TEST REPORT FOR 2019 EMISSIONS PERFORMANCE TESTING AND CEMS RATA AT THE DESERT VIEW POWER, MECCA PLANT

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STACK TESTING ACCREDITATION COUNCIL

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TO ASTM D7036 ONLY
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REVIEW AND CERTIFICATION

All work, calculations, and other activities and tasks performed and presented in this document were carried out by me or under my direction and supervision. I hereby certify that, to the best of my knowledge, Montrose operated in conformance with the requirements of the Montrose Quality Management System and ASTM D7036-04 during this test project.

Signature: _____ Date: 5/20/2019

Name: Dave Wonderly Title: Client Project Manager

I have reviewed, technically and editorially, details, calculations, results, conclusions, and other appropriate written materials contained herein. I hereby certify that, to the best of my knowledge, the presented material is authentic, accurate, and conforms to the requirements of the Montrose Quality Management System and ASTM D7036-04.

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TABLE OF CONTENTS

SECTION **PAGE**

1.0 INTRODUCTION 8

2.0 UNIT DESCRIPTION 12
2.1 TEST CONDITIONS 13
2.2 SAMPLE LOCATIONS 13

3.0 TEST DESCRIPTIONS 15
3.1 NO_X, O_2, CO_2, AND CO 18
3.2 HYDROGEN CHLORIDE MEASUREMENTS 18
3.3 PARTICULATE 19
3.4 SULFUR DIOXIDE 19
3.5 HYDROCARBONS 20
3.6 VELOCITY AND MOISTURE 20
3.7 FUEL ANALYSIS 20
3.8 RATA TEST PROCEDURES 20

4.0 RESULTS 22
4.1 UNIT 1 PERFORMANCE TESTS AND RATA RESULTS 22
4.2 UNIT 2 PERFORMANCE TESTS AND RATA RESULTS 36
4.3 FUEL ANALYSIS 49

APPENDIX A FIELD AND PLANT OPERATING DATA 50
A.1 UNIT 1 DATA 51
A.1.1 UNIT 1 SAMPLE LOCATION 52
A.1.2 UNIT 1 CEM DATA 54
A.1.3 UNIT 1 INSTRUMENT STRIP CHARTS 91
A.1.4 UNIT 1 HYDROGEN CHLORIDE DATA 117
A.1.5 UNIT 1 PARTICULATE DATA 125
A.1.6 UNIT 1 SO_2 DATA AND VELOCITY DATA 132
A.1.7 UNIT 1 HYDROCARBON DATA 147
A.1.8 UNIT 1 PLANT DATA 149
A.2 UNIT 2 DATA 160
A.2.1 UNIT 2 SAMPLE LOCATION 161
A.2.2 UNIT 2 CEM DATA 163
A.2.3 UNIT 2 INSTRUMENT STRIP CHARTS 178
A.2.4 UNIT 2 HYDROGEN CHLORIDE DATA 188
A.2.5 UNIT 2 PARTICULATE DATA 195
A.2.6 UNIT 2 SO_2 DATA AND VELOCITY DATA 202
A.2.7 UNIT 2 HYDROCARBON DATA 213
A.2.8 UNIT 2 PLANT DATA 215
A.3 CALIBRATION DATA 229

TABLE OF CONTENTS (CONTINUED)

SECTION **PAGE**

APPENDIX B LABORATORY REPORTS 263
B.1 HYDROGEN CHLORIDE LABORATORY DATA 264
B.2 PARTICULATE LABORATORY DATA 302
B.3 SO_X LABORATORY DATA 309
B.4 HYDROCARBON LABORATORY REPORT 313
B.5 FUEL ANALYSIS DATA 381
B.6 SAMPLE CHAIN OF CUSTODY 518

APPENDIX C CALCULATIONS 522
C.1 GENERAL EMISSIONS CALCULATIONS 523
C.2 UNIT 1 CALCULATIONS 529
C.2.1 UNIT 1 RATA AND GASEOUS CALCULATIONS 530
C.2.2 UNIT 1 HYDROGEN CHLORIDE CALCULATIONS 545
C.2.3 UNIT 1 PARTICULATE CALCULATIONS 549
C.2.4 UNIT 1 HYDROCARBON CALCULATIONS 552
C.2.5 UNIT 1 MMBTU/HR CALCULATIONS 554
C.3 UNIT 2 CALCULATIONS 559
C.3.1 UNIT 2 RATA AND GASEOUS CALCULATIONS 560
C.3.2 UNIT 2 HYDROGEN CHLORIDE CALCULATIONS 571
C.3.3 UNIT 2 PARTICULATE CALCULATIONS 575
C.3.4 UNIT 2 HYDROCARBON CALCULATIONS 578
C.3.5 UNIT 2 MMBTU/HR CALCULATIONS 580

APPENDIX D QUALITY ASSURANCE 583
D.1 QUALITY ASSURANCE PROGRAM SUMMARY 584
D.2 CARB, SCAQMD, AND STAC CERTIFICATIONS 590
D.3 INDIVIDUAL QI CERTIFICATIONS 595

APPENDIX E TEST PLAN 600

TABLE OF CONTENTS (CONTINUED)

SECTION **PAGE**

LIST OF TABLES

TABLE 1-1 SUMMARY OF EMISSIONS RESULTS UNIT 1 9
TABLE 1-2 SUMMARY OF EMISSIONS RESULTS UNIT 2 10
TABLE 1-3 RELATIVE ACCURACY RESULT SUMMARY UNIT 1 11
TABLE 1-4 RELATIVE ACCURACY RESULT SUMMARY UNIT 2 11
TABLE 2-1 CONTINUOUS EMISSION MONITOR SYSTEM UNITS 1 AND 2 12
TABLE 2-2 AVERAGE DAILY UNIT DATA 13
TABLE 3-1 TEST MATRIX PER UNIT 15
TABLE 3-2 TEST SCHEDULE UNIT 1 16
TABLE 3-3 TEST SCHEDULE UNIT 2 17
TABLE 3-4 EPA METHOD 5 ANALYSES 19
TABLE 4-1 HYDROCHLORIC ACID TEST RESULTS UNIT 1 22
TABLE 4-2 PARTICULATE EMISSIONS PERFORMANCE TEST UNIT 1 23
TABLE 4-3 NO_x, CO, SO_x EMISSIONS PERFORMANCE TESTS UNIT 1 24
TABLE 4-4 HYDROCARBON EMISSIONS PERFORMANCE TEST UNIT 1 25
TABLE 4-5 NO_x, PPM UNIT 1 26
TABLE 4-6 NO_x, PPM @ 3% O_2 UNIT 1 27
TABLE 4-7 NO_x, LB/HR UNIT 1 28
TABLE 4-8 SO_2, PPM UNIT 1 29
TABLE 4-9 SO_2, PPM @ 3% O_2 UNIT 1 30
TABLE 4-10 SO_2, LB/HR UNIT 1 31
TABLE 4-11 CO PPM UNIT 1 32
TABLE 4-12 CO PPM @ 3% O_2 UNIT 1 33
TABLE 4-13 CO, LB/HR UNIT 1 34
TABLE 4-14 O_2, % UNIT 1 35
TABLE 4-15 HYDROCHLORIC ACID TEST RESULTS UNIT 2 36
TABLE 4-16 PARTICULATE EMISSIONS PERFORMANCE TEST UNIT 2 37
TABLE 4-17 NO_x, CO, SO_x EMISSIONS PERFORMANCE TESTS UNIT 2 38
TABLE 4-18 HYDROCARBON EMISSIONS PERFORMANCE TEST UNIT 2 39
TABLE 4-19 NO_x, PPM UNIT 2 40
TABLE 4-20 NO_x, PPM @ 3% O_2 UNIT 2 41
TABLE 4-21 NO_x, LB/HR UNIT 2 42

TABLE OF CONTENTS (CONTINUED)

SECTION **PAGE**

TABLE 4-22 SO_2 PPM UNIT 2 43
TABLE 4-23 SO_2 PPM @ 3% O_2 UNIT 2 44
TABLE 4-24 SO_2 LB/HR UNIT 2 45
TABLE 4-25 CO, PPM UNIT 2 46
TABLE 4-26 CO, PPM @ 3% O_2 UNIT 2 47
TABLE 4-27 CO LB/HR UNIT 2 48
TABLE 4-28 O_2, % UNIT 2 49

LIST OF FIGURES

FIGURE 2-1 SCHEMATIC OF THE DESERT VIEW POWER, SAMPLE LOCATION 14

1.0 INTRODUCTION

Montrose Air Quality Services, LLC (MAQS) was contracted by Desert View Power, to conduct performance emissions testing at the Desert View Power Project located in Mecca, California. Testing was conducted on March 19-22, 2019. The MAQS test team consisted of Dave Wonderly, Ray Madrigal, Arlene Bell and Patrick Whitman. Kevin Lawrence of Desert View Power, coordinated plant operations and data retrieval during the test program. The South Coast Air Quality Management District (SCAQMD) was notified of the test date but did not send a representative.

The emissions tests included measurements on Unit 1 and Unit 2 for hydrogen chloride (HCl), particulate (PM), sulfur dioxide (SO_2), oxides of nitrogen (NO_x), carbon monoxide (CO), and hydrocarbons (VOC). Exhaust flow rate and moisture measurements were performed in conjunction with the testing. Relative Accuracy Test Audits (RATA) were conducted on the plant's continuous emissions monitoring system (CEMS).

The Desert View Power Facility met all emissions limits required by the U.S. Environmental Protection Agency 40 CFR Part 63 Subpart DDDDD the Boiler MACT, the U.S. Environmental Protection Agency Operating Permit NSR 4-4-11;SE 87-01 including amendments through August 14, 2003: 7th Amendment Title V permit to operate CB-OP 99-01 dated 8/1/2000. The plant CEMS met all RATA requirements of CFR 40 Appendix F.

Tables 1-1 and 1-2 summarize the results of the emissions tests and Tables 1-3 and 1-4 present the results of the RATA tests for Unit 1 and Unit 2.

TABLE 1-1
SUMMARY OF EMISSIONS RESULTS UNIT 1
DESERT VIEW POWER
MARCH 19, 22, 2019

Parameter	Average Emission Results	Permit Limit	Comment
Hydrochloric Acid			
mg/dscm	17.65		
lb/hr (as HCl)	6.37		
lb/MMBtu	0.0171	0.022	Pass
Total Solid Particulate:			
gr/dscf	0.0009	--	
gr/dscf @ 12% CO_2	0.0009	0.010	Pass
lb/hr (PM_{10})	0.73	3.9	Pass
Sulfur Dioxide:			
ppm @ 3% O_2	7.00	27	Pass
lb/hr	4.67	12	Pass
NO_x:			
ppm at 3% O_2	42.65	94	Pass
lb/hr	20.44	30	Pass
CO:			
ppm @ 3% O_2	0.00	231	Pass
lb/hr	0.00	13	Pass
Hydrocarbons:			
ppm @ 3% O_2	18.38		
lb/hr	3.04	5.9	Pass

Note: NO_x CO and SO_2 results are from compliance Runs 1, 3 and 4. Hydrocarbons are total non-methane hydrocarbons reported as methane. The EPA factor of 1.086 for SCAQMD Method 25.3 was used. The higher of the two runs was used to demonstrate compliance since the difference of the individual results was >20% of the average result per SCAQMD Method 25.3.

TABLE 1-2
SUMMARY OF EMISSIONS RESULTS UNIT 2
DESERT VIEW POWER
MARCH 21, 2019

Parameter	Average Emission Results	Permit Limit	Comment
Hydrochloric Acid			
mg/dscm	22.71		
lb/hr (as HCl)	7.52		
lb/MMBtu	0.0198	0.022	Pass
Total Solid Particulate:			
gr/dscf	0.0004	--	
gr/dscf @ 12% CO_2	0.0004	0.010	Pass
lb/hr	0.34	3.9	Pass
Sulfur Dioxide:			
ppm @ 3% O_2	13.28	27	Pass
lb/hr	8.73	12	Pass
NO_x:			
ppm at 3% O_2	56.34	94	Pass
lb/hr	26.61	30	Pass
CO:			
ppm @ 3% O_2	0.00	231	Pass
lb/hr	0.00	13	Pass
Hydrocarbons:			
ppm @ 3% O_2	2.47		
lb/hr	0.41	5.9	Pass

Note: NO_x CO and SO_2 results are from NO_x CO and SO_2 Runs 1, 3 and 4. Hydrocarbons are total non-methane hydrocarbons reported as methane. The EPA factor of 1.086 for SCAQMD Method 25.3 was used.

TABLE 1-3
RELATIVE ACCURACY RESULT SUMMARY UNIT 1
DESERT VIEW POWER
MARCH 20, 2019

CEMS	RA	Limit	Comment
NO_x ppm	6.0%	20%	Pass
NO_x @ 3% O_2	6.0%	20%	Pass
NO_x lb/hr	4.2%	20%	Pass
O_2 dry	1.2%	20%	Pass
CO ppm(1)	-0.55	<5 ppm(1)	Pass
CO @ 3% O_2(1)	-0.78	<5 ppm(1)	Pass
CO lb/hr(2)	0.79%	5%(2)	Pass
SO_2 ppm	13.1%	20%	Pass
SO_2 @ 3% O_2	12.8%	20%	Pass
SO_2 lb/hr	9.5%	20%	Pass

(1) PS 4A Criteria, average difference less than 5ppm.
(2) Of applicable standard

TABLE 1-4
RELATIVE ACCURACY RESULT SUMMARY UNIT 2
DESERT VIEW POWER
MARCH 21, 2019

CEMS	RA	Limit	Comment
NO_x ppm	8.23%	20%	Pass
NO_x @ 3% O_2	7.91%	20%	Pass
NO_x lb/hr	8.92%	20%	Pass
O_2 dry	18.24%	20%	Pass
CO ppm(1)	17.74%	<5 ppm(1)	Pass
CO @ 3% O_2(1)	9.80%	<5 ppm(1)	Pass
CO lb/hr(2)	-1.64	5%(2)	Pass
SO_2 ppm	-2.22	20%	Pass
SO_2 @ 3% O_2	1.6%	20%	Pass
SO_2 lb/hr	0.65%	20%	Pass

(1) PS 4A Criteria, average difference less than 5ppm.
(2) Of applicable standard

2.0 UNIT DESCRIPTION

The Desert View Power, plant consists of two 297 MMBtu/hr, circulating bed, biomass-fired boilers. The combined units are designed to produce 47 MW of net electrical output. Each unit is equipped with the following pollution control systems:

- An ammonia injection system for control of NO_x emissions;
- Cyclonic mixing of injected ammonia with flue gas to provide for a minimum amount of ammonia slip (emission);
- A limestone injection system to limit emissions of SO_2;
- A reverse air baghouse to control opacity and emissions of sulfates and particulate to very low levels;

The plant CEMS system for each unit includes measurements of NO_x, CO, O_2, O_2 wet, SO_2, CO_2, flow and opacity. It is an extractive system with a heated line extending from the probe to the CEMS unit. Table 2-1 presents the current CEMS configuration.

TABLE 2-1
CONTINUOUS EMISSION MONITOR SYSTEM
UNITS 1 AND 2
DESERT VIEW POWER

Species	Manufacturer	Unit 1, Model/Serial Number	Unit 2, Model/Serial Number	Range
NO_x	CAI	ZRE/A3F4992T	ZRE/A3F4993T	100 and 500 ppm
CO	CAI	ZRE/A3F4992T	ZRE/A3F4993T	100 and 500 ppm
O_2 Dry	CAI	ZRE/A3F4992T	ZRE/A3F4993T	25%
SO_2	CAI	ZRE/A3F4992T	ZRE/A3F4993T	50 and 500 ppm
CO_2	CAI	ZRE/A3F4992T	ZRE/A3F4993T	20%
O_2 Wet	Thermox	WDG	WDG	25%
Flow	Dietrick Standard/Rosemont	0260938	--	Msdcfh
Opacity	Monitor Labs	Lighthawk 560	Lighthawk 560	100%
NO_2 Convertor	CAI	ZDL04001	ZDL04001	

2.1 TEST CONDITIONS

The tests were conducted at or near maximum steady state unit load conditions. Limestone injection rate, fuel combustion rate, ammonia injection rate, ash handling operations, excess air level, combustion air distribution, and combustor temperature were set to maintain stable unit operation. Pertinent operating conditions were recorded by Desert View Power personnel during the tests as presented in Table 2-2.

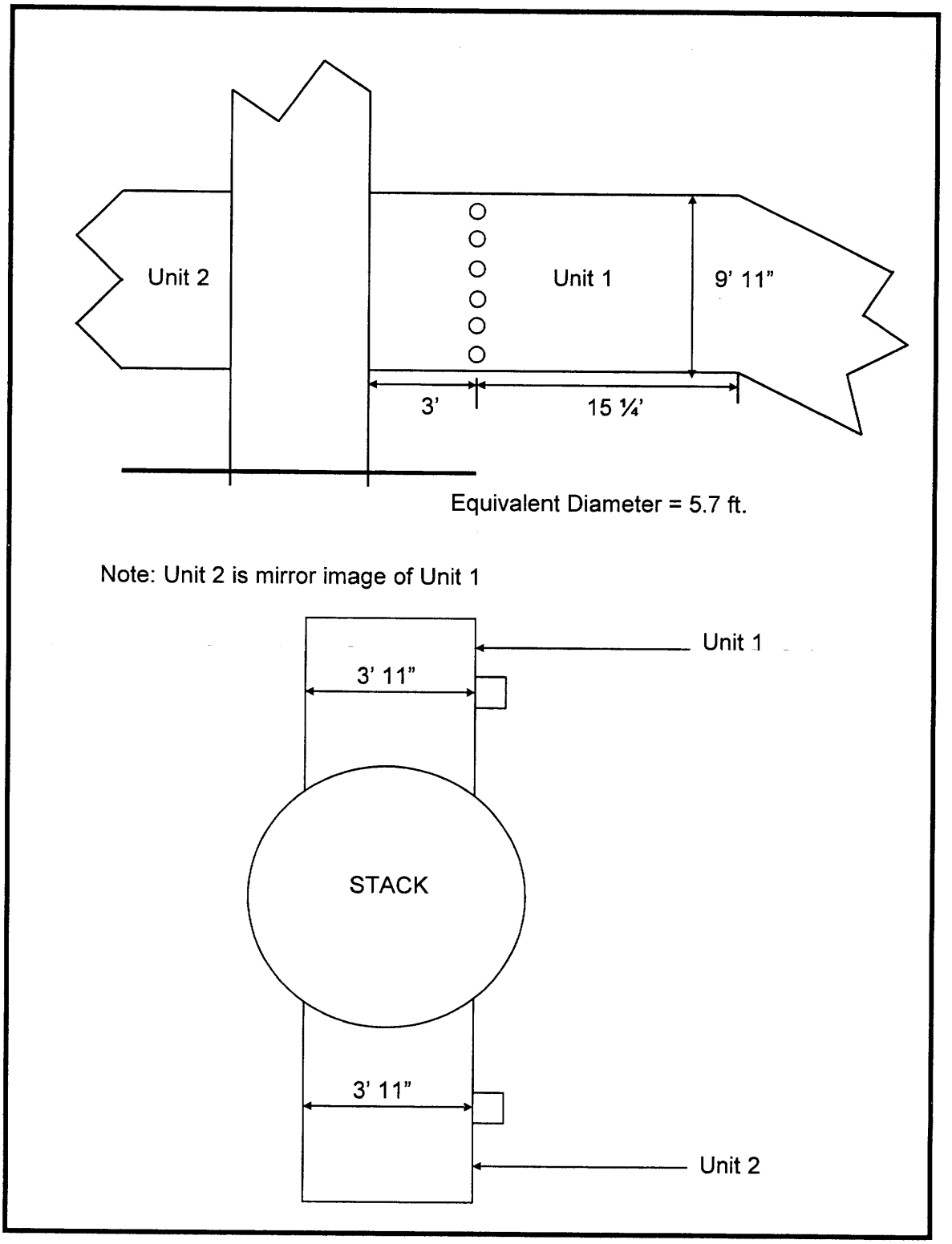
TABLE 2-2
AVERAGE DAILY UNIT DATA
DESERT VIEW POWER
MARCH AND APRIL 2019

Date	Unit No.	Steam Flow klbm/hr	Boiler Input MMBtu/hr
3/19/2019	1	208	373
3/20/2019	1	203	353
3/21/2019	2	208	379
3/22/2019	1	206	342

2.2 SAMPLE LOCATIONS

Samples were collected at the stack breaching ducts to the stack. Desert View Power previously conducted three dimensional flow testing and stratification testing on the baghouse exhaust ducts on each unit. This testing was performed in accordance to SCAQMD Chapter X, Section 1 and 13 and was presented in the report titled "Stack Gas Stratification and Absence of Flow Disturbance Testing at Desert View Power" (R106E622.T) submitted to SCAQMD in October of 1994. A copy of the sample location certification report can be found in the test plan in Appendix E of this report. The sample locations meet the requirements. All testing for both Unit 1 and 2 was conducted at the sample location presented in Figure 2-1.

FIGURE 2-1
SCHEMATIC OF THE DESERT VIEW POWER, SAMPLE LOCATION



3.0 TEST DESCRIPTIONS

The test procedures that were used are listed in Table 3-1. Tables 3-2 and 3-3 present the test schedule. The performance test runs for gaseous plant emissions were in some cases also used for RATA test runs. A minimum of nine reference method tests are required for all gaseous species relative accuracy (RA) determinations.

TABLE 3-1
TEST MATRIX PER UNIT
DESERT VIEW POWER

Parameter	No. of Tests	Measurement Principle	Reference Method	Duration per Test
NO_x	10(1)	Chemiluminescence	EPA 7E	60/30 minutes
CO	10(1)	Non-Dispersive Infrared	Modified EPA 10	60/30 minutes
CO_2	10(1)	Non-Dispersive Infrared	EPA 3A	60/30 minutes
O_2	10(1)	Electrochemical	EPA 3A	60/30 minutes
HCL	3	ion chromatography	EPA 26A	120 minutes, minimum of 2 DSCM of sample volume
PM	3	Gravimetric	EPA 5	120 minutes
SO_2	10(1)	Barium Thorin Titration	EPA 6	60/30 minutes
Hydrocarbons	2	GC/FID	SCAQMD 25.3	~60 minutes
Stack Gas Flow Rate	--	S-Type Pitot Traverse	EPA 2	--
Moisture	--	Condensation/Gravimetric	EPA 4	--

(1) Includes compliance and RATA test runs.

TABLE 3-2
TEST SCHEDULE UNIT 1
DESERT VIEW POWER

Test No.	Date	Time	Test Parameter
1-HCL-U1	3/19/2019	7:25	HCL RM data
2-HCL-U1	3/19/2019	11:01	HCL RM data L
1A&B-VOC-U1	3/19/2019	7:25	Hydrocarbon
3-HCL-U1	3/19/2019	13:37	HCL RM data
1A&B-VOC-U1	3/19/2019	7:25	Hydrocarbon
1-NO_x, CO, SO_2-U1	3/19/2019	8:20	NO_x, CO,SO_2 & CO_2 RM data
2-NO_x, CO, SO_2-U1	3/19/2019	11:01	NO_x, CO,SO_2 & CO_2 RM data
3-NO_x, CO, SO_2-U1	3/19/2019	12:17	NO_x, CO,SO_2 & CO_2 RM data
1-RA-U1	3/20/2019	9:36	NO_x, CO,SO_2 & CO_2 RM data
2-RA-U1	3/20/2019	10:35	NO_x, CO,SO_2 & CO_2 RM data
3-RA-U1	3/20/2019	11:20	NO_x, CO,SO_2 & CO_2 RM data
4-RA-U1	3/20/2019	12:05	NO_x, CO,SO_2 & CO_2 RM data
5-RA-U1	3/20/2019	12:48	NO_x, CO,SO_2 & CO_2 RM data
6-RA-U1	3/20/2019	13:32	NO_x, CO,SO_2 & CO_2 RM data
7-RA-U1	3/20/2019	14:16	NO_x, CO,SO_2 & CO_2 RM data
8-RA-U1	3/20/2019	15:00	NO_x, CO,SO_2 & CO_2 RM data
9-RA-U1	3/20/2019	15:44	NO_x, CO,SO_2 & CO_2 RM data
10-RA-U1	3/20/2019	16:38	NO_x, CO,SO_2 & CO_2 RM data
1-PM-U1	3/22/2019	6:38	PM, RM data
2-PM-U1	3/22/2019	9:01	PM, RM data
3-PM-U1	3/22/2019	11:26	PM, RM data

10 CEMS runs for the RATA were performed. RATA runs 1, 2, and 3 were used for compliance.

TABLE 3-3
TEST SCHEDULE UNIT 2
DESERT VIEW POWER

Test No.	Date	Time	Test Parameter
1-RA-U2	3/21/2019	7:21	NO_x, CO,SO_2 & CO_2 RM data
2-RA-U2	3/21/2019	8:36	NO_x, CO,SO_2 & CO_2 RM data
3-RA-U2	3/21/2019	10:10	NO_x, CO,SO_2 & CO_2 RM data
4-RA-U2	3/21/2019	11:38	NO_x, CO,SO_2 & CO_2 RM data
5-RA-U2	3/21/2019	12:22	NO_x, CO,SO_2 & CO_2 RM data
6-RA-U2	3/21/2019	13:06	NO_x, CO,SO_2 & CO_2 RM data
7-RA-U2	3/21/2019	13:50	NO_x, CO,SO_2 & CO_2 RM data
8-RA-U2	3/21/2019	14:34	NO_x, CO,SO_2 & CO_2 RM data
9-RA-U2	3/21/2019	15:16	NO_x, CO,SO_2 & CO_2 RM data
10-RA-U2	3/21/2019	16:06	NO_x, CO,SO_2 & CO_2 RM data
1-HCL-U2	3/21/2019	7:21	HCL RM data
2-HCL-U2	3/21/2019	10:10	HCL RM data L
3-HCL-U2	3/21/2019	13:06	HCL RM data
1A&B-VOC-U2	3/21/2019	7:25	Hydrocarbon
1-PM-U2	3/21/2019	7:21	PM, RM data
2-PM-U2	3/21/2019	10:10	PM, RM data
3-PM-U2	3/21/2019	13:06	PM, RM data

10 CEMS runs for the RATA were performed. RATA runs 1, 2, and 3 were used for compliance.

3.1 NO_X, O_2, CO_2, AND CO

NO_x, O_2, CO_2 and CO were measured according to EPA reference methods using MAQS' continuous emissions monitoring system (CEM). NO_x, O_2, CO_2 and CO concentrations were determined using MAQS' mobile emission measurement laboratory. The laboratory is housed in a truck outfitted to provide a clean, quiet, environmentally controlled base for the testing operations. The laboratory has lighting, electrical distribution, air conditioning and heating to support the test instruments and provide for optimal test performance.

Concentrations of these gaseous species were measured using an extractive sampling system consisting of a stainless steel probe to minimize reactions, a heat traced Teflon sample line connected to a thermo-electrically cooled sample dryer. Following the dryer, the sample is drawn into a Teflon lined pump where it is pressurized and then filtered for delivery to the gas analysis portion of the system. Gaseous samples were collected at a single point. Three 60-minute compliance tests were performed.

NO_x concentration was determined using a California Analytical Model 600. The analyzer full scale range was 100 ppm. The analyzer is equipped with a NO_2 - NO converter for the determination of total nitrogen oxides without interference from other nitrogen containing compounds.

Oxygen concentration was determined using an AMI electro-chemical cell analyzer (model #201). The analyzer full scale range was 20%. The cell contains an electrolytic fluid that reacts with oxygen to generate an electrical signal proportional to the concentration.

CO_2 was measured using a non-dispersive infrared analyzer manufactured by Horiba (model #PIR 2000). The analyzer full scale range was 20%.

CO was measured using a non-dispersive infrared/gas filter correlation analyzer manufactured by TECO (model 48i). The analyzer full scale range was 10 ppm.

The analyzers and sampling system were subjected to a variety of calibration and quality assurance procedures including leak checks, linearity and calibration error determinations before sampling, and system bias and drift determinations as part of each test run. Data are corrected for any observed bias or drift in accordance with the reference methods.

3.2 HYDROGEN CHLORIDE MEASUREMENTS

Triplicate hydrogen chloride (HCl), samples were collected using EPA Method 26A. Sampling and analysis for HF and Cl_2 which is included in EPA Method 26A was not be performed.

The sampling train consists of:

- A glass nozzle and heated glass probe heated to between 248°F and 273°F
- A Teflon Mat out-of-stack filter in a glass filter holder heated to 248°F ± 25°F
- Two impingers containing 100 ml of 0.1 N H_2SO_4 for collection of HCl
- One empty impinger
- An impinger containing silica gel

Samples are withdrawn isokinetically from the stack. The Teflon Mat filter collects particulate matter. The acidic absorbing solution collect gaseous HCl and is analyzed for HCl by ion chromatography.

The samples are recovered in the following sample fraction:

- Back half of filter holder, H_2SO_4 Impinger Catch – Weighed for moisture content and recovered with DI water into pre-cleaned HDPE bottle.

The filter and probe wash were not recovered for this test program.

Quality assurance samples collected in the field are:

- A field blank
- A reagent blank: 200 ml of 0.1 N H_2SO_4
- A reagent blank: 200 ml of DI water

The samples were analyzed by ion chromatography by AAC in Ventura.

3.3 PARTICULATE

EPA method 5 was used to measure the particulate emissions from both the Desert View Power, units. The sampling system consists of a nozzle, glass probe, 250°F heated filter, two impingers containing DI water, an empty impinger, and a fourth impinger containing silica gel.

The analysis for particulate is summarized in Table 3-4. Gravimetric analysis was performed on the probe/nozzle wash and filter according to EPA and SCAQMD procedures.

TABLE 3-4
EPA METHOD 5 ANALYSES

	Sample Component	Analysis Procedure
1.	Probe and Nozzle (Front 1/2)	Evaporation/gravimetric
2.	Heated Filter (83 mm)	Dry/gravimetric

3.4 SULFUR DIOXIDE

Sulfur dioxide was measured according to EPA Method 6. Three runs were used to demonstrate compliance. A barium thorin titration of the hydrogen peroxide impinger samples yielded SO_2 concentrations for a minimum of nine relative accuracy tests. The sample system consisted of heated glass probe and filter connected by Teflon tubing to the glass sample train consisting of a series of hydrogen peroxide filled impingers. Prior to the titrimetric analysis, all SO_x samples were passed through an ion exchange resin. This removes interferences associated with ammonium (NH_4).

3.5 HYDROCARBONS

Samples for hydrocarbon analysis were collected in clean 6-liter Summa canisters and mini water impingers and analyzed according to SCAQMD 25.3. The samples were analyzed by AtmAA in Calabasas, CA using TCA/FID.

3.6 VELOCITY AND MOISTURE

Stack gas velocity and moisture content were determined by EPA Methods 2 and 4 during the particulate testing. Velocity traverses were performed during each set of compliance tests (NO_x, CO, SO_2 and hydrocarbons) and RATA test runs.

3.7 FUEL ANALYSIS

Daily fuel samples were collected by Desert View Power personnel. Hourly samples were taken during each HCl test run and composited by the lab prior to analysis. Sampling was consistent with ASTM D6323 sample collection methodology. Desert View power sent the samples out to be analyzed for higher heating value for heat rate calculations, for Btu/lb for calculating the HCL emissions in lb/MMBtu using ASTM E711, for moisture content using ASTM D3173 and for chlorine content using ASTM E776. Copies of the analysis can be found in the appendices.

3.8 RATA TEST PROCEDURES

Relative accuracy tests were performed on NO_x, SO_2, CO and CO_2 sub-systems of each unit's CEMS. Relative accuracy was determined by comparing the CEMS data to the corresponding reference method (RM) data over nine test runs. A minimum of nine - 30 minute runs were performed on Units 1 and 2 for the NO_x, SO_2, CO, and CO_2. Relative accuracy is expressed in terms of the absolute value of the mean of the difference between the monitor value and the reference method value. It is reported in terms of a percentage of the mean reference method value. The computational procedure is summarized by the following equations:

$$\overline{RM} = \frac{1}{n}\sum_{i=1}^{n} RM_i$$

$$\bar{d} = \frac{1}{n}\sum_{i=1}^{n} d_i$$

$$S_d = \left[\frac{\sum_{i=1}^{n} d_i^2 - \frac{\left[\sum_{i=1}^{n} d_i\right]^2}{n}}{n-1} \right]^{\frac{1}{2}}$$

$$CC = t_{0.975}\frac{S_d}{\sqrt{n}}$$

$$RA = \frac{|\bar{d}| + |CC|}{\overline{RM}} x100$$

Where:

$\overline{RM}$ = mean value of the reference method

$\bar{d}$ = average difference between RM and CEMS (RM – CEMS)

$|\bar{d}|$ = absolute value of the difference between RM and CEMS

S_d = sample standard deviation of the difference between RM and CEMS

RA = Relative Accuracy

$t_{0.975}$ = t value at 95% confidence interval

n = number of valid tests

4.0 RESULTS

This section presents the results of the performance tests conducted at Desert View Power, during March of 2019. Test results are presented in the following sections:

4.1 Unit 1 Performance Tests and RATA Results
4.2 Unit 2 Performance Tests and RATA Results
4.3 Fuel Analysis Results

All supporting data sheets, CEM data, instrument strip charts, and plant data are included in Appendix A. Laboratory reports and sample chain of custody records are contained in Appendix B. Emissions and Load calculations are presented in Appendix C. Quality assurance information is contained in Appendix D. The test plan that was submitted and is contained in Appendix E.

4.1 UNIT 1 PERFORMANCE TESTS AND RATA RESULTS

The results of the HCL testing are presented in Table 4-1. HCL emissions for Unit 1 were 0.0171 lb/MMBtu. This is below the permit limit of 0.022 lb/MMBtu. The results of the total solid particulate testing are presented in Table 4-2. Total solid particulate emissions for Unit 1 were 0.73 lb/hr. This is below the permit limit of 3.9 lb/hr. Gaseous emissions results are presented in Tables 4-3, and 4-4. NO_x, CO, SO_2 and hydrocarbon emissions results were below established permit limits. Results from the hydrocarbon tests can be found in Appendix C.1.5.1 and C.1.5.2.

Tables 4-5 through 4-14 present the CEMS RATA for Unit 1. The results demonstrate that the CEMS for Unit 1 is in control as defined in CFR 40 Appendix F. The results of the RATA are presented in units of ppm dry, ppm @ 3% O_2, and lb/hr for NO_x, CO and SO_2. O_2 results are presented in concentration units of %.

TABLE 4-1
HYDROCHLORIC ACID TEST RESULTS UNIT 1
DESERT VIEW POWER
MARCH 19, 2016

Test Number	1-HCL-U1	2-HCL-U1	3-HCL-U1	Average	Limit
Date	03/19/19	03/19/19	03/19/19		
Start/Stop Time	725/1040	1101/1322	1337/1547		
Stack Flow Rate, dscfm	98,598	94,633	96,126	96,452	
Sample Volume, dscf	98.204	96.125	96.933	97.087	
O_2, %	8.85	8.34	8.40	8.53	
CO_2, %	11.77	12.24	12.21	12.08	
mg/sample	46.0	50.8	48.7	48.5	
mg/dscm	16.54	18.66	17.74	17.65	
ppm (as HCl)	10.90	12.30	11.69	11.63	
lb/hr (as HCl)	6.10	6.61	6.38	6.37	
MMBtu/Hr	373	373	373	373	
lb/MMBtu	0.016	0.018	0.017	0.0171	0.022

TABLE 4-2
PARTICULATE EMISSIONS PERFORMANCE TEST UNIT 1
DESERT VIEW POWER
MARCH 22, 2019

Date:	3/22/2019	3/22/2019	3/22/2019
Time:	638/848	901/1111	1126/1336

Test No.	1-PM-U1	2-PM-U1	3-PM-U1	Average
O_2, %	8.4	8.0	8.3	8.2
CO_2, %	12.2	12.0	12.3	12.2
H_2O, %	14.5%	14.5%	13.7%	14.2%
Stack Temperature (°F)	346.5	351.6	354.3	350.8
Gas Flow:				
wacfm	173,022	171,612	172,178	172,270
dscfm	97,926	96,438	97,372	97,245
Isokinetic Ratio, %	101.2	101.8	100.8	101.3
Total Solid Particulate:				
Grain Loading, gr/dscf	0.0008	0.0011	0.0007	0.0009
Grain Loading @ 12% CO_2	0.0008	0.0011	0.0007	0.0009
lb/hr	0.66	0.93	0.60	0.73

TABLE 4-3
NO_X, CO, SO_X EMISSIONS PERFORMANCE TESTS UNIT 1
DESERT VIEW POWER
MARCH 19, 2019

Data From:	1-NO_x, CO, SO_2-U1	3-NO_x, CO, SO_2-U1	4-NO_x, CO, SO_2-U1
Date:	3/19/2019	3/19/2019	3/19/2019
Time:	8:20	11:01	12:17

Test No.	1-Compliance -U1	2-Compliance-U1	3-Compliance-U1	Average
O_2, %	8.4	8.4	8.3	8.3
CO_2, %	12.2	12.2	12.3	12.2
H_2O, %	14.81	16.27	14.81	15.30
Stack Temperature, °F	354	368	369	364
Gas Flow:				
wacfm	175,107	176,706	172,983	174,932
dscfm	97,184	94,623	94,215	95,341
NO_x ppm	28.7	30.9	30.3	29.9
NO_x ppm @ 3% O_2	41.0	44.0	42.9	42.65
NO_x lb/hr	19.99	20.92	20.43	20.44
CO ppm	-0.01	0.00	-0.03	-0.01
CO ppm @ 3% O_2	-0.01	0.00	-0.04	-0.02
CO lb/hr	0.00	0.00	-0.01	0.00
SO_x ppm	4.36	4.42	5.96	4.92
SO_x ppm @ 3% O_2	6.23	6.31	8.45	7.00
SO_x lb/hr	4.23	4.17	5.60	4.67

TABLE 4-4
HYDROCARBON EMISSIONS PERFORMANCE TEST UNIT 1
DESERT VIEW POWER
MARCH 19, 2019

Date:	3/19/2019	3/19/2019
Time:	946/1033	946/1033

Test No.	1A-HC-U1	1B-HC-U1	Average
O_2, %	8.85	8.85	8.85
CO_2, %	11.77	11.77	11.77
H_2O, %	14.88%	14.88%	14.88%
Gas Flow:			
wacfm	178,572	178,572	178,572
dscfm	98,598	98,598	98,598
EPA Correction Factor	1.086	1.086	1.086
TNMHC ppm	2.47	12.37	7.42
TNMHC ppm @ 3% O_2	3.66	18.38	11.02
TNMHC, lb/hr	0.61	3.04	1.82

Note: Flow rates from HCL Run 1. The higher of the two runs was used to demonstrate compliance since the difference of the individual results was >20% of the average result per SCAQMD Method 25.3.

