DATE:	April 17, 2013
ANALYSIS DATE:	April 17, 2013
REPORT DATE:	April 23, 2013

Quality Assurance Report

Duplicate Analysis

Sample ID: Fuel Sample on 4/16/2013 Lab ID: 11213-12

Analysis Method		SCAQMD 307-91		
Detection Limit		0.1 PPMV		
Analyte	Aver. Conc. PPMV	Dil. Factor Ambient Air	DF*A/CF PPMV	% Sample Recovery
H2S	55	5	53	97
Carbonyl Sulfide	0.4	5	0.4	99
Methyl mercaptan	0.4	5	0.4	100
Ethyl Mercaptan	0.1	5	0.1	100
Unidentified S Compounds	1.0	5	1.0	95
TRS as H2S	57	5	55	97

N/A: Not Applicable

Dr. Andrew Kitto
President

Appendix D

CARB METHOD 429
PAHs – Calculations and Lab Analysis

CARB Method 429 PAH Emissions

Facility:	Marian Medical Center		
Source:	ICE - Landfill Gas	**Operator:**	RAL
Load:	Normal	**Entered By:**	RPL
Start Date:	4/12/13	**Checked By:**	RPL

Data Entry	Symbol	Units	Data	Data	Data
Run Number	-	-	1	2	3
Round Stack, Diameter	ds	inches	13.50	13.50	13.50
Rectangular Stack, Length	L	inches			
Wdth	W	inches			
Nozzle Diameter	dn	inches	0.225	0.225	0.225
Average Stack Temperature	Fs	degrees F	900.82	896.88	898.69
Average Meter Temperature	Fm	degrees F	82.35	75.63	64.00
Barometric Pressure	Pbar	in. Hg	29.84	29.84	29.84
Stack Static Pressure	Pg	in. H20	-1.80	-1.80	-1.80
Avg. Velocity Head	dP	in. H20	1.72	1.75	1.73
Avg. Delta H	dH	in. H20	1.44	1.48	1.48
Pitot Coefficient	Cp	-	0.84	0.84	0.84
Gas Sample Volume	Vm	cubic ft.	82.26	82.59	83.08
Meter Calibration Factor	Y	-	0.9977	0.9977	0.9977
Total Sampling Time	min	minutes	126	126	126
Stack Gas Oxygen Content	Co2,m	%	7.13	7.13	7.13
Stack Gas Carbon Dioxide Content	Cco2,m	%	11.38	11.38	11.38
Total Impinger Gain	Ww	grams	284.8	246.6	249.0

PAH Catch	Mi						
Naphthalene		µg		9.48		35.2	38
Benzo (a) anthracene		µg	ND	0.01		0.0706	0.0987
Chrysene		µg		0.0571		0.319	0.281
Benzo (b) fluoranthene		µg	ND	0.01		0.0259	0.0185
Benzo (k) fluoranthene		µg	ND	0.01	ND	0.01	ND 0.01
Benzo (a) pyrene		µg	ND	0.01	ND	0.01	ND 0.01
Indeno (1,2,3-cd) pyrene		µg	ND	0.01	ND	0.01	ND 0.01
Dibenz (a,h) anthracene		µg	ND	0.01	ND	0.01	ND 0.01

CARB Method 429 PAH Emissions

PAH Molecular Weight	MW				
Naphthalene		lb/lb-mole	128.2	128.2	128.2
Benzo (a) anthracene		lb/lb-mole	228.3	228.3	228.3
Chrysene		lb/lb-mole	228.3	228.3	228.3
Benzo (b) fluoranthene		lb/lb-mole	252.0	252.0	252.0
Benzo (k) fluoranthene		lb/lb-mole	252.0	252.0	252.0
Benzo (a) pyrene		lb/lb-mole	252.3	252.3	252.3
Indeno (1,2,3-cd) pyrene		lb/lb-mole	276.0	276.0	276.0
Dibenz (a,h) anthracene		lb/lb-mole	278.3	278.3	278.3

Calculated Data	Symbol	Units	Data	Data	Data
Run Number	-	-	1	2	3
Nozzle Area, An = 3.14(dn)**2/4	An	sq. in.	0.04	0.04	0.04
Stack Area, As = 3.14*(ds)**2/4	As	sq. feet	0.994	0.994	0.994
= L * W/144 (Rectangular)			0.00	0.00	0.00
Avg. Stack Temperature, Ts = Fs + 460	Ts	degrees R	1360.82	1356.88	1358.69
Avg. Meter Temperature, Tm = Fm + 460	Tm	degrees R	542.35	535.63	524.00
Gas Sample Volume @ Standard Conditions, VmStd = 17.64 Y (Vm/Tm) (Pbar + dH/13.6)	VmStd	cubic ft.	79.97	81.31	83.60
Volume of Water Vapor, VwStd = 0.04707*Ww	VwStd	cubic ft.	13.41	11.61	11.72
Moist. Fraction, Bws = VwStd/(VmStd + VwStd)	Bws	-	0.144	0.125	0.123
Dry Stack Gas Mol. Weight, Md = 0.32(Co2,m)+ 0.44(Cco2,m)+0.28{100-(Co2,m)-(Cco2,m)]	Md	g/g-mole	30.11	30.11	30.11
Wet Stack Gas Molecular Weight, Mw = Md(1-Bws)+18.0(Bws)	Mw	g/g-mole	28.37	28.59	28.62
Absolute Stack Pressure, Ps = Pbar + Pg/13.6	Ps	in. Hg	29.84	29.84	29.84
Stack Gas Velocity					
Vs = 85.49 Cp { sqrt[(dP*Ts) /(Ps*Mw)] }	Vs	ft/s	119.26	119.92	119.12
Vsm = 0.3048 * vs	Vsm	m/s	36.35	36.55	36.31
Actual Stack Gas Flow Rate, Q = 60*vs*As	Q	acf/min	7,113	7,152	7,104
Dry Gas Stack Flowrate (Dry,STD) Qsd = 17.64*Q*(1-Bws)*(Ps/Ts)	Qsd	dscf/min	2,357	2,429	2,415
Qsdm = Qsd/35.32	Qsdm	dscm/min	67	69	68
Isokinetic Rate, I=13.61*Ts*VmStd/[Ps*vs*An*min*(1-Bws)]	I	%	97.00	95.71	98.98

CARB Method 429 PAH Emissions

PAH Concentration Ci = Mi/VmStd *35.31e-3	Ci							
Naphthalene		mg/dscm	0	4.19E-03	0	1.53E-02	0	1.61E-02
Benzo (a) anthracene		mg/dscm	ND	4.42E-06	0	3.07E-05	0	4.17E-05
Chrysene		mg/dscm	0	2.52E-05	0	1.39E-04	0	1.19E-04
Benzo (b) fluoranthene		mg/dscm	ND	4.42E-06	0	1.12E-05	0	7.81E-06
Benzo (k) fluoranthene		mg/dscm	ND	4.42E-06	ND	4.34E-06	ND	4.22E-06
Benzo (a) pyrene		mg/dscm	ND	4.42E-06	ND	4.34E-06	ND	4.22E-06
Indeno (1,2,3-cd) pyrene		mg/dscm	ND	4.42E-06	ND	4.34E-06	ND	4.22E-06
Dibenz (a,h) anthracene		mg/dscm	ND	4.42E-06	ND	4.34E-06	ND	4.22E-06

PAH Mass Flow Rate Ei = Ci*Qsdm*60/454000	Ei							
Naphthalene		lb/hr	0	3.69E-05	0	1.39E-04	0	1.45E-04
Benzo (a) anthracene		lb/hr	ND	3.89E-08	0	2.79E-07	0	3.77E-07
Chrysene		lb/hr	0	2.22E-07	0	1.26E-06	0	1.07E-06
Benzo (b) fluoranthene		lb/hr	ND	3.89E-08	0	1.02E-07	0	7.06E-08
Benzo (k) fluoranthene		lb/hr	ND	3.89E-08	ND	3.95E-08	ND	3.82E-08
Benzo (a) pyrene		lb/hr	ND	3.89E-08	ND	3.95E-08	ND	3.82E-08
Indeno (1,2,3-cd) pyrene		lb/hr	ND	3.89E-08	ND	3.95E-08	ND	3.82E-08
Dibenz (a,h) anthracene		lb/hr	ND	3.89E-08	ND	3.95E-08	ND	3.82E-08

CARB Method 429 PAH Emissions

PAH Concentration C,ppm = Mi/VmStd *22.4/MW	C,ppm							
Naphthalene		ppm	0	7.73E-04	0	2.82E-03	0	2.96E-03
Benzo (a) anthracene		ppm	ND	4.58E-07	0	3.18E-06	0	4.32E-06
Chrysene		ppm	0	2.62E-06	0	1.44E-05	0	1.23E-05
Benzo (b) fluoranthene		ppm	ND	4.15E-07	0	1.06E-06	0	7.34E-07
Benzo (k) fluoranthene		ppm	ND	4.15E-07	ND	4.08E-07	ND	3.97E-07
Benzo (a) pyrene		ppm	ND	4.14E-07	ND	4.08E-07	ND	3.96E-07
Indeno (1,2,3-cd) pyrene		ppm	ND	3.79E-07	ND	3.73E-07	ND	3.62E-07
Dibenz (a,h) anthracene		ppm	ND	3.76E-07	ND	3.69E-07	ND	3.59E-07

PAH Mass Lbs/MM Scf = Lb/hr/(Dscfm*60)*1,000,000	Ei		Run #1		Run #2		Run #3	
Naphthalene		LB/MMScf	0	2.61E-04	0	9.53E-04	0	1.00E-03
Benzo (a) anthracene		LB/MMScf	ND	2.75E-07	0	1.91E-06	0	2.60E-06
Chrysene		LB/MMScf	0	1.57E-06	0	8.64E-06	0	7.40E-06
Benzo (b) fluoranthene		LB/MMScf	ND	2.75E-07	0	7.01E-07	0	4.87E-07
Benzo (k) fluoranthene		LB/MMScf	ND	2.75E-07	ND	2.71E-07	ND	2.63E-07
Benzo (a) pyrene		LB/MMScf	ND	2.75E-07	ND	2.71E-07	ND	2.63E-07
Indeno (1,2,3-cd) pyrene		LB/MMScf	ND	2.75E-07	ND	2.71E-07	ND	2.63E-07
Dibenz (a,h) anthracene		LB/MMScf	ND	2.75E-07	ND	2.71E-07	ND	2.63E-07
		Exhaust FlowRate (Dscfm)		2,357		2,429		2,415

Lbs/MMscf = Lb/hr/(Dscfm*60)*1000000

Vista
Analytical Laboratory

July 22, 2013

Vista Project I.D.: 1300300

Mr. Russ Logan
Total Air Analysis
1210 East 223rd Street Suite 314
Carson, CA 90745

Dear Mr. Logan,

Enclosed are the amended results for the sample set received at Vista Analytical Laboratory on April 17, 2013. This sample set was analyzed on a standard turn-around time, under your Project Name 'JA-121062'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at Calvin@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Calvin Tanaka
Senior Scientist

ACCREDITED IN ACCORDANCE WITH nelac

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

CARB Method 429

Five MM5 samples were received in good condition and within the method temperature requirements. The reagent blank was placed on hold at your request. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

CARB Method 429

These samples were extracted and analyzed for PAHs by CARB Method 429 using a ZB-50 GC column. As requested, the datasheets were amended to report a selected list of analytes.