TABLE 4-5
NO_X, PPM UNIT 1
RELATIVE ACCURACY TEST AUDIT SUMARY
DESERT VIEW POWER
MARCH 20, 2019

Run #	Date	Time	RM NO_x, ppm dry	CEMS NO_x, ppm dry	Difference NO_x, ppm dry	Use Data? (Y or N)
1	3/20/2019	9:36	38.9	41.0	-2.0	Y
2	3/20/2019	10:35	30.1	32.2	-2.2	Y
3	3/20/2019	11:20	42.5	44.6	-2.2	Y
4	3/20/2019	12:05	39.2	41.2	-2.0	Y
5	3/20/2019	12:48	37.5	39.3	-1.9	Y
6	3/20/2019	13:32	39.5	41.8	-2.3	Y
7	3/20/2019	14:16	38.7	40.6	-1.9	N
8	3/20/2019	15:00	38.6	40.6	-2.0	Y
9	3/20/2019	15:44	40.8	42.9	-2.1	Y
10	3/20/2019	16:38	35.4	37.9	-2.5	Y

Ref. Method Average:	38.05	ppm
CEMS Average:	40.17	ppm
Average Difference:	-2.12	ppm
Number of Tests:	10	
Standard Deviation:	0.19	ppm
t Value:	2.306	
Confidence Coefficient:	0.14	ppm
Relative Accuracy:	5.96	% of Reference Method

TABLE 4-6
NO_X, PPM @ 3% O_2 UNIT 1
RELATIVE ACCURACY TEST AUDIT SUMARY
DESERT VIEW POWER
MARCH 20, 2019

Run #	Date	Time	RM NO_x ppmc	CEMS NO_x ppmc	Difference NO_x ppmc	Use Data? (Y or N)
1	3/20/2019	9:36	55.6	58.1	-2.5	Y
2	3/20/2019	10:35	43.5	45.4	-1.9	Y
3	3/20/2019	11:20	59.4	62.2	-2.8	Y
4	3/20/2019	12:05	56.0	58.2	-2.1	Y
5	3/20/2019	12:48	53.3	55.9	-2.6	Y
6	3/20/2019	13:32	55.9	59.0	-3.0	Y
7	3/20/2019	14:16	54.4	56.7	-2.3	N
8	3/20/2019	15:00	53.1	55.8	-2.7	Y
9	3/20/2019	15:44	57.9	60.9	-3.0	Y
10	3/20/2019	16:38	50.8	55.0	-4.1	Y

Ref. Method Average:	53.97	ppmc
CEMS Average:	56.72	ppmc
Average Difference:	-2.75	ppmc
Number of Tests:	10	
Standard Deviation:	0.64	ppmc
t Value:	2.306	
Confidence Coefficient:	0.49	
Relative Accuracy:	6.01	% of Reference Method

TABLE 4-7
NO_X, LB/HR UNIT 1
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER
MARCH 20, 2019

Run #	Date	Time	RM NO_x lb/hr	CEMS NO_x lb/hr	Difference NO_x lb/hr	Use Data? (Y or N)
1	3/20/2019	9:36	26.04	26.06	-0.02	Y
2	3/20/2019	10:35	19.60	20.89	-1.29	Y
3	3/20/2019	11:20	27.47	27.31	0.16	Y
4	3/20/2019	12:05	25.49	26.24	-0.75	Y
5	3/20/2019	12:48	24.21	25.02	-0.81	Y
6	3/20/2019	13:32	25.75	26.40	-0.64	Y
7	3/20/2019	14:16	25.61	25.09	0.52	N
8	3/20/2019	15:00	25.21	25.30	-0.09	Y
9	3/20/2019	15:44	26.33	27.67	-1.34	Y
10	3/20/2019	16:38	22.68	23.50	-0.82	Y

Ref. Method Average:	24.754	lb/hr
CEMS Average:	25.377	lb/hr
Average Difference:	-0.623	lb/hr
Number of Tests:	10	
Standard Deviation:	0.538	lb/hr
t Value:	2.306	
Confidence Coefficient:	0.4135	
Relative Accuracy:	4.19	% of Reference Method

TABLE 4-8
SO_2, PPM UNIT 1
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER
MARCH 20, 2019

Run #	Date	Time	RM SO_2, ppm dry	CEMS SO_2, ppm dry	Difference SO_2, ppm dry	Use Data? (Y or N)
1	3/20/2019	9:36	17.7	17.0	0.7	Y
2	3/20/2019	10:35	6.9	5.9	1.0	Y
3	3/20/2019	11:20	10.0	10.9	-0.9	Y
4	3/20/2019	12:05	14.1	14.0	0.1	Y
5	3/20/2019	12:48	6.4	5.6	0.8	Y
6	3/20/2019	13:32	8.7	9.6	-0.9	Y
7	3/20/2019	14:16	9.5	14.5	-5.0	N
8	3/20/2019	15:00	10.4	13.3	-2.8	Y
9	3/20/2019	15:44	6.2	7.1	-0.9	Y
10	3/20/2019	16:38	4.5	4.3	0.2	Y

Ref. Method Average:	9.43	ppm
CEMS Average:	9.73	ppm
Average Difference:	-0.31	ppm
Number of Tests:	10	
Standard Deviation:	1.21	ppm
t Value:	2.306	
Confidence Coefficient:	0.93	ppm
Relative Accuracy:	13.15	% of Reference Method

TABLE 4-9
SO_2, PPM @ 3% O_2 UNIT 1
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER
MARCH 20, 2019

Run #	Date	Time	RM SO_2, ppm dry	CEMS SO_2, ppm dry	Difference SO_2, ppm dry	Use Data? (Y or N)
1	3/20/2019	9:36	25.2	24.3	1.0	Y
2	3/20/2019	10:35	10.0	8.3	1.8	Y
3	3/20/2019	11:20	14.0	15.3	-1.2	Y
4	3/20/2019	12:05	20.1	19.9	0.2	Y
5	3/20/2019	12:48	9.1	7.9	1.2	Y
6	3/20/2019	13:32	12.3	13.5	-1.2	Y
7	3/20/2019	14:16	13.3	20.2	-6.9	N
8	3/20/2019	15:00	14.3	18.2	-3.9	Y
9	3/20/2019	15:44	8.8	10.1	-1.3	Y
10	3/20/2019	16:38	6.4	6.2	0.2	Y

Ref. Method Average:	13.37	ppmc
CEMS Average:	13.74	ppmc
Average Difference:	-0.37	ppmc
Number of Tests:	10	
Standard Deviation:	1.74	ppmc
t Value:	2.306	
Confidence Coefficient:	1.34	ppmc
Relative Accuracy:	12.83	% of Reference Method

TABLE 4-10
SO_2, LB/HR UNIT 1
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER
MARCH 20, 2019

Run #	Date	Time	RM SO_2 lb/hr	CEMS SO_2 lb/hr	Difference SO_2 lb/hr	Use Data? (Y or N)
1	3/20/2019	9:36	16.45	14.96	1.49	Y
2	3/20/2019	10:35	6.28	5.27	1.00	Y
3	3/20/2019	11:20	9.03	9.22	-0.19	Y
4	3/20/2019	12:05	12.73	12.36	0.36	Y
5	3/20/2019	12:48	5.74	5.00	0.74	Y
6	3/20/2019	13:32	7.89	8.39	-0.50	Y
7	3/20/2019	14:16	8.70	12.41	-3.71	N
8	3/20/2019	15:00	9.45	11.48	-2.03	Y
9	3/20/2019	15:44	5.55	6.36	-0.81	Y
10	3/20/2019	16:38	6.41	6.23	0.18	Y

Ref. Method Average:	8.84	lb/hr
CEMS Average:	8.81	lb/hr
Average Difference:	0.03	lb/hr
Number of Tests:	10	
Standard Deviation:	1.06	lb/hr
t Value:	2.306	
Confidence Coefficient:	0.82	ppmc
Relative Accuracy:	9.53	% of Reference Method

TABLE 4-11
CO PPM UNIT 1
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER
MARCH 20, 2019

Run #	Date	Time	RM CO, ppm dry	CEMS CO, ppm dry	Difference CO, ppm dry	Use Data? (Y or N)
1	3/20/2019	9:36	-0.2	1.7	-1.9	Y
2	3/20/2019	10:35	0.0	0.5	-0.5	Y
3	3/20/2019	11:20	-0.2	0.6	-0.8	Y
4	3/20/2019	12:05	-0.2	0.0	-0.2	Y
5	3/20/2019	12:48	-0.2	0.0	-0.2	Y
6	3/20/2019	13:32	-0.3	0.0	-0.3	Y
7	3/20/2019	14:16	-0.2	0.0	-0.2	N
8	3/20/2019	15:00	-0.2	0.0	-0.2	Y
9	3/20/2019	15:44	-0.2	0.1	-0.3	Y
10	3/20/2019	16:38	-0.2	0.4	-0.6	Y

Ref. Method Average:	-0.17	ppm
CEMS Average:	0.37	ppm
Average Difference:	-0.55	(PS 4A Criteria: Avg. Diff. less than 5 ppm)
Number of Tests:	10	
Standard Deviation:	0.54	ppm
t Value:	2.306	
Confidence Coefficient:	0.41	ppm
Relative Accuracy:	N/A	% of Reference Method

TABLE 4-12
CO PPM @ 3% O_2 UNIT 1
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER
MARCH 20, 2019

Run #	Date	Time	RM CO, ppm dry	CEMS CO, ppm dry	Difference CO, ppm dry	Use Data? (Y or N)
1	3/20/2019	9:36	-0.2	2.4	-2.7	Y
2	3/20/2019	10:35	0.0	0.7	-0.7	Y
3	3/20/2019	11:20	-0.3	0.9	-1.2	Y
4	3/20/2019	12:05	-0.2	0.1	-0.3	Y
5	3/20/2019	12:48	-0.3	0.0	-0.3	Y
6	3/20/2019	13:32	-0.4	0.0	-0.4	Y
7	3/20/2019	14:16	-0.3	0.0	-0.3	N
8	3/20/2019	15:00	-0.2	0.0	-0.2	Y
9	3/20/2019	15:44	-0.3	0.1	-0.4	Y
10	3/20/2019	16:38	-0.2	0.6	-0.8	Y

Ref. Method Average:	-0.24	ppmc
CEMS Average:	0.54	ppmc
Average Difference:	-0.78	(PS 4A Criteria: Avg. Diff. less than 5 ppm)
Number of Tests:	10	
Standard Deviation:	0.77	ppmc
t Value:	2.306	
Confidence Coefficient:	0.59	ppmc
Relative Accuracy:	N/A	% of Reference Method

TABLE 4-13
CO, LB/HR UNIT 1
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER,
MARCH 20, 2019

Run #	Date	Time	RM CO, lb/hr	CEMS CO, lb/hr	Difference CO, lb/hr	Use Data? (Y or N)
1	3/20/2019	9:36	-0.06	0.65	-0.72	Y
2	3/20/2019	10:35	-0.01	0.19	-0.19	Y
3	3/20/2019	11:20	-0.08	0.24	-0.32	Y
4	3/20/2019	12:05	-0.07	0.02	-0.08	Y
5	3/20/2019	12:48	-0.09	0.00	-0.09	Y
6	3/20/2019	13:32	-0.11	0.00	-0.11	Y
7	3/20/2019	14:16	-0.08	0.00	-0.08	N
8	3/20/2019	15:00	-0.06	0.00	-0.06	Y
9	3/20/2019	15:44	-0.08	0.04	-0.12	Y
10	3/20/2019	16:38	-0.07	0.00	-0.07	Y

Ref. Method Average:	-0.07	lb/hr
CEMS Average:	0.13	lb/hr
Average Difference:	-0.19	lb/hr
Number of Tests:	10	
Standard Deviation:	0.212	
t Value:	2.306	
Confidence Coefficient:	0.163	
Applicable Standard:	45.0	lb/hr
Relative Accuracy:	N/A	% of Reference Method
Relative Accuracy:	0.79	% of Applicable Standard

TABLE 4-14
O_2, % UNIT 1
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER
MARCH 20, 2019

Run #	Date	Time	RM O_2, % dry	CEMS O_2, % dry	Difference O_2, % dry	Use Data? (Y or N)
1	3/20/2019	9:36	8.36	8.41	-0.04	Y
2	3/20/2019	10:35	8.53	8.59	-0.05	Y
3	3/20/2019	11:20	8.11	8.15	-0.04	Y
4	3/20/2019	12:05	8.38	8.41	-0.03	Y
5	3/20/2019	12:48	8.32	8.38	-0.06	Y
6	3/20/2019	13:32	8.27	8.31	-0.04	Y
7	3/20/2019	14:16	8.15	8.17	-0.02	N
8	3/20/2019	15:00	7.88	7.90	-0.02	Y
9	3/20/2019	15:44	8.30	8.36	-0.06	Y
10	3/20/2019	16:38	8.43	8.63	-0.20	Y

Ref. Method Average:	8.29	
CEMS Average:	8.35	
Average Difference:	-0.06	
Number of Tests:	10	
Standard Deviation:	0.05	
t Value:	2.306	
Confidence Coefficient:	0.04	
Relative Accuracy:	1.22	% of Reference Method

4.2 UNIT 2 PERFORMANCE TESTS AND RATA RESULTS

The results of the HCL testing are presented in Table 4-15. HCL emissions for Unit 1 were xxxx lb/MMBtu. This is below the permit limit of 0.022 lb/MMBtu. The results of the total solid particulate testing are presented in Table 4-16. Total solid particulate emissions for Unit 2 were 0.34 lb/hr. This is below the permit limit of 3.9 lb/hr. Gaseous emissions results are presented in Tables 4-17, and 4-18. NO_x, CO, SO_2 and hydrocarbon emissions results were also below established permit limits.

Tables 4-19 through 4-28 present the CEMS RATA results for Unit 2. The results demonstrate that the CEMS for Unit 2 is in control as defined in CFR 40 Appendix F. The results of the RATA are presented in units of ppm dry, ppm @ 3% O_2 and lb/hr for NO_x, CO and SO_2. O_2 results are presented in concentration units of %.

TABLE 4-15
HYDROCHLORIC ACID TEST RESULTS UNIT 2
DESERT VIEW POWER
MARCH 21, 2019

Test Number	1-HCL-U2	2-HCL-U2	3-HCL-U2	Average	Limit
Date	3/21/2019	3/21/2019	3/21/2019		
Start/Stop Time	721/940	1010/1242	1306/1518		
Stack Flow Rate, dscfm	91,901	87,807	87,054	88,921	
Sample Volume, dscf	89.534	88.014	87.764	88.437	
O_2, %	7.66	7.61	8.42	7.90	
CO_2, %	12.98	13.00	12.22	12.73	
mg/sample	40.5	62.5	67.3	56.8	
mg/dscm	15.97	25.07	27.08	22.71	
ppm (as HCl)	10.53	16.53	17.85	14.97	
lb/hr (as HCl)	5.49	8.24	8.82	7.52	
MMBtu/Hr	379	379	379	379	
lb/MMBtu	0.014	0.022	0.023	0.0198	0.022

TABLE 4-16
PARTICULATE EMISSIONS PERFORMANCE TEST UNIT 2
DESERT VIEW POWER
MARCH 21, 2019

Date:	3/21/2019	3/21/2019	3/28/2018
Time:	721/940	1010/1242	1306/1518

Test No.	1-PM-U2	2-PM-U2	3-PM-U2	Average
O_2 (%)	7.7	7.6	8.4	7.9
CO_2 (%)	13.0	13.0	12.2	12.7
H_2O%	14.6%	14.9%	15.0%	14.8%
Stack Temperature (°F)	353.7	358.0	366.0	359.3
Gas Flow				
wacfm	162,809	163,052	164,441	163,434
dscfm	90,907	90,239	90,043	90,396
Isokinetic Ratio (%)	102.8	103.1	101.0	102.3
Total Solid Particulate				
Grain Loading, gr/dscf	0.0002	0.0002	0.0010	0.0004
Grain Loading @ 12% CO_2	0.0002	0.0001	0.0010	0.0004
lb/hr	0.14	0.12	0.76	0.34

TABLE 4-17
NO_X, CO, SO_X EMISSIONS PERFORMANCE TESTS UNIT 2
DESERT VIEW POWER
MARCH 21, 2019

Data From:	1-RA-U2	2-RA-U2	3-RA-U2
Date:	3/21/2019	3/21/2019	3/21/2019
Time:	7:21	8:36	10:10

Test No.	1-Compliance –U2	2-Compliance-U2	3-Compliance-U2	Average
O_2 (%)	7.7	7.7	7.7	7.7
CO_2 (%)	13.0	13.0	12.9	13.0
H_2O%	15.8	15.8	15.4	15.7
Stack Temperature (°F)	355	355	356	355.2
Gas Flow				
wacfm	165,283	162,666	157,875	161,941
dscfm	90,919	89,368	87,096	89,128
SO_x ppm	10.6	9.5	9.4	9.83
SO_x ppm @ 3% O_2	14.3	12.8	12.7	13.28
SO_x lb/hr	9.57	8.45	8.19	8.73
NO_x ppm	41.08	42.10	41.86	41.68
NO_x ppm @ 3% O_2	55.54	56.93	56.55	56.34
NO_x lb/hr	26.76	26.95	26.11	26.61
CO ppm	0.00	0.00	0.00	0.00
CO ppm @ 3% O_2	0.00	0.00	0.00	0.00
CO lb/hr	0.00	0.00	0.00	0.00

TABLE 4-18
HYDROCARBON EMISSIONS PERFORMANCE TEST UNIT 2
DESERT VIEW POWER
MARCH 21, 2019

Date:	3/21/2019	3/21/2019
Time:	954/1037	954/1037

Test No.	1A-HC-U2	1B-HC-U2	Average
O_2, %	7.66	7.66	7.66
CO_2, %	12.98	12.98	12.98
H_2O, %	14.58%	14.58%	14.58%
Gas Flow:			
wacfm	162,809	162,809	162,809
dscfm	90,907	90,907	90,907
EPA Correction Factor	1.086	1.086	1.086
TNMHC ppm	1.86	1.80	1.83
TNMHC ppm @ 3% O_2	2.51	2.44	2.47
TNMHC, lb/hr	0.42	0.41	0.41

Note: Flow rates from PM Run 1

TABLE 4-19
NO_X, PPM UNIT 2
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER
MARCH 21, 2019

Run #	Date	Time	RM NO_x, ppm dry	CEMS NO_x, ppm dry	Difference NO_x, ppm dry	Use Data? (Y or N)
1	3/21/2019	7:21	41.1	44.2	-3.1	Y
2	3/21/2019	8:36	42.1	45.5	-3.4	Y
3	3/21/2019	10:10	41.9	46.2	-4.3	Y
4	3/21/2019	11:38	46.8	49.2	-2.4	Y
5	3/21/2019	12:22	50.4	53.5	-3.0	Y
6	3/21/2019	13:06	42.3	44.9	-2.7	N
7	3/21/2019	13:50	48.8	52.0	-3.3	Y
8	3/21/2019	14:34	45.8	49.1	-3.3	Y
9	3/21/2019	15:16	48.3	52.0	-3.8	Y
10	3/21/2019	16:06	43.6	47.0	-3.5	Y

Ref. Method Average:	45.41	ppm
CEMS Average:	48.74	ppm
Average Difference:	-3.34	ppm
Number of Tests:	10	
Standard Deviation:	0.52	ppm
t Value:	2.306	
Confidence Coefficient:	0.40	ppm
Relative Accuracy:	8.23	% of Reference Method

TABLE 4-20
NO_X, PPM @ 3% O_2 UNIT 2
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER
MARCH 21, 2019

Run #	Date	Time	RM NO_x ppmc	CEMS NO_x ppmc	Difference NO_x ppmc	Use Data? (Y or N)
1	3/21/2019	7:21	55.5	59.4	-3.9	Y
2	3/21/2019	8:36	56.9	61.4	-4.4	Y
3	3/21/2019	10:10	56.6	62.4	-5.8	Y
4	3/21/2019	11:38	62.8	66.1	-3.4	Y
5	3/21/2019	12:22	67.7	71.8	-4.1	Y
6	3/21/2019	13:06	56.4	59.2	-2.8	N
7	3/21/2019	13:50	65.3	69.4	-4.1	Y
8	3/21/2019	14:34	61.3	65.3	-4.0	Y
9	3/21/2019	15:16	65.1	69.8	-4.7	Y
10	3/21/2019	16:06	58.6	62.7	-4.2	Y

Ref. Method Average:	61.08	ppmc
CEMS Average:	65.38	ppmc
Average Difference:	-4.30	ppmc
Number of Tests:	10	
Standard Deviation:	0.69	ppmc
t Value:	2.306	
Confidence Coefficient:	0.53	
Relative Accuracy:	7.91	% of Reference Method

TABLE 4-21
NO_X, LB/HR UNIT 2
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER
MARCH 21, 2019

Run #	Date	Time	RM NO_x lb/hr	CEMS NO_x lb/hr	Difference NO_x lb/hr	Use Data? (Y or N)
1	3/21/2019	7:21	26.76	25.63	1.12	Y
2	3/21/2019	8:36	26.95	25.21	1.74	Y
3	3/21/2019	10:10	26.11	25.56	0.55	Y
4	3/21/2019	11:38	29.38	25.84	3.54	Y
5	3/21/2019	12:22	31.20	28.32	2.87	Y
6	3/21/2019	13:06	27.26	24.00	3.26	N
7	3/21/2019	13:50	29.16	27.44	1.72	Y
8	3/21/2019	14:34	27.63	26.33	1.30	Y
9	3/21/2019	15:16	29.24	28.09	1.15	Y
10	3/21/2019	16:06	27.71	25.53	2.17	Y

Ref. Method Average:	28.237	lb/hr
CEMS Average:	26.440	lb/hr
Average Difference:	1.797	lb/hr
Number of Tests:	10	
Standard Deviation:	0.938	lb/hr
t Value:	2.306	
Confidence Coefficient:	0.7208	
Relative Accuracy:	8.92	% of Reference Method

TABLE 4-22
SO_2 PPM UNIT 2
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER
MARCH 21, 2019

Run #	Date	Time	RM SO_2, ppm dry	CEMS SO_2, ppm dry	Difference SO_2, ppm dry	Use Data? (Y or N)
1	3/21/2019	7:21	10.6	11.5	-0.9	Y
2	3/21/2019	8:36	9.5	10.5	-1.0	Y
3	3/21/2019	10:10	9.4	10.6	-1.2	Y
4	3/21/2019	11:38	9.2	9.9	-0.8	Y
5	3/21/2019	12:22	13.7	15.3	-1.6	Y
6	3/21/2019	13:06	9.7	12.6	-2.9	N
7	3/21/2019	13:50	12.3	14.2	-2.0	Y
8	3/21/2019	14:34	10.4	12.8	-2.4	Y
9	3/21/2019	15:16	7.9	9.3	-1.4	Y
10	3/21/2019	16:06	7.8	9.6	-1.8	Y

Ref. Method Average:	10.09	ppm
CEMS Average:	11.53	ppm
Average Difference:	-1.44	ppm
Number of Tests:	10	
Standard Deviation:	0.52	ppm
t Value:	2.306	
Confidence Coefficient:	0.40	ppm
Relative Accuracy:	18.24	% of Reference Method

TABLE 4-23
SO_2 PPM @ 3% O_2 UNIT 2
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER
MARCH 21, 2019

Run #	Date	Time	RM SO_2, ppm dry	CEMS SO_2, ppm dry	Difference SO_2, ppm dry	Use Data? (Y or N)
1	3/21/2019	7:21	14.3	15.5	-1.2	Y
2	3/21/2019	8:36	12.8	14.2	-1.4	Y
3	3/21/2019	10:10	12.7	14.4	-1.7	Y
4	3/21/2019	11:38	12.3	13.4	-1.0	Y
5	3/21/2019	12:22	18.4	20.5	-2.1	Y
6	3/21/2019	13:06	13.0	16.7	-3.7	N
7	3/21/2019	13:50	16.4	19.0	-2.5	Y
8	3/21/2019	14:34	13.9	17.0	-3.1	Y
9	3/21/2019	15:16	10.7	12.5	-1.8	Y
10	3/21/2019	16:06	10.6	12.9	-2.3	Y

Ref. Method Average:	13.58	ppmc
CEMS Average:	15.48	ppmc
Average Difference:	-1.90	ppmc
Number of Tests:	10	
Standard Deviation:	0.66	ppmc
t Value:	2.306	
Confidence Coefficient:	0.51	ppmc
Relative Accuracy:	17.74	% of Reference Method

TABLE 4-24
SO_2 LB/HR UNIT 2
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER
MARCH 21, 2019

Run #	Date	Time	RM SO_2 lb/hr	CEMS SO_2 lb/hr	Difference SO_2 lb/hr	Use Data? (Y or N)
1	3/21/2019	7:21	9.57	9.24	0.33	Y
2	3/21/2019	8:36	8.45	8.04	0.41	Y
3	3/21/2019	10:10	8.19	8.24	-0.05	Y
4	3/21/2019	11:38	8.03	7.25	0.78	Y
5	3/21/2019	12:22	11.81	11.27	0.54	Y
6	3/21/2019	13:06	8.72	9.36	-0.63	N
7	3/21/2019	13:50	10.21	10.46	-0.25	Y
8	3/21/2019	14:34	8.74	9.54	-0.79	Y
9	3/21/2019	15:16	6.67	6.96	-0.29	Y
10	3/21/2019	16:06	10.56	12.85	-2.30	Y

Ref. Method Average:	9.14	lb/hr
CEMS Average:	9.32	lb/hr
Average Difference:	-0.18	lb/hr
Number of Tests:	10	
Standard Deviation:	0.93	lb/hr
t Value:	2.306	
Confidence Coefficient:	0.72	ppmc
Relative Accuracy:	9.80	% of Reference Method

TABLE 4-25
CO, PPM UNIT 2
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER,
MARCH 21, 2019

Run #	Date	Time	RM CO, ppm dry	CEMS CO, ppm dry	Difference CO, ppm dry	Use Data? (Y or N)
1	3/21/2019	7:21	-0.2	2.1	-2.3	Y
2	3/21/2019	8:36	-0.2	2.5	-2.7	Y
3	3/21/2019	10:10	-0.2	2.0	-2.2	Y
4	3/21/2019	11:38	-0.2	1.0	-1.2	Y
5	3/21/2019	12:22	-0.3	0.4	-0.7	Y
6	3/21/2019	13:06	-0.2	0.1	-0.3	N
7	3/21/2019	13:50	-0.2	0.2	-0.4	Y
8	3/21/2019	14:34	-0.2	1.0	-1.2	Y
9	3/21/2019	15:16	-0.3	1.6	-1.9	Y
10	3/21/2019	16:06	-0.2	1.9	-2.1	Y

Ref. Method Average:	-0.23	ppm
CEMS Average:	1.41	ppm
Average Difference:	-1.64	(PS 4A Criteria: Avg. Diff. less than 5 ppm)
Number of Tests:	10	
Standard Deviation:	0.77	ppm
t Value:	2.306	
Confidence Coefficient:	0.59	ppm
Relative Accuracy:	N/A	% of Reference Method

TABLE 4-26
CO, PPM @ 3% O_2 UNIT 2
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER,
MARCH 21, 2019

Run #	Date	Time	RM CO, ppm @ 3% O_2	CEMS CO, ppm @ 3% O_2	Difference CO, ppm @ 3% O_2	Use Data? (Y or N)
1	3/21/2019	7:21	-0.3	2.8	-3.1	Y
2	3/21/2019	8:36	-0.3	3.3	-3.6	Y
3	3/21/2019	10:10	-0.2	2.8	-3.0	Y
4	3/21/2019	11:38	-0.3	1.4	-1.6	Y
5	3/21/2019	12:22	-0.4	0.6	-1.0	Y
6	3/21/2019	13:06	-0.3	0.1	-0.4	N
7	3/21/2019	13:50	-0.3	0.3	-0.6	Y
8	3/21/2019	14:34	-0.3	1.3	-1.6	Y
9	3/21/2019	15:16	-0.4	2.2	-2.5	Y
10	3/21/2019	16:06	-0.3	2.6	-2.9	Y

Ref. Method Average:	-0.31	ppmc
CEMS Average:	1.91	ppmc
Average Difference:	-2.22	(PS 4A Criteria: Avg. Diff. less than 5 ppm)
Number of Tests:	10	
Standard Deviation:	1.04	ppmc
t Value:	2.306	
Confidence Coefficient:	0.80	ppmc
Applicable Standard:	231.0	ppmc
Relative Accuracy:	N/A	% of Reference Method

TABLE 4-27
CO LB/HR UNIT 2
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER
MARCH 21, 2019

Run #	Date	Time	RM CO, lb/hr	CEMS CO, lb/hr	Difference CO, lb/hr	Use Data? (Y or N)
1	3/21/2019	7:21	-0.09	0.72	-0.80	Y
2	3/21/2019	8:36	-0.09	0.82	-0.91	Y
3	3/21/2019	10:10	-0.06	0.69	-0.75	Y
4	3/21/2019	11:38	-0.08	0.32	-0.41	Y
5	3/21/2019	12:22	-0.11	0.14	-0.25	Y
6	3/21/2019	13:06	-0.09	0.02	-0.11	N
7	3/21/2019	13:50	-0.09	0.06	-0.15	Y
8	3/21/2019	14:34	-0.09	0.32	-0.41	Y
9	3/21/2019	15:16	-0.10	0.53	-0.62	Y
10	3/21/2019	16:06	-0.08	0.00	-0.08	Y

Ref. Method Average:	-0.09	lb/hr
CEMS Average:	0.40	lb/hr
Average Difference:	-0.49	lb/hr
Number of Tests:	10	
Standard Deviation:	0.298	
t Value:	2.306	
Confidence Coefficient:	0.229	
Applicable Standard:	45.0	lb/hr
Relative Accuracy:	N/A	% of Reference Method
Relative Accuracy:	1.59	% of Applicable Standard

TABLE 4-28
O_2, % UNIT 2
RELATIVE ACCURACY TEST AUDIT SUMMARY
DESERT VIEW POWER
MARCH 21, 2019

Run #	Date	Time	RM O_2, % dry	CEMS O_2, % dry	Difference O_2, % dry	Use Data? (Y or N)
1	3/21/2019	7:21	7.66	7.70	-0.04	Y
2	3/21/2019	8:36	7.66	7.71	-0.04	Y
3	3/21/2019	10:10	7.65	7.70	-0.05	Y
4	3/21/2019	11:38	7.56	7.62	-0.06	Y
5	3/21/2019	12:22	7.55	7.58	-0.03	Y
6	3/21/2019	13:06	7.48	7.48	0.00	N
7	3/21/2019	13:50	7.53	7.56	-0.03	Y
8	3/21/2019	14:34	7.53	7.54	-0.01	Y
9	3/21/2019	15:16	7.62	7.59	0.03	Y
10	3/21/2019	16:06	7.59	7.59	-0.01	Y

Ref. Method Average:	7.60	
CEMS Average:	7.62	
Average Difference:	-0.03	
Number of Tests:	10	
Standard Deviation:	0.03	
t Value:	2.306	
Confidence Coefficient:	0.02	
Relative Accuracy:	0.65	% of Reference Method

4.3 FUEL ANALYSIS

The fuel sample analysis results are presented in Appendix B.5.