Holding Times

The method holding time criteria were met for the samples.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) were extracted and analyzed with the preparation batch. The LCS/LCSD recoveries and relative percent differences (RPD) were within the method acceptance criteria. As described in Section 2.3.3 of CARB Method 429, the RLs are set at 5X the background level for those compounds with positive concentrations in the XAD-2 blank.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1300300-01	ICE Run 1	12-Apr-13 00:00	17-Apr-13 08:56	MM5 Trap
		12-Apr-13 00:00	17-Apr-13 08:56	FH Rinse
		12-Apr-13 00:00	17-Apr-13 08:56	Back Half + Imp
		12-Apr-13 00:00	17-Apr-13 08:56	Filter
		12-Apr-13 00:00	17-Apr-13 08:56	XAD
1300300-02	ICE Run 2	12-Apr-13 00:00	17-Apr-13 08:56	MM5 Trap
		12-Apr-13 00:00	17-Apr-13 08:56	FH Rinse
		12-Apr-13 00:00	17-Apr-13 08:56	Back Half + Imp
		12-Apr-13 00:00	17-Apr-13 08:56	Filter
		12-Apr-13 00:00	17-Apr-13 08:56	XAD
1300300-03	ICE Run 3	12-Apr-13 00:00	17-Apr-13 08:56	MM5 Trap
		12-Apr-13 00:00	17-Apr-13 08:56	FH Rinse
		12-Apr-13 00:00	17-Apr-13 08:56	Back Half + Imp
		12-Apr-13 00:00	17-Apr-13 08:56	Filter
		12-Apr-13 00:00	17-Apr-13 08:56	XAD
1300300-04	Field Blank	12-Apr-13 00:00	17-Apr-13 08:56	MM5 Trap
		12-Apr-13 00:00	17-Apr-13 08:56	FH Rinse
		12-Apr-13 00:00	17-Apr-13 08:56	Back Half + Imp
		12-Apr-13 00:00	17-Apr-13 08:56	Filter
		12-Apr-13 00:00	17-Apr-13 08:56	XAD
1300300-05	Reagent Blank	12-Apr-13 00:00	17-Apr-13 08:56	MM5 Trap
		12-Apr-13 00:00	17-Apr-13 08:56	MeCl2 Rinse
		12-Apr-13 00:00	17-Apr-13 08:56	Hexane Rinse
		12-Apr-13 00:00	17-Apr-13 08:56	Acetone Rinse
		12-Apr-13 00:00	17-Apr-13 08:56	DI Water

ANALYTICAL RESULTS

Sample ID: Method Blank

CARB Method 429

Matrix: Air

QC Batch: B3D0107
Date Extracted: 29-Apr-2013 8:28

Lab Sample: B3D0107-BLK1
Date Analyzed: 01-May-13 19:20 Column: ZB-50 Analyst: MAS

Analyte	Conc. (ng/Sample)	RL	Qualifiers
Naphthalene	54.3	12.5	
Benz(a)anthracene	ND	5.00	
Chrysene	ND	5.00	
Benzo(b)fluoranthene	ND	5.00	
Benzo(k)fluoranthene	ND	5.00	
Benzo(a)pyrene	ND	5.00	
Indeno(1,2,3-c,d)pyrene	ND	5.00	
Dibenz(a,h)anthracene	ND	5.00	

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	d8-Naphthalene	68.8	50-150	
IS	d12-Benz(a)anthracene	85.8	50-150	
IS	d12-Chrysene	85.9	50-150	
IS	d12-Benzo(b)fluoranthene	98.3	50-150	
IS	d12-Benzo(k)fluoranthene	98.7	50-150	
IS	d12-Benzo(a)pyrene	90.7	50-150	
IS	d12-Indeno(1,2,3-c,d)pyrene	96.0	50-150	
IS	d14-Dibenz(a,h)anthracene	95.3	50-150	
PS	d14-Terphenyl	103	50-150	
PS	d12-Benzo(e)pyrene	105	50-150	
AS	d10-Anthracene	59.9	50-150	

LCL-UCL - Lower control limit - upper control limit

RL - Reporting limit

LCS Results

CARB Method 429

Matrix: Air	QC Batch: B3D0107 Date Extracted: 29-Apr-2013 8:28	Lab Sample: B3D0107-BS1/B3D0107-BSD1 Date Analyzed: 01-May-13 16:40 Column: ZB-50 Analyst: MAS 01-May-13 17:34 Column: ZB-50 Analyst: MAS

Analyte	LCS %R	LCSD %R	RPD
Naphthalene	103	107	3.05
Benz(a)anthracene	101	106	4.36
Chrysene	102	108	6.21
Benzo(b)fluoranthene	101	101	0.00
Benzo(k)fluoranthene	97.0	101	3.54
Benzo(a)pyrene	104	106	2.39
Indeno(1,2,3-c,d)pyrene	104	106	1.91
Dibenz(a,h)anthracene	104	106	1.91

	Labeled Standard	LCS %R	LCSD %R
IS	d8-Naphthalene	72.0	83.6
IS	d12-Benz(a)anthracene	98.3	81.6
IS	d12-Chrysene	99.8	81.8
IS	d12-Benzo(b)fluoranthene	96.9	98.3
IS	d12-Benzo(k)fluoranthene	99.5	97.0
IS	d12-Benzo(a)pyrene	90.9	88.8
IS	d12-Indeno(1,2,3-c,d)pyrene	101	89.0
IS	d14-Dibenz(a,h)anthracene	99.9	87.5
AS	d10-Anthracene	64.0	57.4

Sample ID: ICE Run 1

CARB Method 429

Client Data
Name: Total Air Analysis
Project: JA-121062
Date Collected: 12-Apr-13 00:00

Sample Data
Matrix: Air Train

Laboratory Data
Lab Sample: 1300300-01 Date Received: 17-Apr-13 08:56
QC Batch: B3D0107 Date Extracted: 29-Apr-13 08:28
Date Analyzed: 01-May-13 21:07 Column: ZB-50 Analyst: MAS

Analyte	Conc. (ng/Sample)	RL	Qualifiers
Naphthalene	9480	271	B, E
Benz(a)anthracene	ND	10.0	
Chrysene	57.1	10.0	
Benzo(b)fluoranthene	ND	10.0	
Benzo(k)fluoranthene	ND	10.0	
Benzo(a)pyrene	ND	10.0	
Indeno(1,2,3-c,d)pyrene	ND	10.0	
Dibenz(a,h)anthracene	ND	10.0	

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	d8-Naphthalene	61.1	50 - 150	
IS	d12-Benz(a)anthracene	116	50 - 150	
IS	d12-Chrysene	117	50 - 150	
IS	d12-Benzo(b)fluoranthene	82.0	50 - 150	
IS	d12-Benzo(k)fluoranthene	87.3	50 - 150	
IS	d12-Benzo(a)pyrene	93.3	50 - 150	
IS	d12-Indeno(1,2,3-c,d)pyrene	90.0	50 - 150	
IS	d14-Dibenz(a,h)anthracene	96.3	50 - 150	
PS	d14-Terphenyl	91.1	50 - 150	
PS	d12-Benzo(e)pyrene	80.0	50 - 150	
AS	d10-Anthracene	63.0	50 - 150	

LCL-UCL - Lower control limit - upper control limit

RL - Reporting limit

Sample ID: ICE Run 2

CARB Method 429

Client Data		Sample Data		Laboratory Data			
Name:	Total Air Analysis	Matrix:	Air Train	Lab Sample:	1300300-02	Date Received:	17-Apr-13 08:56
Project:	JA-121062			QC Batch:	B3D0107	Date Extracted:	29-Apr-13 08:28
Date Collected:	12-Apr-13 00:00			Date Analyzed:	01-May-13 22:01	Column: ZB-50	Analyst: MAS

Analyte	Conc. (ng/Sample)	RL	Qualifiers
Naphthalene	35200	271	B, E
Benz(a)anthracene	70.6	10.0	
Chrysene	319	10.0	
Benzo(b)fluoranthene	25.9	10.0	
Benzo(k)fluoranthene	ND	10.0	
Benzo(a)pyrene	ND	10.0	
Indeno(1,2,3-c,d)pyrene	ND	10.0	
Dibenz(a,h)anthracene	ND	10.0	

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	d8-Naphthalene	62.7	50 - 150	
IS	d12-Benz(a)anthracene	104	50 - 150	
IS	d12-Chrysene	102	50 - 150	
IS	d12-Benzo(b)fluoranthene	84.7	50 - 150	
IS	d12-Benzo(k)fluoranthene	87.6	50 - 150	
IS	d12-Benzo(a)pyrene	92.2	50 - 150	
IS	d12-Indeno(1,2,3-c,d)pyrene	98.7	50 - 150	
IS	d14-Dibenz(a,h)anthracene	106	50 - 150	
PS	d14-Terphenyl	103	50 - 150	
PS	d12-Benzo(e)pyrene	97.5	50 - 150	
AS	d10-Anthracene	82.6	50 - 150	

LCL-UCL - Lower control limit - upper control limit

RL - Reporting limit

Sample ID: ICE Run 3

CARB Method 429

Client Data
Name: Total Air Analysis
Project: JA-121062
Date Collected: 12-Apr-13 00:00

Sample Data
Matrix: Air Train

Laboratory Data
Lab Sample: 1300300-03 Date Received: 17-Apr-13 08:56
QC Batch: B3D0107 Date Extracted: 29-Apr-13 08:28
Date Analyzed: 01-May-13 22:54 Column: ZB-50 Analyst: MAS

Analyte	Conc. (ng/Sample)	RL	Qualifiers
Naphthalene	38000	271	B, E
Benz(a)anthracene	98.7	10.0	
Chrysene	281	10.0	
Benzo(b)fluoranthene	18.5	10.0	
Benzo(k)fluoranthene	ND	10.0	
Benzo(a)pyrene	ND	10.0	
Indeno(1,2,3-c,d)pyrene	ND	10.0	
Dibenz(a,h)anthracene	ND	10.0	

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	d8-Naphthalene	66.2	50 - 150	
IS	d12-Benz(a)anthracene	112	50 - 150	
IS	d12-Chrysene	110	50 - 150	
IS	d12-Benzo(b)fluoranthene	85.8	50 - 150	
IS	d12-Benzo(k)fluoranthene	90.9	50 - 150	
IS	d12-Benzo(a)pyrene	91.0	50 - 150	
IS	d12-Indeno(1,2,3-c,d)pyrene	93.8	50 - 150	
IS	d14-Dibenz(a,h)anthracene	102	50 - 150	
PS	d14-Terphenyl	108	50 - 150	
PS	d12-Benzo(e)pyrene	94.0	50 - 150	
AS	d10-Anthracene	101	50 - 150	

LCL-UCL - Lower control limit - upper control limit

RL - Reporting limit

Sample ID: Field Blank

CARB Method 429

Client Data
Name: Total Air Analysis
Project: JA-121062
Date Collected: 12-Apr-13 00:00

Sample Data
Matrix: Air Train

Laboratory Data
Lab Sample: 1300300-04 Date Received: 17-Apr-13 08:56
QC Batch: B3D0107 Date Extracted: 29-Apr-13 08:28
Date Analyzed: 01-May-13 20:14 Column: ZB-50 Analyst: MAS

Analyte	Conc. (ng/Sample)	RL	Qualifiers
Naphthalene	ND	271	
Benz(a)anthracene	ND	10.0	
Chrysene	ND	10.0	
Benzo(b)fluoranthene	ND	10.0	
Benzo(k)fluoranthene	ND	10.0	
Benzo(a)pyrene	ND	10.0	
Indeno(1,2,3-c,d)pyrene	ND	10.0	
Dibenz(a,h)anthracene	ND	10.0	

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	d8-Naphthalene	66.7	50 - 150	
IS	d12-Benz(a)anthracene	107	50 - 150	
IS	d12-Chrysene	103	50 - 150	
IS	d12-Benzo(b)fluoranthene	94.9	50 - 150	
IS	d12-Benzo(k)fluoranthene	102	50 - 150	
IS	d12-Benzo(a)pyrene	92.2	50 - 150	
IS	d12-Indeno(1,2,3-c,d)pyrene	89.1	50 - 150	
IS	d14-Dibenz(a,h)anthracene	93.9	50 - 150	
PS	d14-Terphenyl	106	50 - 150	
PS	d12-Benzo(e)pyrene	96.8	50 - 150	
AS	d10-Anthracene	74.7	50 - 150	

LCL-UCL - Lower control limit - upper control limit

RL - Reporting limit

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	Dilution
E	The amount detected is above the High Calibration Limit.
P	The amount reported is the maximum possible concentration due to possible chlorinated diphenylether interference.
H	Recovery was outside laboratory acceptance limits.
I	Chemical Interference
J	The amount detected is below the Low Calibration Limit.
*	See Cover Letter
Conc.	Concentration
DL	Sample-specific estimated detection limit
MDL	The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero in the matrix tested.
EMPC	Estimated Maximum Possible Concentration
NA	Not applicable
RL	Reporting Limit – concentrations that correspond to low calibration point
ND	Not Detected
TEQ	Toxic Equivalency

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	CA00413
Alabama Dept of Environmental Management	41610
Arkansas Dept of Environmental Quality	11-035-0
California Dept of Health – NELAP	02102CA
Colorado Dept of Public Health & Environment	N/A
Connecticut Dept of Public Health	PH-0182
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Indiana Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Louisiana Department of Health and Hospitals	LA120020
Maine Department of Health	2012010
Michigan Department of Natural Resources	9932
Mississippi Department of Health	N/A
Nevada Division of Environmental Protection	CA004132011-1
New Jersey Dept of Environmental Protection	CA003
New York Department of Health	11411
North Carolina Dept of Health & Human Services	06700
North Dakota Dept of Health	R-078
Oklahoma Dept of Environmental Quality	2012-109
Oregon Laboratory Accreditation Program	CA200001-011
Pennsylvania Dept of Environmental Protection	010
South Carolina Dept of Health	87002001
Tennessee Dept of Environment and Conservation	TN02996
Texas Commission on Environmental Quality	T104704189-13-4
Utah Dept of Health	CA164002012-2
Virginia Dept of General Services	1831
Washington Department of Ecology	C584-12a
Wisconsin Dept of Natural Resources	998036160

Laboratory: Vista

TOTAL AIR ANALYSIS, INC.

1210 East 223 rd Street, # 314 Carson, CA 90745 (310) 518 5133 Fax: (310) 518 5107

1300300

3.7°C

CHAIN OF CUSTODY

Page: 1 of: 2

Client: Santa Maria 1

Contact Person: Ross Logan

tel:

fax:

Project No.: JA-121062

Project Name: Santa

Project Manager: RPL

P.O. Number:

Analysis: CARB 429 - PAH's

Turnaround Time:

- ☐ Same Day
- ☐ 24 Hours
- ☐ 48 Hours
- ☑ Normal

Total Air ID #	Client Sample ID	Summa Canister #	Date	Type of Sample	Lab ID Number	CARB 429	PAH's	Remarks
	ICE-Run 1-Front ½-Rinse		4-12-13	Liquid		✓		
	" -Run 1-Back ½-Imp		4-12-13	"		✓		
	" -Run 1-Filter		"	Solid		✓		
	" -Run 1-XAD		"	"		✓		
	ICE-Run 2-Front ½-Rinse			Liquid		✓		
	" -" 2-Back ½-Imp			"		✓		
	" -" 2-Filter			Solid		✓		
	" -" 2-XAD			"		✓		
	ICE-Run 3-Front ½-Rinse			Liquid		✓		
	" -" 3-Back ½-Imp			"		✓		
	" -" 3-Filter			Solid		✓		
	" -" 3-XAD			"		✓		

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/time
	4-16-13 @ 18:00	Bethriel Benedict	4/17/13 0912
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/time

Laboratory: Vista

TOTAL AIR ANALYSIS, INC.

1210 East 223 rd Street, # 314 Carson, CA 90745 (310) 518 5133 Fax: (310) 518 5107

1300300

CHAIN OF CUSTODY

Page: 2 of: 2

Client: Santa Maria I

Project No.: JA-121062

Project Name: Santa

Project Manager: RPL

P.O. Number:

Contact Person: Russ Logan

tel:

fax:

Analysis: Cards 429, PAHs

Turnaround Time:

- ☐ Same Day
- ☐ 24 Hours
- ☐ 48 Hours
- ☑ Normal

Total Air ID #	Client Sample ID	Summa Canister #	Date	Type of Sample	Lab ID Number	Cards 429	PAHs	Remarks
	Field Blank - Front 1/2 - Rinse		4-12-13	Liquid		✓		
	Field " - Back 1/2 - Rinse		"	"		✓		
	Field " - FILTER		"	Solid		✓		
	Field Blank - XAD		"	"		✓		
	Methylene Chloride			Liquid		✓		50 mls
	Hexane			"		✓		"
	Acetone			"		✓		60 mls
	DI water			"		✓		"

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/time
Russ Logan	4-16-13 @ 18:00	Bethina Benedict	4/17/13 0912
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/time

SAMPLE LOG-IN CHECKLIST

Vista Analytical Laboratory

Vista Project #: 1300300 TAT Std

Samples Arrival:	Date/Time 4/17/13 0856	Initials: CBLB	Location: WR-2 Shelf/Rack: N/A
Logged In:	Date/Time 4/17/13 1428	Initials: CBLB	Location: R1 Shelf/Rack: N/A

Delivered By:	(FedEx)	UPS	On Trac	DHL	Hand Delivered	Other
Preservation:	Ice	(Blue Ice)	Dry Ice	None		
Temp °C 3.7°C	Time: 0910	Thermometer ID: IR-1				

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill Trk # 7995 4225 1939	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?	✓		
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓

$Na_2S_2O_3$ Preservation Documented? N/A	COC	Sample Container	None		
Shipping Container	(Vista)	Client	(Retain)	Return	Dispose

Comments:

Chain of Custody Anomaly/Sample Acceptance Form

Vista Analytical Laboratory

Client:	Total Air Analysis	Workorder Number:	1300300
Contact:	Russ Logan	Date Received:	17-Apr-13 08:56
Email:	total_air@msn.com	Documented by/date:	Bettina 04/18/2013
Phone:	1-310-5185133		

Please review the following information and complete the Client Authorization section. To comply with NELAC regulations, we must receive authorization before proceeding with sample analysis.

Thank you,

Calvin Tanaka
Calvin@vista-analytical.com
916-673-1520

The following information or item is needed to proceed with analysis:

☐	Complete Chain-of-Custody	☐	Preservative	☐	Collector's Name
☐	Test Method Requested	☐	Sample Identification	☐	Sample Type
☐	Analyte List Requested	☐	Sample Collection Date and/or Time	☐	Sample Location

☒ Other: Received 3 filter components label for Run 1, Run 2 & Run 3. COC list a filter component for the Field Blank, didn't receive Field Blank filter.

The following anomalies were noted. Authorization is needed to proceed with analysis.

☐ Temperature outside < 6°C Range Samples Affected: _____

Temperature _____°C Ice Present? Yes No Melted

☒	Sample ID Discrepancy: See Comments	☐	Insufficient Sample Size
☐	Sample Holding Time Missed	☐	Sample Container(s) Broken
☐	Custody Seals Broken	☐	Incorrect Container Type

Comments:
COC id's all samples as "ICE Run 1, ICE Run 2, ICE Run 3, Field Blank; not all components reconcile with the COC. See Images

COC component Back1/2 –IMP received containers for Run 1,2,3: labeled as(IMP+Rinse).
The remaining container's label ID is "ICE Back1/2 IMP" No component labeled with Field Blank Back1/2 –IMP.

" FB, per R. Logan

Client Authorization

Proceed with Analysis: (YES) NO Signature and Date Russ 4/19/13

Client Comments/Instructions Use filter from same lot for FB.

TOTAL AIR ANALYSIS, INC.

Method 5 Field Data Sheet

Facility:	SANTA MARIA	*Stack Dia.:*	13.5"	*Meter No.:*	APEX 2	*Pitot Tube Leak Test:*	
Source:	ICE Eng #1	*Nozzle Size:*	.225	*dH@:*		*Before:* 0.0 *After:*	0.0
Test Date:	4.12.13	*Pbar:*		*Y:*	0.9977	*Assumed Moisture:*	
Run No.:	Run 1	*Static P:*	-1.8	*Sampling Train Leak Test:*		*Assumed O_2:*	
Project No.:		*Probe Type:*	QUARTZ	*Before:*	0.00 @ 17"	*Assumed CO_2:*	
Method:	PAH	*Pitot Coef./No.:*	0.84	*After:*	0.00 @ 17"	*Ambient Temp.:*	

Time	Sample Point	Delta P	Delta H	DGM Reading	Temperature: Stack	DGM In	DGM Out	Probe	Filter	Pump Vacuum	Imp. Out Temp.	Comments
1:50	12	1.4	1.18	600.100	890		81		248	6"		8 points/port
	11	1.7	1.43	605.14	894		81		254	7"		16 Total
2:05	10	1.8	1.51	610.14	899		82		253	7"		7.5 min/point
	9	1.8	1.51	615.20	900		82		256	7"		
	8	1.9	1.60	625.33	900		83		257	7"		K = 0.84
	7	1.9	1.60	630.41	902		83		260	7"		
	6	1.7	1.43	635.68	903		83		259	7"		
	5	1.6	1.34	640.90	902		83		261	7"		
	4											
	3											
	2											
	1											
3:00	12	1.5	1.26	646.90	904		83		263	7"		
	11	1.7	1.43	646.05	905		83		261	7"		
	10	1.8	1.51	651.25	906		83		258	7"		
	9	1.9	1.60	656.40	906		83		254	7"		
	8	1.8	1.51	661.62	907		82		256	7"		
	7	1.8	1.51	666.75	905		82		259	7"		
	6	1.75	1.43	671.99	902		82		260	7"		
	5	1.5	1.26	677.20	897		82		263	7"		
4:00	4			682.358	892		82		258	7"		
	3											
	2											
	1											

TOTAL AIR ANALYSIS, INC.

Method 5 Field Data Sheet

Facility: Santa Maria I
Source: ICE #1
Test Date: 4.12.13
Run No.: Run # 2
Project No.:
Method: PAH

Stack Dia.: 13.5"
Nozzle Size: .225
Pbar:
Static P: -1.8
Probe Type: QUARTZ
Pitot Coef./No.: 0.84

Meter No.: APEX 2
dH@:
Y: 0.9977
Sampling Train Leak Test:
Before: 0.00 @ 18
After: 0.00 @ 15

Pitot Tube Leak Test:
Before: 0.0 After: 0.0
Assumed Moisture:
Assumed O_2:
Assumed CO_2:
Ambient Temp.:

Time	Sample Point	Delta P	Delta H	DGM Reading	Temperature: Stack	DGM In	DGM Out	Probe	Filter	Pump Vacuum	Imp. Out Temp.	Comments
4:15	12	1.5	1.26	683.000	886		75			7"		K = 0.84
	11	1.7	1.43	688.10	888		75		248			
4:30	10	1.8	1.51	694.22	889		76			7"		
	9	1.9	1.60	699.30	890		76		249			
	8	1.9	1.60	705.36	893		76			7"		
	7	1.8	1.51	711.51	896		76		251			
	6	1.8	1.51	716.57	900		76			7"		
	5	1.5	1.26	721.73	902		76		250			
	4	[illegible]										
	3											
	2											
	1											
5:20	12	1.6	1.34	721.73	904		77		245	7"		
	11	1.8	1.51	727.84	907		77					
5:35	10	1.9	1.60	733.96	906		77		248	7"		
	9	1.9	1.60	739.18	904		76					
5:50	8	1.9	1.60	745.03	903		75		249	7"		
	7	1.8	1.51	750.44	899		73					
6:05	6	1.7	1.43	755.92	895		72		251	7"		
	5	1.6	1.34	761.73	889		72					
6:20	4			765.594								
	3											
	2											
	1											

TOTAL AIR ANALYSIS, INC.

Method 5 Field Data Sheet

Facility: Santa Maria I
Source: ICE #1
Test Date: 4.12.13
Run No.: #3
Project No.:
Method: PAHs

Stack Dia.: 13.5"
Nozzle Size: 0.225
Pbar:
Static P: -1.80
Probe Type: Quartz
Pitot Coef./No.: 0.84

Meter No.: Apex #2
dH@:
Y: 0.9977
Sampling Train Leak Test:
Before: 0.00 @16"
After: 0.00 @17"

Pitot Tube Leak Test:
Before: 0.0 After: 0.0
Assumed Moisture:
Assumed O_2:
Assumed CO_2:
Ambient Temp.:

Time	Sample Point	Delta P	Delta H	DGM Reading	Temperature: Stack	DGM In	DGM Out	Probe	Filter	Pump Vacuum	Imp. Out Temp.	Comments
6:30	12	1.4	1.18	767.000	891		64		249	7"		K= 0.84
	11	1.6	1.34		895		65					
6:45	10	1.8	1.51	777.98	898		65		254	7		
	9	1.9	1.60		890		66					
	8	1.9	1.60	788.61	893		66		256	7		
	7	1.9	1.60		895		66					
	6	1.8	1.51	800.13	899		67		259	7		
	5	1.7	1.43		901		67					
	4			811.64					263	7		
	3											
	2											
	1											
	12	1.6	1.34	811.64	903		68		257	7		
	11	1.8	1.51		905		68					
	10	1.9	1.60	822.16	904		68		260	7		
	9	1.9	1.60		905		69					
	8	1.8	1.51	832.70	903		69		264	7		
	7	1.8	1.51		902		70					
	6	1.7	1.43	842.46	900		70		258	7		
	5	1.6	1.34		895		70					
	4			850.078								
	3											
	2											
	1											

IMPINGER	FINAL WT.	IITIAL W	NET
1	955.4	697.4	258
2	699.5	696.3	3.2
3	614.6	613.0	1.6
4	1016.1	994.1	22
		TOTAL	284.8
	Run	1	

	dH	dP	sqrt (dP)	Vm	Ts	Tm, i	Tm, out
1	1.18	1.4	1.183216	600.10	890		81
2	1.43	1.7	1.3038405		894		81
3	1.51	1.8	1.3416408		899		82
4	1.51	1.8	1.3416408		900		82
5	1.60	1.9	1.3784049		900		83
6	1.60	1.9	1.3784049		902		83
7	1.43	1.7	1.3038405		903		83
8	1.34	1.6	1.2649111		902		83
9	1.26	1.5	1.2247449		904		83
10	1.43	1.7	1.3038405		905		83
11	1.51	1.8	1.3416408		906		83
12	1.60	1.9	1.3784049		906		83
13	1.51	1.8	1.3416408		907		82
14	1.51	1.8	1.3416408		905		82
15	1.43	1.7	1.3038405		902		82
16	1.26	1.5	1.2247449		897		82
17					892		82
18							
19							
20							
21							
22							
23							
24				682.36			
AVERAGE	**1.44375**	**1.7188**	**1.3097748**	**82.26**	**900.8235**		**82.35294**
			1.7155101				