APPENDIX A
FIELD AND PLANT OPERATING DATA

Appendix A.1
Unit 1 Data

Appendix A.1.1
Unit 1 Sample Location

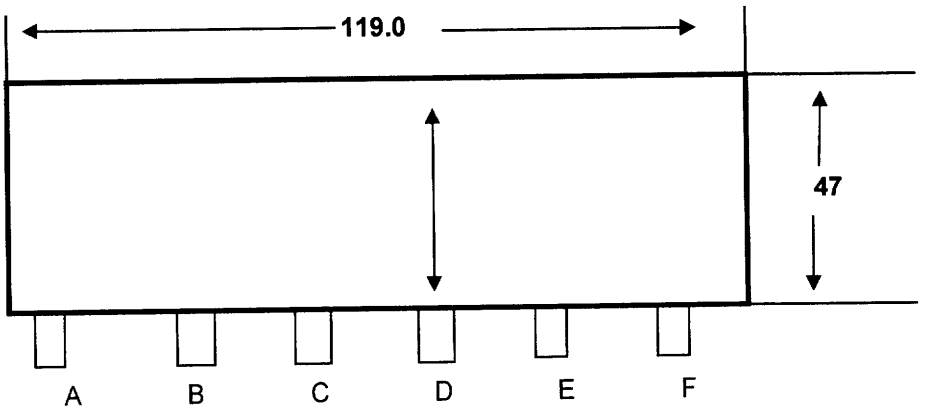
Method 1

Client: Desert View Power

Date: 3/20/2019

Sample Location: Unit 1-2

Prepared By: Dave Wonderly



H (in.)	**119.0**
W (in.)	**47.0**
Nipple length	**13.0**
Distance between points	**9.40**
Stack Area (ft^2)	**38.84**

Point No.	Sample Point	Inches from nozzle
1	4.7	17.7
2	14.1	27.1
3	23.5	36.5
4	32.9	45.9
5	42.3	55.3

Appendix A.1.2
Unit 1 CEM Data

Date	Time	O2 %	CO2 %	NOx ppm	CO ppm	
3/19/2019	6:30	19.3	18.883	90.811	8.592	
3/19/2019	6:31	19.3	18.904	90.448	8.59	
3/19/2019	6:32	19.301	18.935	90.544	8.606	High
3/19/2019	6:33	13.414	12.615	51.896	8.124	
3/19/2019	6:34	10.467	10.567	46.267	5.324	
3/19/2019	6:35	10.467	10.565	46.257	4.664	Mid
3/19/2019	6:36	6.544	6.23	26.808	4.519	
3/19/2019	6:37	-0.005	0.033	0.084	1.687	
3/19/2019	6:38	-0.007	0.029	0.052	0.022	Zero
3/19/2019	6:39	-0.007	0.028	0.04	0.011	NO Mode Zero
3/19/2019	6:40	5.113	6.573	65.365	-0.008	
3/19/2019	6:41	8.128	12.4	90.899	-0.018	NO Mode High
3/19/2019	6:42	7.834	12.752	26.772	-0.041	
3/19/2019	6:43	7.37	13.081	0.143	-0.122	NO2 Gas NO Mode
3/19/2019	6:44	8.168	12.262	35.301	-0.15	
3/19/2019	6:45	8.704	11.778	43.42	-0.133	NO2 Gas NOx Mode
3/19/2019	6:46	8.415	12.068	38.511	-0.106	
3/19/2019	6:47	8.961	11.562	27.795	-0.108	
3/19/2019	6:48	8.757	11.734	30.212	-0.126	
3/19/2019	6:49	8.462	11.975	33.084	-0.157	
3/19/2019	6:50	4.823	4.336	13.715	0.324	
3/19/2019	6:51	0.01	0.039	0.499	3.695	
3/19/2019	6:52	0.006	0.046	0.421	4.666	CO Bias
3/19/2019	6:53	0.02	0.063	28.653	3.894	
3/19/2019	6:54	0.001	0.036	46.038	0.254	
3/19/2019	6:55	0	0.037	46.076	0.04	NOx Bias
3/19/2019	6:56	4.848	5.435	24.372	-0.02	
3/19/2019	6:57	10.422	10.453	0.311	-0.411	O2 CO2 Bias
3/19/2019	6:58	9.177	11.765	26.232	-0.431	
3/19/2019	6:59	7.361	13.079	73.17	-0.233	
3/19/2019	7:00	9.27	11.129	31.98	-0.242	
3/19/2019	7:01	10.059	10.365	17.514	-0.168	
3/19/2019	7:02	9.055	11.288	20.102	-0.092	
3/19/2019	7:03	9.471	10.898	18.079	-0.091	
3/19/2019	7:04	9.054	11.473	28.839	-0.144	
3/19/2019	7:05	9.107	11.266	24.974	-0.201	
3/19/2019	7:06	8.887	11.653	38.258	-0.2	
3/19/2019	7:07	9.012	11.454	33.224	-0.215	
3/19/2019	7:08	8.787	11.707	39.91	-0.204	
3/19/2019	7:09	8.985	11.497	36.005	-0.249	
3/19/2019	7:10	9.078	11.365	34.381	-0.224	
3/19/2019	7:11	8.897	11.539	38.143	-0.216	
3/19/2019	7:12	9.036	11.478	35.347	-0.208	
3/19/2019	7:13	8.482	11.948	45.622	-0.236	
3/19/2019	7:14	8.681	11.857	42.822	-0.247	
3/19/2019	7:15	8.421	11.964	46.609	-0.25	
3/19/2019	7:16	8.137	12.483	49.216	-0.229	
3/19/2019	7:17	7.699	12.788	57.244	-0.249	
3/19/2019	7:18	7.943	12.478	58.176	-0.259	

3/19/2019	7:19	7.72	12.844	60.196	-0.25	
3/19/2019	7:20	7.926	12.447	35.113	-0.181	
3/19/2019	7:21	8.462	12.142	23.313	0.041	
3/19/2019	7:22	7.46	12.974	35.596	-0.002	
3/19/2019	7:23	7.606	12.934	44.376	-0.058	
3/19/2019	7:24	6.61	13.9	67.892	-0.189	
3/19/2019	7:25	7.754	12.615	39.626	-0.193	
3/19/2019	7:26	8.97	11.448	17.945	-0.047	
3/19/2019	7:27	9.269	11.214	12.225	0.29	
3/19/2019	7:28	9.255	11.245	11.815	0.415	
3/19/2019	7:29	9.103	11.453	11.695	0.436	
3/19/2019	7:30	8.682	11.847	16.191	0.309	
3/19/2019	7:31	9.579	10.986	9.514	0.355	
3/19/2019	7:32	8.557	12.037	14.259	0.37	
3/19/2019	7:33	8.235	12.429	20.074	0.203	
3/19/2019	7:34	9.348	11.05	14.864	0.09	
3/19/2019	7:35	11.001	9.57	7.772	0.175	
3/19/2019	7:36	11.611	8.964	6.942	0.168	
3/19/2019	7:37	12.209	8.431	6.479	0.098	
3/19/2019	7:38	12.172	8.362	6.429	0.133	
3/19/2019	7:39	12.805	7.807	6.554	0.134	
3/19/2019	7:40	12.443	8.224	7.619	0.158	
3/19/2019	7:41	12.301	8.252	9.32	0.243	
3/19/2019	7:42	12.011	8.662	11.928	0.3	
3/19/2019	7:43	11.145	9.544	14.932	0.321	
3/19/2019	7:44	11.241	9.319	16.66	0.291	
3/19/2019	7:45	11.284	9.326	18.775	0.197	
3/19/2019	7:46	11.971	8.658	20.955	0.153	
3/19/2019	7:47	13.104	7.36	24.83	0.134	
3/19/2019	7:48	13.492	7.282	27.99	0.219	
3/19/2019	7:49	12.876	7.75	31.652	0.309	
3/19/2019	7:50	12.688	7.949	34.786	0.35	
3/19/2019	7:51	12.063	8.515	37.026	0.423	
3/19/2019	7:52	12.089	8.519	36.929	0.426	
3/19/2019	7:53	11.252	9.315	38.031	0.378	
3/19/2019	7:54	10.493	10.059	33.657	0.271	
3/19/2019	7:55	10.292	10.165	9.387	0.56	
3/19/2019	7:56	10.296	10.208	6.938	0.766	
3/19/2019	7:57	9.866	10.701	7.456	0.699	
3/19/2019	7:58	9.525	11.036	9.312	0.505	
3/19/2019	7:59	8.759	11.677	13.137	0.34	
3/19/2019	8:00	8.361	12.16	18.729	0.162	
3/19/2019	8:01	8.181	12.313	25.958	0.038	
3/19/2019	8:02	8.577	11.811	24.123	-0.036	
3/19/2019	8:03	9.145	11.213	24.807	-0.093	
3/19/2019	8:04	9.855	10.791	16.737	-0.115	
3/19/2019	8:05	10.423	10.474	0.099	-0.398	
3/19/2019	8:06	10.427	10.483	0.068	-0.463	O2 CO2 Bias
3/19/2019	8:07	3.653	2.902	30.14	-0.391	
3/19/2019	8:08	0.008	0.061	45.771	-0.063	
3/19/2019	8:09	0.002	0.052	45.819	-0.016	NOx Bias
3/19/2019	8:10	0.004	0.047	17.701	0.953	

3/19/2019	8:11	0	0.043	0.097	4.476	
3/19/2019	8:12	-0.001	0.041	0.068	4.633	CO Bias
3/19/2019	8:13	1.298	2.795	10.375	4.597	
3/19/2019	8:14	8.841	11.575	42.342	1.533	
3/19/2019	8:15	8.691	11.819	45.409	-0.233	
3/19/2019	8:16	8.531	12.085	48.146	-0.236	
3/19/2019	8:17	8.284	12.223	49.529	-0.263	
3/19/2019	8:18	8.391	12.082	45.44	-0.246	
3/19/2019	8:19	8.546	11.947	44.778	-0.23	
3/19/2019	8:20	8.21	12.218	44.349	-0.223	
3/19/2019	8:21	8.408	12.063	42.248	-0.203	
3/19/2019	8:22	8.078	12.427	46.829	-0.206	
3/19/2019	8:23	7.831	12.494	44.652	-0.194	
3/19/2019	8:24	9.204	11.182	10.368	0.203	
3/19/2019	8:25	8.434	12.03	11.811	0.488	
3/19/2019	8:26	7.829	12.663	18.574	0.429	
3/19/2019	8:27	6.953	13.338	33.859	0.187	
3/19/2019	8:28	8.032	12.25	20.776	0.114	
3/19/2019	8:29	8.57	11.768	15.762	0.149	
3/19/2019	8:30	9.786	10.493	9.112	0.202	
3/19/2019	8:31	9.86	10.598	8.679	0.201	
3/19/2019	8:32	9.72	10.678	8.719	0.198	
3/19/2019	8:33	9.228	11.185	11.226	0.158	
3/19/2019	8:34	8.529	11.861	18.236	0.062	
3/19/2019	8:35	8.395	12.074	25.206	-0.043	
3/19/2019	8:36	8.662	11.722	22.395	-0.113	
3/19/2019	8:37	8.649	11.696	27.255	-0.155	
3/19/2019	8:38	9.436	11.01	21.288	-0.155	
3/19/2019	8:39	8.179	12.36	35.961	-0.177	
3/19/2019	8:40	7.829	12.473	45.388	-0.227	
3/19/2019	8:41	8.884	11.417	37.285	-0.263	
3/19/2019	8:42	9.476	10.941	27.867	-0.225	
3/19/2019	8:43	9.458	11.001	26	-0.204	
3/19/2019	8:44	9.2	11.254	32.219	-0.209	
3/19/2019	8:45	7.801	12.695	57.533	-0.266	
3/19/2019	8:46	7.707	12.661	61.005	-0.307	
3/19/2019	8:47	7.98	12.343	37.816	-0.277	
3/19/2019	8:48	8.814	11.489	11.293	0.232	
3/19/2019	8:49	8.282	12.238	15.72	0.443	
3/19/2019	8:50	7.519	12.807	25.088	0.253	
3/19/2019	8:51	7.888	12.469	22.105	0.21	
3/19/2019	8:52	8.267	12.055	17.275	0.197	
3/19/2019	8:53	7.996	12.317	29.63	0.19	
3/19/2019	8:54	8.072	12.326	24.406	0.036	
3/19/2019	8:55	8.377	12	22.428	0.086	
3/19/2019	8:56	8.078	12.262	24.331	0.018	
3/19/2019	8:57	8.17	12.159	17.398	0.115	
3/19/2019	8:58	8.064	12.312	20.347	0.119	
3/19/2019	8:59	7.638	12.678	31.33	0.024	
3/19/2019	9:00	7.943	12.445	32.018	-0.069	
3/19/2019	9:01	8.002	12.342	29.636	-0.112	
3/19/2019	9:02	7.82	12.53	36.998	-0.133	

3/19/2019	9:03	7.892	12.489	31.914	-0.131	
3/19/2019	9:04	8.126	12.243	31.846	-0.146	
3/19/2019	9:05	8.124	12.155	30.502	-0.14	
3/19/2019	9:06	8.176	12.175	25.761	-0.115	
3/19/2019	9:07	7.615	12.822	42.143	-0.139	
3/19/2019	9:08	7.707	12.637	41.01	-0.235	
3/19/2019	9:09	8.44	11.865	32.847	-0.213	
3/19/2019	9:10	8.047	12.321	40.433	-0.207	
3/19/2019	9:11	8.253	12.06	33.871	-0.179	
3/19/2019	9:12	8.373	12.022	33.598	-0.184	
3/19/2019	9:13	8.286	12.066	32.434	-0.171	
3/19/2019	9:14	8.919	11.444	21.94	-0.145	
3/19/2019	9:15	8.039	12.48	36.539	-0.134	
3/19/2019	9:16	8.134	12.105	34.633	-0.185	
3/19/2019	9:17	8.323	12.09	33.751	-0.178	
3/19/2019	9:18	8.333	12.068	26.516	-0.161	
3/19/2019	9:19	7.603	12.782	43.656	-0.182	
3/19/2019	9:20	7.844	12.477	47.483	-0.254	
Run 1 Average		8.32	12.06	28.98	-0.04	
3/19/2019	9:21	5.023	7.19	30.805	0.041	
3/19/2019	9:22	0.003	0.07	0.096	3.871	
3/19/2019	9:23	-0.002	0.049	0.05	4.606	CO Bias
3/19/2019	9:24	0.021	0.076	20.191	4.282	
3/19/2019	9:25	-0.002	0.043	45.511	0.545	
3/19/2019	9:26	-0.002	0.042	45.572	-0.043	NOx Bias
3/19/2019	9:27	6.006	6.668	18.5	-0.146	
3/19/2019	9:28	10.409	10.411	0.076	-0.409	O2 CO2 Bias
3/19/2019	9:29	6.598	7.508	9.535	-0.107	
3/19/2019	9:30	-0.007	0.031	0.05	-0.072	Zero
3/19/2019	9:31	7.662	8.264	34.711	1.496	
3/19/2019	9:32	10.472	10.484	46.116	4.554	
3/19/2019	9:33	10.475	10.487	46.041	4.597	Span
3/19/2019	9:34	9.319	11.579	48.293	4.329	
3/19/2019	9:35	7.844	12.553	49.195	0.529	
3/19/2019	9:36	8.131	12.33	48.559	-0.333	
3/19/2019	9:37	7.58	12.846	51.132	-0.292	
3/19/2019	9:38	7.193	13.215	58.226	-0.302	
3/19/2019	9:39	8.376	11.888	32.998	-0.265	
3/19/2019	9:40	9.646	10.724	14.348	-0.134	
3/19/2019	9:41	9.51	10.905	14.14	-0.061	
3/19/2019	9:42	9.021	11.385	18.628	-0.09	
3/19/2019	9:43	8.586	11.807	25.103	-0.163	
3/19/2019	9:44	8.764	11.653	25.301	-0.213	
3/19/2019	9:45	8.517	11.851	32.414	-0.241	
3/19/2019	9:46	8.644	11.759	30.856	-0.252	
3/19/2019	9:47	8.384	12.018	40.817	-0.281	
3/19/2019	9:48	8.096	12.327	44.462	-0.315	
3/19/2019	9:49	7.249	13.155	61.013	-0.326	
3/19/2019	9:50	7.288	12.963	67.462	-0.351	
3/19/2019	9:51	8.711	11.66	34.721	-0.328	
3/19/2019	9:52	8.874	11.423	28.913	-0.267	

3/19/2019	9:53	8.72	11.631	26.781	-0.207	
3/19/2019	9:54	7.866	12.588	46.542	-0.263	
3/19/2019	9:55	7.196	13.204	59.28	-0.32	
3/19/2019	9:56	7.226	13.117	59.148	-0.352	
3/19/2019	9:57	7.096	13.274	62.518	-0.337	
3/19/2019	9:58	7.582	12.682	42.189	-0.298	
3/19/2019	9:59	9.028	11.153	13.982	0.071	
3/19/2019	10:00	10.852	9.512	7.76	0.316	
3/19/2019	10:01	10.233	10.209	7.53	0.331	
3/19/2019	10:02	8.284	12.171	12.185	0.472	
3/19/2019	10:03	6.999	13.413	26.386	0.35	
3/19/2019	10:04	6.972	13.232	32.022	0.162	
3/19/2019	10:05	8.025	12.314	17.071	0.243	
3/19/2019	10:06	8.026	12.277	17.963	0.234	
3/19/2019	10:07	8.499	11.811	14.127	0.269	
3/19/2019	10:08	8.754	11.54	10.967	0.331	
3/19/2019	10:09	8.737	11.625	10.721	0.376	
3/19/2019	10:10	7.904	12.516	17.504	0.285	
3/19/2019	10:11	7.286	13.007	30.821	0.089	
3/19/2019	10:12	7.375	12.867	34.288	-0.072	
3/19/2019	10:13	8.252	12.095	18.479	-0.009	
3/19/2019	10:14	7.848	12.571	26.651	0.077	
3/19/2019	10:15	7.444	12.856	31.323	-0.075	
3/19/2019	10:16	7.557	12.734	34.958	-0.043	
3/19/2019	10:17	7.734	12.583	29.249	-0.089	
3/19/2019	10:18	8.053	12.22	26.002	-0.069	
3/19/2019	10:19	8.513	11.865	20.786	-0.044	
3/19/2019	10:20	7.974	12.371	27.558	-0.041	
3/19/2019	10:21	8.508	11.768	22.444	-0.061	
3/19/2019	10:22	8.579	11.825	21.71	-0.051	
3/19/2019	10:23	8.288	12.049	21.805	-0.069	
3/19/2019	10:24	6.984	13.399	46.481	-0.107	
3/19/2019	10:25	6.922	13.429	56.417	-0.252	
3/19/2019	10:26	7.183	13.096	50.703	-0.283	
3/19/2019	10:27	8.009	12.263	29.167	-0.094	
3/19/2019	10:28	8.633	11.662	14.162	0.161	
3/19/2019	10:29	8.954	11.351	10.666	0.42	
3/19/2019	10:30	8.484	11.848	11.294	0.466	
3/19/2019	10:31	8.281	11.987	12.726	0.462	
3/19/2019	10:32	8.067	12.234	14.957	0.404	
3/19/2019	10:33	8.102	12.256	17.142	0.378	
3/19/2019	10:34	7.973	12.213	19.95	0.213	
3/19/2019	10:35	7.958	12.387	20.1	0.247	
Run 2 Average		8.16	12.19	29.39	-0.02	
3/19/2019	10:36	8.095	12.193	17.104	0.194	
3/19/2019	10:37	8.487	11.813	15.307	0.248	
3/19/2019	10:38	7.61	12.698	21.916	0.231	
3/19/2019	10:39	7.931	12.328	20.402	0.172	
3/19/2019	10:40	8.042	12.235	26.208	0.115	
3/19/2019	10:41	9.078	11.326	16.085	-0.038	
3/19/2019	10:42	10.384	10.405	0.05	-0.405	O2 CO2 Bias
3/19/2019	10:43	3.477	3.082	27.312	-0.207	

3/19/2019	10:44	0.005	0.067	45.36	-0.041	NOx Bias
3/19/2019	10:45	0.003	0.046	27.132	0.383	
3/19/2019	10:46	0.001	0.05	0.076	4.167	
3/19/2019	10:47	8.454	9.863	36.734	4.652	CO Bias
3/19/2019	10:48	10.482	10.446	45.361	4.664	
3/19/2019	10:49	10.484	10.444	45.925	4.666	Span
3/19/2019	10:50	3.08	2.723	11.387	3.404	
3/19/2019	10:51	-0.005	0.032	0.024	0.081	
3/19/2019	10:52	-0.006	0.011	0.004	0.011	Zero
3/19/2019	10:53	5.088	8.338	24.732	-0.024	
3/19/2019	10:54	8.368	11.95	31.838	-0.166	
3/19/2019	10:55	7.772	12.576	43.221	-0.149	
3/19/2019	10:56	7.638	12.71	46.383	-0.153	
3/19/2019	10:57	7.676	12.634	48.226	-0.175	
3/19/2019	10:58	6.877	13.52	63.633	-0.182	
3/19/2019	10:59	7.905	12.277	44.907	-0.187	
3/19/2019	11:00	8.285	12.07	30.122	-0.089	
3/19/2019	11:01	7.863	12.452	39.628	-0.075	
3/19/2019	11:02	8.229	12.045	36.315	-0.111	
3/19/2019	11:03	8.499	11.807	26.501	-0.072	
3/19/2019	11:04	8.661	11.676	23.88	-0.046	
3/19/2019	11:05	8.233	12.061	32.03	-0.047	
3/19/2019	11:06	8.349	11.979	32.706	-0.082	
3/19/2019	11:07	7.566	12.805	46.425	-0.117	
3/19/2019	11:08	7.23	13.061	56.638	-0.16	
3/19/2019	11:09	6.46	13.853	71.176	-0.178	
3/19/2019	11:10	7.807	12.38	47.285	-0.161	
3/19/2019	11:11	7.96	12.369	38.792	-0.109	
3/19/2019	11:12	7.988	12.326	30.886	-0.073	
3/19/2019	11:13	8.193	12.062	26.632	-0.007	
3/19/2019	11:14	8.677	11.648	22.788	0.004	
3/19/2019	11:15	8.393	11.919	27.46	-0.03	
3/19/2019	11:16	8.002	12.312	35.191	-0.076	
3/19/2019	11:17	8.211	12.054	32.012	-0.111	
3/19/2019	11:18	8.554	11.724	28.84	-0.11	
3/19/2019	11:19	9.275	10.988	19.639	-0.067	
3/19/2019	11:20	8.854	11.541	24.781	-0.061	
3/19/2019	11:21	8.049	12.257	41.122	-0.119	
3/19/2019	11:22	7.866	12.481	46.004	-0.16	
3/19/2019	11:23	7.48	12.805	54.707	-0.19	
3/19/2019	11:24	8.099	12.193	44.246	-0.179	
3/19/2019	11:25	8.36	11.884	35.82	-0.146	
3/19/2019	11:26	7.071	13.348	61.278	-0.141	
3/19/2019	11:27	6.934	13.299	65.353	-0.167	
3/19/2019	11:28	7.072	13.158	65.104	-0.173	
3/19/2019	11:29	8.279	11.943	21.897	-0.05	
3/19/2019	11:30	10.057	10.181	8.719	0.421	
3/19/2019	11:31	10.667	9.712	7.462	0.477	
3/19/2019	11:32	9.073	11.245	8.426	0.574	
3/19/2019	11:33	8.05	12.278	12.047	0.63	
3/19/2019	11:34	7.723	12.59	13.649	0.58	

3/19/2019	11:35	8.163	12.004	13.821	0.487	
3/19/2019	11:36	9.076	11.225	8.994	0.515	
3/19/2019	11:37	9.105	11.206	8.717	0.517	
3/19/2019	11:38	8.784	11.443	9.473	0.537	
3/19/2019	11:39	9.57	10.764	8.314	0.45	
3/19/2019	11:40	8.5	11.802	11.276	0.406	
3/19/2019	11:41	8.138	12.15	13.34	0.357	
3/19/2019	11:42	8.048	12.223	17.706	0.274	
3/19/2019	11:43	7.901	12.446	20.02	0.202	
3/19/2019	11:44	7.548	12.693	30.481	0.069	
3/19/2019	11:45	7.999	12.311	27.493	0.003	
3/19/2019	11:46	7.803	12.493	33.069	-0.004	
3/19/2019	11:47	7.428	12.786	41.181	-0.051	
3/19/2019	11:48	8.823	11.338	20.865	-0.05	
3/19/2019	11:49	9.899	10.437	12.865	0.049	
3/19/2019	11:50	8.832	11.451	17.938	0.067	
3/19/2019	11:51	8.601	11.698	22.474	0.038	
3/19/2019	11:52	8.673	11.554	25.78	-0.046	
3/19/2019	11:53	8.528	11.786	32.683	-0.074	
3/19/2019	11:54	8.131	12.17	40.422	-0.109	
3/19/2019	11:55	8.246	12.012	41.439	-0.129	
3/19/2019	11:56	8.262	12.031	43.574	-0.125	
3/19/2019	11:57	8.763	11.459	33.536	-0.113	
3/19/2019	11:58	8.048	12.32	40.986	-0.084	
3/19/2019	11:59	7.758	12.498	49.731	-0.128	
3/19/2019	12:00	7.581	12.659	53.787	-0.128	
3/19/2019	12:01	8.831	11.392	28.938	-0.116	
Run 3 Average		8.28	12.01	30.91	0.04	
3/19/2019	12:02	6.07	6.441	15.769	0.141	
3/19/2019	12:03	0.004	0.073	0.088	3.844	
3/19/2019	12:04	-0.002	0.055	0.042	4.715	
3/19/2019	12:05	-0.001	0.049	0.033	4.718	CO Bias
3/19/2019	12:06	0.006	0.05	25.969	4.042	
3/19/2019	12:07	-0.003	0.041	45.262	0.39	
3/19/2019	12:08	-0.004	0.041	45.349	0.121	NOx Bias
3/19/2019	12:09	6.868	7.385	17.066	0.053	
3/19/2019	12:10	10.403	10.386	0.067	-0.006	O2 CO2 Bias
3/19/2019	12:11	1.546	2.005	0.021	0.048	
3/19/2019	12:12	-0.006	0.027	0.009	0	Zero
3/19/2019	12:13	8.314	6.804	28.616	1.08	
3/19/2019	12:14	10.48	10.436	45.834	4.529	
3/19/2019	12:15	10.482	10.417	45.916	4.655	Span
3/19/2019	12:16	8.974	11.653	50.744	4.247	
3/19/2019	12:17	8.055	12.274	45.254	0.373	
3/19/2019	12:18	8.072	12.21	38.841	-0.22	
3/19/2019	12:19	8.702	11.588	26.414	-0.147	
3/19/2019	12:20	8.484	11.838	27.835	-0.116	
3/19/2019	12:21	7.507	12.793	43.925	-0.121	
3/19/2019	12:22	7.679	12.63	44.143	-0.18	
3/19/2019	12:23	6.775	13.541	59.546	-0.193	
3/19/2019	12:24	6.768	13.468	59.26	-0.184	

3/19/2019	12:25	7.091	13.215	55.912	-0.19
3/19/2019	12:26	6.484	13.804	62.301	-0.178
3/19/2019	12:27	7.003	13.148	53.643	-0.173
3/19/2019	12:28	8.98	11.229	16.345	-0.009
3/19/2019	12:29	11.53	8.713	7.671	0.171
3/19/2019	12:30	10.275	10.083	7.692	0.299
3/19/2019	12:31	9.451	10.82	8.674	0.361
3/19/2019	12:32	9.471	10.791	8.503	0.311
3/19/2019	12:33	8.702	11.623	12.001	0.277
3/19/2019	12:34	6.567	13.767	44.233	0.154
3/19/2019	12:35	6.022	14.136	59.617	-0.07
3/19/2019	12:36	8.322	11.855	26.495	-0.092
3/19/2019	12:37	10.631	9.607	8.193	0.135
3/19/2019	12:38	10.465	9.907	7.15	0.37
3/19/2019	12:39	8.907	11.397	8.276	0.545
3/19/2019	12:40	8.355	11.923	8.763	0.616
3/19/2019	12:41	8.433	11.861	9.651	0.564
3/19/2019	12:42	8.607	11.653	10.718	0.448
3/19/2019	12:43	8.306	11.956	12.043	0.345
3/19/2019	12:44	8.514	11.765	11.754	0.306
3/19/2019	12:45	8.681	11.6	11.781	0.253
3/19/2019	12:46	7.949	12.323	20.45	0.175
3/19/2019	12:47	7.728	12.552	29.422	0.036
3/19/2019	12:48	7.876	12.367	30.904	-0.073
3/19/2019	12:49	7.986	12.294	33.912	-0.076
3/19/2019	12:50	8.217	12.038	31.742	-0.097
3/19/2019	12:51	7.696	12.587	41.219	-0.092
3/19/2019	12:52	8.416	11.865	29.706	-0.11
3/19/2019	12:53	8.354	11.938	30.913	-0.097
3/19/2019	12:54	7.859	12.408	44.043	-0.156
3/19/2019	12:55	7.704	12.625	50.115	-0.177
3/19/2019	12:56	7.475	12.812	56.705	-0.206
3/19/2019	12:57	8.152	12.127	41.663	-0.199
3/19/2019	12:58	8.609	11.639	27.838	-0.122
3/19/2019	12:59	8.091	12.237	32.28	-0.07
3/19/2019	13:00	6.864	13.433	63.689	-0.133
3/19/2019	13:01	7.103	13.14	67.555	-0.224
3/19/2019	13:02	7.942	12.335	48.917	-0.223
3/19/2019	13:03	7.847	12.429	41.285	-0.193
3/19/2019	13:04	8.461	11.752	19.766	0.074
3/19/2019	13:05	8.677	11.56	15.502	0.333
3/19/2019	13:06	8.853	11.388	11.621	0.407
3/19/2019	13:07	8.578	11.718	14.613	0.447
3/19/2019	13:08	8.237	12.035	18.456	0.313
3/19/2019	13:09	8.042	12.204	22.706	0.206
3/19/2019	13:10	8.497	11.755	19.808	0.237
3/19/2019	13:11	8.635	11.646	18.099	0.184
3/19/2019	13:12	8.517	11.681	21.204	0.188
3/19/2019	13:13	8.394	11.881	20.06	0.199
3/19/2019	13:14	7.868	12.404	28.101	0.104
3/19/2019	13:15	8.087	12.222	30.838	0.054
3/19/2019	13:16	7.212	13.085	51.257	-0.088

3/19/2019	13:17	7.354	12.909	50.633	-0.153	
Run 4 Average		8.20	12.07	30.27	0.06	
3/19/2019	13:18	9.208	11.009	20.898	-0.075	
3/19/2019	13:19	9.624	10.649	11.44	0.183	
3/19/2019	13:20	10.361	10.349	0.091	-0.137	
3/19/2019	13:21	10.363	10.356	0.042	-0.382	O2 CO2 Bias
3/19/2019	13:22	3.036	2.63	30.413	-0.334	
3/19/2019	13:23	0.007	0.064	45.194	0.022	
3/19/2019	13:24	0.001	0.054	45.226	0.061	NOx Bias
3/19/2019	13:25	0.001	0.052	19.139	0.9	
3/19/2019	13:26	0	0.046	0.083	4.488	
3/19/2019	13:27	-0.001	0.043	0.044	4.671	
3/19/2019	13:28	-0.001	0.038	0.035	4.668	CO Bias
3/19/2019	13:29	-0.009	0.026	0.008	2.381	
3/19/2019	13:30	-0.009	0.027	0.011	0.084	
3/19/2019	13:31	-0.009	0.027	0.01	0.017	Zero
3/19/2019	13:32	6.997	7.512	30.502	1.246	
3/19/2019	13:33	10.463	10.406	45.726	4.577	
3/19/2019	13:34	10.468	10.419	46.084	4.662	Span
3/19/2019	13:35	9.016	11.414	33.284	3.824	
3/19/2019	13:36	10.413	9.879	10.292	0.415	
3/19/2019	13:37	10.052	10.397	9.452	0.327	
3/19/2019	13:38	8.514	11.87	22.23	0.285	
3/19/2019	13:39	8.2	12.103	22.969	0.118	
3/19/2019	13:40	7.676	12.703	37.022	0.039	
3/19/2019	13:41	6.864	13.4	62.298	-0.108	
3/19/2019	13:42	8.201	12.044	31.244	-0.086	
3/19/2019	13:43	9.866	10.386	12.529	0.125	
3/19/2019	13:44	11.161	9.231	8.16	0.235	
3/19/2019	13:45	9.423	11.036	10.974	0.273	
3/19/2019	13:46	7.866	12.464	22.239	0.204	
3/19/2019	13:47	6.968	13.434	42.557	0.078	
3/19/2019	13:48	6.871	13.418	58.323	-0.119	
3/19/2019	13:49	8.526	11.672	33.562	-0.133	
3/19/2019	13:50	10.373	9.953	9.991	0.061	
3/19/2019	13:51	10.282	10.193	9.299	0.172	
3/19/2019	13:52	8.939	11.364	16.265	0.13	
3/19/2019	13:53	8.846	11.569	19.967	0.068	
3/19/2019	13:54	8.2	12.151	30.106	-0.066	
3/19/2019	13:55	7.796	12.612	41.875	-0.139	
3/19/2019	13:56	7.686	12.622	48.058	-0.208	
3/19/2019	13:57	8.373	11.943	34.343	-0.207	
3/19/2019	13:58	8.188	12.124	39.427	-0.181	
3/19/2019	13:59	8.252	12.116	40.128	-0.169	
3/19/2019	14:00	7.896	12.476	51.927	-0.23	
3/19/2019	14:01	7.878	12.423	57.064	-0.237	
3/19/2019	14:02	7.915	12.422	61.086	-0.229	
3/19/2019	14:03	7.426	12.867	55.039	-0.217	
3/19/2019	14:04	7.85	12.467	31.805	-0.056	
3/19/2019	14:05	8.807	11.389	18.423	0.092	
3/19/2019	14:06	9.13	11.184	12.116	0.351	

3/19/2019	14:07	8.376	11.94	18.492	0.313	
3/19/2019	14:08	8.499	11.705	19.94	0.178	
3/19/2019	14:09	9.023	11.274	11.833	0.398	
3/19/2019	14:10	9.008	11.304	13.495	0.411	
3/19/2019	14:11	4.669	6.717	14.948	0.529	
3/19/2019	14:12	0.003	0.041	0.046	3.988	
3/19/2019	14:13	-0.004	0.054	0.033	4.672	CO Bias
3/19/2019	14:14	-0.006	0.048	0.01	4.675	
3/19/2019	14:15	-0.002	0.07	0.02	4.668	
3/19/2019	14:16	0.025	0.055	39.505	2.911	
3/19/2019	14:17	-0.006	0.042	45.253	0.095	
3/19/2019	14:18	-0.006	0.041	45.168	0.058	NOx Bias
3/19/2019	14:19	7.491	7.883	14.236	-0.083	
3/19/2019	14:20	10.388	10.355	0.054	-0.219	O2 CO2 Bias
3/19/2019	14:21	10.392	10.364	0.023	0.011	
3/19/2019	14:22	3.347	3.527	0.015	0.005	CO Zero
3/19/2019	14:23	-0.006	0.03	0.002	1.657	O2 CO2 NOx Zero
3/19/2019	14:24	9.687	9.241	35.199	4.627	
3/19/2019	14:25	10.459	10.405	45.922	4.663	Span
3/19/2019	14:26	9.675	11.067	32.262	4.362	
3/19/2019	14:27	7.059	13.273	39.752	0.734	
3/19/2019	14:28	7.88	12.409	27.608	-0.074	
3/19/2019	14:29	7.997	12.318	27.546	-0.046	
3/19/2019	14:30	8.263	12.059	23.062	0.025	
3/19/2019	14:31	8.034	12.287	25.654	-0.017	
3/19/2019	14:32	7.808	12.523	34.01	-0.023	
3/19/2019	14:33	7.374	13.029	44.324	-0.112	
3/19/2019	14:34	6.646	13.62	66.68	-0.216	
3/19/2019	14:35	7.785	12.489	40.235	-0.219	
3/19/2019	14:36	7.277	13.075	52.9	-0.153	
3/19/2019	14:37	7.762	12.453	48.847	-0.223	
3/19/2019	14:38	9.332	10.894	21.532	-0.125	
3/19/2019	14:39	11.574	8.675	8.591	0.095	
3/19/2019	14:40	10.384	10.074	9.293	0.206	
3/19/2019	14:41	9.031	11.337	13.271	0.207	
3/19/2019	14:42	8.62	11.582	16.548	0.123	
3/19/2019	14:43	8.927	11.416	17.504	0.041	
3/19/2019	14:44	8.847	11.458	16.391	-0.019	
3/19/2019	14:45	8.146	12.221	30.613	-0.035	
3/19/2019	14:46	7.422	12.869	42.915	-0.147	
3/19/2019	14:47	7.64	12.664	50.059	-0.204	
3/19/2019	14:48	7.923	12.387	48.295	-0.242	
3/19/2019	14:49	7.434	12.895	58.059	-0.235	
3/19/2019	14:50	8.337	11.915	38.37	-0.219	
3/19/2019	14:51	7.98	12.356	41.15	-0.197	
3/19/2019	14:52	7.681	12.604	49.178	-0.216	
3/19/2019	14:53	7.586	12.702	52.345	-0.24	
3/19/2019	14:54	7.687	12.603	53.958	-0.218	
3/19/2019	14:55	7.76	12.547	44.196	-0.21	
3/19/2019	14:56	7.956	12.304	44.709	-0.18	
3/19/2019	14:57	8.12	12.113	41.485	-0.178	

3/19/2019	14:58	8.527	11.713	32.054	-0.167
3/19/2019	14:59	8.862	11.374	26.574	-0.103
3/19/2019	15:00	8.464	11.826	32.806	-0.102
3/19/2019	15:01	8.314	11.94	35.242	-0.145
3/19/2019	15:02	7.909	12.391	45.676	-0.165
3/19/2019	15:03	7.585	12.691	58.652	-0.217
3/19/2019	15:04	7.708	12.532	52.864	-0.213
3/19/2019	15:05	7.869	12.327	51.593	-0.212
3/19/2019	15:06	8.241	12.004	27.585	-0.109
3/19/2019	15:07	7.963	12.232	22.775	0.115
3/19/2019	15:08	7.773	12.408	25.379	0.252
3/19/2019	15:09	8.392	11.78	17.011	0.284
3/19/2019	15:10	8.611	11.589	14.462	0.355
3/19/2019	15:11	8.329	11.889	16.202	0.415
3/19/2019	15:12	7.803	12.398	21.373	0.279
3/19/2019	15:13	8.127	12.042	19.33	0.305
3/19/2019	15:14	8.014	12.186	24.511	0.254
3/19/2019	15:15	7.875	12.327	23.343	0.281
3/19/2019	15:16	8.41	11.705	17.048	0.28
3/19/2019	15:17	9.235	10.954	11.726	0.402
3/19/2019	15:18	7.887	12.394	22.031	0.378
3/19/2019	15:19	7.648	12.455	27.509	0.214
3/19/2019	15:20	8.573	11.676	18.168	0.316
3/19/2019	15:21	8.326	11.848	17.337	0.313
3/19/2019	15:22	8.241	11.892	18.845	0.374
3/19/2019	15:23	8.897	11.313	14.383	0.4
3/19/2019	15:24	8.259	11.942	18.575	0.401
3/19/2019	15:25	8.284	11.894	16.785	0.347
3/19/2019	15:26	8.533	11.706	15.399	0.391
3/19/2019	15:27	7.935	12.312	20.65	0.433
3/19/2019	15:28	7.77	12.397	24.636	0.256
3/19/2019	15:29	8.134	12.077	22.204	0.263
3/19/2019	15:30	7.973	12.218	23.876	0.303
3/19/2019	15:31	8.329	11.872	15.258	0.316
3/19/2019	15:32	8.202	11.969	17.396	0.377
3/19/2019	15:33	8.364	11.896	14.581	0.411
3/19/2019	15:34	8.176	12.069	18.4	0.421
3/19/2019	15:35	7.625	12.61	24.859	0.304
3/19/2019	15:36	7.404	12.856	33.103	0.185
3/19/2019	15:37	6.934	13.29	49.05	0.018
3/19/2019	15:38	8.618	11.532	23.039	0.018
3/19/2019	15:39	9.89	10.355	9.978	0.331
3/19/2019	15:40	10.754	9.538	7.902	0.409
3/19/2019	15:41	11.069	9.289	7.36	0.386
3/19/2019	15:42	9.014	11.365	10.657	0.391
3/19/2019	15:43	8.284	12.024	15.092	0.378
3/19/2019	15:44	9.074	11.189	11.219	0.274
3/19/2019	15:45	8.764	11.52	15.562	0.227
3/19/2019	15:46	7.908	12.393	27.322	0.096
3/19/2019	15:47	8.153	12.171	25.166	0.016
3/19/2019	15:47	8.153	12.171	25.166	0.016
3/19/2019	15:48	9.574	10.871	13.276	-0.121

3/19/2019	15:49	10.352	10.366	0.041	-0.365	O2 CO2 Bias
3/19/2019	15:50	7.493	6.996	10.599	-0.372	
3/19/2019	15:51	0.01	0.08	44.728	-0.093	
3/19/2019	15:52	0.001	0.058	44.911	0.069	NOx Bias
3/19/2019	15:53	0	0.052	30.502	0.268	
3/19/2019	15:54	-0.004	0.05	0.1	3.953	
3/19/2019	15:55	-0.006	0.046	0.036	4.674	CO Bias
3/19/2019	15:56	-0.007	0.033	0.014	3.356	
3/19/2019	15:57	-0.008	0.028	0.009	0.104	
3/19/2019	15:58	-0.008	0.029	0.01	0.022	Zero
3/19/2019	15:59	5.098	5.563	23.65	0.7	
3/19/2019	16:00	10.447	10.396	45.675	4.41	
3/19/2019	16:01	10.453	10.403	45.839	4.669	Span
3/19/2019	16:02	16.658	15.671	78.403	5.224	
3/19/2019	16:03	19.243	18.22	90.552	8.392	
3/19/2019	16:04	19.242	18.33	90.787	8.612	High
3/19/2019	16:05	19.245	18.342	90.983	8.607	
3/19/2019	16:06	19.261	18.456	34.625	8.619	
3/19/2019	16:07	19.276	18.56	84.518	8.598	
3/19/2019	16:08	19.279	18.549	56.696	8.596	O2 CO2 High

Date	Time	O2 %	CO2 %	NOx ppm	CO ppm	
3/20/2019	6:23	3.189	4.047	18.159	0.253	
3/20/2019	6:24	19.308	18.841	91.44	6.652	
3/20/2019	6:25	19.332	18.918	90.547	8.583	
3/20/2019	6:26	19.337	18.926	90.418	8.592	High
3/20/2019	6:27	14.547	13.945	64.553	8.086	
3/20/2019	6:28	10.485	10.596	45.924	4.945	
3/20/2019	6:29	10.482	10.592	45.801	4.656	Mid
3/20/2019	6:30	3.943	3.702	15.31	3.739	
3/20/2019	6:31	-0.001	0.031	0.056	0.156	O2 CO2 NOx Zero
3/20/2019	6:32	5.79	0.057	0.044	0.008	NO Mode Zero, CO Zero
3/20/2019	6:33	20.844	0.084	60.038	0.021	
3/20/2019	6:34	20.871	0.08	90.938	0.163	NO Mode High
3/20/2019	6:35	20.878	0.078	46.858	0.207	
3/20/2019	6:36	11.452	9.449	0.105	0.086	NO2 Gas NO Mode
3/20/2019	6:37	7.839	12.671	21.366	-0.164	
3/20/2019	6:38	8.082	12.409	42.378	-0.141	NO2 Gas NOx Mode
3/20/2019	6:39	9.258	11.211	41.945	-0.027	
3/20/2019	6:40	9.528	10.956	16.317	0.106	
3/20/2019	6:41	9.297	11.186	13.493	0.195	
3/20/2019	6:42	8.657	11.85	21.196	0.11	
3/20/2019	6:43	8.53	11.973	23.625	0.032	
3/20/2019	6:44	9.028	11.4	25.857	0.002	
3/20/2019	6:45	8.144	12.389	38.729	-0.04	
3/20/2019	6:46	7.538	12.988	57.721	-0.143	
3/20/2019	6:47	7.189	13.273	66.169	-0.206	
3/20/2019	6:48	8.348	12.143	38.767	-0.162	
3/20/2019	6:49	8.201	12.275	41.418	-0.125	
3/20/2019	6:50	7.628	12.89	52.301	-0.113	
3/20/2019	6:51	7.777	12.701	55.947	-0.148	
3/20/2019	6:52	7.412	13.084	68.492	-0.194	
3/20/2019	6:53	8.207	11.546	42.688	-0.159	
3/20/2019	6:54	10.409	10.505	0.242	-0.105	O2 CO2 Bias
3/20/2019	6:55	6.465	6.235	15.512	-0.423	
3/20/2019	6:56	0.012	0.066	45.29	-0.102	
3/20/2019	6:57	0.002	0.049	45.326	0.035	NOx Bias
3/20/2019	6:58	0.003	0.044	22.008	0.674	
3/20/2019	6:59	0.002	0.043	0.154	4.384	
3/20/2019	7:00	0.002	0.04	0.101	4.651	CO Bias
3/20/2019	7:01	6.741	4.36	2.929	4.245	
3/20/2019	7:02	13.164	7.413	5.599	0.668	
3/20/2019	7:03	13.415	7.143	5.676	0.161	
3/20/2019	7:04	13.176	7.393	6.115	0.206	
3/20/2019	7:05	13.463	7.124	6.582	0.247	
3/20/2019	7:06	13.607	6.988	7.93	0.252	
3/20/2019	7:07	13.231	7.25	10.277	0.32	
3/20/2019	7:08	12.247	7.594	10.268	0.245	
3/20/2019	7:09	11.735	7.814	11.417	-0.03	
3/20/2019	7:10	11.003	8.377	14.014	-0.081	
3/20/2019	7:11	10.424	8.681	17.065	-0.152	

3/20/2019	7:12	10.204	8.9	21.175	-0.189
3/20/2019	7:13	9.868	9.241	26.565	-0.213
3/20/2019	7:14	9.28	9.828	32.771	-0.235
3/20/2019	7:15	7.753	11.343	45.602	-0.242
3/20/2019	7:16	8.497	10.602	44.582	-0.277
3/20/2019	7:17	8.494	10.599	46.919	-0.284
3/20/2019	7:18	8.675	10.422	45.473	-0.29
3/20/2019	7:19	10.49	8.602	38.951	-0.277
3/20/2019	7:20	10.097	8.982	37.584	-0.259
3/20/2019	7:21	9.788	9.295	39.279	-0.262
3/20/2019	7:22	9.552	9.523	41.119	-0.293
3/20/2019	7:23	9.769	9.323	40.504	-0.287
3/20/2019	7:24	10.225	8.856	39.989	-0.272
3/20/2019	7:25	10.052	9.024	39.286	-0.274
3/20/2019	7:26	9.891	9.187	40.562	-0.28
3/20/2019	7:27	10.608	8.471	39.964	-0.289
3/20/2019	7:28	8.781	10.305	45.672	-0.28
3/20/2019	7:29	8.06	11.019	52.818	-0.29
3/20/2019	7:30	8.846	10.236	48.816	-0.295
3/20/2019	7:31	9.72	9.363	43.539	-0.29
3/20/2019	7:32	9.524	9.569	41.804	-0.29
3/20/2019	7:33	9.65	9.433	40.949	-0.289
3/20/2019	7:34	9.96	9.137	40.082	-0.284
3/20/2019	7:35	10.416	8.672	37.541	-0.268
3/20/2019	7:36	9.332	9.759	39.595	-0.265
3/20/2019	7:37	8.909	10.18	46.319	-0.288
3/20/2019	7:38	9.724	9.358	44.898	-0.297
3/20/2019	7:39	10.199	8.887	39.344	-0.261
3/20/2019	7:40	10.037	9.051	37.333	-0.276
3/20/2019	7:41	9.381	9.712	40.425	-0.278
3/20/2019	7:42	10.123	8.951	38.848	-0.312
3/20/2019	7:43	10.379	8.701	37.331	-0.269

Reboot DAS

3/20/2019	7:45	10.182	8.924	37.184	-0.275
3/20/2019	7:46	10.48	8.627	36.573	-0.28
3/20/2019	7:47	11.188	7.944	36.419	-0.279
3/20/2019	7:48	11.319	7.653	35.572	-0.243
3/20/2019	7:49	9.518	9.25	41.046	-0.256
3/20/2019	7:50	9.689	9.07	42.614	-0.255
3/20/2019	7:51	9.931	8.832	42.48	-0.248
3/20/2019	7:52	9.954	8.805	41.455	-0.26
3/20/2019	7:53	9.916	8.83	42.808	-0.267
3/20/2019	7:54	10.169	8.578	43.08	-0.273
3/20/2019	7:55	10.619	8.142	40.66	-0.277
3/20/2019	7:56	10.477	8.284	39.471	-0.266
3/20/2019	7:57	10.512	8.251	39.13	-0.271
3/20/2019	7:58	10.647	8.119	37.826	-0.283
3/20/2019	7:59	10.614	8.15	37.89	-0.273
3/20/2019	8:00	10.438	8.317	39.482	-0.287
3/20/2019	8:01	8.739	9.998	50.374	-0.278

3/20/2019	8:02	9.061	9.663	48.532	-0.291
3/20/2019	8:03	9.239	9.49	46.871	-0.275
3/20/2019	8:04	8.716	10.025	49.511	-0.283
3/20/2019	8:05	8.645	10.089	50.565	-0.298
3/20/2019	8:06	9.28	9.451	48.427	-0.291
3/20/2019	8:07	9.823	8.893	36.345	-0.267
3/20/2019	8:08	9.651	9.047	12.886	-0.106
3/20/2019	8:09	9.774	8.907	10.719	0.13
3/20/2019	8:10	9.54	9.143	11.136	0.142
3/20/2019	8:11	9.874	8.792	9.945	0.122
3/20/2019	8:12	9.142	9.525	12.382	0.146
3/20/2019	8:13	9.776	8.887	11.029	0.111
3/20/2019	8:14	9.533	9.131	11.166	0.13
3/20/2019	8:15	9.244	9.435	12.677	0.129
3/20/2019	8:16	9.691	8.985	11.042	0.119
3/20/2019	8:17	10.204	8.486	10.142	0.118
3/20/2019	8:18	10.489	8.199	9.036	0.132
3/20/2019	8:19	10.159	8.521	8.941	0.153
3/20/2019	8:20	9.871	8.809	9.142	0.169
3/20/2019	8:21	10.207	8.491	8.524	0.167
3/20/2019	8:22	10.249	8.441	8.511	0.165
3/20/2019	8:23	9.849	8.786	8.29	0.178
3/20/2019	8:24	9.247	9.371	9.05	0.216
3/20/2019	8:25	8.945	9.676	9.611	0.281
3/20/2019	8:26	9.044	9.573	10.157	0.253
3/20/2019	8:27	8.906	9.715	11.09	0.178
3/20/2019	8:28	8.183	10.411	14.584	0.193
3/20/2019	8:29	7.99	10.6	23.462	0.06
3/20/2019	8:30	8.585	10.037	21.297	-0.052
3/20/2019	8:31	9.98	9.049	14.242	-0.039
3/20/2019	8:32	10.613	8.598	9.406	0.081
3/20/2019	8:33	10.305	8.902	9.388	0.099
3/20/2019	8:34	10.901	8.318	8.433	0.074
3/20/2019	8:35	10.915	8.306	8.276	0.046
3/20/2019	8:36	10.91	8.313	8.304	-0.014
3/20/2019	8:37	10.423	8.738	9.673	-0.037
3/20/2019	8:38	9.9	8.945	13.736	-0.1
3/20/2019	8:39	10.206	8.641	16.816	-0.17
3/20/2019	8:40	10.71	8.163	17.01	-0.215
3/20/2019	8:41	11.076	7.822	18.036	-0.259
3/20/2019	8:42	11.049	7.844	20.347	-0.194
3/20/2019	8:43	10.751	8.135	22.89	-0.222
3/20/2019	8:44	8.512	10.33	40.537	-0.253
3/20/2019	8:45	9.348	9.494	39.803	-0.283
3/20/2019	8:46	9.465	9.402	45.479	-0.289
3/20/2019	8:47	9.957	8.928	40.633	-0.301
3/20/2019	8:48	9.987	8.916	30.468	-0.291
3/20/2019	8:49	10.704	8.234	15.774	-0.214
3/20/2019	8:50	10.985	7.972	15.141	-0.202
3/20/2019	8:51	9.242	9.692	22.956	-0.205
3/20/2019	8:52	8.499	10.421	31.798	-0.239
3/20/2019	8:53	9.081	9.844	36.182	-0.288

3/20/2019	8:54	9.542	9.376	35.675	-0.298	
3/20/2019	8:55	9.015	9.894	39.428	-0.291	
3/20/2019	8:56	9.032	9.867	39.675	-0.299	
3/20/2019	8:57	7.095	11.774	61.155	-0.301	
3/20/2019	8:58	7.688	11.197	59.957	-0.308	
3/20/2019	8:59	7.174	11.7	67.133	-0.311	
3/20/2019	9:00	7.797	11.083	64.182	-0.304	
3/20/2019	9:01	8.069	10.81	58.439	-0.295	
3/20/2019	9:02	8.936	10.125	47.174	-0.277	
3/20/2019	9:03	10.633	9.097	18.437	-0.201	
3/20/2019	9:04	11.956	7.805	10.444	-0.1	
3/20/2019	9:05	12.026	7.74	8.72	-0.057	
3/20/2019	9:06	10.98	8.403	11.292	-0.068	
3/20/2019	9:07	9.897	9.153	18.491	-0.137	
3/20/2019	9:08	8.996	9.761	31.542	-0.232	
3/20/2019	9:09	8.99	9.779	36.838	-0.254	
3/20/2019	9:10	8.274	10.489	45.042	-0.264	
3/20/2019	9:11	8.655	10.121	44.899	-0.269	
3/20/2019	9:12	8.419	10.352	48.567	-0.258	
3/20/2019	9:13	8.783	9.988	46.504	-0.266	
3/20/2019	9:14	8.646	10.131	46.255	-0.269	
3/20/2019	9:15	9.17	9.61	43.661	-0.271	
3/20/2019	9:16	9.005	9.765	45.732	-0.257	
3/20/2019	9:17	9.217	9.558	43.91	-0.245	
3/20/2019	9:18	9.576	9.187	40.413	-0.251	
3/20/2019	9:19	9.187	9.59	40.062	-0.263	
3/20/2019	9:20	10.131	8.903	30.95	-0.266	
3/20/2019	9:21	9.911	9.236	26.375	-0.242	
3/20/2019	9:22	10.55	9.089	20.817	-0.211	
3/20/2019	9:23	10.271	9.715	23.884	-0.199	
3/20/2019	9:24	9.992	9.869	4.476	-0.022	
3/20/2019	9:25	10.431	10.458	0.07	-0.413	
3/20/2019	9:26	10.437	10.454	0.043	-0.446	O2 CO2 Bias
3/20/2019	9:27	6.094	6.074	15.663	-0.445	
3/20/2019	9:28	0.008	0.071	45.242	-0.144	
3/20/2019	9:29	0.002	0.05	45.248	0.002	NOx Bias
3/20/2019	9:30	0.003	0.044	26.561	0.384	
3/20/2019	9:31	-0.005	0.042	0.104	4.18	
3/20/2019	9:32	-0.005	0.038	0.053	4.642	CO bias
3/20/2019	9:33	3.604	4.438	14.374	4.505	
3/20/2019	9:34	9.268	11.141	34.569	0.89	
3/20/2019	9:35	8.12	12.321	53.335	-0.219	
3/20/2019	9:36	7.78	12.677	69.62	-0.261	
3/20/2019	9:37	7.924	12.531	64.469	-0.257	
3/20/2019	9:38	7.725	12.716	67.037	-0.269	
3/20/2019	9:39	8.235	12.204	53.597	-0.257	
3/20/2019	9:40	8.351	12.087	48.166	-0.224	
3/20/2019	9:41	8.611	11.82	33.713	-0.16	
3/20/2019	9:42	8.485	11.966	34.178	-0.105	
3/20/2019	9:43	8.147	12.299	34.737	-0.091	
3/20/2019	9:44	8.145	12.303	42.283	-0.13	
3/20/2019	9:45	7.547	12.897	53.431	-0.212	

3/20/2019	9:46	8.066	12.387	44.861	-0.222	
3/20/2019	9:47	8.404	12.035	36.125	-0.162	
3/20/2019	9:48	8.07	12.379	49.341	-0.182	
3/20/2019	9:49	9.126	11.322	24.568	-0.125	
3/20/2019	9:50	8.318	12.129	34.577	-0.104	
3/20/2019	9:51	8.202	12.256	31.603	-0.066	
3/20/2019	9:52	7.671	12.789	49.943	-0.149	
3/20/2019	9:53	7.696	12.759	46.803	-0.172	
3/20/2019	9:54	7.014	13.42	71.486	-0.245	
3/20/2019	9:55	7.948	12.502	59.868	-0.275	
3/20/2019	9:56	8.187	12.257	46.712	-0.192	
3/20/2019	9:57	8.807	11.622	23.656	-0.082	
3/20/2019	9:58	9.103	11.318	19.034	0.074	
3/20/2019	9:59	9.097	11.321	16.417	0.123	
3/20/2019	10:00	9.069	11.358	16.332	0.123	
3/20/2019	10:01	8.236	12.209	32.783	0.009	
3/20/2019	10:02	8.63	11.809	27.333	-0.091	
3/20/2019	10:03	8.695	11.746	28.819	-0.114	
3/20/2019	10:04	8.667	11.775	27.657	-0.056	
3/20/2019	10:05	8.758	11.682	25.407	-0.096	
3/20/2019	10:06	8.952	11.493	22.202	-0.088	
Run 1 Average		8.33	12.11	38.90	-0.13	
3/20/2019	10:07	3.32	4.054	33.883	0.048	
3/20/2019	10:08	0.005	0.063	45.231	0.049	NOx Bias
3/20/2019	10:09	0.002	0.05	26.837	0.378	
3/20/2019	10:10	-0.004	0.045	0.11	4.152	
3/20/2019	10:11	-0.005	0.042	0.073	4.641	CO Bias
3/20/2019	10:12	4.304	4.223	0.054	3.312	
3/20/2019	10:13	10.44	10.396	0.048	0.052	O2 CO2 Bias
3/20/2019	10:14	1.199	1.48	0.036	-0.021	CO Zero
3/20/2019	10:15	-0.007	0.024	0.031	1.388	O2 CO2 NOx Bias
3/20/2019	10:16	9.264	8.959	33.163	4.582	
3/20/2019	10:17	10.494	10.477	45.643	4.639	Span
3/20/2019	10:18	8.648	11.981	44.995	3.646	
3/20/2019	10:19	9.63	10.76	10.918	0.434	
3/20/2019	10:20	10.915	9.577	7.227	0.416	
3/20/2019	10:21	10.394	10.232	7.532	0.407	
3/20/2019	10:22	8.444	12.051	10.812	0.488	
3/20/2019	10:23	7.74	12.67	21.351	0.388	
3/20/2019	10:24	9.654	10.71	8.515	0.403	
3/20/2019	10:25	10.567	9.936	6.806	0.404	
3/20/2019	10:26	9.634	10.853	7.462	0.436	
3/20/2019	10:27	8.752	11.68	10.271	0.442	
3/20/2019	10:28	8.699	11.721	11.905	0.346	
3/20/2019	10:29	8.995	11.393	11.643	0.281	
3/20/2019	10:30	9.381	11.038	10.385	0.2	
3/20/2019	10:31	8.451	11.985	21.687	0.139	
3/20/2019	10:32	8.63	11.785	19.97	-0.016	
3/20/2019	10:33	7.906	12.531	40.006	-0.089	
3/20/2019	10:34	7.765	12.599	42.955	-0.151	
3/20/2019	10:35	7.928	12.523	38.147	-0.122	

3/20/2019	10:36	7.444	12.952	47.949	-0.186	
3/20/2019	10:37	7.869	12.573	38.253	-0.154	
3/20/2019	10:38	7.619	12.769	49.514	-0.17	
3/20/2019	10:39	7.831	12.602	41.835	-0.176	
3/20/2019	10:40	7.288	13.106	54.615	-0.208	
3/20/2019	10:41	7.428	12.989	48.942	-0.198	
3/20/2019	10:42	7.016	13.392	61.968	-0.181	
3/20/2019	10:43	7.142	13.248	58.571	-0.218	
3/20/2019	10:44	7.478	12.844	49.887	-0.185	
3/20/2019	10:45	10.134	10.137	11.481	0.116	
3/20/2019	10:46	11.486	8.919	6.998	0.362	
3/20/2019	10:47	10.511	9.988	7.075	0.381	
3/20/2019	10:48	9.362	11.017	7.858	0.523	
3/20/2019	10:49	9.613	10.763	7.669	0.554	
3/20/2019	10:50	9.46	10.932	8.38	0.369	
3/20/2019	10:51	9.285	11.15	10.502	0.252	
3/20/2019	10:52	7.935	12.481	21.493	0.162	
3/20/2019	10:53	7.696	12.73	27.6	0.015	
3/20/2019	10:54	7.722	12.699	32.175	-0.073	
3/20/2019	10:55	8.258	12.093	28.889	-0.113	
3/20/2019	10:56	8.91	11.446	19.431	-0.032	
3/20/2019	10:57	9.199	11.235	14.393	-0.007	
3/20/2019	10:58	8.627	11.779	22.249	0.013	
3/20/2019	10:59	8.314	12.064	28.425	-0.093	
3/20/2019	11:00	9.392	11.041	19.861	-0.097	
3/20/2019	11:01	8.586	11.815	30.374	-0.112	
3/20/2019	11:02	8.703	11.754	27.307	-0.134	
3/20/2019	11:03	8.152	12.259	32.444	-0.169	
3/20/2019	11:04	8.053	12.376	37.461	-0.177	
3/20/2019	11:05	7.994	12.424	36.577	-0.189	
Run 2 Average		8.48	11.92	29.67	0.00	
3/20/2019	11:06	2.471	3.407	43.077	-0.194	
3/20/2019	11:07	0.002	0.07	44.106	-0.015	NOx Bias
3/20/2019	11:08	-0.001	0.059	25.734	0.401	
3/20/2019	11:09	-0.005	0.052	0.112	4.168	
3/20/2019	11:10	-0.006	0.049	0.063	4.63	CO Bias
3/20/2019	11:11	6.487	6.833	0.047	3.974	
3/20/2019	11:12	10.398	10.445	0.046	-0.03	O2 CO2 Bias
3/20/2019	11:13	1.527	1.898	0.035	-0.098	
3/20/2019	11:14	-0.01	0.028	0.012	-0.042	Zero
3/20/2019	11:15	8.658	9.164	37.763	2.055	
3/20/2019	11:16	10.479	10.499	45.111	4.622	
3/20/2019	11:17	10.483	10.496	45.186	4.635	Span
3/20/2019	11:18	8.567	12.003	45.682	2.598	
3/20/2019	11:19	7.927	12.521	55.16	-0.28	
3/20/2019	11:20	8.062	12.37	49.168	-0.29	
3/20/2019	11:21	8.023	12.378	54.437	-0.262	
3/20/2019	11:22	7.608	12.838	56.143	-0.252	
3/20/2019	11:23	7.647	12.756	53.427	-0.235	
3/20/2019	11:24	7.894	12.524	48.368	-0.22	
3/20/2019	11:25	7.781	12.61	52.48	-0.222	

3/20/2019	11:26	7.796	12.63	52.945	-0.22	
3/20/2019	11:27	7.377	13.022	59.874	-0.242	
3/20/2019	11:28	7.241	13.138	62.052	-0.223	
3/20/2019	11:29	7.658	12.717	51.303	-0.221	
3/20/2019	11:30	8.134	12.274	35.428	-0.154	
3/20/2019	11:31	7.988	12.37	39.884	-0.149	
3/20/2019	11:32	7.955	12.427	38.909	-0.132	
3/20/2019	11:33	8.606	11.757	26.442	-0.104	
3/20/2019	11:34	8.458	11.957	26.437	-0.069	
3/20/2019	11:35	8.103	12.282	32.95	-0.125	
3/20/2019	11:36	8.306	12.061	34.234	-0.132	
3/20/2019	11:37	8.551	11.863	27.751	-0.14	
3/20/2019	11:38	7.903	12.507	41.226	-0.148	
3/20/2019	11:39	7.606	12.78	49.937	-0.206	
3/20/2019	11:40	7.673	12.732	49.776	-0.217	
3/20/2019	11:41	8.173	12.195	37.682	-0.239	
3/20/2019	11:42	8.722	11.66	24.354	-0.169	
3/20/2019	11:43	8.882	11.514	20.397	-0.087	
3/20/2019	11:44	8.501	11.9	28.765	-0.131	
3/20/2019	11:45	8.056	12.361	41.475	-0.165	
3/20/2019	11:46	7.829	12.55	51.983	-0.241	
3/20/2019	11:47	8.417	11.987	36.719	-0.247	
3/20/2019	11:48	8.258	12.13	42.025	-0.233	
3/20/2019	11:49	8.215	12.207	34.903	-0.224	
3/20/2019	11:50	8.207	12.19	37.416	-0.205	
Run 3 Average		8.05	12.34	41.66	-0.19	
3/20/2019	11:51	3.424	4.519	38.023	-0.224	
3/20/2019	11:52	0.003	0.074	44.733	-0.046	
3/20/2019	11:53	-0.002	0.057	44.788	0.024	NOx Bias
3/20/2019	11:54	-0.004	0.051	29.068	0.259	
3/20/2019	11:55	-0.005	0.047	0.136	3.997	
3/20/2019	11:56	-0.006	0.044	0.074	4.641	CO Bias
3/20/2019	11:57	5.024	5.162	0.047	4.364	
3/20/2019	11:58	10.418	10.413	0.042	0.398	O2 CO2 Bias
3/20/2019	11:59	1.355	1.571	0.023	-0.085	
3/20/2019	12:00	-0.009	0.026	0.018	-0.013	Zero
3/20/2019	12:01	8.518	9.005	37.774	1.9	
3/20/2019	12:02	10.477	10.457	45.5	4.624	
3/20/2019	12:03	10.48	10.469	45.538	4.642	Span
3/20/2019	12:04	8.622	12.02	50.925	3.278	
3/20/2019	12:05	8.35	12.066	36.788	-0.108	
3/20/2019	12:06	9.07	11.342	24.182	-0.161	
3/20/2019	12:07	8.598	11.871	27.04	-0.088	
3/20/2019	12:08	8.065	12.369	34.6	-0.132	
3/20/2019	12:09	7.829	12.594	43.898	-0.196	
3/20/2019	12:10	7.697	12.734	52.071	-0.169	
3/20/2019	12:11	8.077	12.303	48.908	-0.227	
3/20/2019	12:12	9.001	11.413	22.901	-0.163	
3/20/2019	12:13	8.823	11.599	22.362	-0.08	
3/20/2019	12:14	8.149	12.306	30.254	-0.068	
3/20/2019	12:15	8.387	12.039	36.527	-0.159	

3/20/2019	12:16	7.604	12.876	51.851	-0.208	
3/20/2019	12:17	7.795	12.632	54.247	-0.245	
3/20/2019	12:18	6.908	13.526	72.807	-0.247	
3/20/2019	12:19	7.224	13.22	64.92	-0.254	
3/20/2019	12:20	7.681	12.7	54.783	-0.254	
3/20/2019	12:21	8.3	12.114	36.934	-0.188	
3/20/2019	12:22	9.153	11.251	17.111	-0.044	
3/20/2019	12:23	9.212	11.19	15.852	0.049	
3/20/2019	12:24	9.546	10.869	17.883	0.031	
3/20/2019	12:25	9.083	11.36	18.874	0.003	
3/20/2019	12:26	9.158	11.269	16.606	-0.048	
3/20/2019	12:27	8.454	12.014	28.579	-0.063	
3/20/2019	12:28	8.245	12.186	42.021	-0.204	
3/20/2019	12:29	8.776	11.652	38.504	-0.231	
3/20/2019	12:30	8.537	11.904	42.679	-0.218	
3/20/2019	12:31	7.853	12.599	53.862	-0.253	
3/20/2019	12:32	7.877	12.562	54.398	-0.259	
3/20/2019	12:33	7.717	12.713	59.625	-0.259	
3/20/2019	12:34	8.142	12.287	49.148	-0.261	
3/20/2019	12:35	8.782	11.601	31.822	-0.217	
Run 4 Average		8.32	12.10	38.84	-0.16	
3/20/2019	12:36	4.956	5.843	32.015	-0.13	
3/20/2019	12:37	0.005	0.078	44.963	-0.017	NOx Bias
3/20/2019	12:38	0	0.062	41.453	0.06	
3/20/2019	12:39	-0.005	0.054	0.291	2.955	
3/20/2019	12:40	-0.006	0.05	0.093	4.659	CO Bias
3/20/2019	12:41	5.493	5.73	0.101	4.317	
3/20/2019	12:42	10.401	10.423	0.071	0.568	O2 CO2 Bias
3/20/2019	12:43	1.734	1.956	0.047	-0.004	CO Zero
3/20/2019	12:44	-0.012	0.026	0.04	1.079	O2 CO2 NOx Zero
3/20/2019	12:45	8.712	9.3	38.674	4.533	
3/20/2019	12:46	10.468	10.499	45.605	4.646	Span
3/20/2019	12:47	8.451	12.393	43.978	2.975	
3/20/2019	12:48	7.637	12.845	43.387	-0.186	
3/20/2019	12:49	7.867	12.523	36.278	-0.211	
3/20/2019	12:50	8.025	12.471	29.808	-0.149	
3/20/2019	12:51	8.313	12.104	21.606	-0.116	
3/20/2019	12:52	8.256	12.236	19.622	-0.047	
3/20/2019	12:53	7.725	12.678	34.519	-0.118	
3/20/2019	12:54	8.384	12.009	27.287	-0.191	
3/20/2019	12:55	8.667	11.779	25.132	-0.169	
3/20/2019	12:56	8.048	12.371	35.489	-0.189	
3/20/2019	12:57	8.04	12.402	35.031	-0.201	
3/20/2019	12:58	8.055	12.337	38.452	-0.241	
3/20/2019	12:59	8.301	12.125	30.664	-0.224	
3/20/2019	13:00	8.392	11.973	33.705	-0.21	
3/20/2019	13:01	8.252	12.187	37.855	-0.199	
3/20/2019	13:02	8.749	11.606	32.667	-0.233	
3/20/2019	13:03	8.901	11.535	26.265	-0.188	
3/20/2019	13:04	8.651	11.716	32.815	-0.195	
3/20/2019	13:05	8.408	11.982	37.307	-0.224	

3/20/2019	13:06	8.716	11.68	35.186	-0.234	
3/20/2019	13:07	8.873	11.544	30.684	-0.212	
3/20/2019	13:08	8.761	11.624	33.122	-0.211	
3/20/2019	13:09	9.402	10.992	25.071	-0.217	
3/20/2019	13:10	8.346	12.093	37.279	-0.212	
3/20/2019	13:11	7.676	12.751	48.416	-0.231	
3/20/2019	13:12	8.062	12.338	44.673	-0.267	
3/20/2019	13:13	8.637	11.742	37.106	-0.26	
3/20/2019	13:14	7.9	12.554	46.014	-0.241	
3/20/2019	13:15	7.059	13.349	65.565	-0.279	
3/20/2019	13:16	7.14	13.238	73.005	-0.292	
3/20/2019	13:17	8.025	12.366	55.722	-0.293	
3/20/2019	13:18	8.082	12.306	50.602	-0.288	
Run 5 Average		8.26	12.15	37.23	-0.21	
3/20/2019	13:19	3.152	3.909	42.049	-0.267	
3/20/2019	13:20	0.001	0.073	44.915	-0.035	
3/20/2019	13:21	-0.005	0.059	45.05	0.028	NOx Bias
3/20/2019	13:22	-0.004	0.053	18.56	0.927	
3/20/2019	13:23	-0.006	0.049	0.117	4.486	
3/20/2019	13:24	-0.006	0.046	0.071	4.652	CO Bias
3/20/2019	13:25	5.939	6.264	0.401	4.162	
3/20/2019	13:26	10.4	10.429	0.048	0.381	O2 CO2 Bias
3/20/2019	13:27	7.009	7.528	0.043	-0.001	CO Zero
3/20/2019	13:28	-0.008	0.028	0.025	0.425	Zero
3/20/2019	13:29	9.122	8.979	34.083	4.243	
3/20/2019	13:30	10.464	10.487	45.652	4.654	Span
3/20/2019	13:31	10.713	9.939	21.018	4.084	
3/20/2019	13:32	8.598	11.91	15.072	0.463	
3/20/2019	13:33	8.159	12.229	21.998	-0.061	
3/20/2019	13:34	8.481	11.985	22.663	-0.098	
3/20/2019	13:35	8.624	11.765	24.766	-0.169	
3/20/2019	13:36	8.706	11.699	24.919	-0.176	
3/20/2019	13:37	8.274	12.203	32.717	-0.196	
3/20/2019	13:38	8.502	11.897	34.669	-0.228	
3/20/2019	13:39	7.345	13.078	51.94	-0.259	
3/20/2019	13:40	7.912	12.518	49.759	-0.295	
3/20/2019	13:41	8.195	12.2	50.019	-0.298	
3/20/2019	13:42	8.869	11.495	40.035	-0.285	
3/20/2019	13:43	9.039	11.348	27.734	-0.229	
3/20/2019	13:44	8.796	11.642	28.108	-0.201	
3/20/2019	13:45	8.478	11.931	30.895	-0.224	
3/20/2019	13:46	8.369	12.078	34.72	-0.251	
3/20/2019	13:47	7.588	12.826	56.012	-0.283	
3/20/2019	13:48	7.068	13.324	70.418	-0.301	
3/20/2019	13:49	7.754	12.663	58.753	-0.315	
3/20/2019	13:50	8.162	12.257	43.722	-0.268	
3/20/2019	13:51	8.002	12.406	41.366	-0.27	
3/20/2019	13:52	7.321	13.113	51.994	-0.255	
3/20/2019	13:53	7.678	12.737	43.057	-0.276	
3/20/2019	13:54	7.302	13.082	54.24	-0.264	
3/20/2019	13:55	7.669	12.673	53.58	-0.296	

3/20/2019	13:56	8.391	11.996	38.299	-0.258	
3/20/2019	13:57	8.534	11.843	30.03	-0.21	
3/20/2019	13:58	8.337	12.032	34.133	-0.193	
3/20/2019	13:59	8.775	11.619	29.347	-0.203	
3/20/2019	14:00	8.455	11.909	36.626	-0.218	
3/20/2019	14:01	8.878	11.476	24.213	-0.206	
3/20/2019	14:02	8.391	11.982	35.506	-0.179	
Run 6 Average		8.20	12.20	39.21	-0.23	
3/20/2019	14:03	2.532	3.016	40.403	-0.229	
3/20/2019	14:04	0.003	0.067	44.978	-0.01	
3/20/2019	14:05	-0.002	0.054	44.914	0.033	NOx Bias
3/20/2019	14:06	-0.004	0.05	20.617	0.78	
3/20/2019	14:07	-0.006	0.045	0.121	4.434	
3/20/2019	14:08	-0.007	0.045	0.079	4.651	CO Bias
3/20/2019	14:09	7.126	7.392	0.086	3.832	
3/20/2019	14:10	10.388	10.412	0.058	0.216	O2 CO2 Bias
3/20/2019	14:11	10.346	10.495	0.31	0	CO Zero
3/20/2019	14:12	0.911	2.106	13.628	0.514	
3/20/2019	14:13	-0.012	0.024	0.039	4.305	O2 CO2 NOx Zero
3/20/2019	14:14	8.896	8.606	32.569	4.648	CO Span
3/20/2019	14:15	10.451	10.467	45.483	3.505	O2 CO2 NOx Span
3/20/2019	14:16	8.74	12.017	58.785	-0.151	
3/20/2019	14:17	7.725	12.637	61.251	-0.327	
3/20/2019	14:18	8.875	11.497	28.24	-0.246	
3/20/2019	14:19	8.367	12.037	28.985	-0.047	
3/20/2019	14:20	8.06	12.316	36.608	-0.097	
3/20/2019	14:21	7.774	12.606	41.395	-0.135	
3/20/2019	14:22	8.389	11.982	27.115	-0.157	
3/20/2019	14:23	9.009	11.371	16.67	0.003	
3/20/2019	14:24	8.341	12.032	22.036	0.046	
3/20/2019	14:25	8.282	12.133	23.683	0.013	
3/20/2019	14:26	8.323	12.05	24.146	-0.078	
3/20/2019	14:27	8.784	11.611	18.312	-0.028	
3/20/2019	14:28	8.195	12.195	28.027	-0.073	
3/20/2019	14:29	8.422	11.948	27.855	-0.163	
3/20/2019	14:30	8.307	12.149	30.479	-0.168	
3/20/2019	14:31	7.594	12.818	49.389	-0.201	
3/20/2019	14:32	7.894	12.48	48.603	-0.243	
3/20/2019	14:33	8.485	11.918	31.051	-0.165	
3/20/2019	14:34	7.466	12.959	52.244	-0.187	
3/20/2019	14:35	7.402	13.01	52.638	-0.249	
3/20/2019	14:36	7.364	13.021	56.633	-0.276	
3/20/2019	14:37	7.269	13.136	59.441	-0.289	
3/20/2019	14:38	7.926	12.449	43.64	-0.24	
3/20/2019	14:39	8.242	12.146	38.114	-0.179	
3/20/2019	14:40	8.113	12.281	38.761	-0.209	
3/20/2019	14:41	8.282	12.087	30.624	-0.181	
3/20/2019	14:42	7.893	12.533	40.157	-0.128	
3/20/2019	14:43	7.344	13.025	59.231	-0.282	
3/20/2019	14:44	7.875	12.487	55.579	-0.305	
3/20/2019	14:45	8.25	12.11	40.696	-0.271	