IMPINGER	FINAL WT.	INITIAL WT	NET
1	910.1	699.2	210.9
2	702.1	697.3	4.8
3	601.5	596.6	4.9
4	938.7	912.7	26
		TOTAL	246.6
	Run	2	

	dH	dP	sqrt (dP)	Vm	Ts	Tm, i	Tm, out
1	1.26	1.5	1.224744871	683	886		75
2	1.43	1.7	1.303840481		888		75
3	1.51	1.8	1.341640786		889		76
4	1.60	1.9	1.378404875		890		76
5	1.60	1.9	1.378404875		893		76
6	1.51	1.8	1.341640786		896		76
7	1.51	1.8	1.341640786		900		76
8	1.26	1.5	1.224744871		902		76
9	1.34	1.6	1.264911064		904		77
10	1.51	1.8	1.341640786		907		77
11	1.60	1.9	1.378404875		906		77
12	1.60	1.9	1.378404875		904		77
13	1.60	1.9	1.378404875		903		76
14	1.51	1.8	1.341640786		899		75
15	1.43	1.7	1.303840481		895		73
16	1.34	1.6	1.264911064		888		72
17							
18							
19							
20							
21							
22							
23							
24				765.594			
AVERAGE	**1.47525**	**1.75625**	**1.324201321**	**82.59**	**897**		**76**
			1.753509139				

IMPINGER	INAL WT	INITIAL WT	NET
1	913.1	697.0	216.1
2	695.1	691.5	3.6
3	617.0	613.6	3.4
4	1042.0	1016.1	25.9
		TOTAL	249
	Run	3	

	dH	dP	sqrt (dP)	Vm	Ts	Tm, in	Tm, out
1	1.18	1.4	1.183216	767	891		64
2	1.34	1.6	1.2649111		895		65
3	1.51	1.8	1.3416408		898		65
4	1.60	1.9	1.3784049		890		66
5	1.60	1.9	1.3784049		893		66
6	1.60	1.9	1.3784049		895		66
7	1.51	1.8	1.3416408		899		67
8	1.43	1.7	1.3038405		901		67
9	1.34	1.6	1.2649111		903		68
10	1.51	1.8			905		68
11	1.60	1.9			904		68
12	1.60	1.9			905		69
13	1.51	1.8			903		69
14	1.51	1.8			902		70
15	1.43	1.7			900		70
16	1.34	1.6			895		70
17							
18							
19							
20							
21							
22							
23							
24				850.078			

AVERAGE **1.47525** **1.75625** **1.3150416** **83.08** **898.6875** **67**

1.7293345

TOTAL AIR ANALYSIS, INC.
Impingers Weight Sheet

Facility: Santa Maria I
Source: ~~Stack~~ TCE
Run No.: 1
Test Date: 4-12-13
Operator: RAL

Filter No.: 1/8

Impinger No.	Impinger Solution	Amount (ml)	Impinger Type	Weight	Comments
1	Na/Na2	~100mls	6/s	Final: 955.4 Init.: 697.4 Net:	Clear
2	Na/Na2	~100mls	6/s	Final: 699.5 Init.: 696.3 Net:	Clear
3	RO	—	6/s	Final: 614.6 Init.: 613.0 Net:	
4	Silica	~300gms	Mod. 6/s	Final: 1016.1 Init.: 994.1 Net:	
5				Final: Init.: Net:	
6				Final: Init.: Net:	
7				Final: Init.: Net:	

Total Gain:

Preparation Date: 4-12-13
Prepared By: RPL

Recovery Date: 4-12-13
Recovered By: RPL

TOTAL AIR ANALYSIS, INC.
Impingers Weight Sheet

Facility: SANTA MARIA I
Source: ICE # 1
Run No.: Run # 2
Test Date: 4-12-13
Operator: RAL

Filter No.: Yes

Impinger No.	Impinger Solution	Amount (ml)	Impinger Type	Weight	Comments
1	Na/Na2	~100		Final: 910.1 Init.: 699.2 Net:	Clear
2	Na/Na2	~100		Final: 702.1 Init.: 697.3 Net:	Clear
3	KO	-		Final: 601.5 Init.: 596.6 Net:	
4	Silica	~300 gms		Final: 938.7 Init.: 912.7 Net:	
5				Final: Init.: Net:	
6				Final: Init.: Net:	
7				Final: Init.: Net:	

Total Gain:

Preparation Date: 4.12.13
Prepared By: RPL

Recovery Date: 4.12.13
Recovered By: RPL

TOTAL AIR ANALYSIS, INC.
Impingers Weight Sheet

Facility: Santa Maria I
Source: ICE 1
Run No.: #3
Test Date: 4-12-13
Operator: RAL

Filter No.: Yes

Impinger No.	Impinger Solution	Amount (ml)	Impinger Type	Weight	Comments
1	Na/Na2	~100	6/S	Final: 913.1 Init.: 697.0 Net:	clear
2	Na/Na2	100	6/S	Final: 695.1 Init.: 691.5 Net:	clear
3	KO	—	6/S	Final: 617.0 Init.: 613.6 Net:	
4	Silica	300	Mod. 6/S	Final: 1042.0 Init.: 1016.1 Net:	
5				Final: Init.: Net:	
6				Final: Init.: Net:	
7				Final: Init.: Net:	

Total Gain:

Preparation Date: 4.12.13
Prepared By: RPL

Recovery Date: 4.12.13
Recovered By: RPL

Appendix E

EPA METHOD 323
Formaldehyde Emissions and Laboratory Analysis

Facility: Santa Maria I
Source: Engine #1
Load: Normal
Start Date: 4/12/13
End Date: 4/12/13

SUMMARY OF RESULTS - FORMALDEHYDE

Analysis Method		EPA 323			
Field Sample ID #		Total Impinger PPMV		Lb/hr	Lb/MMscf
Formaldehyde					
Eng. # 1, Run # 1		15.951		1.79E-01	1.26
Eng. # 1, Run # 2		19.574		2.26E-01	1.55
Eng. # 1, Run # 3		20.762		2.38E-01	1.64
	Average	18.762		2.14E-01	1.49

Calculations: Lb/hr = PPMv * DSCFM * MW * Correction factor

Example ICE #1, Run #1 - Formaldehyde
Where: PPMv = 15.951, Laboratory results
DSCFM = 2357, Exhaust Flow rate measured
MW = 30.03 Formaldehyde
Correction Factor = 1.583 x 10-7

		Liters Sampled Vol	*First* Impinger ug/sample	Conc- Blank Front Tube Form	ug/m3	Form Mwt	ppbv	ppmv
Formaldehyde	**Eng. # 1, Run # 1**	24.50	480	480.0	19591.84	1.228227	15951	15.951
	Eng. # 1, Run # 2	24.00	577	577.0	24041.67	1.228227	19574	19.574
	Eng. # 1, Run # 3	24.00	612	612.0	25500.00	1.228227	20762	20.762

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CLIENT TOTAL AIR ANALYSIS, INC.
CLIENT PROJ NO: JA-121062
LABORATORY NO: 13-253
SAMPLING DATE: April 12, 2013
RECEIVING DATE: April 15, 2013
ANALYSIS DATE: April 16, 2013
REPORT DATE: April 17, 2013

Laboratory Results

Analysis Method	EPA 323			
Detection Limits	0.01 ug/ml			
Sample ID Description	Volume (ml)	Abs (nm)	Formaldehyde ug/ml	Formaldehyde ug/sample
SM-Run 1	29	0.239	16.6	480
SM-Run 2	25	0.333	23.1	577
SM-Run 3	31	0.285	19.8	612
Field Blank	33	0.016	0.05	1.7
Reagent Blank	30	0.005	0.01	0.2

Dr. Andrew Kitto
President

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$$x = y/0.303$$

Sample Id	Sample Vol (ml)	Abs (nm)	ug/ml	DF	ug/ml * df	ug/sample
SM-Run 1	29.0	0.239	0.78878	21	16.5643564	480.4
SM-Run 2	25.0	0.333	1.09901	21	23.0792079	577.0
SM-Run 3	31.0	0.285	0.94059	21	19.7524752	612.3
Field Blank	33.0	0.016	0.05281	1	0.05280528	1.7
Reagent Blank	30.0	0.005	0.0165	1	0.00825083	0.2

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CLIENT:	**TOTAL AIR ANALYSIS, INC.**
CLIENT PROJ NO:	**JA-121062**
LABORATORY NO:	**13-253**
SAMPLING DATE:	April 12, 2013
RECEIVING DATE:	April 15, 2013
ANALYSIS DATE:	April 16, 2013
REPORT DATE:	April 19, 2013

Quality Assurance Report

Analysis Method	EPA 323	
Detection Limit	0.1ug/ml	
Sample ID	Abs nm	ug/ml
Blank (Acetyl Acetone)	0.0	<0.1

Standard Verification

STD	Theoretical Value ug/ml	Abs nm	Tested Value ug/m	% Recovery*
2.0 ug/ml	2.00	0.592	1.95	98%

*: Must be within 90-110%

Dr. Andrew Kitto
President

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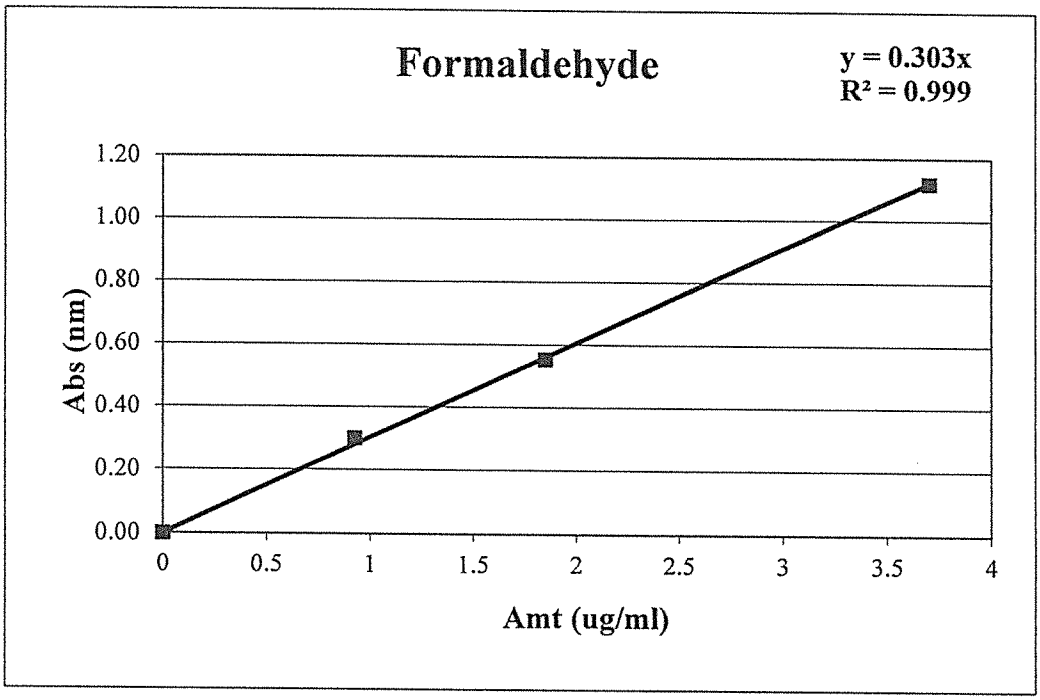
April 16, 2013

ug/mL	Abs (nm)
0	0.00
0.925	0.300
1.85	0.554
3.7	1.12



Laboratory: Quanta

TOTAL AIR ANALYSIS, INC.

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CHAIN OF CUSTODY

Page: 1 of: 1

Client: Santa Maria I

Contact Person: Russ Logan

tel:

fax:

Project No.: JA-121062

Project Name: Santa Maria I

Project Manager: RSL

P.O. Number:

Analysis: EPA 323 - Formaldehyde

Turnaround Time:

- ☐ Same Day
- ☐ 24 Hours
- ☐ 48 Hours
- ☑ Normal

Total Air ID #	Client Sample ID	Summa Canister #	Date	Type of Sample	Lab ID Number	EPA 323 - Formaldehyde	Remarks
	SM - Run 1 - Form.	—	4-12-13	Liquid		✓	
	SM - Run 2 - Form.	—				✓	
	SM - Run 3 - Form.	—				✓	
	Field Blank	—				✓	
	Reagent Blank	—				✓	Analyze only if Field Blank has hit.

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/time
	4-13-13 @ 12:00		4/15/13 @ 0700
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/time

98

TOTAL AIR ANALYSIS, INC.

EPA *METHOD* ~~320~~ 323

FORMALDEHYDE SAMPLING RUN DATA RECORD

Run #: # 1 *Project #:* _____

Location: Santa Maria I *Source Name:* ICE

Date Sampled: 4-12-13 *Operator:* RPL

Only one sampling run per data sheet.

	Clock Time	*Rotameter Reading*	*Flow Rate, Q ml/min.*	*Impinger Temp.°F*	*Stack Temp.°F*	*Comments*
0	15:00		15.390			
1	15:10		15.394			
2	15:20		15.398			
3	15:30		15.402			
4	15:40		15.406			
5	15:50		15.410			
6	16:00		15.4145			

Σ = 24.5 Liters Total

TOTAL AIR ANALYSIS, INC.
METHOD ~~430~~ 323
FORMALDEHYDE SAMPLING RUN DATA RECORD

Run #: # 2 *Project #:* _____

Location: SANTA MARIA I *Source Name:* ICE

Date Sampled: 4. 12 - 13 *Operator:* RA.

Only one sampling run per data sheet.

	Clock Time	*Rotameter Reading*	*Flow Rate, Q ml/min.*	*Impinger Temp.°F*	*Stack Temp.°F*	*Comments*
0	16:15	15.428				
1		15.432				
2		15.436				
3		15.440				
4		15.444				
5		15.448				
6	17:15	15.452				

L = 24.0 LITERS TOTAL

TOTAL AIR ANALYSIS, INC.
METHOD ~~430~~ 323
FORMALDEHYDE SAMPLING RUN DATA RECORD

Run #: # 3 *Project #:* _____

Location: SANTA MARIA I *Source Name:* ICE

Date Sampled: 4-12-13 *Operator:* RAL

Only one sampling run per data sheet.

	Clock Time	*Rotameter Reading*	*Flow Rate, Q ml/min.*	*Impinger Temp.°F*	*Stack Temp.°F*	*Comments*
0	17:30		15.496			
1			15.500			
2			15.504			
3			15.508			
4			15.512			
5			15.516			
6	18:30		15.520			

24 liters Total

Appendix F

CARB METHOD 410
Benzene and Toxics Laboratory Analysis

Location: Marian Medical Center
Sampling Dates: 4/12/2013
Units: ICE - Landfill Gas

US EPA METHOD TO-15
TOXICS AIR CONTAMINANTS

Parameters		Exhaust #1				Exhaust #2				Exhaust #3		
		ppbv	lb/hr	Lb/MMscf		ppbv	lb/hr	Lb/MMscf		ppbv	lb/hr	Lb/MMscf
1,1,1-Trichloroethane	nd	0.31	0.00002	1.09E-04	nd	0.32	0.00002	1.09E-04	nd	0.33	0.00002	1.13E-04
1,2-Dibromoethane (CAS# 106-93-4)	nd	0.22	0.00002	1.09E-04	nd	0.23	0.00002	1.11E-04	nd	0.24	0.00002	1.16E-04
Benzene		28.00	0.00083	5.88E-03		56.00	0.00166	1.14E-02		54.00	0.00160	1.11E-02
Carbon tetrachloride	nd	0.27	0.00002	1.12E-04	nd	0.28	0.00002	1.12E-04	nd	0.29	0.00002	1.17E-04
Chloroform	nd	0.35	0.00002	1.12E-04	nd	0.36	0.00002	1.12E-04	nd	0.37	0.00002	1.16E-04
Methylene Chloride	nd	0.49	0.00002	1.29E-04	nd	0.50	0.00002	1.28E-04	nd	0.52	0.00002	1.34E-04
Tetrachloroethene	nd	0.25	0.00002	1.11E-04		2.90	0.00018	1.25E-03		0.61	0.00004	2.65E-04
Trichloroethene	nd	0.32	0.00002	1.13E-04		11.00	0.00055	3.76E-03		1.60	0.00008	5.50E-04
Vinyl chloride	nd	0.67	0.00002	1.13E-04		1.10	0.00003	1.79E-04		1.20	0.00003	1.97E-04

Non-Detect (nd) from Laboratory shown with minimum detection limit for calculations.

Lbs/MMscf = Lb/hr/(Dscfm*60)*1000000

Client: **Total Air Analysis, Inc.**
Client Sample ID: **ROG-Run 1**
Client Project ID: **Santa Maria I / JA-121062**

CAS Project ID: P1301566
CAS Sample ID: P1301566-001

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Simon Cao
Sample Type: 1.0 L Summa Canister
Test Notes:
Container ID: 1SC00311

Date Collected: 4/12/13
Date Received: 4/15/13
Date Analyzed: 4/19/13
Volume(s) Analyzed: 0.40 Liter(s)

Initial Pressure (psig): 0.07 Final Pressure (psig): 5.33

Canister Dilution Factor: 1.36

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	1.7	ND	0.67	
75-09-2	Methylene Chloride	ND	1.7	ND	0.49	
67-66-3	Chloroform	ND	1.7	ND	0.35	
71-55-6	1,1,1-Trichloroethane	ND	1.7	ND	0.31	
71-43-2	Benzene	**90**	1.7	**28**	0.53	
56-23-5	Carbon Tetrachloride	ND	1.7	ND	0.27	
[illegible]01-6	Trichloroethene	ND	1.7	ND	0.32	
[illegible]93-4	1,2-Dibromoethane	ND	1.7	ND	0.22	
127-18-4	Tetrachloroethene	ND	1.7	ND	0.25	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Total Air Analysis, Inc.**
Client Sample ID: **ROG-Run 2**
Client Project ID: **Santa Maria I / JA-121062**

CAS Project ID: P1301566
CAS Sample ID: P1301566-002

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Simon Cao
Sample Type: 1.0 L Summa Canister
Test Notes:
Container ID: 1SC01113

Date Collected: 4/12/13
Date Received: 4/15/13
Date Analyzed: 4/19/13
Volume(s) Analyzed: 0.40 Liter(s)

Initial Pressure (psig): -0.52 Final Pressure (psig): 5.10

Canister Dilution Factor: 1.40

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	**2.9**	1.8	**1.1**	0.68	
75-09-2	Methylene Chloride	ND	1.8	ND	0.50	
67-66-3	Chloroform	ND	1.8	ND	0.36	
71-55-6	1,1,1-Trichloroethane	ND	1.8	ND	0.32	
71-43-2	Benzene	**180**	1.8	**56**	0.55	
56-23-5	Carbon Tetrachloride	ND	1.8	ND	0.28	
[illegible]01-6	Trichloroethene	**61**	1.8	**11**	0.33	
[illegible]93-4	1,2-Dibromoethane	ND	1.8	ND	0.23	
127-18-4	Tetrachloroethene	**20**	1.8	**2.9**	0.26	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Total Air Analysis, Inc.**
Client Sample ID: **ROG-Run 3**
Client Project ID: **Santa Maria I / JA-121062**

CAS Project ID: P1301566
CAS Sample ID: P1301566-003

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Simon Cao
Sample Type: 1.0 L Summa Canister
Test Notes:
Container ID: 1SC01115

Date Collected: 4/12/13
Date Received: 4/15/13
Date Analyzed: 4/19/13
Volume(s) Analyzed: 0.40 Liter(s)

Initial Pressure (psig): -0.52 Final Pressure (psig): 5.92

Canister Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	**3.0**	1.8	**1.2**	0.71	
75-09-2	Methylene Chloride	ND	1.8	ND	0.52	
67-66-3	Chloroform	ND	1.8	ND	0.37	
71-55-6	1,1,1-Trichloroethane	ND	1.8	ND	0.33	
71-43-2	Benzene	**170**	1.8	**54**	0.57	
56-23-5	Carbon Tetrachloride	ND	1.8	ND	0.29	
79-01-6	Trichloroethene	**8.6**	1.8	**1.6**	0.34	
106-93-4	1,2-Dibromoethane	ND	1.8	ND	0.24	
127-18-4	Tetrachloroethene	**4.2**	1.8	**0.61**	0.27	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Total Air Analysis, Inc.**
Client Sample ID: **Method Blank**
Client Project ID: **Santa Maria I / JA-121062**

CAS Project ID: P1301566
CAS Sample ID: P130419-MB

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Simon Cao
Sample Type: 1.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/19/13
Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
[illegible]1-6	Trichloroethene	ND	0.50	ND	0.093	
[illegible]93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

COLUMBIA ANALYTICAL SERVICES, INC.

Now Part of the ALS Group

SURROGATE SPIKE RECOVERY RESULTS

Client: **Total Air Analysis, Inc.**
Client Project ID: **Santa Maria I / JA-121062**

CAS Project ID: P1301566

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Simon Cao
Sample Type: 1.0 L Summa Canister(s)
Test Notes:

Date(s) Collected: 4/12/13
Date(s) Received: 4/15/13
Date(s) Analyzed: 4/19/13

Client Sample ID	CAS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P130419-MB	**92**	**101**	**109**	70-130	
Lab Control Sample	P130419-LCS	**91**	**99**	**112**	70-130	
ROG-Run 1	P1301566-001	**91**	**99**	**109**	70-130	
ROG-Run 2	P1301566-002	**92**	**100**	**107**	70-130	
ROG-Run 3	P1301566-003	**94**	**100**	**109**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

COLUMBIA ANALYTICAL SERVICES, INC.

Now Part of the ALS Group

LABORATORY CONTROL SAMPLE SUMMARY

Client: **Total Air Analysis, Inc.**
Client Sample ID: **Lab Control Sample**
Client Project ID: **Santa Maria I / JA-121062**

CAS Project ID: P1301566
CAS Sample ID: P130419-LCS

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Simon Cao
Sample Type: 1.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/19/13
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	CAS Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	200	**168**	**84**	64-122	
75-09-2	Methylene Chloride	212	**172**	**81**	64-113	
67-66-3	Chloroform	222	**183**	**82**	68-110	
71-55-6	1,1,1-Trichloroethane	204	**188**	**92**	68-120	
71-43-2	Benzene	208	**186**	**89**	69-117	
56-23-5	Carbon Tetrachloride	212	**214**	**101**	65-134	
[illegible]01-6	Trichloroethene	198	**190**	**96**	71-119	
[illegible]93-4	1,2-Dibromoethane	208	**228**	**110**	69-130	
127-18-4	Tetrachloroethene	190	**187**	**98**	63-123	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Appendix G

CARB METHOD 19
Operating Parameters

EPA Method 19, Stack Gas Flowrate Calculation

Facility: Santa Maria I
Source: ICE #1
Load: Normal
Start Date: 4/12/2013

Run #	Time Start	Time End	O_2 (%)	Fuel Flow (scfm)	HHV (btu/scf)	F Factor (sdcf/Mmbtu)	System Flow (scfm)	Heat Input (Mmbtu/hr)
1	11:03	11:43	7.28	320.3	476.0	9,565	2,238	9.15
2	11:55	12:35	7.32	320.8	476.0	9,565	2,248	9.16
3	12:36	13:42	7.33	319.9	476.0	9,565	2,243	9.14

Flow Rate = Fuel Flow Rate x F Factor x HHV/1000000 x 20.9/(20.9 - O2 conc)

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CLIENT:	TOTAL AIR ANALYSIS, INC.
LABORATORY NO:	13-268
SAMPLING DATE:	April 16, 2013
RECEIVING DATE:	April 17, 2013
ANALYSIS DATE:	April 17, 2013
REPORT DATE:	April 23, 2013

Laboratory Analysis Report

Analysis Method: ASTM 1945-03 ; HHV Calculations: ASTM 3588-98

Analyte, Units	Sample ID	Fuel Sample
	Sample Date	4/16/2013
	Sample Time	-
	Lab ID	11213-12
	Units	Mole %
Methane, %		47
Ethane, %		<0.1
Ethylene, %		<0.1
Propane, %		<0.1
Propylene, %		<0.1
i-Butane, %		<0.1
n-Butane, %		<0.1
1-Butene, %		<0.1
i-Butylene, %		<0.1
trans-2-Butene,%		<0.1
cis-2-Butene,%		<0.1
i-Pentane, %		<0.1
n-Pentane, %		<0.1
2,2-Dimethyl Butane, %		<0.1
2,3-Dimethyl Butane, %		<0.1
2-Methyl Pentane, %		<0.1
3-Methyl Pentane, %		<0.1
n-Hexane, %		<0.1
C6+, %		<0.1
CO2, %		31
CO, %		<0.1
O2, %		1.2
N2, %		21
H2, %		<0.1
H2S, %		<0.1
Average Molecular Weight		**27.344**
Total Wt.% Adjusted Sp. Gravity		**0.9441**
Compressibility Factor (14.696 Psi, 60 F)		**0.9979**
NET BTU/Cub. Ft		**429**
GROSS BTU/Cub. Ft		**476**
CHONS		%
Carbon		34
Hydrogen		6.9
Oxygen		37
Nitrogen		21
Sulfur		<0.1