3/20/2019	14:46	8.131	12.317	42.351	-0.218	
Run 7 Average		8.08	12.31	38.47	-0.17	
3/20/2019	14:47	5.46	8.065	41.34	-0.205	
3/20/2019	14:48	0.007	0.092	45.027	-0.057	
3/20/2019	14:49	-0.001	0.062	45.032	0.006	NOx Bias
3/20/2019	14:50	-0.002	0.056	34.983	0.084	
3/20/2019	14:51	-0.005	0.052	0.183	3.583	
3/20/2019	14:52	-0.006	0.048	0.093	4.64	CO Bias
3/20/2019	14:53	4.79	4.895	0.106	4.09	
3/20/2019	14:54	10.379	10.406	0.07	0.322	O2 CO2 Bias
3/20/2019	14:55	3.333	3.67	0.055	-0.031	CO Zero
3/20/2019	14:56	-0.011	0.029	0.041	0.716	O2 CO2 NOx Zero
3/20/2019	14:57	8.374	8.12	30.396	4.404	
3/20/2019	14:58	10.447	10.487	45.589	4.631	Span
3/20/2019	14:59	8.809	11.788	33.102	2.769	
3/20/2019	15:00	7.653	12.82	46.804	-0.173	
3/20/2019	15:01	7.613	12.794	51.374	-0.299	
3/20/2019	15:02	8.139	12.328	39.413	-0.236	
3/20/2019	15:03	7.733	12.721	46.682	-0.202	
3/20/2019	15:04	7.66	12.758	48.752	-0.224	
3/20/2019	15:05	7.854	12.589	36.697	-0.182	
3/20/2019	15:06	8.119	12.297	30.968	-0.189	
3/20/2019	15:07	7.765	12.681	39.957	-0.152	
3/20/2019	15:08	7.866	12.559	38.47	-0.2	
3/20/2019	15:09	7.916	12.518	32.754	-0.146	
3/20/2019	15:10	7.444	12.992	45.703	-0.168	
3/20/2019	15:11	7.643	12.769	46.859	-0.228	
3/20/2019	15:12	7.47	12.98	48.651	-0.217	
3/20/2019	15:13	7.311	13.098	51.834	-0.252	
3/20/2019	15:14	7.675	12.702	45.649	-0.237	
3/20/2019	15:15	8.224	12.186	32.073	-0.183	
3/20/2019	15:16	8.173	12.208	31.403	-0.1	
3/20/2019	15:17	7.885	12.519	33.755	-0.115	
3/20/2019	15:18	7.99	12.428	37.349	-0.103	
3/20/2019	15:19	7.579	12.807	47.594	-0.17	
3/20/2019	15:20	7.518	12.863	42.921	-0.173	
3/20/2019	15:21	8.078	12.301	29.259	-0.147	
3/20/2019	15:22	7.57	12.849	38.26	-0.086	
3/20/2019	15:23	8.018	12.336	30.251	-0.123	
3/20/2019	15:24	7.753	12.682	34.333	-0.099	
3/20/2019	15:25	8.083	12.27	30.499	-0.101	
3/20/2019	15:26	7.93	12.468	32.597	-0.06	
3/20/2019	15:27	8.002	12.366	28.071	-0.076	
3/20/2019	15:28	7.487	12.902	37.055	-0.045	
3/20/2019	15:29	7.574	12.789	37.138	-0.149	
3/20/2019	15:30	8.189	12.203	24.584	-0.104	
Run 8 Average		7.81	12.60	38.36	-0.16	
3/20/2019	15:31	5.063	7.259	29.868	-0.084	
3/20/2019	15:32	0.008	0.094	44.886	-0.009	NOx Bias
3/20/2019	15:33	-0.003	0.059	37.79	0.012	
3/20/2019	15:34	-0.006	0.049	0.165	3.34	

3/20/2019	15:35	-0.008	0.045	0.078	4.647	CO Bias
3/20/2019	15:36	7.702	8.647	0.112	3.392	
3/20/2019	15:37	10.377	10.443	0.042	-0.264	O2 CO2 Bias
3/20/2019	15:38	2.517	2.787	0.044	-0.104	
3/20/2019	15:39	-0.011	0.025	0.026	-0.01	Zero
3/20/2019	15:40	7.563	8.148	34.26	1.571	
3/20/2019	15:41	10.458	10.487	45.677	4.595	
3/20/2019	15:42	10.461	10.487	45.616	4.648	Span
3/20/2019	15:43	9.918	11.028	42.641	4.53	
3/20/2019	15:44	8.289	12.139	38.907	1.024	
3/20/2019	15:45	8.317	12.044	41.415	-0.241	
3/20/2019	15:46	8.808	11.57	31.884	-0.204	
3/20/2019	15:47	9.075	11.359	25.75	-0.15	
3/20/2019	15:48	8.083	12.378	38.945	-0.174	
3/20/2019	15:49	7.897	12.566	47.756	-0.207	
3/20/2019	15:50	7.933	12.472	51.961	-0.236	
3/20/2019	15:51	7.3	13.073	64.25	-0.237	
3/20/2019	15:52	8.203	12.209	45.53	-0.201	
3/20/2019	15:53	8.087	12.4	46.762	-0.187	
3/20/2019	15:54	7.707	12.71	52.339	-0.209	
3/20/2019	15:55	7.91	12.514	49.961	-0.221	
3/20/2019	15:56	8.121	12.295	40.884	-0.194	
3/20/2019	15:57	8.347	12.092	34.025	-0.137	
3/20/2019	15:58	8.633	11.761	30.278	-0.139	
3/20/2019	15:59	8.791	11.583	29.305	-0.104	
3/20/2019	16:00	8.486	11.954	36.334	-0.121	
3/20/2019	16:01	8.481	11.882	39.679	-0.159	
3/20/2019	16:02	8.584	11.827	35.394	-0.155	
3/20/2019	16:03	8.319	12.091	38.167	-0.144	
3/20/2019	16:04	8.464	11.952	34.715	-0.127	
3/20/2019	16:05	8.43	11.913	37.915	-0.146	
3/20/2019	16:06	8.783	11.67	27.84	-0.085	
3/20/2019	16:07	7.854	12.525	43.19	-0.117	
3/20/2019	16:08	7.905	12.521	47.536	-0.139	
3/20/2019	16:09	7.968	12.355	46.215	-0.132	
3/20/2019	16:10	8.046	12.364	38.811	-0.09	
3/20/2019	16:11	7.659	12.816	44.595	-0.105	
3/20/2019	16:12	7.758	12.629	46.436	-0.111	
3/20/2019	16:13	8.088	12.217	38.503	-0.121	
3/20/2019	16:14	8.562	11.743	26.681	-0.07	
Run 9 Average		8.22	12.18	40.44	-0.16	
3/20/2019	16:15	3.3	3.383	34.769	-0.019	
3/20/2019	16:16	0.002	0.024	44.937	0.06	
3/20/2019	16:17	-0.004	0.024	44.976	0.09	NOx Bias
3/20/2019	16:18	-0.005	0.053	19.013	0.91	
3/20/2019	16:19	-0.007	0.047	0.108	4.498	
3/20/2019	16:20	-0.009	0.042	0.069	4.669	CO Bias
3/20/2019	16:21	6.94	7.514	0.363	3.713	
3/20/2019	16:22	10.384	10.459	0.044	-0.083	O2 CO2 Bias
3/20/2019	16:23	1.287	1.514	0.032	-0.023	
3/20/2019	16:24	-0.012	0.025	0.032	0.016	Zero

3/20/2019	16:25	8.083	8.462	35.735	1.68	
3/20/2019	16:26	10.461	10.486	45.639	4.62	
3/20/2019	16:27	10.461	10.527	45.693	4.659	
3/20/2019	16:28	9.675	11.296	32.388	4.19	
3/20/2019	16:29	7.351	13.14	41.761	0.43	
3/20/2019	16:30	7.89	12.424	28.569	-0.04	
3/20/2019	16:31	8.254	12.14	25.375	-0.003	
3/20/2019	16:32	8.41	11.942	26.279	-0.013	
3/20/2019	16:33	8.317	12.233	25.53	0.02	
3/20/2019	16:34	7.17	13.265	41.436	-0.016	
3/20/2019	16:35	7.706	12.694	30.603	-0.049	
3/20/2019	16:36	7.679	12.69	34.643	-0.047	
3/20/2019	16:37	7.792	12.698	32.584	-0.07	
3/20/2019	16:38	8.437	11.799	23.852	-0.052	
3/20/2019	16:39	8.822	11.554	22.436	0.005	
3/20/2019	16:40	9.304	11	15.336	0.02	
3/20/2019	16:41	9.303	11.138	15.419	0.066	
3/20/2019	16:42	8.493	11.914	22.103	0.029	
3/20/2019	16:43	8.128	12.362	30.684	-0.042	
3/20/2019	16:44	8.652	11.664	26.092	-0.093	
3/20/2019	16:45	9.102	11.306	22.791	-0.099	
3/20/2019	16:46	8.762	11.653	30.118	-0.117	
3/20/2019	16:47	8.917	11.522	26.251	-0.118	
3/20/2019	16:48	8.186	12.307	35.319	-0.149	
3/20/2019	16:49	7.888	12.512	43.113	-0.174	
3/20/2019	16:50	8.085	12.265	43.569	-0.186	
3/20/2019	16:51	8.096	12.398	45.824	-0.2	
3/20/2019	16:52	8.236	12.108	45.801	-0.198	
3/20/2019	16:53	8.168	12.254	51.778	-0.201	
3/20/2019	16:54	8.181	12.279	48.674	-0.193	
3/20/2019	16:55	8.438	11.788	46.153	-0.206	
3/20/2019	16:56	8.72	11.699	38.587	-0.189	
3/20/2019	16:57	8.522	11.827	38.244	-0.157	
3/20/2019	16:58	8.278	12.168	43.583	-0.141	
3/20/2019	16:59	8.355	11.981	37.158	-0.163	
3/20/2019	17:00	8.32	12.061	36.265	-0.145	
3/20/2019	17:01	8.003	12.439	39.258	-0.132	
3/20/2019	17:02	8.051	12.322	37.882	-0.141	
3/20/2019	17:03	8.716	11.545	27.589	-0.122	
3/20/2019	17:04	8.459	12.074	29.395	-0.082	
3/20/2019	17:05	7.491	12.799	44.708	-0.139	
3/20/2019	17:06	7.836	12.6	40.356	-0.126	
3/20/2019	17:07	7.604	12.718	45.695	-0.147	
3/20/2019	17:08	8.304	12.072	33.185	-0.14	
Run 10 Average		8.38	12.01	35.45	-0.12	
3/20/2019	17:09	2.165	1.987	41.456	-0.123	
3/20/2019	17:10	-0.001	0.061	44.832	0.027	NOx Bias
3/20/2019	17:11	-0.004	0.05	41.085	0.049	
3/20/2019	17:12	-0.007	0.049	0.233	3.042	
3/20/2019	17:13	-0.009	0.045	0.086	4.661	CO Bias
3/20/2019	17:14	6.158	6.96	0.136	4.033	

3/20/2019	17:15	10.375	10.452	0.047	0.342	O2 CO2 Bias
3/20/2019	17:16	0.823	1.027	0.045	0.003	CO Zero
3/20/2019	17:17	-0.011	0.026	0.041	0.809	O2 CO2 NOx Zero
3/20/2019	17:18	8.031	7.769	28.452	4.454	
3/20/2019	17:19	10.464	10.521	45.681	4.648	Span
3/20/2019	17:20	14.935	14.05	63.617	4.74	
3/20/2019	17:21	19.313	18.759	90.327	7.747	
3/20/2019	17:22	19.312	18.786	90.022	8.572	High
3/20/2019	17:23	11.271	13.241	45.928	6.613	

Date	Time	O2 %	CO2 %	
3/22/2019	6:22	19.33	18.95	
3/22/2019	6:23	19.35	18.95	High
3/22/2019	6:24	11.85	12.02	
3/22/2019	6:25	10.50	10.61	Mid
3/22/2019	6:26	2.05	2.28	
3/22/2019	6:27	0.00	0.02	Zero
3/22/2019	6:28	5.64	7.93	
3/22/2019	6:29	2.43	2.50	
3/22/2019	6:30	0.01	0.04	Zero Bias
3/22/2019	6:31	7.18	7.53	
3/22/2019	6:32	10.45	10.57	O2 CO2 Bias
3/22/2019	6:33	9.84	10.96	
3/22/2019	6:34	9.24	11.39	
3/22/2019	6:35	8.42	12.22	
3/22/2019	6:36	8.25	12.34	
3/22/2019	6:37	9.01	11.59	
3/22/2019	6:38	9.50	11.10	
3/22/2019	6:39	8.03	12.62	
3/22/2019	6:40	8.14	12.47	
3/22/2019	6:41	8.20	12.45	
3/22/2019	6:42	8.19	12.43	
3/22/2019	6:43	8.10	12.52	
3/22/2019	6:44	8.35	12.29	
3/22/2019	6:45	8.55	12.05	
3/22/2019	6:46	9.38	11.22	
3/22/2019	6:47	9.47	11.14	
3/22/2019	6:48	8.91	11.75	
3/22/2019	6:49	7.49	13.16	
3/22/2019	6:50	8.10	12.52	
3/22/2019	6:51	8.40	12.20	
3/22/2019	6:52	8.90	11.71	
3/22/2019	6:53	8.76	11.85	
3/22/2019	6:54	8.72	11.94	
3/22/2019	6:55	8.18	12.48	
3/22/2019	6:56	8.07	12.51	
3/22/2019	6:57	7.80	12.85	
3/22/2019	6:58	7.64	12.98	
3/22/2019	6:59	8.19	12.45	
3/22/2019	7:00	9.00	11.56	
3/22/2019	7:01	9.78	10.84	
3/22/2019	7:02	9.02	11.60	
3/22/2019	7:03	9.37	11.24	
3/22/2019	7:04	8.68	11.98	
3/22/2019	7:05	8.10	12.55	
3/22/2019	7:06	8.37	12.23	
3/22/2019	7:07	7.80	12.81	

3/22/2019	7:08	8.81	11.86
3/22/2019	7:09	8.53	12.08
3/22/2019	7:10	9.42	11.17
3/22/2019	7:11	8.56	12.13
3/22/2019	7:12	8.19	12.44
3/22/2019	7:13	8.13	12.45
3/22/2019	7:14	8.92	11.70
3/22/2019	7:15	8.86	11.76
3/22/2019	7:16	9.09	11.48
3/22/2019	7:17	9.04	11.57
3/22/2019	7:18	9.73	10.84
3/22/2019	7:19	9.00	11.63
3/22/2019	7:20	8.47	12.11
3/22/2019	7:21	8.22	12.39
3/22/2019	7:22	8.70	11.85
3/22/2019	7:23	8.96	11.65
3/22/2019	7:24	7.99	12.61
3/22/2019	7:25	8.43	12.18
3/22/2019	7:26	8.58	12.03
3/22/2019	7:27	8.43	12.15
3/22/2019	7:28	7.71	13.00
3/22/2019	7:29	7.72	12.89
3/22/2019	7:30	8.21	12.42
3/22/2019	7:31	8.15	12.46
3/22/2019	7:32	8.06	12.57
3/22/2019	7:33	7.97	12.65
3/22/2019	7:34	8.99	11.60
3/22/2019	7:35	8.25	12.42
3/22/2019	7:36	8.17	12.45
3/22/2019	7:37	8.92	11.69
3/22/2019	7:38	8.29	12.40
3/22/2019	7:39	7.68	13.00
3/22/2019	7:40	7.98	12.60
3/22/2019	7:41	8.45	12.19
3/22/2019	7:42	8.21	12.40
3/22/2019	7:43	7.67	12.97
3/22/2019	7:44	7.75	12.85
3/22/2019	7:45	8.65	11.92
3/22/2019	7:46	8.42	12.17
3/22/2019	7:47	9.38	11.21
3/22/2019	7:48	8.68	11.94
3/22/2019	7:49	8.41	12.19
3/22/2019	7:50	8.28	12.35
3/22/2019	7:51	8.10	12.46
3/22/2019	7:52	8.10	12.55
3/22/2019	7:53	7.77	12.82
3/22/2019	7:54	8.22	12.40
3/22/2019	7:55	8.37	12.23
3/22/2019	7:56	7.86	12.74

3/22/2019	7:57	7.97	12.62
3/22/2019	7:58	8.27	12.32
3/22/2019	7:59	8.42	12.18
3/22/2019	8:00	8.19	12.43
3/22/2019	8:01	7.89	12.75
3/22/2019	8:02	8.13	12.44
3/22/2019	8:03	8.70	11.90
3/22/2019	8:04	8.22	12.40
3/22/2019	8:05	7.93	12.69
3/22/2019	8:06	8.33	12.24
3/22/2019	8:07	8.66	11.96
3/22/2019	8:08	7.30	13.30
3/22/2019	8:09	8.12	12.46
3/22/2019	8:10	8.56	12.07
3/22/2019	8:11	8.40	12.17
3/22/2019	8:12	9.29	11.27
3/22/2019	8:13	9.23	11.36
3/22/2019	8:14	8.52	12.12
3/22/2019	8:15	8.39	12.25
3/22/2019	8:16	8.49	12.09
3/22/2019	8:17	8.91	11.69
3/22/2019	8:18	8.82	11.85
3/22/2019	8:19	8.21	12.45
3/22/2019	8:20	8.29	12.36
3/22/2019	8:21	8.33	12.33
3/22/2019	8:22	8.19	12.43
3/22/2019	8:23	8.86	11.77
3/22/2019	8:24	8.67	12.01
3/22/2019	8:25	8.04	12.63
3/22/2019	8:26	7.48	13.16
3/22/2019	8:27	8.41	12.23
3/22/2019	8:28	8.49	12.18
3/22/2019	8:29	8.00	12.66
3/22/2019	8:30	7.80	12.87
3/22/2019	8:31	8.12	12.54
3/22/2019	8:32	8.86	11.77
3/22/2019	8:33	8.61	12.05
3/22/2019	8:34	8.37	12.32
3/22/2019	8:35	7.57	13.11
3/22/2019	8:36	7.39	13.29
3/22/2019	8:37	7.77	12.90
3/22/2019	8:38	7.51	13.15
3/22/2019	8:39	7.68	12.99
3/22/2019	8:40	7.46	13.18
3/22/2019	8:41	8.10	12.57
3/22/2019	8:42	8.43	12.22
3/22/2019	8:43	8.60	12.04
3/22/2019	8:44	8.20	12.46
3/22/2019	8:45	8.69	11.96

3/22/2019	8:46	8.68	11.98	
3/22/2019	8:47	8.26	12.40	
3/22/2019	8:48	8.46	12.18	
1-PM-U1 Average		8.37	12.25	
3/22/2019	8:49	10.38	10.61	
3/22/2019	8:50	10.46	10.59	O2 CO2 Bias
3/22/2019	8:51	1.44	1.10	
3/22/2019	8:52	0.01	0.05	Zero Bias
3/22/2019	8:53	9.98	9.68	
3/22/2019	8:54	10.51	10.59	Span
3/22/2019	8:55	1.55	1.78	
3/22/2019	8:56	0.00	0.03	Zero
3/22/2019	8:57	6.74	9.72	
3/22/2019	8:58	7.83	12.80	
3/22/2019	8:59	8.23	12.36	
3/22/2019	9:00	8.49	12.14	
3/22/2019	9:01	8.40	12.24	
3/22/2019	9:02	8.02	12.61	
3/22/2019	9:03	8.66	11.95	
3/22/2019	9:04	8.91	11.69	
3/22/2019	9:05	9.04	11.57	
3/22/2019	9:06	8.02	12.64	
3/22/2019	9:07	7.53	13.10	
3/22/2019	9:08	7.41	13.25	
3/22/2019	9:09	7.94	12.67	
3/22/2019	9:10	8.51	12.14	
3/22/2019	9:11	7.76	12.87	
3/22/2019	9:12	8.26	12.38	
3/22/2019	9:13	8.01	12.64	
3/22/2019	9:14	8.73	11.89	
3/22/2019	9:15	8.45	12.19	
3/22/2019	9:16	8.18	12.47	
3/22/2019	9:17	7.38	13.27	
3/22/2019	9:18	7.84	12.77	
3/22/2019	9:19	8.27	12.36	
3/22/2019	9:20	8.87	11.73	
3/22/2019	9:21	8.17	12.48	
3/22/2019	9:22	8.18	12.43	
3/22/2019	9:23	8.04	12.60	
3/22/2019	9:24	8.04	12.58	
3/22/2019	9:25	7.62	13.01	
3/22/2019	9:26	8.29	12.31	
3/22/2019	9:27	8.21	12.40	
3/22/2019	9:28	7.91	12.70	
3/22/2019	9:29	7.55	13.05	
3/22/2019	9:30	8.75	11.83	
3/22/2019	9:31	8.22	12.38	
3/22/2019	9:32	8.82	11.76	

3/22/2019	9:33	8.03	12.59
3/22/2019	9:34	7.40	13.21
3/22/2019	9:35	7.57	13.03
3/22/2019	9:36	7.54	13.03
3/22/2019	9:37	8.61	11.95
3/22/2019	9:38	8.46	12.13
3/22/2019	9:39	8.75	11.84
3/22/2019	9:40	8.64	11.91
3/22/2019	9:41	9.23	11.33
3/22/2019	9:42	9.38	11.20
3/22/2019	9:43	8.80	11.77
3/22/2019	9:44	9.22	11.37
3/22/2019	9:45	8.56	12.03
3/22/2019	9:46	9.02	11.56
3/22/2019	9:47	8.62	11.95
3/22/2019	9:48	8.48	12.13
3/22/2019	9:49	8.62	11.96
3/22/2019	9:50	8.17	12.44
3/22/2019	9:51	7.63	12.96
3/22/2019	9:52	7.51	13.07
3/22/2019	9:53	8.41	12.17
3/22/2019	9:54	8.56	12.03
3/22/2019	9:55	8.03	12.56
3/22/2019	9:56	8.48	12.10
3/22/2019	9:57	8.33	12.26
3/22/2019	9:58	8.23	12.35
3/22/2019	9:59	8.93	11.62
3/22/2019	10:00	8.83	11.76
3/22/2019	10:01	8.25	12.34
3/22/2019	10:02	8.85	11.74
3/22/2019	10:03	8.05	12.54
3/22/2019	10:04	8.24	12.35
3/22/2019	10:05	8.02	12.58
3/22/2019	10:06	8.74	11.83
3/22/2019	10:07	8.69	11.88
3/22/2019	10:08	8.79	11.78
3/22/2019	10:09	8.22	12.39
3/22/2019	10:10	8.87	11.69
3/22/2019	10:11	8.64	11.94
3/22/2019	10:12	8.85	11.71
3/22/2019	10:13	8.89	11.70
3/22/2019	10:14	8.22	12.37
3/22/2019	10:15	8.26	12.31
3/22/2019	10:16	8.76	11.80
3/22/2019	10:17	8.39	12.21
3/22/2019	10:18	8.52	12.04
3/22/2019	10:19	8.59	11.99
3/22/2019	10:20	8.11	12.47
3/22/2019	10:21	8.16	12.41

3/22/2019	10:22	7.15	13.44
3/22/2019	10:23	7.35	13.24
3/22/2019	10:24	6.80	13.78
3/22/2019	10:25	6.66	13.90
3/22/2019	10:26	7.96	12.61
3/22/2019	10:27	8.63	11.92
3/22/2019	10:28	8.41	12.18
3/22/2019	10:29	7.97	12.61
3/22/2019	10:30	8.02	12.52
3/22/2019	10:31	8.65	11.91
3/22/2019	10:32	8.71	11.87
3/22/2019	10:33	9.01	11.54
3/22/2019	10:34	9.08	11.49
3/22/2019	10:35	8.88	11.70
3/22/2019	10:36	8.25	12.36
3/22/2019	10:37	8.50	12.11
3/22/2019	10:38	7.23	13.35
3/22/2019	10:39	8.15	12.43
3/22/2019	10:40	8.48	12.09
3/22/2019	10:41	8.77	11.80
3/22/2019	10:42	8.62	11.95
3/22/2019	10:43	8.06	12.52
3/22/2019	10:44	8.27	12.30
3/22/2019	10:45	9.02	11.54
3/22/2019	10:46	8.49	12.06
3/22/2019	10:47	8.64	11.94
3/22/2019	10:48	8.25	12.34
3/22/2019	10:49	8.10	12.43
3/22/2019	10:50	8.77	11.78
3/22/2019	10:51	9.08	11.48
3/22/2019	10:52	8.69	11.88
3/22/2019	10:53	8.74	11.85
3/22/2019	10:54	8.54	12.02
3/22/2019	10:55	8.84	11.71
3/22/2019	10:56	8.69	11.90
3/22/2019	10:57	8.73	11.84
3/22/2019	10:58	8.27	12.31
3/22/2019	10:59	8.47	12.10
3/22/2019	11:00	8.58	11.99
3/22/2019	11:01	8.61	11.94
3/22/2019	11:02	9.01	11.56
3/22/2019	11:03	8.85	11.71
3/22/2019	11:04	8.54	12.03
3/22/2019	11:05	8.26	12.30
3/22/2019	11:06	8.75	11.78
3/22/2019	11:07	8.56	12.00
3/22/2019	11:08	8.56	11.98
3/22/2019	11:09	8.97	11.58
3/22/2019	11:10	8.07	12.52

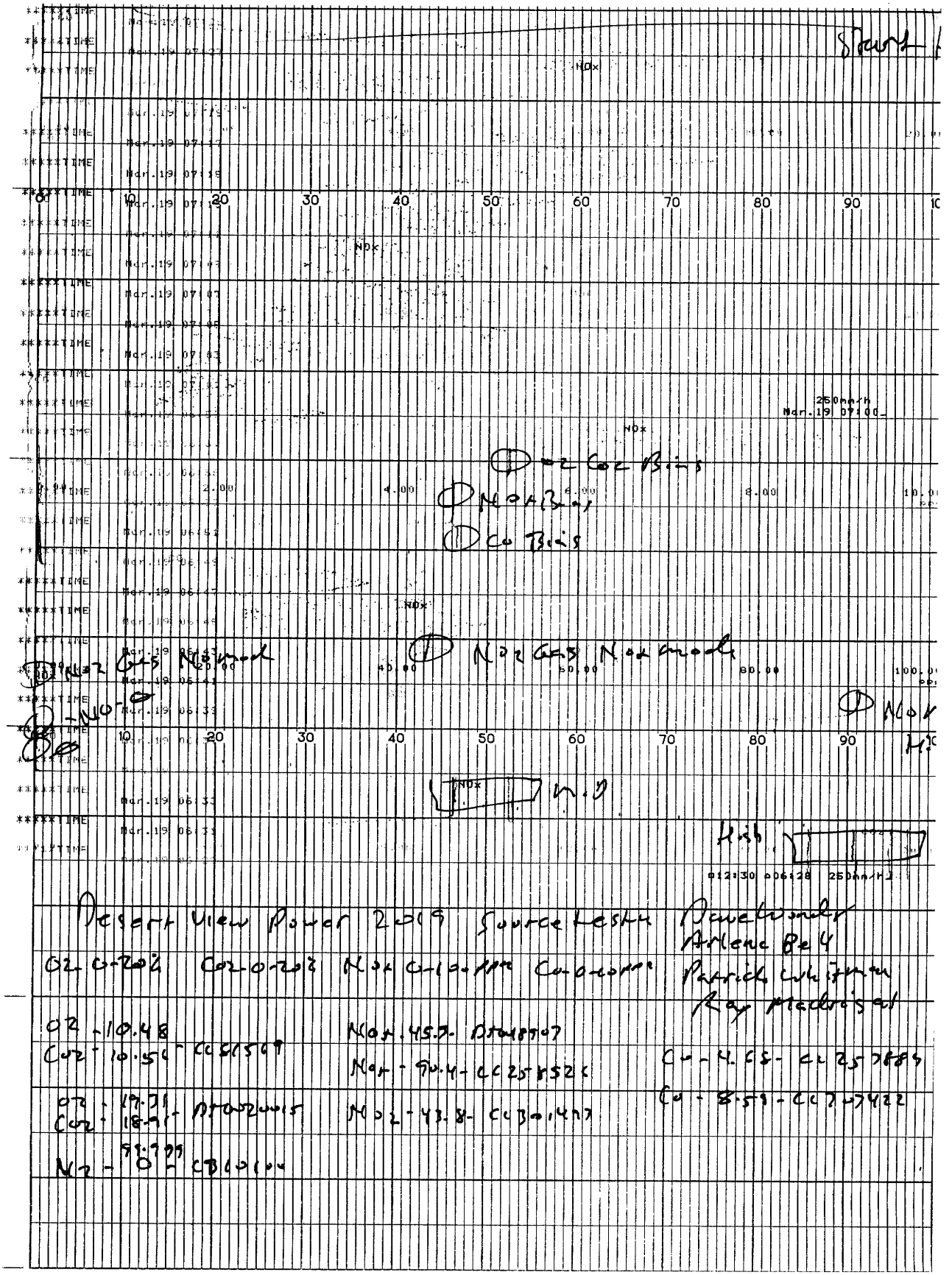
3/22/2019	11:11	8.47	12.08	
2-PM-U1 Average		8.37	12.22	
3/22/2019	11:12	9.48	10.56	
3/22/2019	11:13	10.45	10.54	O2 CO2 Bias
3/22/2019	11:12	9.48	10.56	
3/22/2019	11:13	10.45	10.54	O2 CO2 Bias
3/22/2019	11:14	4.96	4.85	
3/22/2019	11:15	0.01	0.06	Zero Bias
3/22/2019	11:16	0.00	0.04	
3/22/2019	11:17	9.98	9.45	
3/22/2019	11:18	10.49	10.56	Span
3/22/2019	11:19	1.87	2.14	
3/22/2019	11:20	0.00	0.05	
3/22/2019	11:21	4.69	7.22	
3/22/2019	11:22	8.09	12.44	
3/22/2019	11:23	8.70	11.80	
3/22/2019	11:24	8.60	11.97	
3/22/2019	11:25	9.02	11.49	
3/22/2019	11:26	8.39	12.17	
3/22/2019	11:27	7.92	12.61	
3/22/2019	11:28	8.17	12.37	
3/22/2019	11:29	7.95	12.58	
3/22/2019	11:30	7.80	12.74	
3/22/2019	11:31	7.19	13.33	
3/22/2019	11:32	7.78	12.73	
3/22/2019	11:33	8.06	12.43	
3/22/2019	11:34	8.59	11.93	
3/22/2019	11:35	8.61	11.88	
3/22/2019	11:36	8.40	12.12	
3/22/2019	11:37	8.81	11.69	
3/22/2019	11:38	8.69	11.81	
3/22/2019	11:39	8.89	11.63	
3/22/2019	11:40	9.10	11.37	
3/22/2019	11:41	9.98	10.54	
3/22/2019	11:42	9.74	10.79	
3/22/2019	11:43	8.93	11.62	
3/22/2019	11:44	8.46	12.07	
3/22/2019	11:45	8.13	12.40	
3/22/2019	11:46	8.15	12.39	
3/22/2019	11:47	7.28	13.27	
3/22/2019	11:48	7.38	13.14	
3/22/2019	11:49	8.09	12.43	
3/22/2019	11:50	8.05	12.47	
3/22/2019	11:51	8.27	12.25	
3/22/2019	11:52	8.71	11.80	
3/22/2019	11:53	8.28	12.27	
3/22/2019	11:54	8.02	12.51	
3/22/2019	11:55	7.95	12.55	

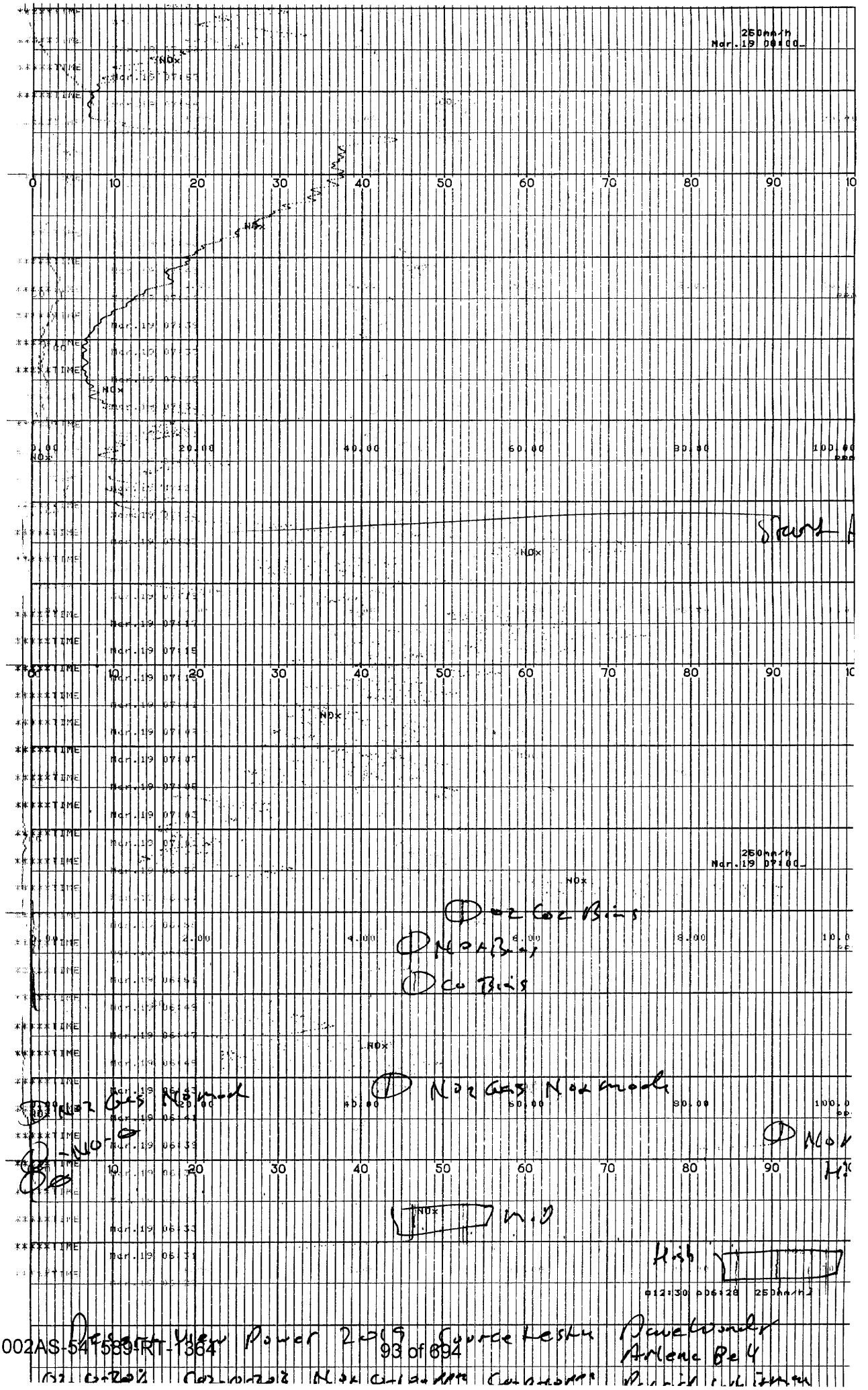
3/22/2019	11:56	8.05	12.51
3/22/2019	11:57	8.22	12.26
3/22/2019	11:58	8.84	11.66
3/22/2019	11:59	9.59	10.91
3/22/2019	12:00	8.84	11.67
3/22/2019	12:01	8.97	11.59
3/22/2019	12:02	7.98	12.54
3/22/2019	12:03	8.09	12.44
3/22/2019	12:04	8.17	12.35
3/22/2019	12:05	8.26	12.23
3/22/2019	12:06	9.40	11.12
3/22/2019	12:07	8.99	11.52
3/22/2019	12:08	9.12	11.39
3/22/2019	12:09	8.50	12.04
3/22/2019	12:10	7.89	12.66
3/22/2019	12:11	8.05	12.45
3/22/2019	12:12	8.39	12.12
3/22/2019	12:13	8.26	12.23
3/22/2019	12:14	8.48	12.06
3/22/2019	12:15	8.16	12.35
3/22/2019	12:16	7.84	12.69
3/22/2019	12:17	7.50	13.02
3/22/2019	12:18	6.73	13.77
3/22/2019	12:19	8.86	11.59
3/22/2019	12:20	8.62	11.90
3/22/2019	12:21	8.19	12.33
3/22/2019	12:22	8.09	12.38
3/22/2019	12:23	8.56	11.94
3/22/2019	12:24	8.55	11.98
3/22/2019	12:25	8.04	12.47
3/22/2019	12:26	8.32	12.18
3/22/2019	12:27	8.39	12.13
3/22/2019	12:28	8.02	12.50
3/22/2019	12:29	8.61	11.88
3/22/2019	12:30	8.50	12.01
3/22/2019	12:31	8.27	12.27
3/22/2019	12:32	8.14	12.38
3/22/2019	12:33	8.47	12.02
3/22/2019	12:34	8.96	11.52
3/22/2019	12:35	9.03	11.47
3/22/2019	12:36	8.42	12.10
3/22/2019	12:37	8.11	12.38
3/22/2019	12:38	8.44	12.07
3/22/2019	12:39	8.43	12.08
3/22/2019	12:40	8.16	12.36
3/22/2019	12:41	7.86	12.65
3/22/2019	12:42	8.41	12.07
3/22/2019	12:43	8.51	12.01
3/22/2019	12:44	8.14	12.37

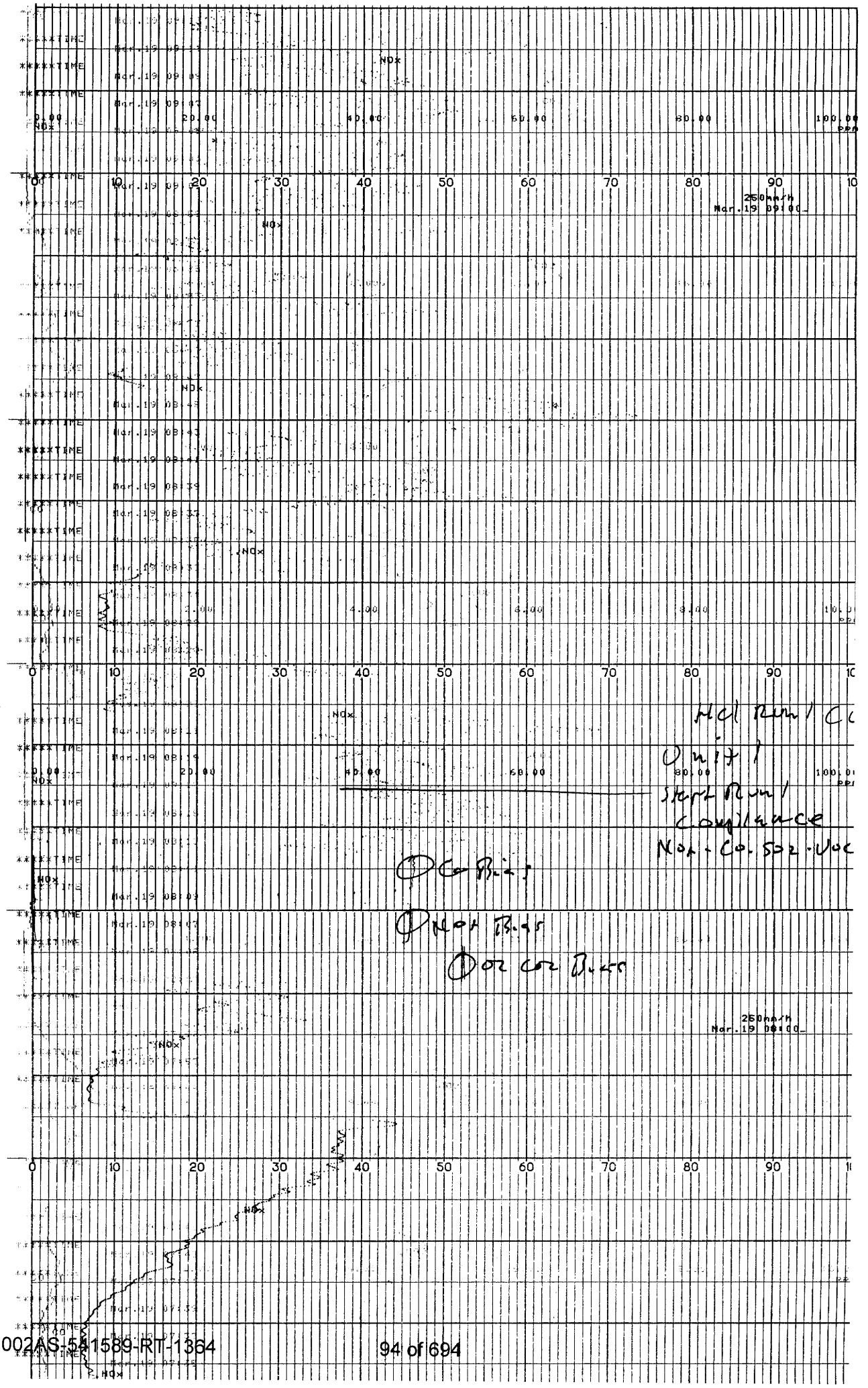
3/22/2019	12:45	8.14	12.38
3/22/2019	12:46	6.77	13.76
3/22/2019	12:47	7.18	13.29
3/22/2019	12:48	8.15	12.32
3/22/2019	12:49	8.71	11.79
3/22/2019	12:50	8.21	12.28
3/22/2019	12:51	8.35	12.15
3/22/2019	12:52	8.70	11.81
3/22/2019	12:53	8.27	12.23
3/22/2019	12:54	8.50	11.98
3/22/2019	12:55	8.24	12.26
3/22/2019	12:56	8.87	11.62
3/22/2019	12:57	8.82	11.68
3/22/2019	12:58	8.96	11.54
3/22/2019	12:59	7.91	12.63
3/22/2019	13:00	8.19	12.28
3/22/2019	13:01	8.48	12.02
3/22/2019	13:02	8.49	12.00
3/22/2019	13:03	8.48	12.05
3/22/2019	13:04	7.91	12.59
3/22/2019	13:05	8.79	11.67
3/22/2019	13:06	8.87	11.62
3/22/2019	13:07	8.33	12.18
3/22/2019	13:08	7.94	12.57
3/22/2019	13:09	8.06	12.44
3/22/2019	13:10	8.78	11.68
3/22/2019	13:11	8.62	11.89
3/22/2019	13:12	8.19	12.32
3/22/2019	13:13	8.59	11.86
3/22/2019	13:14	8.82	11.68
3/22/2019	13:15	8.88	11.60
3/22/2019	13:16	8.37	12.13
3/22/2019	13:17	8.41	12.07
3/22/2019	13:18	8.75	11.76
3/22/2019	13:19	8.44	12.05
3/22/2019	13:20	8.16	12.35
3/22/2019	13:21	7.83	12.68
3/22/2019	13:22	8.09	12.40
3/22/2019	13:23	7.35	13.18
3/22/2019	13:24	7.40	13.09
3/22/2019	13:25	7.30	13.19
3/22/2019	13:26	7.75	12.74
3/22/2019	13:27	7.41	13.12
3/22/2019	13:28	7.21	13.22
3/22/2019	13:29	8.07	12.42
3/22/2019	13:30	8.51	11.96
3/22/2019	13:31	8.10	12.40
3/22/2019	13:32	8.22	12.24
3/22/2019	13:33	8.69	11.80

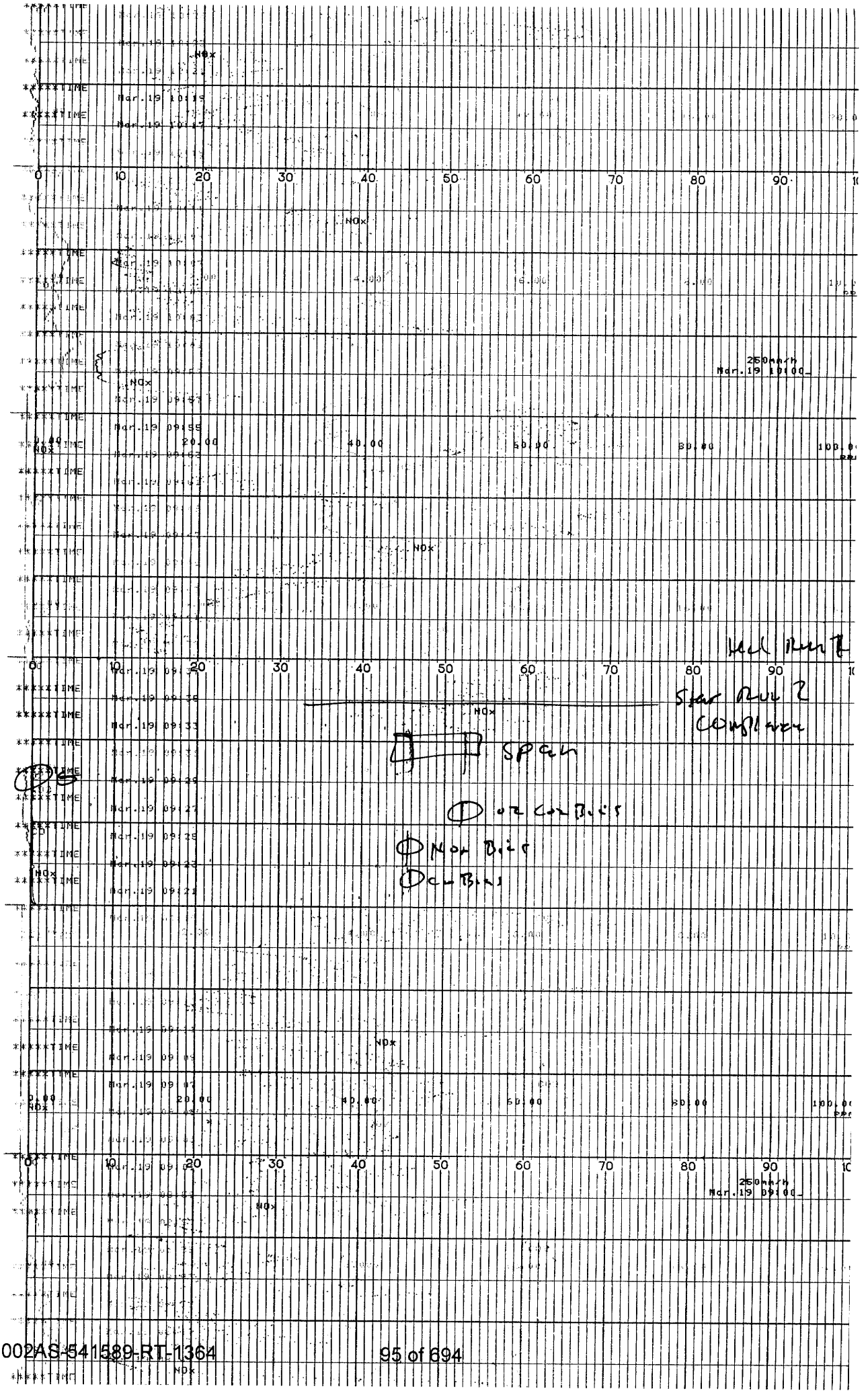
3/22/2019	13:34	8.89	11.61	
3/22/2019	13:35	8.38	12.12	
3/22/2019	13:36	7.71	12.72	
3-PM-U1 Average		8.31	12.20	
3/22/2019	13:37	0.36	0.38	
3/22/2019	13:38	0.02	0.10	Zero Bias
3/22/2019	13:39	9.72	9.92	
3/22/2019	13:40	10.42	10.48	O2 CO2 Bias
3/22/2019	13:41	0.80	1.03	
3/22/2019	13:42	0.00	0.03	Zero
3/22/2019	13:43	1.76	1.47	
3/22/2019	13:44	10.47	10.51	
3/22/2019	13:45	10.47	10.53	Span
3/22/2019	13:46	13.18	12.72	
3/22/2019	13:47	19.32	18.76	
3/22/2019	13:48	19.32	18.77	High

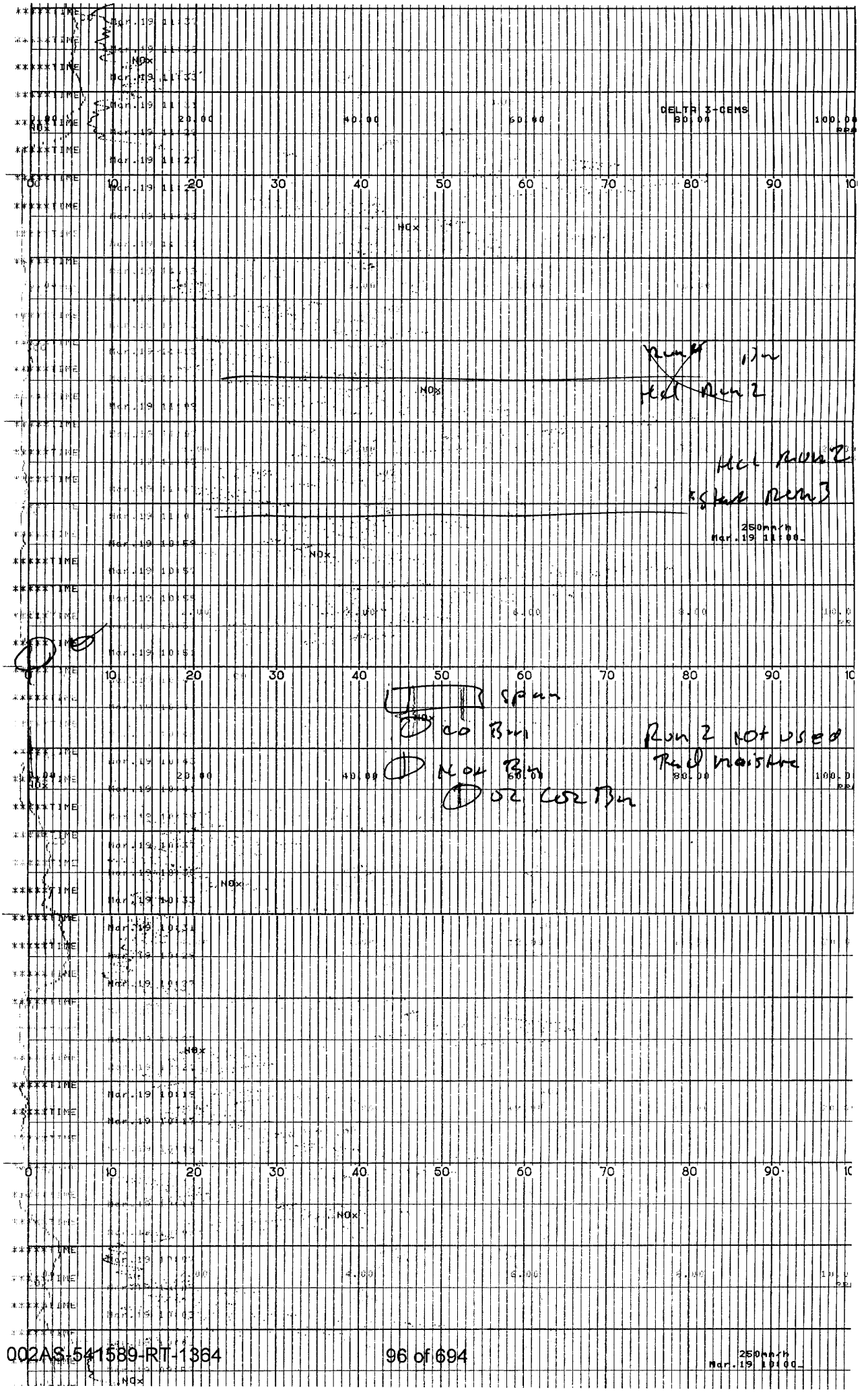
Appendix A.1.3
Unit 1 Instrument Strip Charts

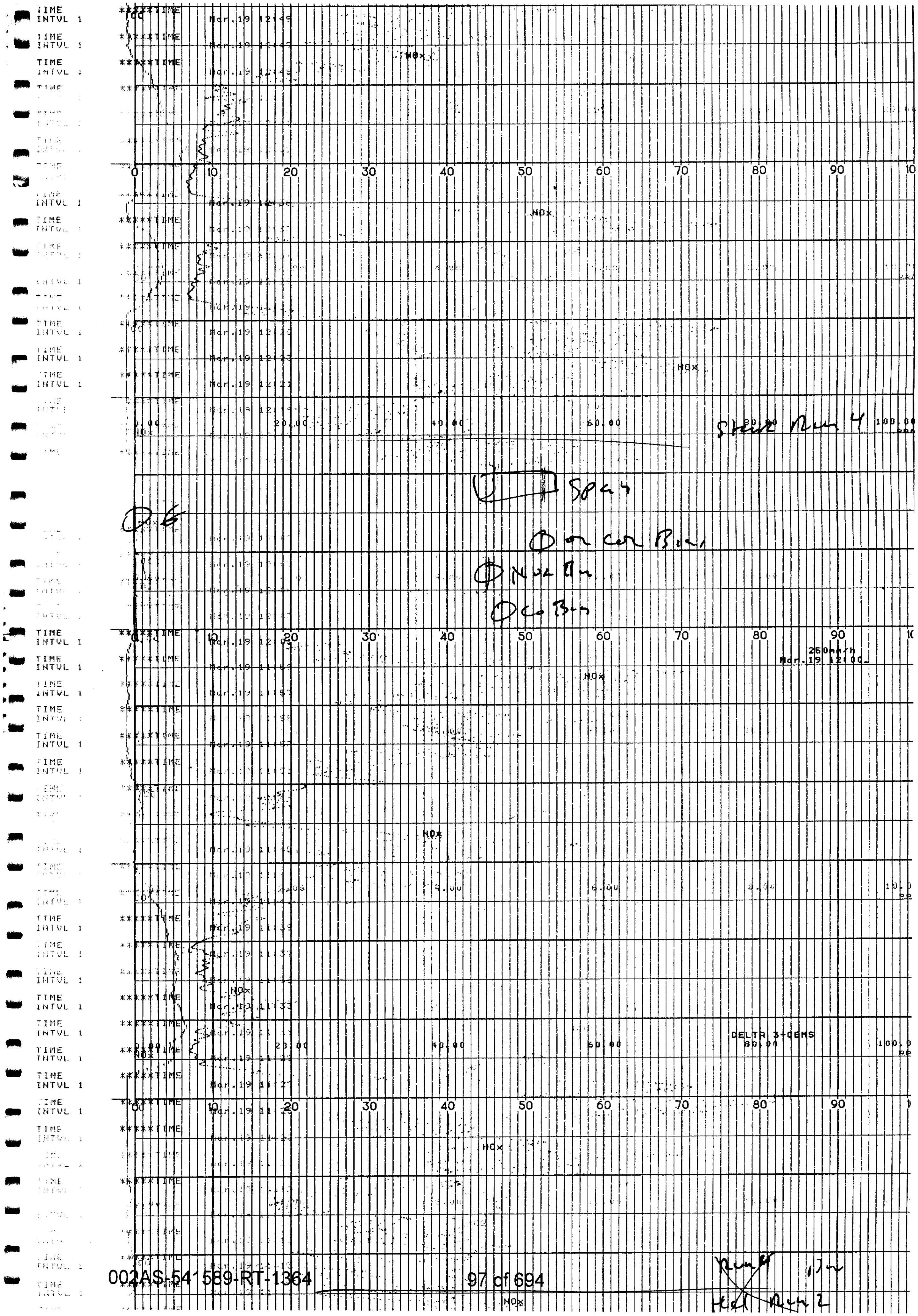

Desert View Power 2019 Source Test
O2 - 0.202 CO2 - 0.203 NOx - 0.0 ppm CO - 0.0 ppm
O2 - 10.48
CO2 - 10.50 - CC815069
NOx - 45.7 - DT0089007
NOx - 50.4 - CC255852K
O2 - 19.71
CO2 - 18.91 - DT0072005
NO2 - 43.8 - CC301477
N2 - 98.999 - CB000104
Powerworks
Arlene Bell
Patrick Lukitsman
Ray Medrano
CO - 4.65 - CC257885
CO - 8.59 - CC274422
NOx
Mar.19 07:00
250mm/h
Mar.19 06:33
Mar.19 06:47
Mar.19 06:49
Mar.19 06:51
High
012:30 006:28 250mm/h

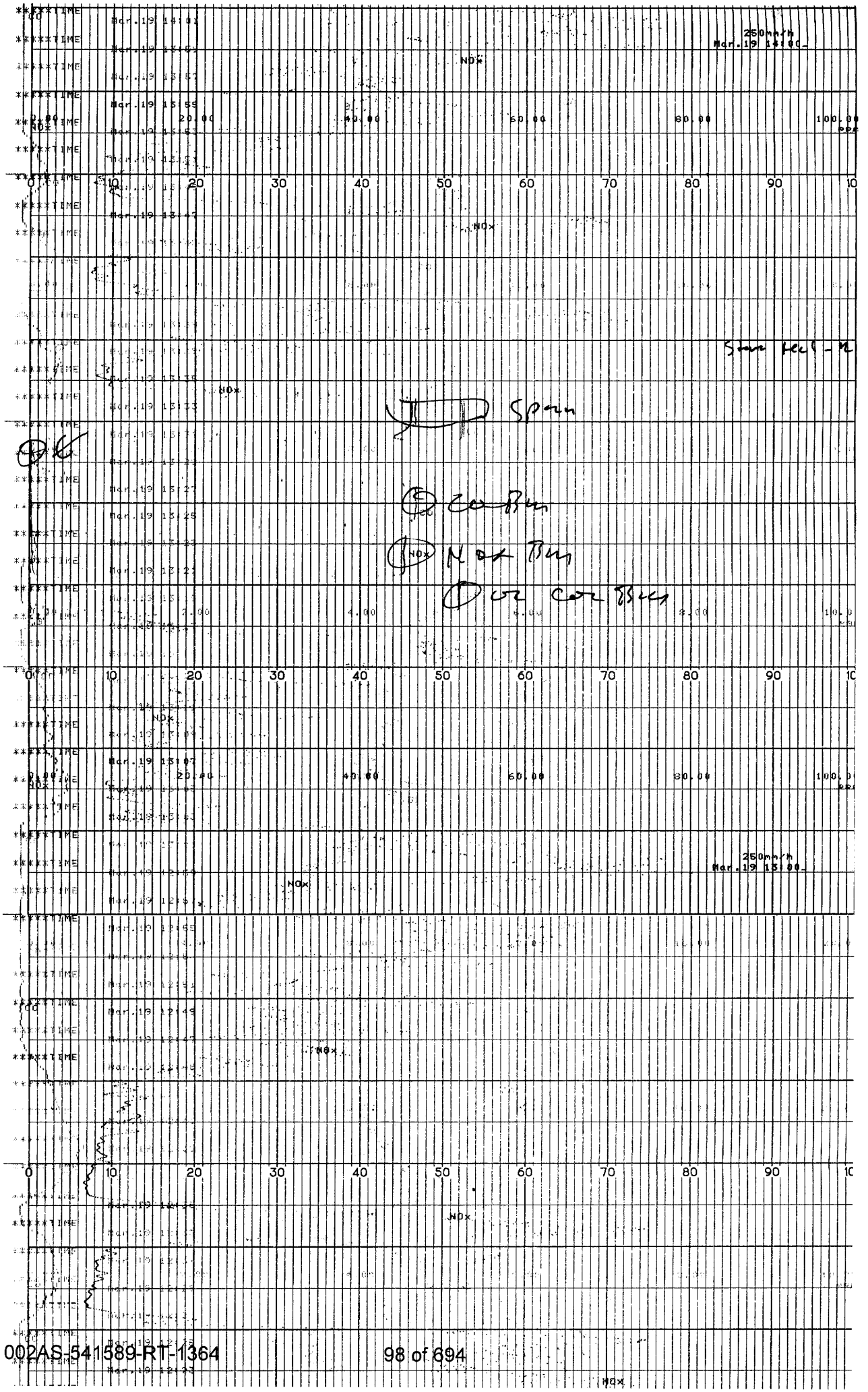

250mm/h
Mar.19 08:00
NOx
Mar.19 07:57
Mar.19 07:39
Mar.19 07:33
Mar.19 07:15
Mar.19 07:09
Mar.19 07:07
Mar.19 07:05
Mar.19 07:03
Mar.19 06:59
Mar.19 06:57
Mar.19 06:55
Mar.19 06:49
Mar.19 06:47
Mar.19 06:45
Mar.19 06:43
Mar.19 06:41
Mar.19 06:39
Mar.19 06:33
Mar.19 06:31
TIME
TIME INTVL 1
0.00
20.00
40.00
60.00
80.00
100.00
2.00
4.00
6.00
8.00
10.0
0
10
20
30
40
50
60
70
80
90
100
Start A
High
012:30 006:28 250mm/h

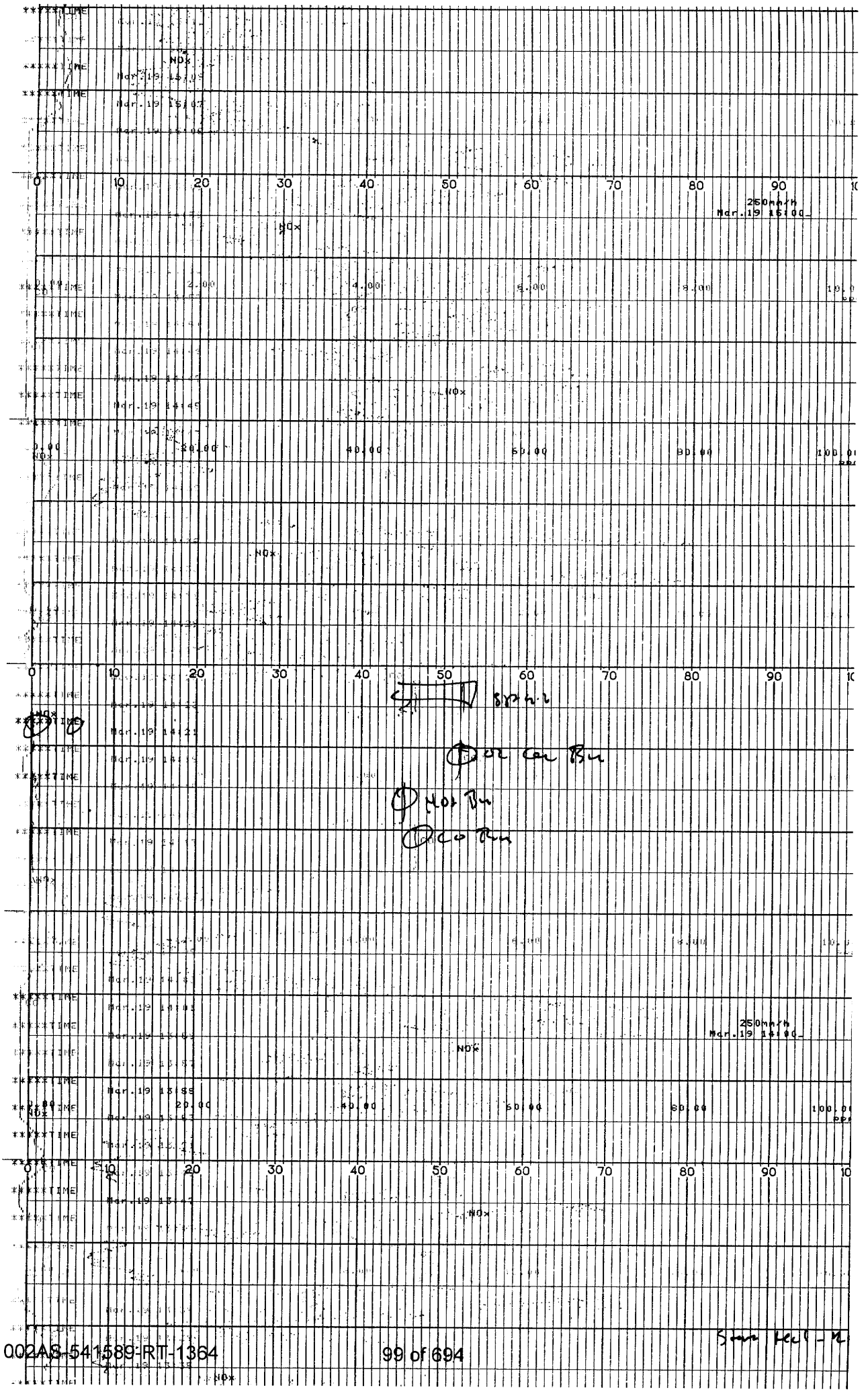

NOx
0.00
20.00
40.00
60.00
80.00
100.00
ppm
0
10
20
30
40
50
60
70
80
90
250mm/h
Mar.19 09:00
HCl Run / Co
Unit 1
Start Run / Compliance
NOx + Co. SO2 - VOC
Co Bias
NOx Bias
O2 Co2 Bias

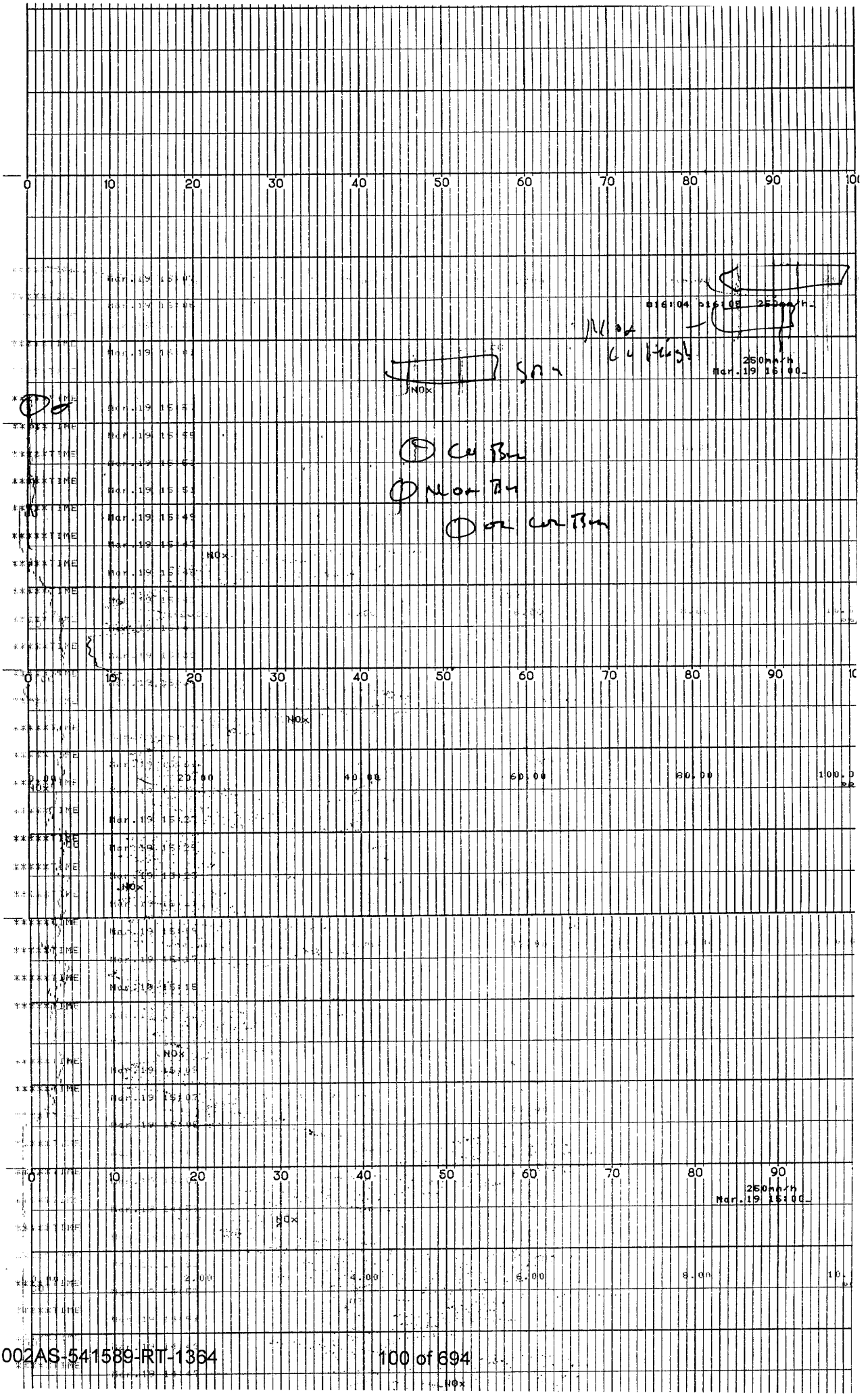

TIME INTVL 1
NOx
Mar.19 10:15
0 10 20 30 40 50 60 70 80 90
4.00
8.00
250mm/h
Mar.19 10:00
Mar.19 09:55
20.00
40.00
60.00
80.00
100.0
Mar.19 09:35
Mar.19 09:33
Mar.19 09:29
Mar.19 09:27
Mar.19 09:25
Mar.19 09:23
Mar.19 09:21
Mar.19 09:07
Mar.19 09:00
Mar.19 09:00
Start Run 2
Compliance
SPan
Zero Cal Bias
Mid Bias
Span Bias

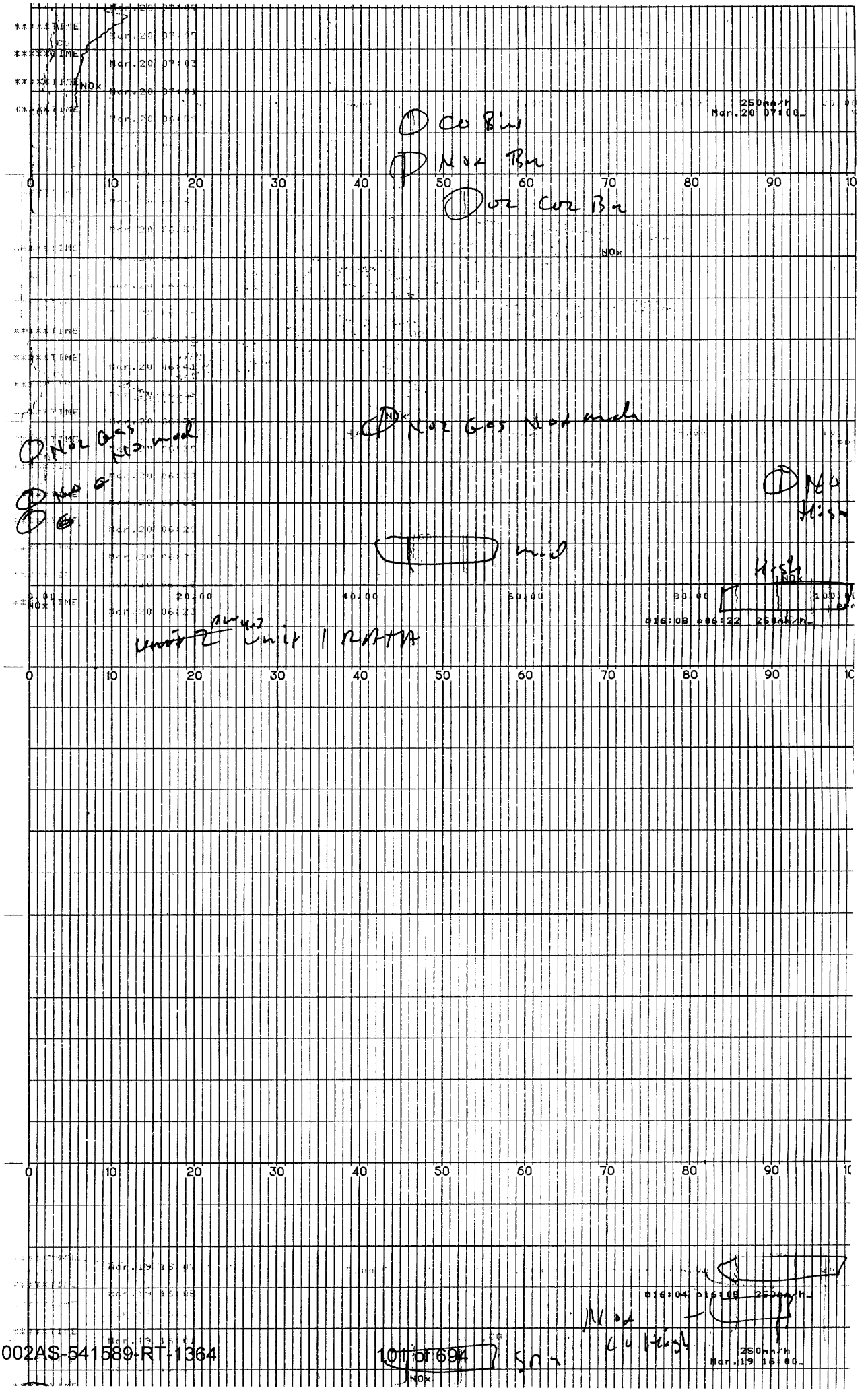

DELTA 3-CEMS
NOx
Mar.19 11:00
Mar.19 10:00
Run 4
Run 2
Run 2
Start Run 3
Span
CO Run
Run 2 not used
Read moisture
NOx Run
O2 Cor Run

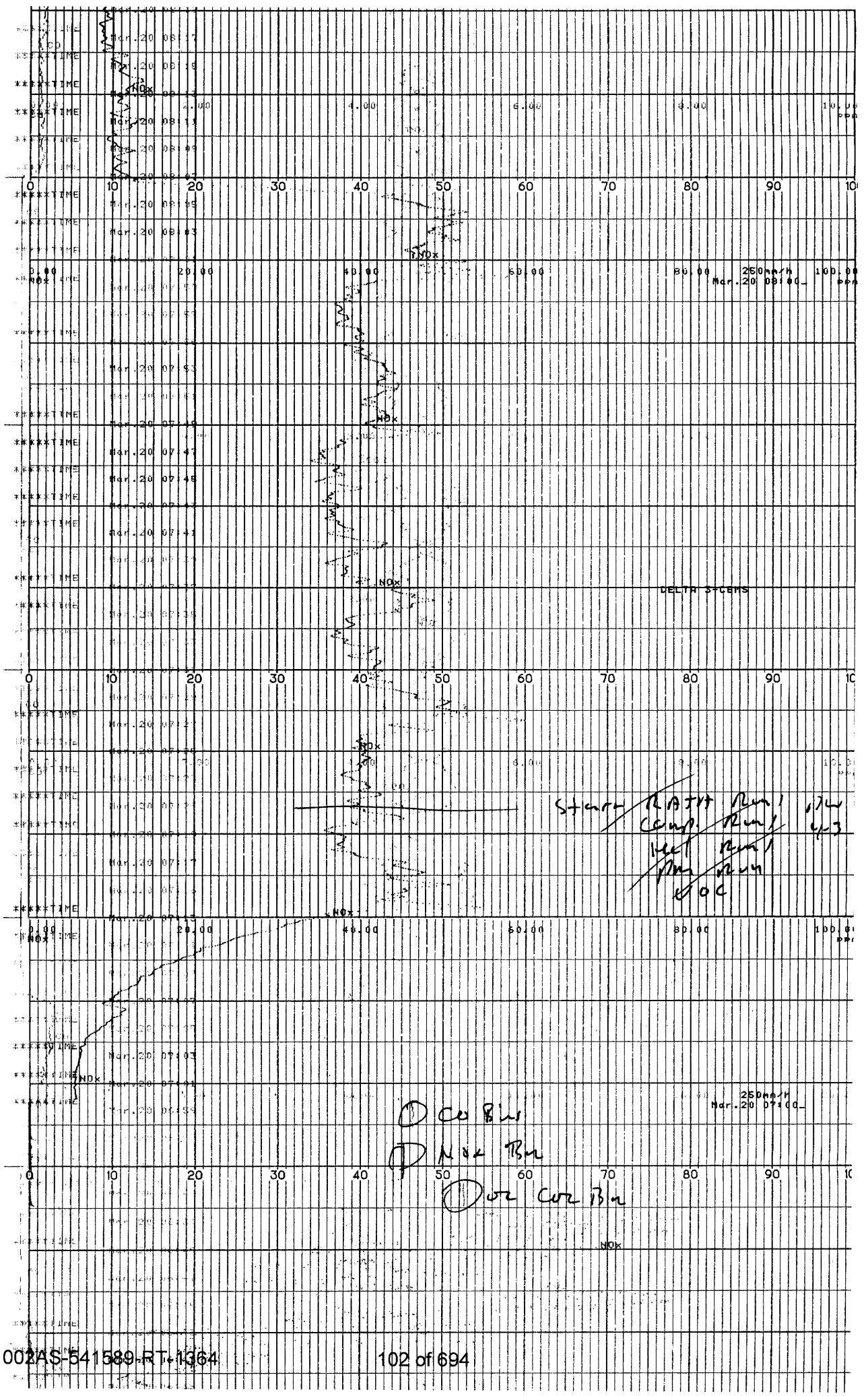

TIME
INTVL 1
Mar. 19 12:49
NOx
0
10
20
30
40
50
60
70
80
90
Mar. 19 12:36
Mar. 19 12:22
20.00
40.00
60.00
80.00
100.00
Start Run 4
Span
250mm/h
Mar. 19 12:00
Mar. 19 11:33
DELTA 3-CEMS
Mar. 19 11:27
Run 4
Run 2