Dry F Factor (60 F, 1 Atm): SDCF/MMBTU, ASTM 3588	**9565**

Dr. Andrew Kitto
President

Santa Maria
Run 1

Date	Time	LFG FLOW SCFM MIN	LFG FLOW SCFM MAX	NOX PPM MIN	NOX PPM MAX	CO PPM MIN	CO PPM MAX	O2 PERCENT MIN	O2 PERCENT MAX
2013/04/12	11:03:24	320.3	323.5	93.4	94.0	319.3	321.1	7.15	7.14
2013/04/12	11:04:24	317.6	320.9	93.7	94.4	320.8	321.4	7.13	7.15
2013/04/12	11:05:24	312.2	321.8	92.7	94.2	317.4	321.1	7.13	7.14
2013/04/12	11:06:24	320.6	324.0	92.9	92.9	316.8	317.2	7.11	7.13
2013/04/12	11:07:24	321.6	321.9	93.3	93.4	318.3	318.9	7.12	7.12
2013/04/12	11:08:24	315.9	323.0	91.7	92.9	313.2	317.7	7.12	7.11
2013/04/12	11:09:24	318.4	324.8	92.8	93.5	316.5	319.9	7.12	7.15
2013/04/12	11:10:24	323.8	324.0	93.1	94.2	318.1	321.4	7.1	7.12
2013/04/12	11:11:24	320.7	320.9	93.4	93.5	319.5	319.9	7.14	7.12
2013/04/12	11:12:24	322.4	324.0	93.0	93.2	318.1	318.1	7.13	7.14
2013/04/12	11:13:24	317.7	323.9	92.7	93.6	317.4	319.9	7.13	7.13
2013/04/12	11:14:24	314.7	317.7	92.8	92.9	318.1	318.3	7.13	7.13
2013/04/12	11:15:24	317.4	319.1	92.7	93.2	316.9	318.4	7.12	7.12
2013/04/12	11:16:24	317.0	320.6	92.9	94.7	317.8	323.5	7.14	7.13
2013/04/12	11:17:24	319.5	320.1	93.1	94.5	318.7	322.9	7.14	7.12
2013/04/12	11:19:24	319.7	319.9	93.6	93.8	319.0	320.2	7.13	7.15
2013/04/12	11:20:24	316.7	320.2	92.5	93.7	316.6	321.1	7.14	7.13
2013/04/12	11:21:24	318.0	319.8	91.7	92.6	314.2	317.4	7.16	7.14
2013/04/12	11:22:24	318.0	318.0	93.0	93.6	317.2	319.3	7.12	7.12
2013/04/12	11:23:24	324.3	326.6	92.5	93.3	316.3	318.3	7.13	7.14
2013/04/12	11:24:24	318.3	319.8	93.7	93.7	320.2	320.2	7.11	7.12
2013/04/12	11:25:24	321.3	323.2	92.8	93.7	317.1	320.2	7.12	7.14
2013/04/12	11:26:24	322.8	323.6	93.2	94.3	319.0	322.0	7.12	7.13
2013/04/12	11:27:24	317.1	320.8	92.9	94.8	318.4	323.5	7.12	7.12
2013/04/12	11:28:24	316.1	320.4	92.5	93.4	315.7	319.0	7.09	7.13
2013/04/12	11:29:24	318.5	323.3	94.2	94.2	321.4	321.7	7.12	7.13
2013/04/12	11:30:24	316.9	319.3	92.7	94.0	316.0	320.8	7.11	7.11
2013/04/12	11:31:24	319.8	320.9	92.7	94.0	316.9	321.4	7.13	7.11
2013/04/12	11:32:24	318.5	320.1	93.6	94.6	320.2	322.9	7.14	7.13
2013/04/12	11:33:24	321.5	322.6	91.7	94.5	313.4	322.6	7.12	7.14
2013/04/12	11:34:24	317.0	322.7	92.1	93.0	314.7	318.6	7.13	7.13
2013/04/12	11:35:24	319.7	322.2	93.0	93.8	319.0	320.5	7.13	7.14
2013/04/12	11:36:24	320.4	320.9	92.6	93.3	316.0	318.4	7.1	7.11
2013/04/12	11:37:24	322.8	324.8	93.2	93.4	318.7	318.7	7.11	7.11
2013/04/12	11:38:24	319.7	322.3	93.3	93.8	319.6	319.6	7.12	7.1
2013/04/12	11:39:24	314.8	317.6	92.9	93.1	317.5	317.7	7.11	7.14
2013/04/12	11:40:24	320.0	321.4	94.4	94.6	322.0	322.3	7.12	7.13
2013/04/12	11:41:24	322.0	323.3	93.0	93.5	318.1	318.1	7.1	7.13
2013/04/12	11:42:24	320.2	321.6	93.5	94.3	319.5	321.7	7.11	7.13
2013/04/12	11:43:24	315.7	317.2	92.3	93.4	314.8	319.0	7.13	7.15
	Average	**319.0**	**321.6**	**92.9**	**93.7**	**317.7**	**320.1**	**7.1**	**7.1**
			320.28		**93.34**		**318.92**		**7.13**

Santa Maria
Run 2

Date	Time	LFG FLOW SCFM MIN	LFG FLOW SCFM MAX	NOX PPM MIN	NOX PPM MAX	CO PPM MIN	CO PPM MAX	O2 PERCENT MIN	O2 PERCENT MAX
2013/04/12	11:55:24	321.9	323.9	93.3	93.8	318.0	320.5	7.1	7.14
2013/04/12	11:56:24	318.2	321.2	93.3	93.5	317.8	319.2	7.12	7.13
2013/04/12	11:57:24	320.7	321.2	92.9	93.1	316.9	317.5	7.13	7.12
2013/04/12	11:58:24	321.3	321.5	93.0	93.7	317.4	319.5	7.13	7.16
2013/04/12	11:59:24	321.6	325.3	93.4	93.4	319.3	319.9	7.12	7.13
2013/04/12	12:00:24	320.4	322.3	92.9	93.2	317.2	318.1	7.11	7.14
2013/04/12	12:01:24	314.8	315.7	93.5	93.5	319.2	319.8	7.12	7.14
2013/04/12	12:02:24	318.7	319.1	93.0	93.7	317.8	320.5	7.11	7.15
2013/04/12	12:03:24	318.6	322.5	93.4	93.4	318.3	319.9	7.12	7.11
2013/04/12	12:04:24	316.8	320.0	92.8	93.2	316.6	318.7	7.1	7.12
2013/04/12	12:05:24	319.1	320.4	92.7	92.9	316.6	318.3	7.11	7.14
2013/04/12	12:06:24	319.1	319.8	93.5	93.6	319.0	319.6	7.13	7.09
2013/04/12	12:07:24	320.4	322.9	93.1	93.5	318.1	319.8	7.13	7.16
2013/04/12	12:08:24	319.7	321.0	93.4	93.9	337.3	338.8	7.11	7.12
2013/04/12	12:09:24	320.3	321.3	93.2	93.5	336.7	337.0	7.13	7.14
2013/04/12	12:10:24	319.1	321.2	93.4	93.5	337.0	337.3	7.12	7.13
2013/04/12	12:11:24	323.7	325.8	93.1	93.1	335.8	336.1	7.11	7.14
2013/04/12	12:12:24	319.0	322.8	93.8	94.0	338.2	339.4	7.13	7.13
2013/04/12	12:13:24	319.9	320.6	93.5	93.6	337.9	337.9	7.11	7.12
2013/04/12	12:14:24	318.9	319.2	93.0	93.4	335.3	337.3	7.1	7.11
2013/04/12	12:15:24	320.7	322.4	93.0	93.4	336.7	337.0	7.13	7.15
2013/04/12	12:16:24	320.8	320.8	92.9	93.2	335.8	337.0	7.14	7.16
2013/04/12	12:17:24	318.8	321.5	93.4	94.0	336.7	339.4	7.13	7.13
2013/04/12	12:18:24	320.3	323.6	92.9	93.4	336.4	337.0	7.15	7.13
2013/04/12	12:19:24	320.4	321.2	93.1	94.3	334.6	340.6	7.13	7.13
2013/04/12	12:20:24	319.8	320.5	93.2	93.4	335.8	337.3	7.12	7.15
2013/04/12	12:21:24	319.2	320.5	93.1	93.5	335.6	337.3	7.15	7.14
2013/04/12	12:22:24	319.7	321.9	92.6	93.8	333.4	339.1	7.11	7.12
2013/04/12	12:23:24	325.3	325.4	91.8	92.9	331.2	335.5	7.13	7.12
2013/04/12	12:24:24	319.5	320.9	92.5	93.2	333.4	335.8	7.13	7.12
2013/04/12	12:25:24	321.8	324.2	92.9	93.0	335.5	335.8	7.15	7.12
2013/04/12	12:26:24	316.5	320.6	93.2	94.2	335.8	339.4	7.11	7.15
2013/04/12	12:27:24	319.9	323.3	93.1	93.7	336.1	337.3	7.13	7.15
2013/04/12	12:28:24	316.3	317.1	93.2	93.9	336.7	338.5	7.14	7.16
2013/04/12	12:29:24	319.1	319.4	93.3	93.4	336.5	336.7	7.11	7.14
2013/04/12	12:30:24	320.2	320.9	92.7	94.6	336.1	341.0	7.14	7.14
2013/04/12	12:31:24	319.7	323.9	93.2	93.4	335.8	337.3	7.14	7.11
2013/04/12	12:32:24	320.2	324.6	93.2	93.2	335.6	337.0	7.13	7.15
2013/04/12	12:33:24	319.7	321.0	92.9	93.4	335.5	337.3	7.13	7.13
2013/04/12	12:34:24	319.4	320.7	92.4	93.5	333.1	337.3	7.15	7.14
2013/04/12	12:35:24	324.5	327.2	93.0	93.9	336.4	338.8	7.15	7.11
	Average	**319.9**	**321.7**	**93.1**	**93.5**	**330.1**	**331.9**	**7.1**	**7.1**
			320.8		**93.3**		**331.0**		**7.13**

Santa Maria
Run 3

Date	Time	LFG FLOW SCFM MIN	LFG FLOW SCFM MAX	NOX PPM MIN	NOX PPM MAX	CO PPM MIN	CO PPM MAX	O2 PERCENT MIN	O2 PERCENT MAX
2013/04/12	12:36:24	321.0	322.4	93.2	93.4	335.7	336.1	7.1	7.1
2013/04/12	12:37:24	321.0	321.5	93.7	93.9	337.6	339.4	7.13	7.11
2013/04/12	12:38:24	321.8	325.8	92.4	93.4	334.0	336.5	7.17	7.15
2013/04/12	12:39:24	323.0	326.7	93.2	93.7	335.9	337.9	7.11	7.11
2013/04/12	12:40:24	313.5	315.4	92.5	93.3	333.4	336.7	7.13	7.12
2013/04/12	12:41:24	320.9	325.2	92.6	94.0	333.0	338.8	7.11	7.12
2013/04/12	12:42:24	319.1	320.9	93.4	94.6	336.5	340.6	7.11	7.12
2013/04/12	12:43:24	320.9	327.4	93.7	93.8	337.9	339.2	7.15	7.11
2013/04/12	12:44:24	317.0	321.2	92.4	93.4	333.1	336.7	7.12	7.15
2013/04/12	12:45:24	318.2	318.6	92.1	93.0	332.8	335.9	7.16	7.11
2013/04/12	12:46:24	320.7	324.2	92.3	93.2	333.4	336.4	7.13	7.13
2013/04/12	12:47:24	318.1	323.8	91.8	93.3	330.9	337.0	7.14	7.12
2013/04/12	12:48:24	319.1	319.3	93.0	93.5	335.6	337.3	7.13	7.14
2013/04/12	12:49:24	320.8	324.5	93.3	93.5	336.7	337.4	7.14	7.13
2013/04/12	12:50:24	316.4	318.3	92.6	93.3	334.3	337.4	7.16	7.12
2013/04/12	12:51:24	322.0	323.3	93.4	93.7	336.7	337.6	7.13	7.14
2013/04/12	12:52:24	321.6	323.2	92.5	94.3	332.7	339.4	7.13	7.13
2013/04/12	12:53:24	318.2	319.7	93.1	93.3	335.9	336.7	7.15	7.12
2013/04/12	12:54:24	320.0	320.5	93.7	94.2	338.3	338.8	7.13	7.14
2013/04/12	12:55:24	318.9	321.5	92.9	93.6	335.9	337.3	7.15	7.11
2013/04/12	12:56:24	319.2	320.4	93.3	93.6	336.4	337.4	7.16	7.12
2013/04/12	12:57:24	320.4	323.4	93.3	93.6	337.0	337.9	7.13	7.15
2013/04/12	12:58:24	318.9	322.4	93.2	94.0	337.0	338.8	7.16	7.13
2013/04/12	12:59:24	321.7	323.0	92.9	93.4	334.7	336.7	7.14	7.16
2013/04/12	13:00:24	313.6	320.6	92.7	94.0	334.6	338.5	7.14	7.13
2013/04/12	13:01:24	318.2	319.7	93.0	94.6	334.9	341.0	7.12	7.14
2013/04/12	13:02:24	321.0	322.1	92.9	94.4	334.9	340.0	7.12	7.12
2013/04/12	13:03:24	318.3	324.1	93.1	94.1	335.8	339.8	7.11	7.13
2013/04/12	13:04:24	316.8	321.4	93.6	93.7	337.9	338.2	7.11	7.16
2013/04/12	13:05:24	317.0	320.0	93.2	93.6	335.8	338.2	7.11	7.13
2013/04/12	13:06:24	319.0	324.2	92.4	93.8	333.4	338.2	7.13	7.15
2013/04/12	13:07:24	324.9	325.8	93.8	94.2	338.8	340.1	7.14	7.13
2013/04/12	13:08:24	321.0	323.2	93.2	94.1	336.4	339.5	7.15	7.14
2013/04/12	13:09:24	318.0	322.9	94.0	94.2	339.1	339.1	7.13	7.11
2013/04/12	13:10:24	322.2	325.9	91.7	93.2	330.5	336.7	7.14	7.13
2013/04/12	13:11:24	318.0	320.2	92.5	93.6	334.0	337.6	7.14	7.15
2013/04/12	13:12:24	317.1	318.8	93.6	94.3	337.6	340.3	7.13	7.13
2013/04/12	13:13:24	315.0	320.7	91.5	93.4	330.7	337.0	7.13	7.13
2013/04/12	13:14:24	318.3	318.7	92.8	94.9	334.9	342.4	7.12	7.14
2013/04/12	13:15:24	318.0	319.0	92.3	92.6	333.7	334.6	7.14	7.13
2013/04/12	13:16:24	317.4	318.6	93.2	94.1	336.5	339.1	7.12	7.15
2013/04/12	13:17:24	320.9	321.8	93.4	93.4	336.1	337.9	7.1	7.12
2013/04/12	13:18:24	318.8	320.4	91.5	93.7	331.2	338.5	7.13	7.14

2013/04/12	13:19:24	320.3	320.4	92.7	94.7	334.9	340.4	7.15	7.15
2013/04/12	13:20:24	316.4	319.5	92.5	94.4	333.7	339.4	7.12	7.11
2013/04/12	13:21:24	316.5	319.5	91.9	92.5	331.4	334.3	7.15	7.12
2013/04/12	13:22:24	317.1	320.4	92.0	92.6	331.5	334.6	7.16	7.15
2013/04/12	13:23:24	319.2	320.1	92.5	93.6	334.0	337.0	7.14	7.15
2013/04/12	13:24:24	312.1	317.0	93.0	94.2	336.1	339.1	7.12	7.16
2013/04/12	13:25:24	317.6	324.6	91.7	93.5	330.3	336.7	7.15	7.13
2013/04/12	13:26:24	315.2	319.8	93.8	94.1	338.2	339.1	7.13	7.15
2013/04/12	13:27:24	317.1	317.4	92.4	94.5	333.0	341.5	7.12	7.13
2013/04/12	13:28:24	317.9	318.8	93.5	93.8	337.3	338.5	7.11	7.14
2013/04/12	13:29:24	316.4	317.9	92.5	94.9	333.7	342.4	7.14	7.11
2013/04/12	13:30:24	317.1	317.6	92.5	92.7	333.1	333.4	7.11	7.13
2013/04/12	13:31:24	317.6	319.1	92.5	93.4	333.4	337.7	7.13	7.16
2013/04/12	13:32:24	323.6	325.4	92.6	92.9	334.3	335.0	7.16	7.14
2013/04/12	13:33:24	317.3	320.0	92.4	93.5	333.6	337.6	7.15	7.12
2013/04/12	13:34:24	315.5	318.0	93.2	93.3	336.2	336.5	7.13	7.12
2013/04/12	13:35:24	318.0	320.3	93.5	93.9	336.7	338.8	7.13	7.13
2013/04/12	13:36:24	318.8	322.2	92.8	94.0	334.0	339.4	7.11	7.14
2013/04/12	13:37:24	318.5	322.5	93.6	93.8	337.6	338.2	7.13	7.15
2013/04/12	13:38:24	321.3	322.9	93.3	93.8	335.8	337.6	7.1	7.13
2013/04/12	13:39:24	320.7	321.3	92.6	92.9	333.4	335.3	7.13	7.1
2013/04/12	13:40:24	314.9	316.7	93.3	93.6	335.8	337.3	7.1	7.16
2013/04/12	13:41:24	314.2	315.9	93.0	93.7	334.9	338.0	7.13	7.13
2013/04/12	13:42:24	319.6	321.9	93.1	93.7	336.7	337.9	7.17	7.13
	Average	**318.6**	**321.2**	**92.9**	**93.7**	**335.0**	**338.0**	**7.1**	**7.1**
			319.92		**93.29**		**336.48**		**7.13**

Appendix H

QUALITY ASSURANCE/QUALITY CONTROL

DRY GAS METER CALIBRATION DATA SHEET

Control Console I.D.: Apex 2
Reference Meter Y: 0.9998
Date: 10/1/2012
Pbar 29.97
Ambient Temp.: 72

Calibration Frequency: Semi-Annual
Standard Temp. 68

Rate (CFM)		dH	Field Dry Gas Meter		Time	Reference Dry gas Meter		Yfm	dH@
			Temp Out (0F)	Meter Reading (CF)		Temp. Out (0F)	Meter Reading (CF)		
0.25	start	0.25	72	600.000	0	71	110.000	0.9926	2.226
	end	0.25	72	607.680	30	71	117.610		
	avg/total	0.25	72	7.680	30	71	7.610		
0.25	start	0.25	72	607.680	0	72	117.610	0.9903	2.244
	end	0.25	73	615.350	30	72	125.200		
	avg/total	0.25	72.5	7.670	30	72	7.590		
0.25	start	0.25	73	615.350	0	72	125.200	0.9912	2.236
	end	0.25	73	623.030	30	72	132.800		
	avg/total	0.25	73	7.680	30	72	7.600		
0.5	start	1	73	630.000	0	72	140.000	0.9967	2.276
	end	1	74	640.100	20	73	150.050		
	avg/total	1	73.5	10.100	20	72.5	10.050		
0.5	start	1	74	640.100	0	73	150.050	0.9947	2.282
	end	1	74	650.210	20	73	160.090		
	avg/total	1	74	10.110	20	73	10.040		
0.5	start	1	74	650.210	0	73	160.090	0.9977	2.280
	end	1	75	660.300	20	74	170.140		
	avg/total	1	74.5	10.090	20	73.5	10.050		
0.75	start	1.65	75	665.000	0	74	175.000	0.9968	1.639
	end	1.65	74	672.650	10	74	182.620		
	avg/total	1.65	74.5	7.650	10	74	7.620		
0.75	start	1.65	75	672.650	0	74	182.620	0.9977	1.642
	end	1.65	75	680.290	10	74	190.230		
	avg/total	1.65	75	7.640	10	74	7.610		
0.75	start	1.65	75	680.290	0	74	190.230	0.9942	1.649
	end	1.65	75	687.940	10	75	197.830		
	avg/total	1.65	75	7.650	10	74.5	7.600		
1.00	start	3.25	75	690.000	0	74	200.000	1.0116	1.800
	end	3.25	75	700.100	10	74	210.200		
	avg/total	3.25	75	10.100	10	74	10.200		
1.00	start	3.25	75	700.100	0	74	210.200	1.0046	1.819
	end	3.25	76	710.220	10	75	220.350		
	avg/total	3.25	75.5	10.120	10	74.5	10.150		
1.00	start	3.25	76	710.220	0	75	220.350	1.0036	1.821
	end	3.25	76	720.350	10	75	230.500		
	avg/total	3.25	76	10.130	10	75	10.150		

Rate (CFM)	Run No.	Reference Dry gas Meter			Field Dry gas Meter			coefficient Y<(1+/-0.05)	(Ymax-Ymin)<0.01	Average Y	Average dH@	dH@<dH@+/- 0.15)	0.98<(Y/Y)<1.02
		Rate Qrm (cfm)	Avg. Meter Temp.	Corr. Rate (scfm)	Rate Qrm (cfm)	Avg. Meter Temp.	Corr. Rate (scfm)						
0.25	1	0.2537	71.0	0.2517	0.2560	72.0	0.2535	0.9926					
	2	0.2530	72.0	0.2505	0.2557	72.5	0.2529	0.9903	0.0023	0.9914	2.236	0.243	0.9937
	3	0.2533	72.0	0.2509	0.2560	73.0	0.2530	0.9912					
0.5	1	0.5025	72.5	0.4962	0.5050	73.5	0.4977	0.9967					
	2	0.5020	73	0.4952	0.5055	74	0.4978	0.9947	0.0030	0.9964	2.279	0.286	0.9987
	3	0.5025	73.5	0.4953	0.5045	74.5	0.4963	0.9977					
0.75	1	0.762	74	0.7491	0.7650	74.5	0.7514	0.9968					
	2	0.761	74	0.7482	0.7640	75	0.7497	0.9977	0.0035	0.9962	1.643	0.350	0.9986
	3	0.76	74.5	0.7465	0.7650	75	0.7507	0.9942					
1.00	1	1.02	74	0.9989	1.0100	75	0.9873	1.0116					
	2	1.015	74.5	0.9931	1.012	75.5	0.9883	1.0046	0.0079	1.0066	1.814	0.179	1.0090
	3	1.015	75	0.9921	1.012	76	0.9874	1.0036					

Overall Averages

dH@ = 1.993 Y = 0.9977

CERTIFICATE OF CALIBRATION

CUSTOMER:	**TOTAL AIR**	**CALIBRATION DATE:**	07/18/12
PO NUMBER:		**CALIBRATION DUE:**	07/18/13
INST. MANUFACTURER:	EQUIMETER	**PROCEDURE:**	NAVAIR 17-20MG-02
INST. DESCRIPTION:	P.D. METER	**CALIBRATION FLUID:**	AIR @ 14.7 PSIA 70 F
MODEL NUMBER:	R-275	**STANDARD(S) USED:**	A4, A24 DUE 02-2013
SERIAL NUMBER:	2909692	**NIST TRACE #' S:**	1329407628, 89576
RATED UNCERTAINTY:	+/- .5 % RD.	**AMBIENT CONDITIONS:**	761 mm HGA 55 % RH 70 F
UNCERTAINTY GIVEN:	+/- .105 % RD.; K=2	**CERTIFICATE FILE #:**	448355.12

NOTES: AS RECEIVED WITHIN SPECS. REFERENCE CONDITIONS ARE: 760 mm HGA 70 F.

TEST POINT NUMBER	UUT INDICATED SCFM	DM.STD. ACTUAL SCFM	CORRECTION FACTOR
1	0.2515	0.2513	0.99913
2	0.5005	0.4998	0.99857
3	0.7467	0.7466	0.99982
4	0.9780	0.9773	0.99927
5	1.5108	1.5112	1.00025
6	1.9994	2.0025	1.00155
7	2.4868	2.4899	1.00127
8	2.9999	3.0061	1.00208
9	3.4764	3.4867	1.00295
10	4.0020	4.0123	1.00257
		AVERAGE=	1.0007460

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.) used and the unit under test (UUT) is a minimum of 4:1, unless otherwise noted. Calibration has been performed per the shown procedure number, in accordance with ISO 10012:2003, ISO 17025:2005, ANSI/NCSL-Z-540.3, and/or MIL-STD-45662A. Test methods: API2530-92 & ASME MFC-3M-1989.

Dick Munns Company • 10572 Calle Lee #138 • Los Alamitos, CA 90720
Phone (714) 827-1215 • Fax (714) 827-0823

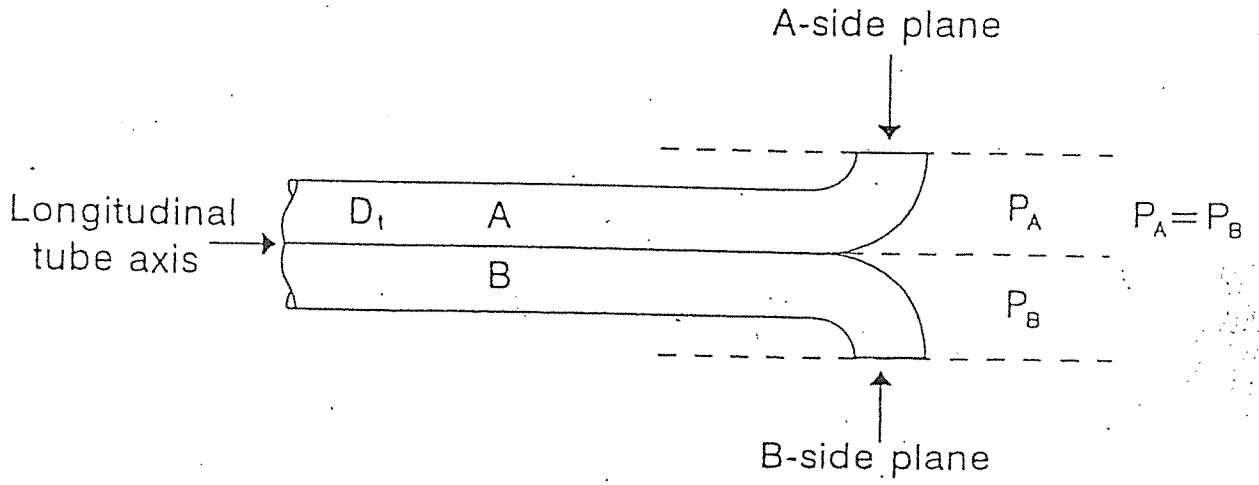
Date: 7/18/2012 Approved By: Calibration Technician:

Post Test Pitot Tube Calibration Sheet

Pitot Tube I.D. #: PT-40

Date: 4/12/13

Pitot Tube Visual Alignment Check: OK ✓ or Misaligned ___



Dt Distance:

$1.05\ D_t \leq P \leq 1.50\ D_t$

P_A Distance:

P_B Distance:

$1.05\ D_t \leq P \leq 1.50\ D_t$: YES: ✓ NO: ___

COMMENTS:

Cp = 84

TOTAL AIR ANALYSIS, INC.