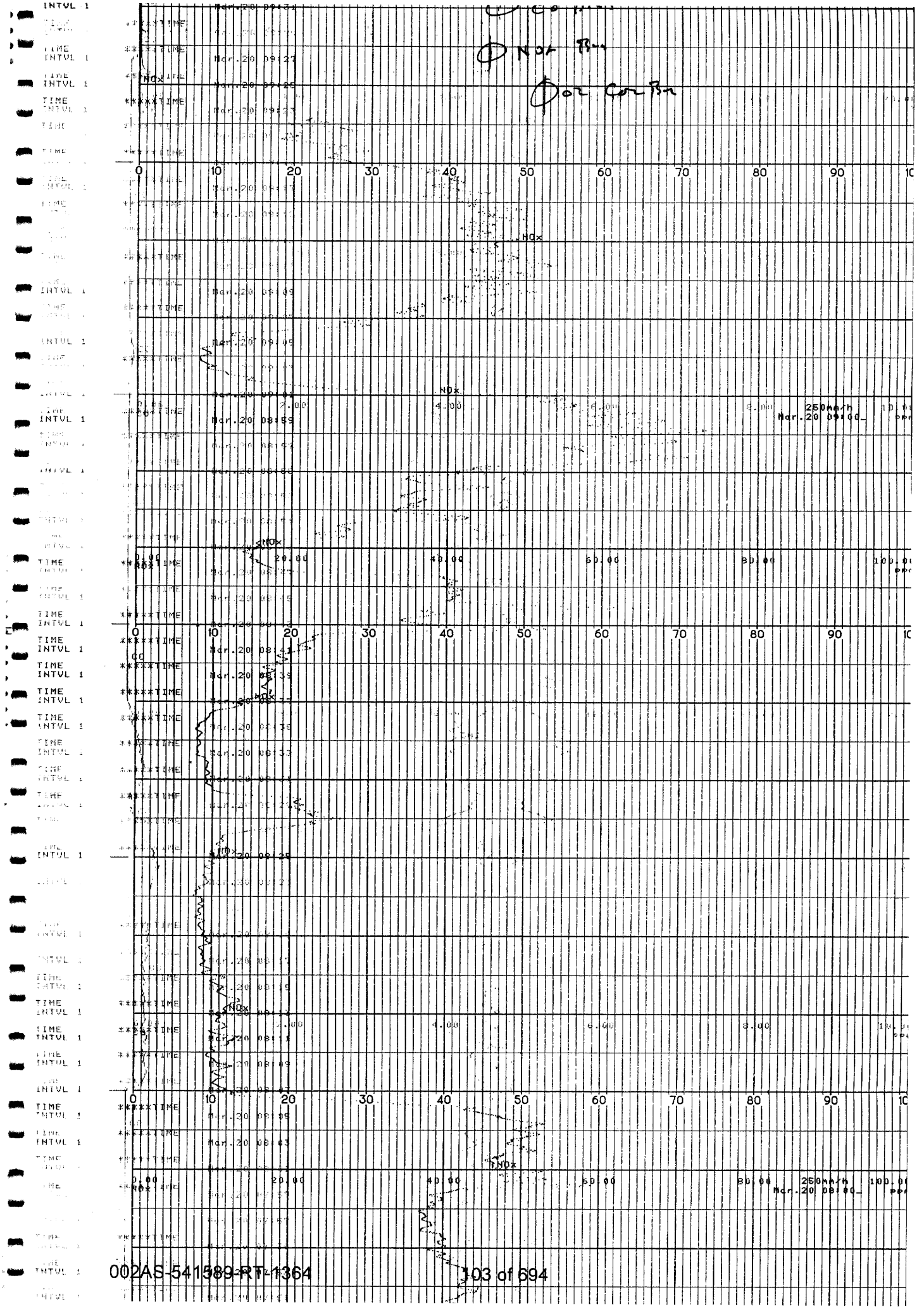

TIME INTVL 1
NOx
250mm/h
Mar.19 14:00
Mar.19 13:59
Mar.19 13:57
Mar.19 13:55
20.00
40.00
60.00
80.00
100.00
ppm
0
10
20
30
40
50
60
70
80
90
Mar.19 13:47
Mar.19 13:33
Mar.19 13:27
Mar.19 13:25
Mar.19 13:23
Mar.19 13:21
4.00
6.00
8.00
Mar.19 13:07
Mar.19 13:00
Mar.19 12:59
Mar.19 12:55
Mar.19 12:49
Mar.19 12:45
Span
Co Span
NOx Span
O2 Co2 Span

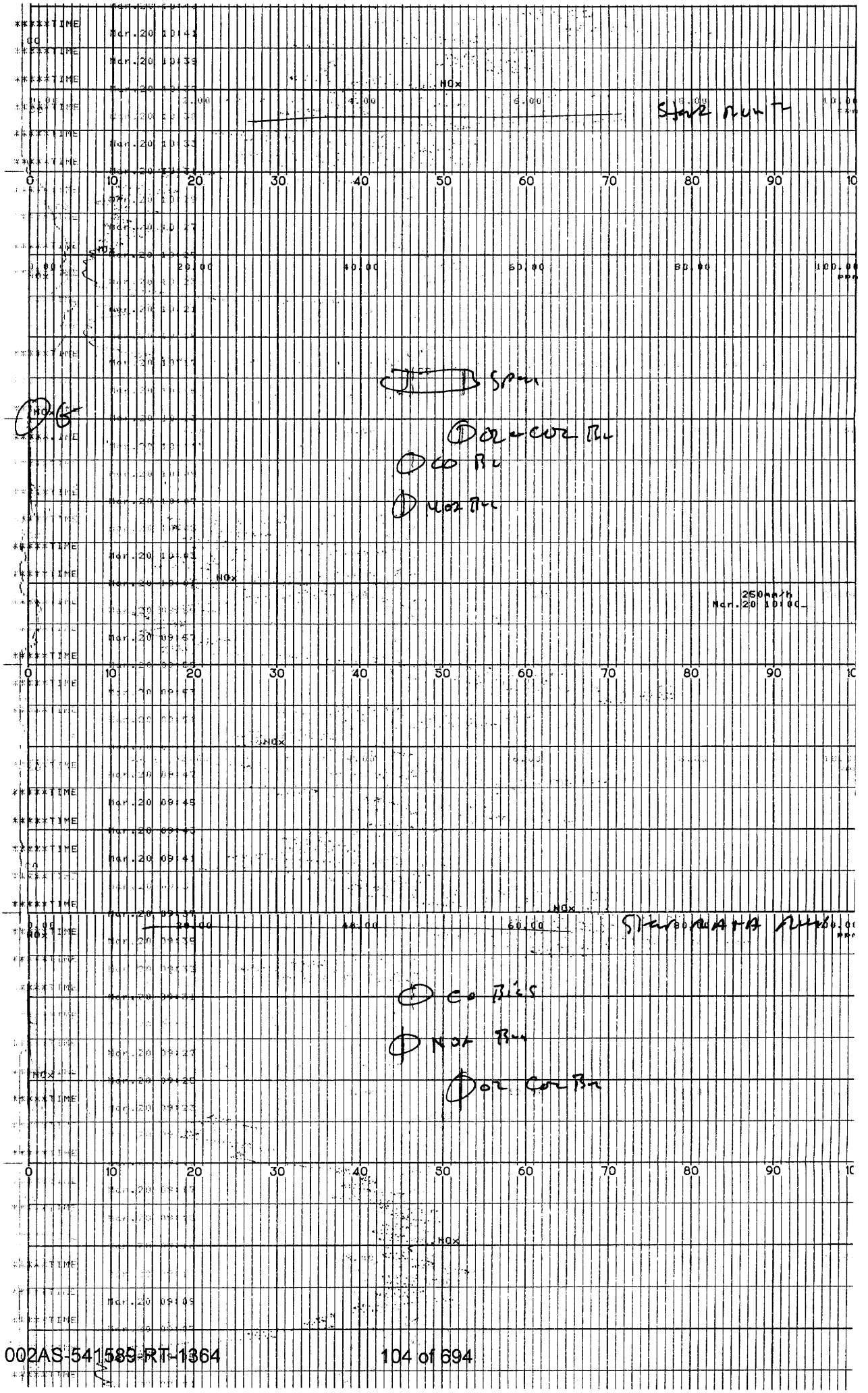

TIME
INTVL 1
NOx
Mar.19 15:00
Mar.19 15:07
0
10
20
30
40
50
60
70
80
90
250mm/h
Mar.19 16:00
2.00
4.00
6.00
8.00
Mar.19 14:45
0.00
20.00
40.00
60.00
80.00
100.00
Mar.19 14:21
Mar.19 14:00
Mar.19 13:55
Mar.19 13:47
Mar.19 13:33

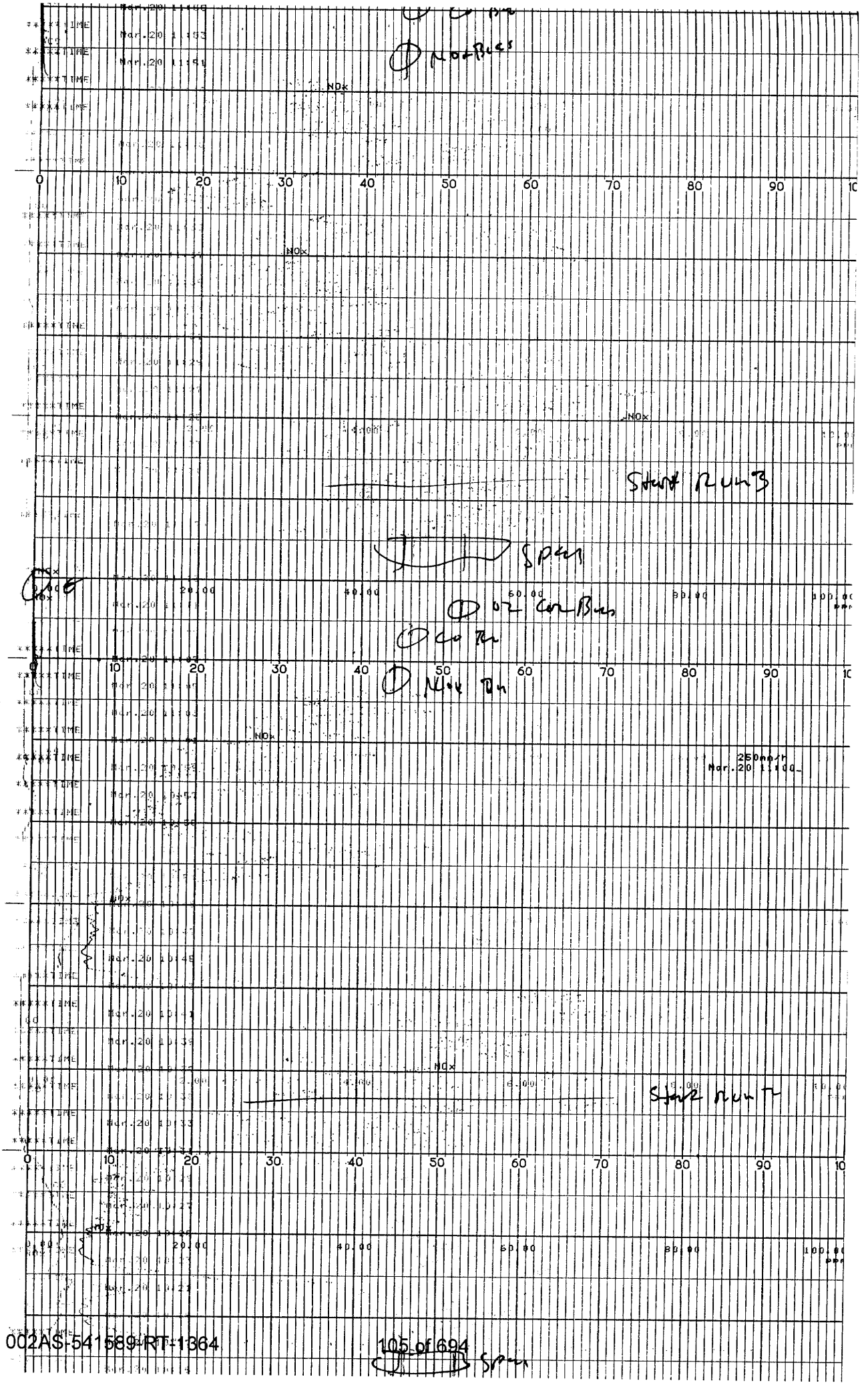

0 10 20 30 40 50 60 70 80 90 100
TIME INTVL 1
Mar.19 15:49
Mar.19 15:47
NOx
0 10 20 30 40 50 60 70 80 90
NOx
0.00 20.00 40.00 60.00 80.00 100.0
Mar.19 15:27
Mar.19 15:23
NOx
Mar.19 15:19
Mar.19 15:15
NOx
Mar.19 15:07
0 10 20 30 40 50 60 70 80 90
250mm/h
Mar.19 15:00
NOx
2.00 4.00 6.00 8.00 10.
NOx

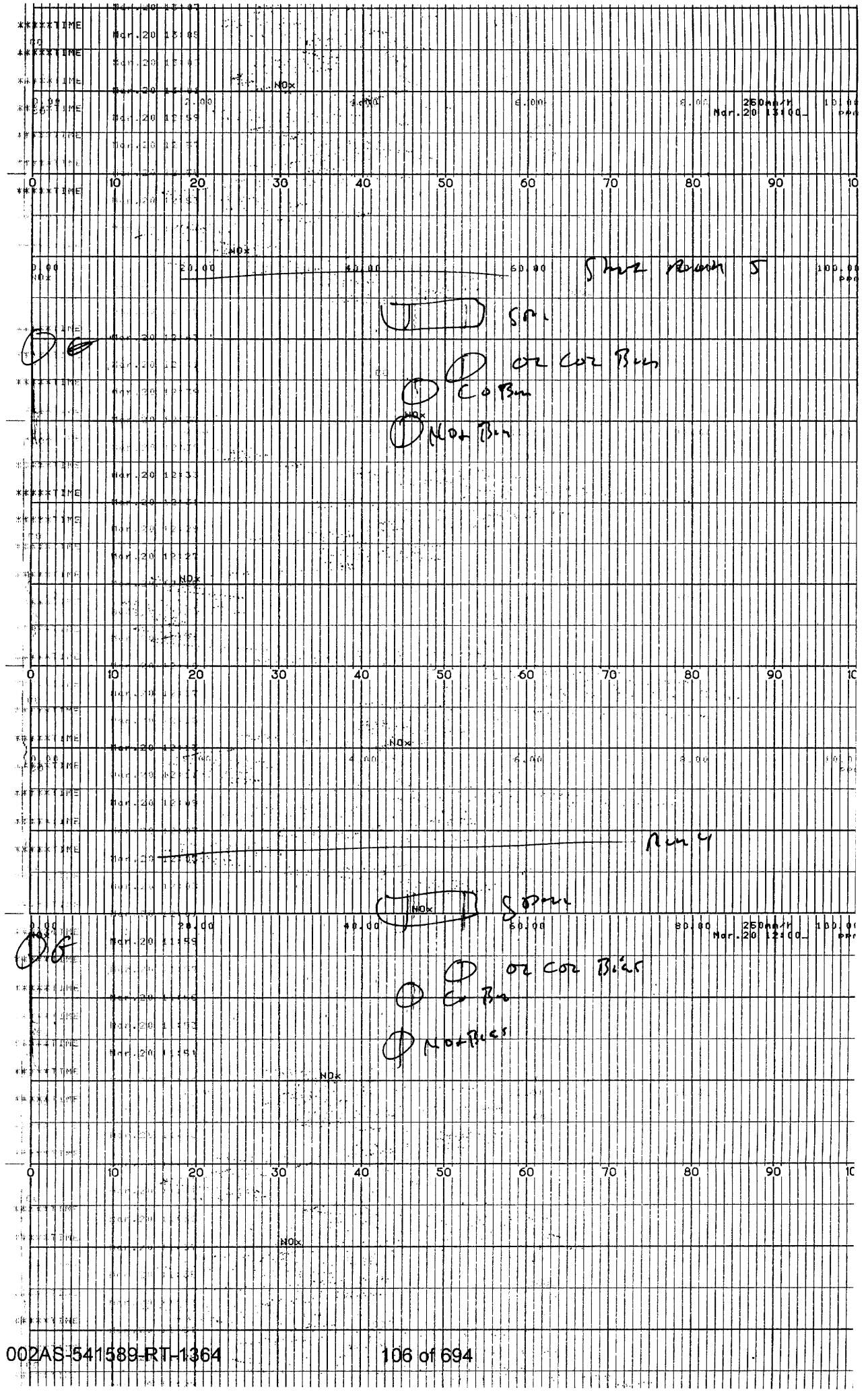

TIME INTVL 1
CO
NOx
Mar.20 07:03
Mar.20 06:41
Mar.20 06:23
Mar.19 16:04
250mm/h
Mar.20 07:00
CO Bin
NOx Bin
O2 Corr Bin
NOx Gas Normal
NOx Gas Normal
NO High
High
Mid
High
Unit 1 RATA
Mid
High
250mm/h
Mar.19 16:00
0
10
20
30
40
50
60
70
80
90
100
20.00
40.00
60.00
80.00

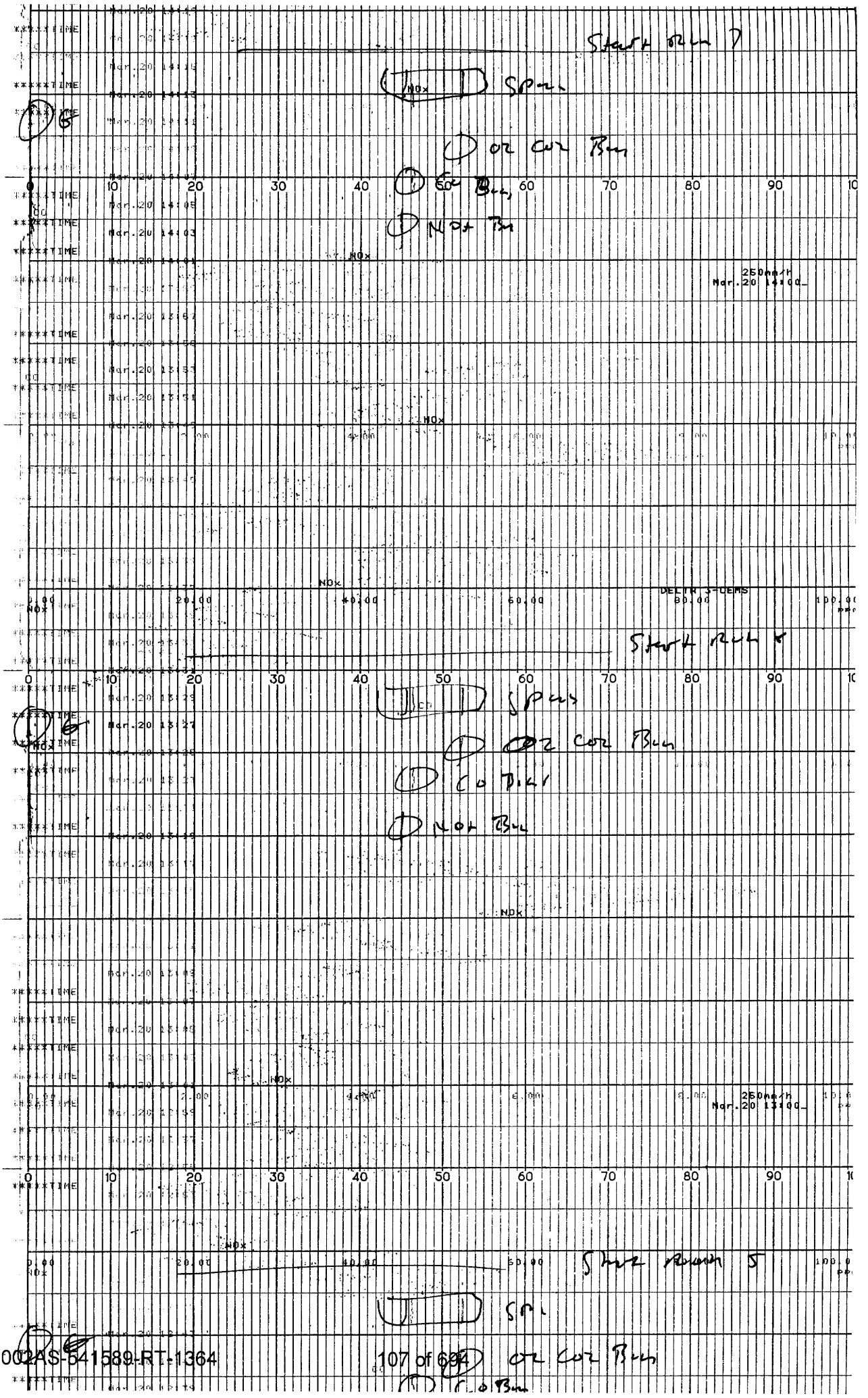

DELTA STEMS
Mar.20 08:00
Mar.20 07:00
Start RATA Run 1 of 4
Comp. Run 1 of 3
Heat Run 1
Mon Run
O2 C
CO Bin
NOx Bin
O2 CO2 Bin

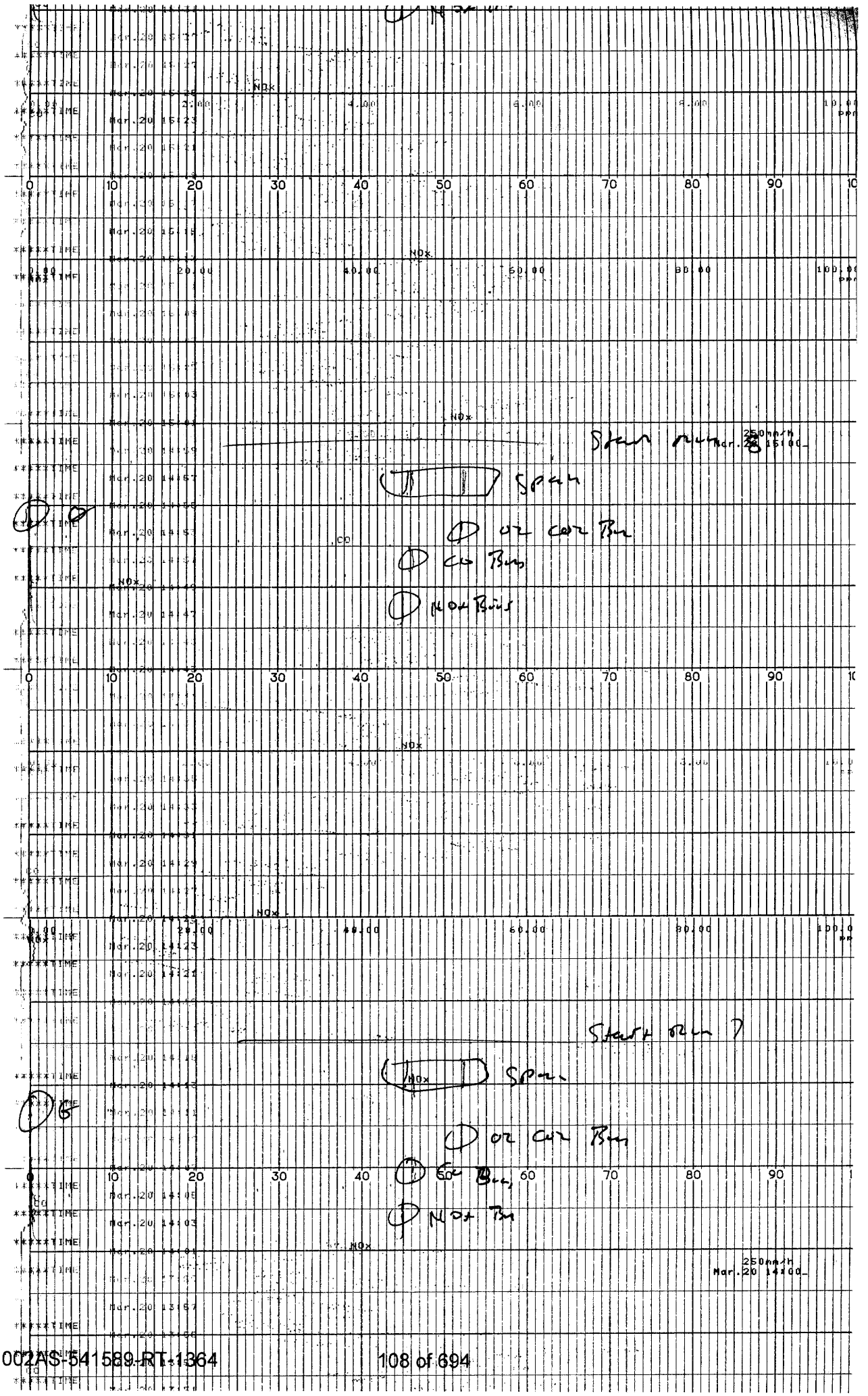

NOx
CO
TIME
INTVL 1
Mar.20 09:27
Mar.20 09:25
Mar.20 09:23
Mar.20 09:09
Mar.20 09:05
Mar.20 08:59
Mar.20 08:39
Mar.20 08:35
Mar.20 08:33
Mar.20 08:29
Mar.20 08:17
Mar.20 08:15
Mar.20 08:11
Mar.20 08:09
Mar.20 08:03
0
10
20
30
40
50
60
70
80
90
100
20.00
40.00
60.00
80.00
100.00
2.00
4.00
6.00
8.00
250mm/h
Mar.20 09:00
Mar.20 08:00

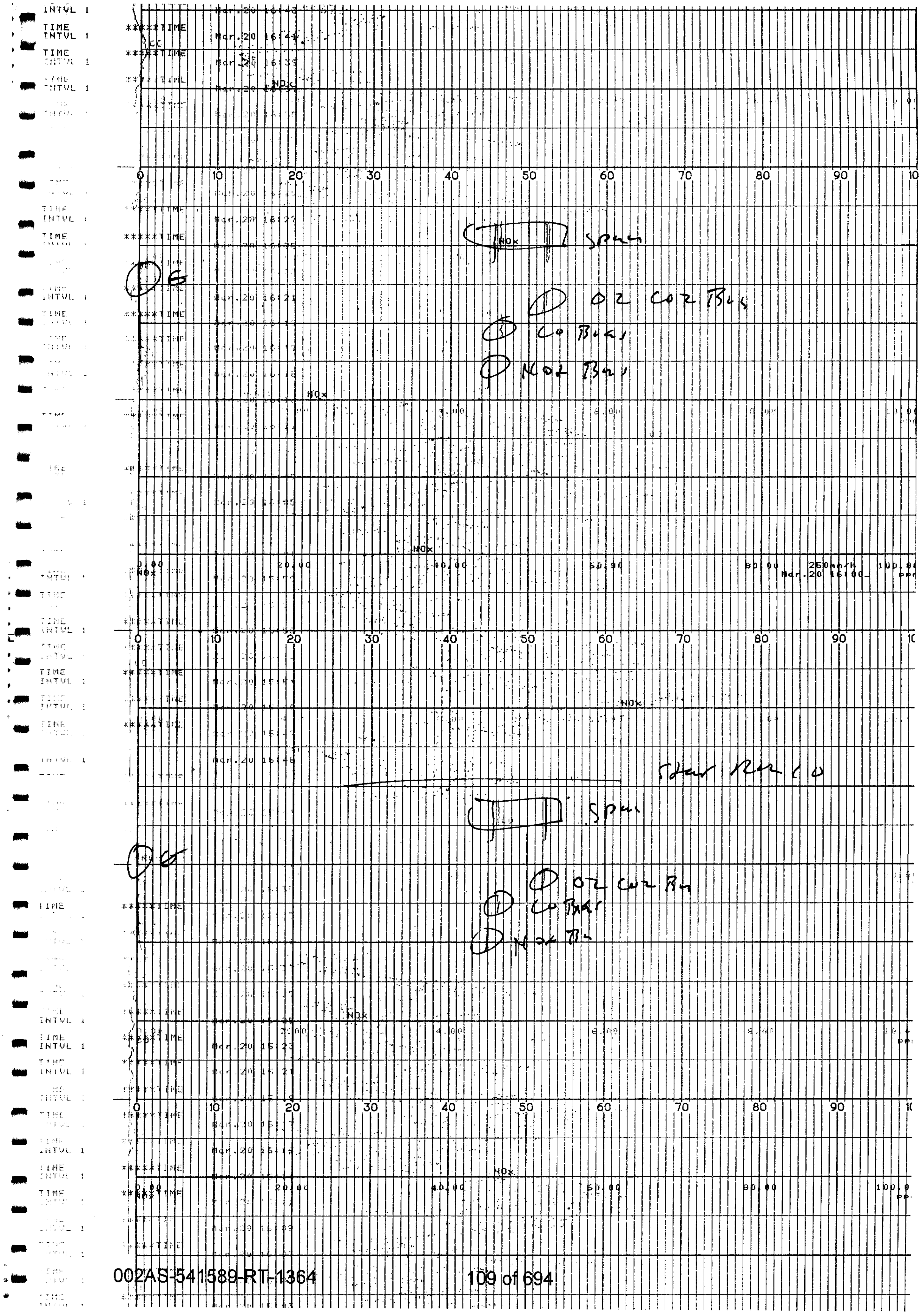

TIME INTVL 1
Mar.20 10:41
Mar.20 10:39
Mar.20 10:37
NOx
1.00
4.00
6.00
Start Run
0
10
20
30
40
50
60
70
80
90
100
20.00
40.00
60.00
80.00
100.00
ppm
Spin
NO-5
Dor-CO2 Bu
CO Bu
NOx Bu
Mar.20 10:01
Mar.20 09:57
250 mm/h
Mar.20 10:00
Mar.20 09:47
Mar.20 09:45
Mar.20 09:43
Mar.20 09:41
Mar.20 09:39
Mar.20 09:35
Mar.20 09:33
Mar.20 09:31
Mar.20 09:29
Mar.20 09:27
Mar.20 09:25
Mar.20 09:23
Mar.20 09:21
Mar.20 09:19
Mar.20 09:17
Mar.20 09:15
Mar.20 09:13
Mar.20 09:11
Mar.20 09:09
Mar.20 09:07
CO Bu
NOx Bu
Dor Cor Bu

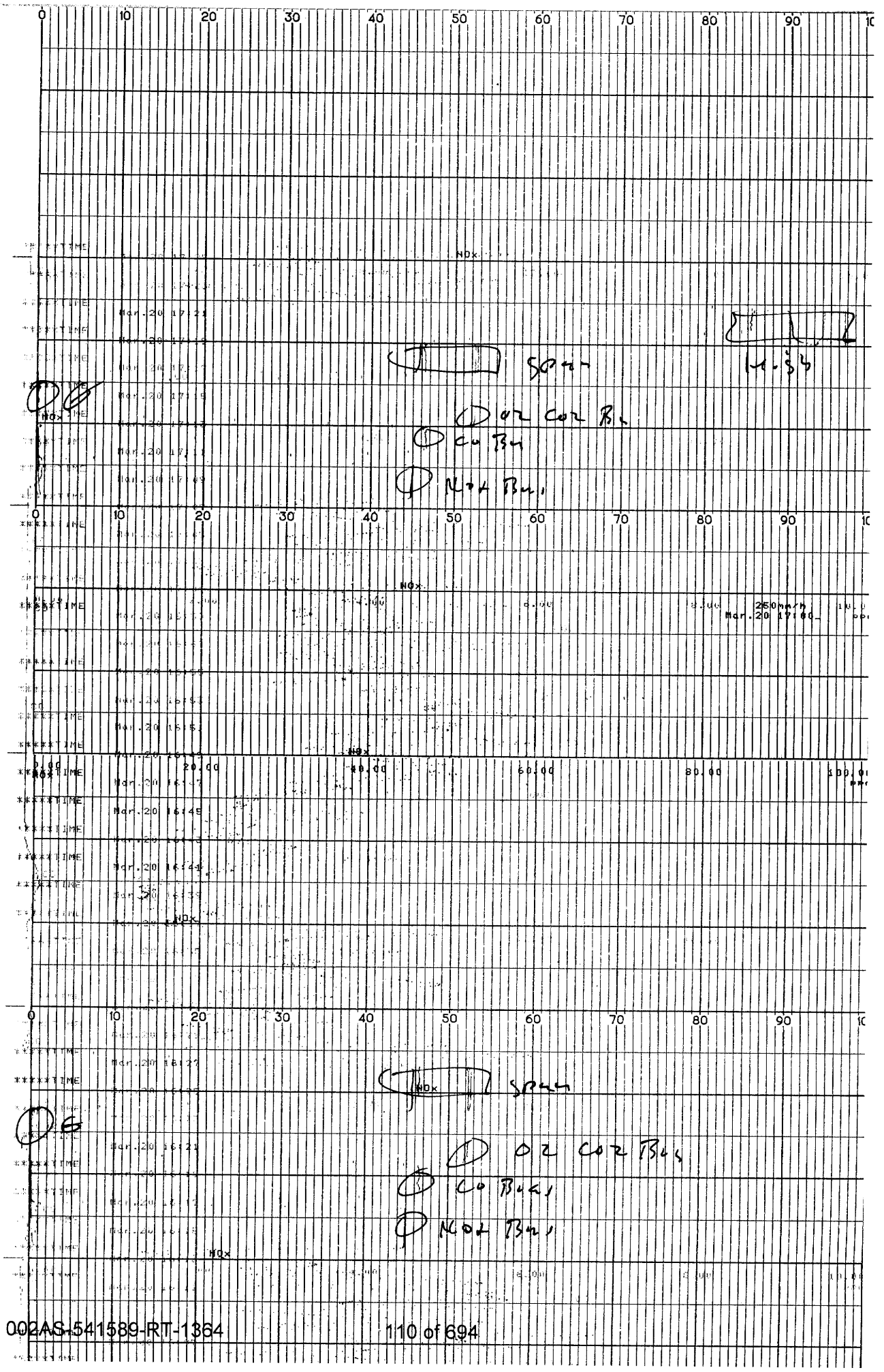

NOx
Start Runs
Spark
O2 Cor Bias
CO Run
NOx Run
250mm/h
Start Run
Spark

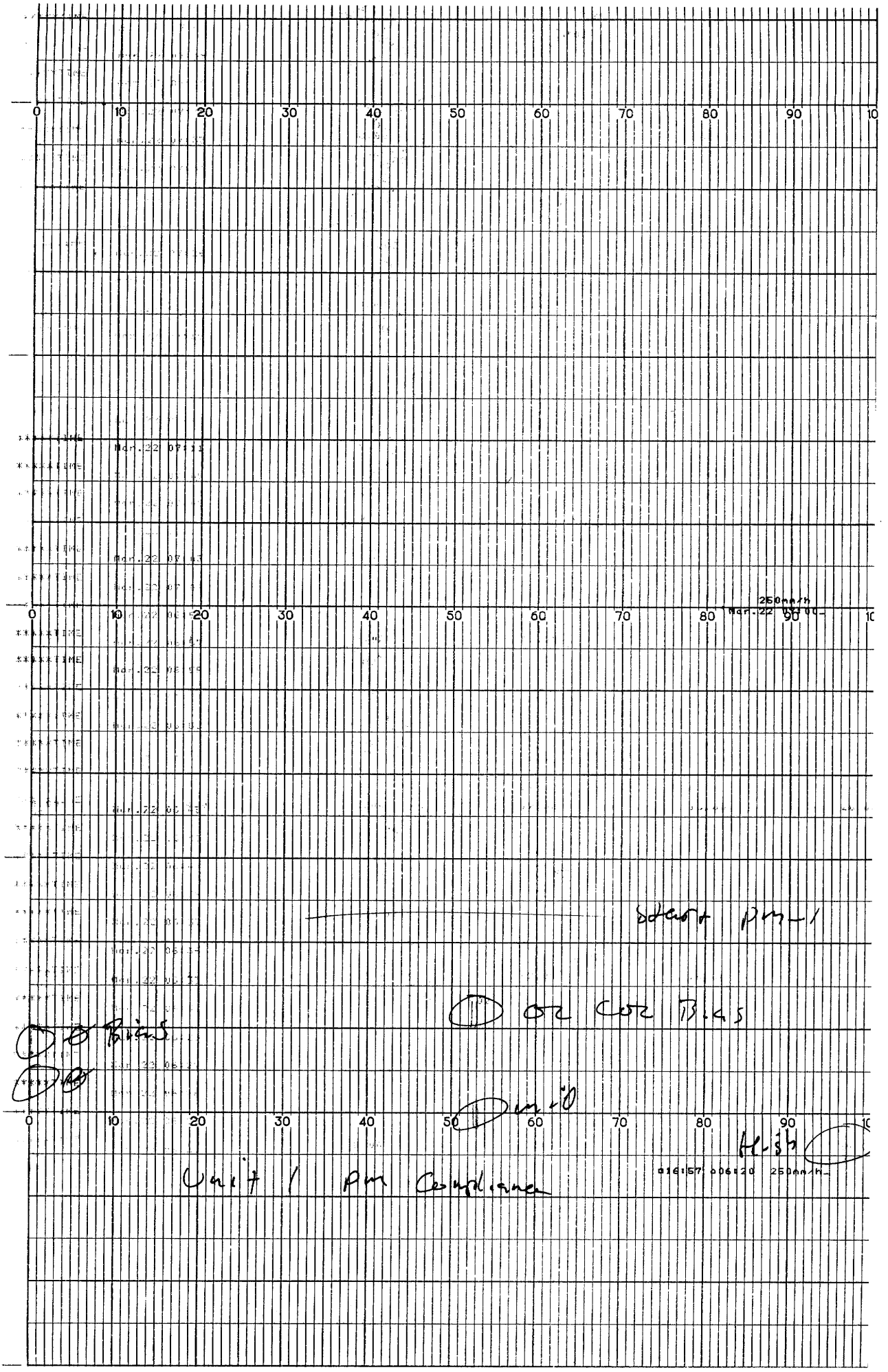

NOx
Mar.20 13:00
Run 5
SPL
O2 CO2 Burn
CO Burn
NOx Burn
Run 4
SPL
O2 CO2 Burn
CO Burn
NOx Burn