Temperature Sensor Calibration

TC I.D #:	**TC-40**
Date:	4/15/2013
Calibrator:	Jofra 600S S/N 54005
Calibrated By:	**Juan A. Navarro**

Note: Calibrated with Apex #2

100 ° F			
Ref. Thermometer, (° F)	*Field TC, (° F)*	*Absolute Difference*	*Difference, (° Rankin)*
98	98	**0.00**	**0.00**
98	98	**0.00**	**0.00**
98	98	**0.00**	**0.00**

300 ° F			
Ref. Thermometer, (° F)	*Field TC, (° F)*	*Absolute Difference*	*Difference, (° Rankin)*
297	306	**-3.03**	**-1.19**
297	306	**-3.03**	**-1.19**
297	306	**-3.03**	**-1.19**

900 ° F			
Ref. Thermometer, (° F)	*Field TC, (° F)*	*Absolute Difference*	*Difference, (° Rankin)*
899	909	**-1.11**	**-0.74**
899	909	**-1.11**	**-0.74**
899	909	**-1.11**	**-0.74**

Airgas

Airgas Specialty Gases
11711 South Alameda Street
Los Angeles, CA 90059
(323) 568-2203 Fax: (323) 567-3686
www.airgas.com

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E02NI99E15A3576	Reference Number:	48-124353587-3
Cylinder Number:	CC1471	Cylinder Volume:	144.3 CF
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32013	Valve Outlet:	660
Gas Code:	NO	Analysis Date:	Jan 14, 2013

Expiration Date: Jan 22, 2021

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 volume/volume 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
NITRIC OXIDE	90.00 PPM	89.67 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			
Total oxides of nitrogen		90.14 PPM		For Reference Only

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	110605	CC331845	101.2 PPM NITRIC OXIDE/NITROGEN	Feb 16, 2017

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AMP0900118 NO	FTIR	Jan 04, 2013

Triad Data Available Upon Request

Notes:

Approved for Release

Santa Maria, CA

Lat: 34.9° N Lon: 120.3° W Elev: **581** ft **4:32 PM PDT on April 12, 2013** (GMT -0700)

Source | Rapid Fire Updates™ | Updated 9 min 41 sec ago | Get Free Weather Stickers® | Share: | Like

Tropical Weather: Tropical Cyclone Imelda (South Indian Ocean)

Santa Maria Weather at a Glance

Weather Station - Report - Buy a Station	Elevation
Harp Springs, Santa Maria	**466 ft**

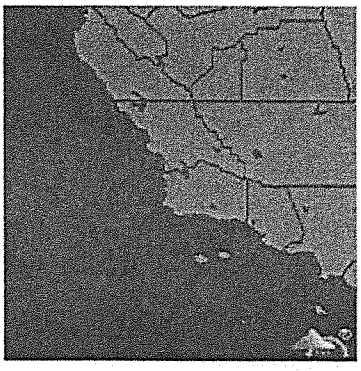
Now	Temperature	Wind(mph)	Sunrise / Set	Moon
Clear	**62.4 °F** Feels Like **62.4** °F	4.2	**6:32** AM **7:31** PM	Waxing Crescent More Astronomy

Tonight	Tomorrow	Tomorrow Night	Sunday	Monday	Tuesday
48 °F	**68** °F	48 °F	**66** | 46 °F	**64** | 39 °F	**68** | 48 °F
Mostly Cloudy	Partly Cloudy	Mostly Cloudy	Partly Cloudy	Clear	Clear

Tomorrow is forecast to be **nearly the same** temperature as today. 10-Day Forecast - Hourly Forecast

Current Data | Today's Almanac | Extended Forecast | **Radar** | Satellite | Webcams

Conditions		Temperature	
Pressure	29.84 in	Temperature	**62.4** °F
Visibility	**7.0** miles	Dew Point	**49** °F
	Clear -	Wind	
Moisture		Speed / Dir	**4.2** mph from NW
Humidity	**61%**	Wind Gust	
Rainfall	**0.00** in	Health	
Snow Depth	Not available.	UV	**6** out of 16
		Pollen	**9.50** out of 12 Pollen Forecast
		Ozone	**Good**
		PM2.5	**Moderate**
		Flu Activity	Sporadic View Flu Map



Local Radar

Regional Radar

WunderMap®

METAR

METAR KSMX 122251Z 31012KT 7SM CLR 18/09 A2983 RMK AO2 SLP105 T01780089

Don't speak METAR? Read our FAQ.

Weather Radio

Weather Radio Index

Forecast

10-Day Forecast for station **KCASANTA71** View Calendar

Friday, 12	Saturday, 13	Sunday, 14	Monday, 15	Tuesday, 16
70 | 48 °F	68 | 48 °F	66 | 46 °F	64 | 39 °F	68 | 48 °F
rtly Cloudy	**Partly Cloudy**	**Partly Cloudy**	**Clear**	**Clear**
0% Chance of Precipitation	0% Chance of Precipitation	0% Chance of Precipitation	0% Chance of Precipitation	0% Chance of Precipitation

Descriptive Forecast Source: BestForecast at 1:45 PM PDT on April 12, 2013

Airgas

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Airgas Specialty Gases
11711 South Alameda Street
Los Angeles, CA 90059
(323) 568-2203 Fax: (323) 567-3686
www.airgas.com

Part Number:	E02NI99E15AC0D7	Reference Number:	48-124309058-1
Cylinder Number:	CC274393	Cylinder Volume:	144 Cu.Ft.
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32012	Valve Outlet:	660
Gas Code:	NO	Analysis Date:	Apr 03, 2012

Expiration Date: Apr 03, 2014

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. 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 volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig.i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
NITRIC OXIDE	45.00 PPM	44.65 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			
Total oxides of nitrogen		44.83 PPM		For Reference Only

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	100611	CC283632	49.73PPM NITRIC OXIDE/NITROGEN	Jul 23, 2016

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AMP0900118 NO	FTIR	Mar 12, 2012

Triad Data Available Upon Request

Notes:

Approved for Release

Airgas

Airgas Specialty Gases
11711 South Alameda Street
Los Angeles, CA 90059
(323) 568-2203 Fax: (323) 567-3686
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CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E02NI99E15A0502	Reference Number:	48-124204169-7
Cylinder Number:	SG9128410	Cylinder Volume:	144.3 Cubic Feet
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	NONPGVP	Valve Outlet:	350
Gas Code:	CO	Analysis Date:	Jan 25, 2010

Expiration Date: Jan 25, 2018

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 volume/volume 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
CARBON MONOXIDE	900.0 PPM	886.5 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	080604	CC255369	1002.4 PPM CARBON MONOXIDE/NITROGEN	Apr 05, 2012

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AMP0900118 CO	FTIR	Jan 19, 2010

Triad Data Available Upon Request

Notes:

Approved for Release

Airgas

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Airgas Specialty Gases
11711 South Alameda Street
Los Angeles, CA 90059
(323) 568-2203 Fax: (323) 567-3686
www.airgas.com

Part Number:	E02NI99E15A0499	Reference Number:	48-124314280-5
Cylinder Number:	CC280004	Cylinder Volume:	144 Cu.Ft.
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32012	Valve Outlet:	350
Gas Code:	APPVD	Analysis Date:	May 07, 2012

Expiration Date: May 07, 2015

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. 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 volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig.i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
CARBON MONOXIDE	450.0 PPM	445.9 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	090604	CC274311	501.3PPM CARBON MONOXIDE/NITROGEN	Feb 01, 2013

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801551 CO	FTIR	Apr 13, 2012

Triad Data Available Upon Request

Notes:

Approved for Release

Airgas

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Airgas Specialty Gases
11711 South Alameda Street
Los Angeles, CA 90059
(323) 568-2203 Fax: (323) 567-3686
www.airgas.com

Part Number:	E03NI69E15A3832	Reference Number:	48-124307457-2
Cylinder Number:	CC234106	Cylinder Volume:	151 Cu.Ft.
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32012	Valve Outlet:	590
Gas Code:	OC2	Analysis Date:	Mar 20, 2012

Expiration Date: Mar 20, 2015

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. 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 volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig.i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
CARBON DIOXIDE	8.750 %	8.769 %	G1	+/- 1% NIST Traceable
OXYGEN	22.00 %	22.01 %	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	090606	CC262139	9.921% CARBON DIOXIDE/NITROGEN	Apr 10, 2013
NTRM	090614	CC273756	22.53% OXYGEN/NITROGEN	Aug 01, 2013

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
SIEMENS % CO2	NDIR	Mar 05, 2012
Siemens %O2	PARAMAGNETIC	Feb 23, 2012

Triad Data Available Upon Request

Notes:

Approved for Release

Airgas

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Airgas Specialty Gases
11711 South Alameda Street
Los Angeles, CA 90059
(323) 568-2203 Fax: (323) 567-3686
www.airgas.com

Part Number:	E03NI73E15A3831	Reference Number:	48-124322283-3
Cylinder Number:	SG9107857BAL	Cylinder Volume:	156 Cu.Ft.
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32012	Valve Outlet:	580
Gas Code:	OC2	Analysis Date:	Jun 21, 2012

Expiration Date: Jun 21, 2015

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. 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 volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig.i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
OXYGEN	8.750 %	8.707 %	G1	+/- 1% NIST Traceable
CARBON DIOXIDE	18.00 %	17.97 %	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	090602	CC262089	9.961% OXYGEN/NITROGEN	Jan 15, 2013
NTRM	000405	SG9151031	17.43% CARBON DIOXIDE/NITROGEN	Oct 05, 2017

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
SIEMENS % CO2	NDIR	Jun 15, 2012
Siemens %O2	PARAMAGNETIC	May 29, 2012

Triad Data Available Upon Request

Notes:

Approved for Release

CERTIFICATE OF ANALYSIS

Customer Name: Total Air Analysis, Inc.
Stock or Analyzer Tag Number: A030-106780PN
Customer Reference: Verbal
MESA Reference: 108959
Date of Certification: July 18, 2011
Recommended Shelf Life: 2 Years

Cylinder Number: CC70011
Product Class ±2% NIST Traceable
Cylinder Contents (1): 140 CF @ 2000 PSI
Cylinder CGA: A030-HP-660/SS
Analysis Method: Process Analyzers
Preparation Method: Gravimetric

Component	Requested Concentration (2)	Reported Concentration (2,3)
Nitrogen Dioxide	80 ppm	78.3 ppm
Nitrogen	Balance	Balance

Authorized Signature: _____

(1) The fill pressure shown on the COA is as originally quoted. The fill pressure measured by the customer may differ from the fill pressure originally quoted due to temperature effects, compressibility of the individual components when blended together in the cylinder, gauge accuracy or reduction in content volume before shipping as a result of samples withdrawn for laboratory QC necessary to ensure product quality.
(2) Unless otherwise stated, concentrations are given in molar units.
(3) Vapor pressure mixes are blended at a sufficiently low pressure so as to eliminate phase separation under most low temperature conditions encountered during transport or storage. However, it is generally recommended that cylinders containing vapor pressure restricted mixes be placed on the floor in a horizontal position and rolled back and forth to improve homogeneity of the gas phase mixture before being put into service.

Analytical Gas Standards are prepared and analyzed using combinations of NIST traceable weights, SRM's provided by NIST, or internal gas standards that have been verified for accuracy using procedures published by the US-EPA. Pure gases are analyzed and certified for purity using minor component Analytical Gas Standards prepared according to the methods specified above. Balances are calibrated to NIST test weights covered by NIST test number 822/278982-10. Reference Certification #'s: 1072/S, 833/T, 901/T and 3280/D. Calibration methods are in conformance with MIL-STD 45662A.

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