Start Run 7
Span
O2 or Cor Run
Co Run
Not Run
NOx
250mm/h
Mar.20 14:00
DELTA 3-OEMS
Start Run 6
Span
O2 or Cor Run
Co Run
Not Run
Mar.20 13:00
Start Run 5
Span
O2 or Cor Run
Co Run


NOx
CO
Span
O2 CO2 Bias
CO Bias
NOx Bias
Start Run 7
250mm/h
Mar.20 15:00
Mar.20 14:00


INTVL 1
TIME
*****TIME
Mar.20 16:41
Mar.20 16:39
NOx
0 10 20 30 40 50 60 70 80 90
Mar.20 16:23
Mar.20 16:21
Mar.20 16:45
0.00 20.00 40.00 60.00 80.00 100.00
Mar.20 16:00
Mar.20 16:46
Mar.20 15:23
Mar.20 15:21
Mar.20 15:15
Mar.20 16:09


NOx
TIME
INTVL 1
Mar.20 17:21
Mar.20 17:19
Mar.20 17:17
Mar.20 17:15
Mar.20 17:13
Mar.20 17:11
Mar.20 17:09
Spark
Missfire
O2 Cor Bar
CO Bar
NOx Bar
0 10 20 30 40 50 60 70 80 90 100
Mar.20 16:47
Mar.20 16:45
Mar.20 16:43
Mar.20 16:41
Mar.20 16:39
20.00 40.00 60.00 80.00 100.00
Mar.20 16:21
Mar.20 16:19
Mar.20 16:17
Mar.20 16:15
Mar.20 16:13
Mar.20 16:11
Mar.20 16:09
Spark
O2 Cor Bar
CO Bar
NOx Bar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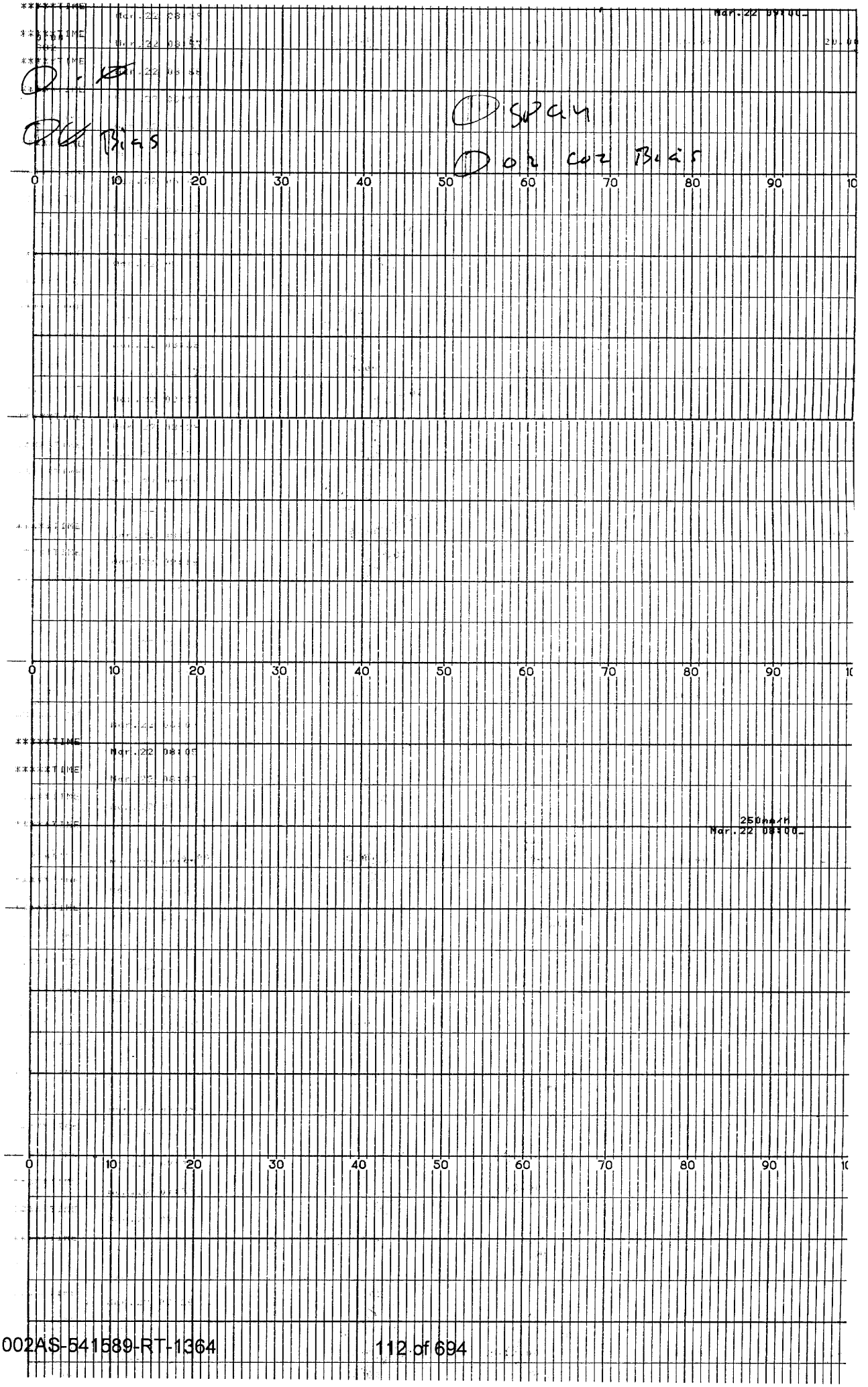
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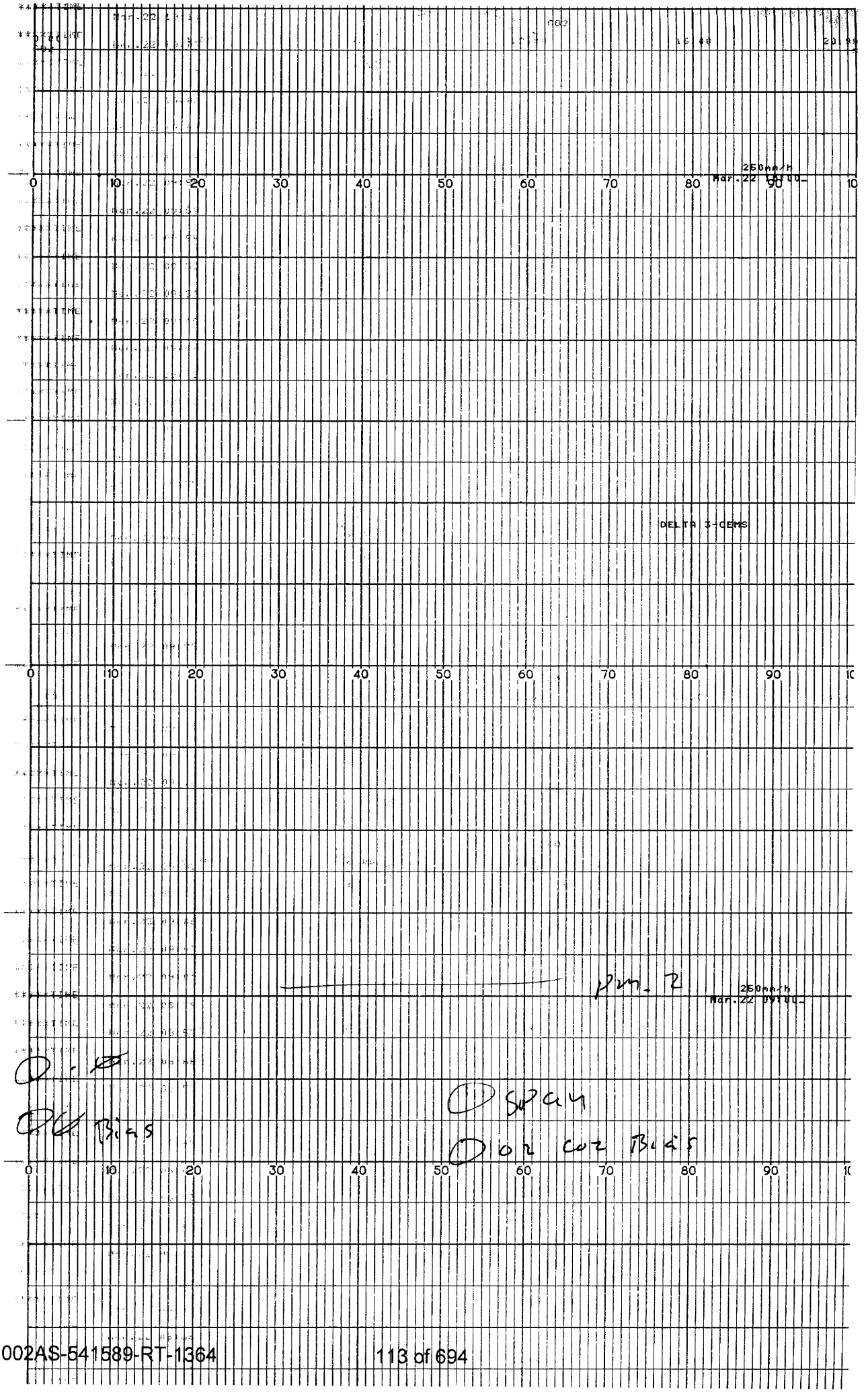
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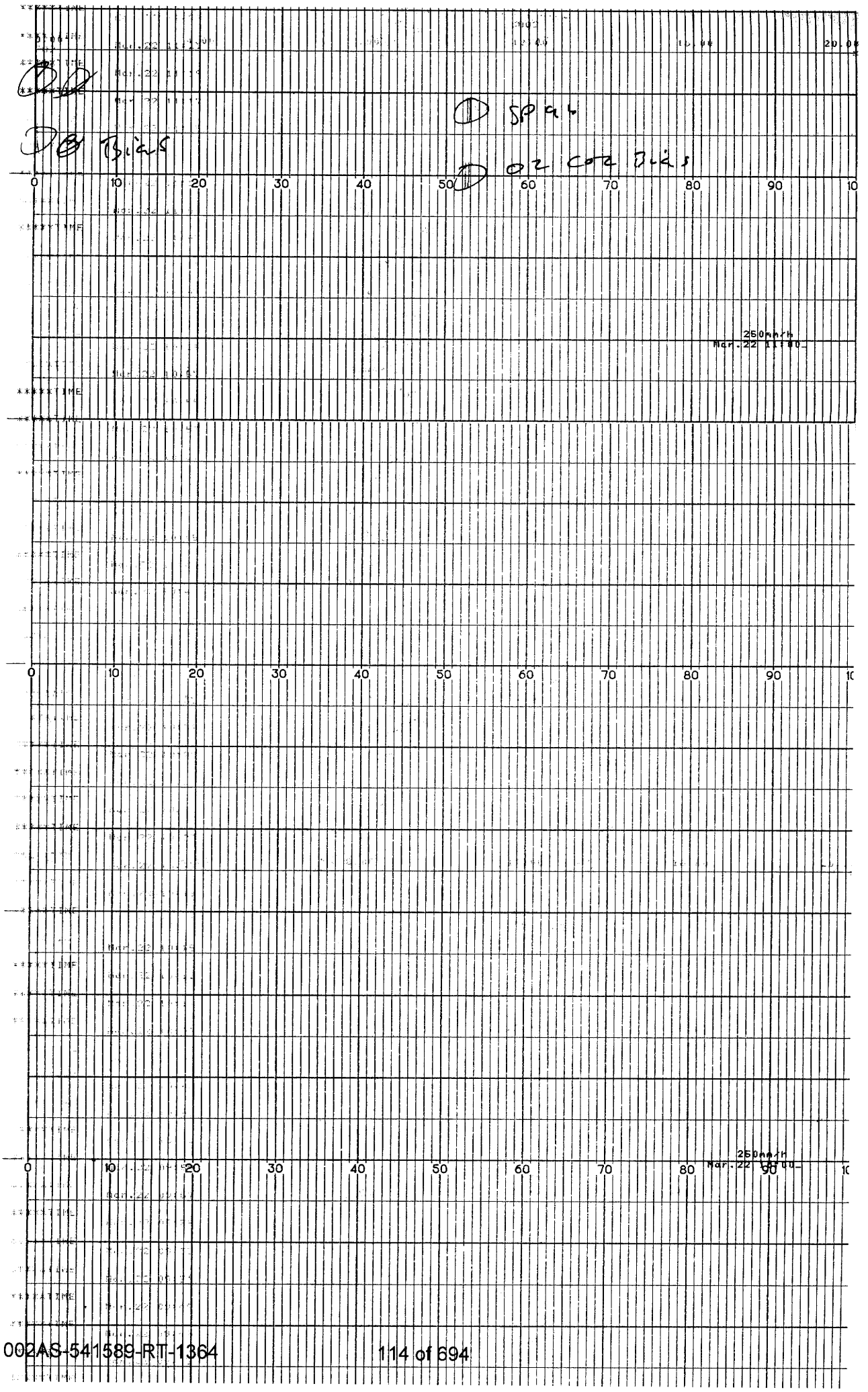
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70
80
90
250mm/h
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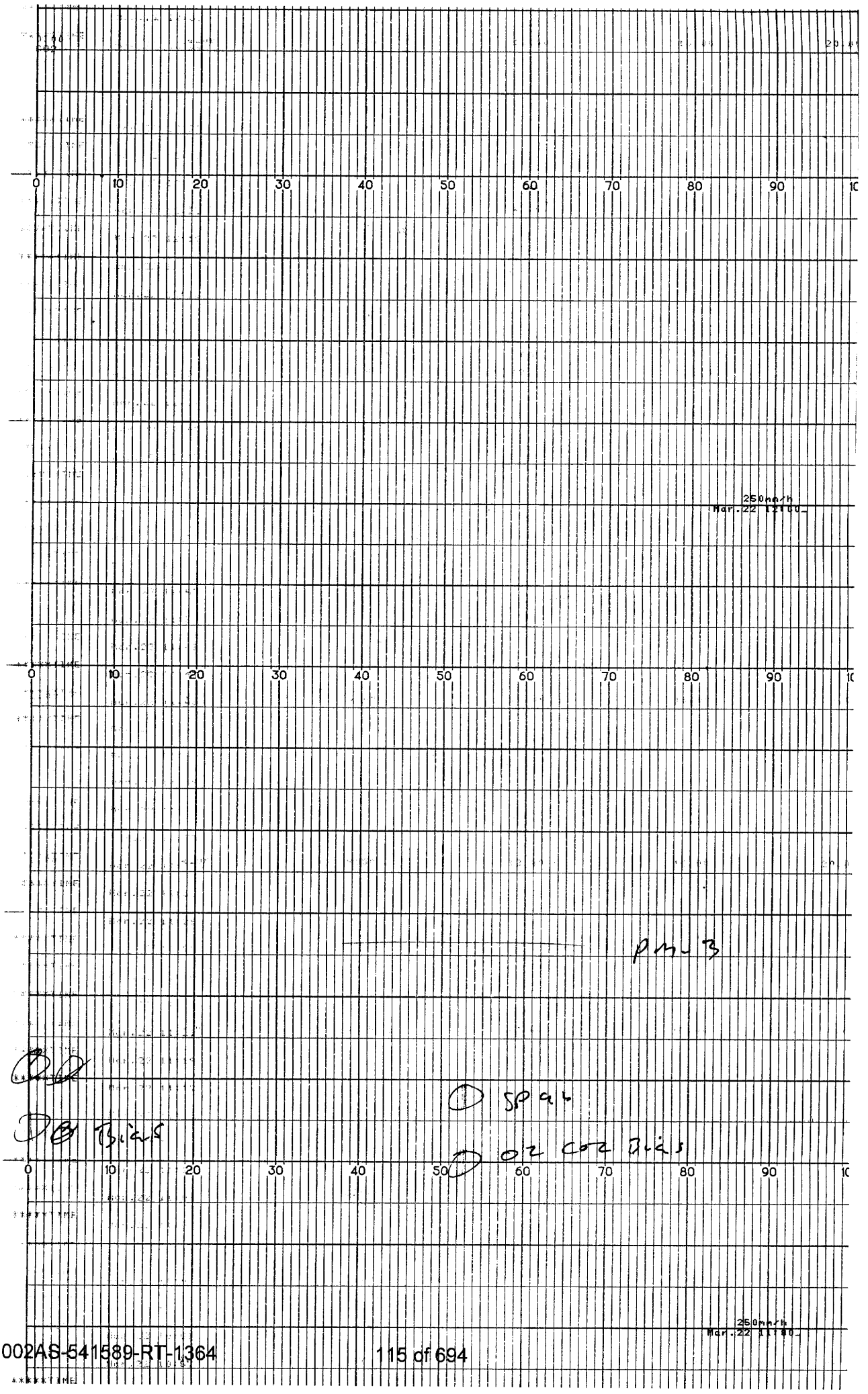
TIME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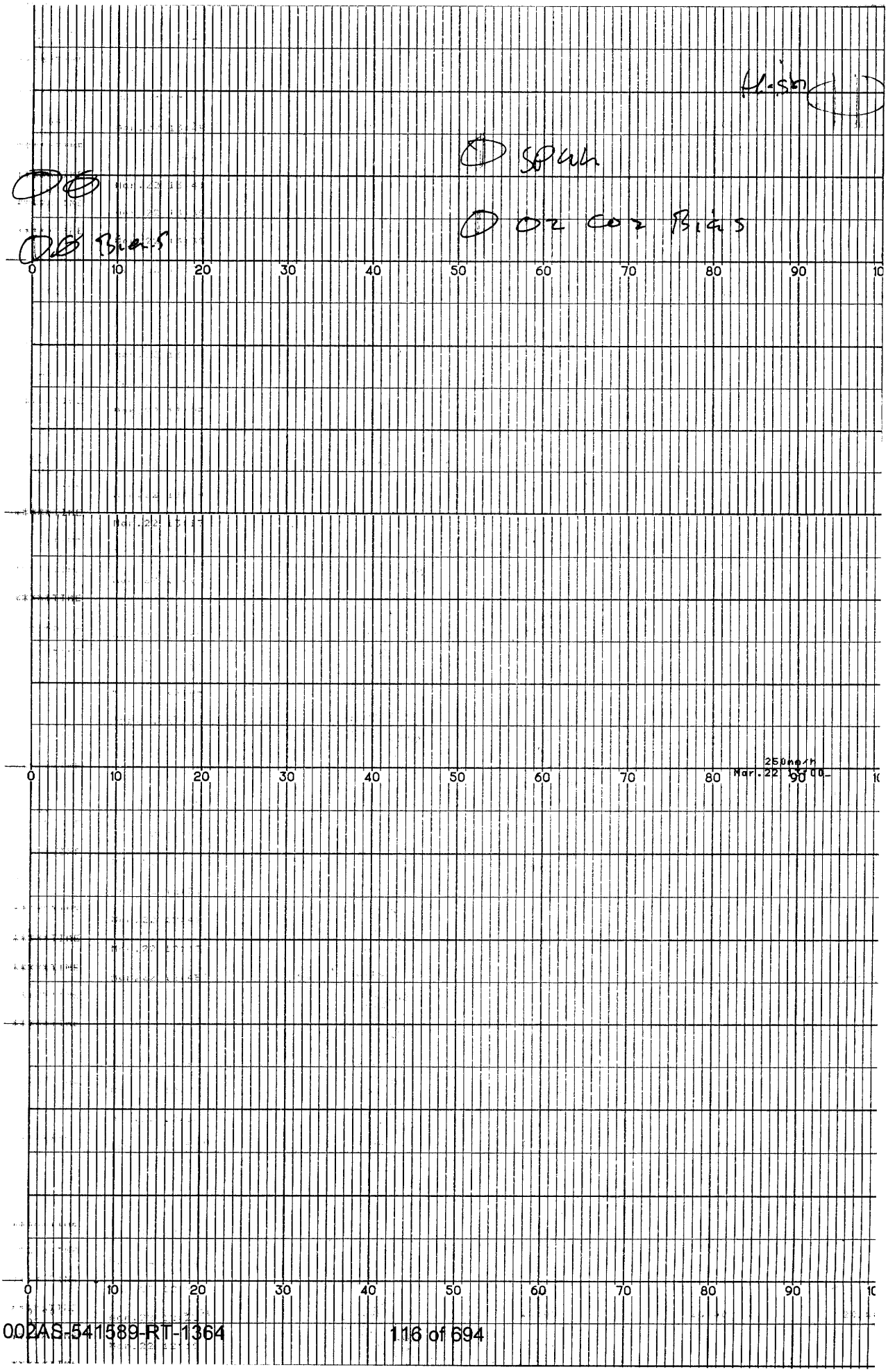
250mm/h
Mar.22 11:00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Appendix A.1.4
Unit 1 Hydrogen Chloride Data

HCL

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

002AS-541589-RT-1364

CLIENT: Desert View Power
LOCATION: Unit 1 Stack Breaching
DATE: 3-19-2019
RUN NO: 1-HCL-U1
OPERATOR: Patrick Whitman
METER BOX NO: 30-WCS
METER ΔH@: 1.802
METER Yd: 0.994
STACK AREA, FT²: 38.8
TRAVERSE POINTS, MIN/POINT: 4x30
ΔH= 1.8 X ΔP:
Probe Condition, pre/post test: ✓/✓
Silica Gel Expanded, Y/N: N
Filter Condition after Test: ✓ not recovered
Check Weight: 500.0/500.0

AMBIENT TEMPERATURE: 80°
BAROMETRIC PRESSURE: 32.01
ASSUMED MOISTURE: 12.5
PITOT TUBE COEFF, Cp: 0.84
PROBE ID NO/MATERIAL: 74 Glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: 215 SS
NOZZLE DIAMETER: 0.240
FILTER NO/TYPE: quartz "
PRE-TEST LEAK RATE: : <0.005 CFM@ 12 in. Hg.
POST-TEST LEAK RATE: : <0.005 CFM@ 12 in. Hg.
PITOT LEAK CHECK - PRE: good POST: good
CHAIN OF CUSTODY: SAMPLE CUSTODIAN DW
SAMPLER PW
SAMPLE CUSTODIAN DW

Imp. #	Contents	Post-Test	Pre-Test	Difference
1	O.1N H2SO4	915.6	706.3	209.3
2	O.1N H2SO4	779.8	612.2	167.6
3	Empty	655.0	643.9	4.1
4	Silica gel	872.1	846.3	25.8
			-50	-50
	Rinse		50	-50
Total:				363.3

Point	Time	Meter Volume, ft³	ΔP in. H2O	ΔH in. H2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O2 %	P. static in. H2O
5	725	760.1	1.0	1.9	340 ~~352~~	250	251	59	66	65	6.0		
4	729	763.70	1.3	2.3	341 ~~351~~	251	252	56	67	64	5.5		
3	733	766.53	1.2	2.2	342	251	249	48	68	65	5.5		
2	737	769.71	.91	1.6	342	251	250	45	69	66	5.5		
1	741	772.57	1.3	2.3	340	250	245	49	70	67	6.0		
0	745	774.881	–	–	–	–	–	–	–	–	–		
5	832	774.881	1.1	2.0	347	251	254	60	79	75	5		
4	836	779.012	1.3	2.3	353	253	250	52	81	78	6.0		
3	840	782.40	1.0	2.0	355	251	253	53	83	79	6.0		
2	844	785.521	1.1	2.2	355	253	253	55	85	79	6.0		
1	848	788.670	.95	1.9	353	252	252	55	87	80	5.5		
0	852	791.730	–	–	–	–	–	–	–	–	–		
5	854	791.730	1.2	2.4	354	245	252	56	87	82	6.0		
4	858	795.131	1.2	2.4	354	250	250	56	88	81	6.0		
3	902	798.580	1.4	2.8	355	253	256	57	90	81	6.5		
2	906	802.300	1.4	2.8	356	253	255	57	91	82	6.5		
1	910	805.590	1.2	2.4	355	250	253	57	92	82	6.0		
Average:	914	809.417											

Comments: 20

118 of 694

DS834049

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: Desert View Power
LOCATION: Unit 1 Stack Breaching
DATE: 3-19-2019
RUN NO: 1-HCL-U1
OPERATOR: Patrick Whitman
METER BOX NO: 30-WCS
METER ΔH@: 1.802
METER Yd: 0.994
STACK AREA, FT²: 38.8
TRAVERSE POINTS, MIN/POINT: 4x30
ΔH= 2.0 X ΔP:
Probe Condition, pre/post test:
Silica Gel Expanded, Y/N:
Filter Condition after Test:
Check Weight:

AMBIENT TEMPERATURE: 80
BAROMETRIC PRESSURE: 30.01
ASSUMED MOISTURE: 12.5
PITOT TUBE COEFF, Cp: 0.84
PROBE ID NO/MATERIAL: 74 Glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: 215 SS
NOZZLE DIAMETER: 0.240
FILTER NO/TYPE: quartz
PRE-TEST LEAK RATE: : CFM@ in. Hg.
POST-TEST LEAK RATE: <0.005 CFM@ 12 in. Hg.
PITOT LEAK CHECK - PRE: good POST: good
CHAIN OF CUSTODY: SAMPLE CUSTODIAN DW
SAMPLER PW
SAMPLE CUSTODIAN DW

Imp. #	Contents	Post-Test	Pre-Test	Difference
1	0.1N H2SO4			
2	0.1N H2SO4			
3	Empty			
4	Silica gel			
	Rinse		50	
Total:				

Point	Time	Meter Volume, ft³	ΔP in. H₂O	ΔH in. H₂O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O₂ %	P. static in. H₂O
5	936	809.417	1.1	2.2	362	251	258	61	83	82	6		
4	940	812.712	1.0	2.0	363	253	251	54	88	85	6		
3	944	815.830	.90	1.9	363	251	251	54	90	85	5.5		
2	948	818.850	.95	1.9	363	252	253	55	92	86	5.5		
1	952	821.780	.99	2.0	362	251	256	56	92	85	5.5		
0	956	824.752	—	—	—	—	—	—	—	—	—		
5	958	824.752	1.2	2.4	365	250	249	59	89	86	6.5		
4	1002	828.390	1.4	2.8	365	251	256	57	94	87	7.0		
3	1006	831.770	1.4	2.8	364	252	254	57	94	88	7.0		
2	1010	835.471	1.5	3.0	365	251	257	58	98	90	7.5		
1	1014	839.622	1.3	2.6	364	251	257	59	98	90	6.5		
0	1018	842.001	—	—	—	—	—	—	—	—	—		
5	1020	842.001	1.4	2.8	366	252	253	60	96	90	7.0		
4	1024	846.620	1.4	2.8	366	253	250	54	99	91	7.0		
3	1028	850.270	1.3	2.6	366	253	249	55	99	91	6.5		
2	1032	853.950	1.3	2.6	366	251	250	56	99	92	6.5		
1	1036	857.631	1.3	2.6	366	252	251	57	100	92	6.5		
Average:	1040	860.992											

Comments:

Date of last revision 2/14/2017 Page ____ of ____ Master Document Storage\Forms\Datasheets\Field Datasheets DS834049

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

002AS-541589-RT-1364

CLIENT: Desert View Power
LOCATION: Unit 1 Stack Breaching
DATE: 3-19-2019
RUN NO: 2-HCL-U1
OPERATOR: Patrick Whitman
METER BOX NO: 30-WCS
METER ΔH@: 1.802
METER Yd: 0.994
STACK AREA, FT²: 38.8
TRAVERSE POINTS, MIN/POINT: 4x30
ΔH= 2.0 X ΔP:
Probe Condition, pre/post test: ✓/✓
Silica Gel Expanded, Y/N: N
Filter Condition after Test: ✓ not recovered
Check Weight: 500.0/500.0

AMBIENT TEMPERATURE: 84°
BAROMETRIC PRESSURE: 30.01
ASSUMED MOISTURE: 12.5
PITOT TUBE COEFF, Cp: 0.84
PROBE ID NO/MATERIAL: 74 Glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: 215 SS
NOZZLE DIAMETER: 0.240
FILTER NO/TYPE: quartz
PRE-TEST LEAK RATE: : <0.005 CFM@ 15" in. Hg.
POST-TEST LEAK RATE: : CFM@ in. Hg.
PITOT LEAK CHECK - PRE: ✓ POST:
CHAIN OF CUSTODY: SAMPLE CUSTODIAN DW
SAMPLER PW
SAMPLE CUSTODIAN DW

Imp. #	Contents	Post-Test	Pre-Test	Difference
1	0.1N H2SO4	1004.5	763.7	240.8
2	0.1N H2SO4	811.3	656.0	155.3
3	Empty	633.2	623.9	9.3
4	Silica gel	933.3	901.4	31.9
		50		
	Rinse		50	-50
Total:				387.3

Point	Time	Meter Volume, ft³	ΔP in. H2O	ΔH in. H2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O2 %	P. static in. H2O
5	1101	862.385	1.4	2.8	369	251	253	55	95	94	6		4.40
4	1105	866.160	1.5	3.0	369	252	250	52	97	95	7		
3	1109	870.241	1.5	3.0	369	252	254	54	98	96	7		
2	1113	874.321	1.3	2.6	369	251	253	54	98	96	6.5		
1	1117	877.874	1.3	2.6	368	250	255	55	99	96	6.5		
0	1121	881.427	—	—	—	—	—	—	—	—	—		
5	1129	861.427	1.3	2.6	365	251	255	56	97	95	6.5		
4	1133	884.869	1.4	2.8	369	253	253	57	99	96	6.5		
3	1137	888.630	1.4	2.8	369	253	259	57	101	96	6.5		
2	1141	892.370	1.5	3.0	369	252	254	58	103	98	7		
1	1145	896.200	1.3	2.6	369	252	251	58	104	98	6		
0	1149	899.882	—	—	—	—	—	—	—	—	—		
5	1151	899.882	1.2	2.4	367	250	253	59	99	96	6		
4	1155	902.998	1.4	2.8	368	251	257	53	101	97	6.5		
3	1159	907.001	1.4	2.8	368	251	257	54	102	98	6.5		
2	1203	911.101	1.0	2.0	369	252	253	55	103	99	6.0		
1	1207	914.200	.97	1.9	369	252	253	56	104	99	6.0		
Average:	1211	~~916.157~~											

Run 917.157

Comments: 3/19/19

120 of 694

DS834049

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: Desert View Power
LOCATION: Unit 1 Stack Breaching
DATE: 3-19-2019
RUN NO: 2-HCL-U1
OPERATOR: Patrick Whitman
METER BOX NO: 30-WCS
METER ΔH@: 1.802
METER Yd: 0.994
STACK AREA, FT²: 38.8
TRAVERSE POINTS, MIN/POINT: 4x30
ΔH= 2.0 X ΔP:
Probe Condition, pre/post test:
Silica Gel Expanded, Y/N:
Filter Condition after Test:
Check Weight:

AMBIENT TEMPERATURE: 84°
BAROMETRIC PRESSURE: 30.01
ASSUMED MOISTURE: 12.5
PITOT TUBE COEFF, Cp: 0.84
PROBE ID NO/MATERIAL: 74 Glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: 215 SS
NOZZLE DIAMETER: 0.240
FILTER NO/TYPE: quartz
PRE-TEST LEAK RATE: : CFM@ in. Hg.
POST-TEST LEAK RATE: <0.002 CFM@ 12" in. Hg.
PITOT LEAK CHECK - PRE: ✓ POST: ✓
CHAIN OF CUSTODY: SAMPLE CUSTODIAN DW
SAMPLER PW
SAMPLE CUSTODIAN DW

Imp. #	Contents	Post-Test	Pre-Test	Difference
1	O.1N H2SO4			
2	O.1N H2SO4			
3	Empty			
4	Silica gel			
	Rinse		50	
Total:				

Point	Time	Meter Volume, ft³	ΔP in. H₂O	ΔH in. H₂O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O₂ %	P. static in. H₂O
5	1217	917.157	1.0	2.0	385	249	251	60	94	93	6.0		
4	1221	920.320	1.2	2.4	386	251	253	57	98	94	6.5		
3	1224	923.100	.97	1.9	387	251	251	57	99	94	6.0		
2	1228	926.150	.90	1.8	384	252	254	58	100	95	6.0		
1	1232	929.560	.91	1.9	380	253	254	58	101	96	6.0		
0	1236	932.995	—	—	—	—	—	—	—	—	—		
5	1239	932.995	1.2	2.4	370	251	253	59	99	96	6.5		
4	1243	936.530	1.1	2.2	369	251	254	57	99	97	6.0		
3	1247	940.001	.92	1.8	370	252	254	57	101	97	6.0		
2	1251	942.900	.85	1.7	370	250	256	58	103	98	6.0		
1	1255	946.298	.89	1.8	368	251	254	58	103	98	6.0		
0	1259	949.751	—	—	—	—	—	—	—	—	—		
5	1302	949.751	1.3	2.6	369	250	253	60	97	95	6.5		
4	1306	952.770	1.0	2.0	369	251	253	57	99	97	6.0		
3	1310	955.383	.87	1.7	369	250	254	56	100	98	6.0		
2	1314	958.990	.83	1.7	369	251	253	57	101	99	6.0		
1	1318	961.820	.80	1.6	368	250	253	57	102	99	6.0		
Average:	1322	963.649											

Comments:

002AS-541589-RT-1364

121 of 694

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

002AS-541589-RT-1364

CLIENT: Desert View Power
LOCATION: Unit 1 Stack Breaching
DATE: 3-19-2019
RUN NO: 3-HCL-U1
OPERATOR: Patrick Whitman
METER BOX NO: 30-WCS
METER ΔH@: 1.802
METER Yd: 0.994
STACK AREA, FT²: 38.8
TRAVERSE POINTS, MIN/POINT: 4x30
ΔH= _____ X ΔP:
Probe Condition, pre/post test: N/
Silica Gel Expanded, Y/N: N
Filter Condition after Test: ✓ not rec
Check Weight: 500.0 / 500.0

AMBIENT TEMPERATURE: 84°
BAROMETRIC PRESSURE: 30.01
ASSUMED MOISTURE: 12.5
PITOT TUBE COEFF, Cp: 0.84
PROBE ID NO/MATERIAL: 74 Glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: 215 SS
NOZZLE DIAMETER: 0.240
FILTER NO/TYPE: quartz
PRE-TEST LEAK RATE: <0.005 CFM@ 16" in. Hg.
POST-TEST LEAK RATE: : _____ CFM@ _____ in. Hg.
PITOT LEAK CHECK - PRE: ✓ POST: _____
CHAIN OF CUSTODY: SAMPLE CUSTODIAN DW
SAMPLER PW
SAMPLE CUSTODIAN DW

Imp. #	Contents	Post-Test	Pre-Test	Difference
1	0.1N H2SO4	928.9	729.3	199.6
2	0.1N H2SO4	765.4	684.1	81.3
3	Empty	540.4	478.6	~~25.9~~ 61.8
4	Silica gel	912.1	886.2	25.9
		-50		
	Rinse		50	-50
Total:				

Point	Time	Meter Volume, ft³	ΔP in. H2O	ΔH in. H2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O2 %	P. static in. H2O
5	1337	969.594	1.3	2.6	368	250	253	62	96	95	7		
4	1341	972.224	1.1	2.2	368	252	249	56	99	95	6		
3	1345	976.500	.93	1.9	369	251	250	56	101	96	6		
2	1349	979.650	.89	1.9	369	251	254	57	102	97	6		
1	1353	982.760	.90	1.9	370	250	254	57	102	98	6		
0	1357	986.988	—	—	—	—	—	—		—	—		
5	1359	986.988	1.2	2.4	370	251	253	59	99	95	6.5		
4	1403	989.430	1.2	2.4	370	250	251	56	99	96	6.5		
3	1407	992.850	1.0	2.2	370	252	254	56	101	97	6.0		
2	1411	996.160	.89	1.8	368	251	254	57	102	98	6.0		
1	1415	999.624	.78	1.6	366	250	255	57	102	98	6.0		
0	1419	1002.125	—	—	—	—	—	—	—	—			
5	1421	1002.125	1.3	2.4	366	251	259	59	99	98	6.5		
4	1425	1004.760	1.1	2.0	369	251	250	57	102	99	6.0		
3	1429	1007.990	1.0	1.8	369	250	259	57	102	99	6.0		
2	1433	1010.998	.92	1.7	368	251	259	58	101	98	6.0		
1	1437	1014.130	.86	1.6	366	251	252	58	101	98	6.0		
Average:	1441	1017.038											

Comments: 1.85

122 of 694

DS834049

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

002AS-541589-RT-1364

CLIENT: Desert View Power
LOCATION: Unit 1 Stack Breaching
DATE: 3-19-2019
RUN NO: 3-HCL-U1
OPERATOR: Patrick Whitman
METER BOX NO: 30-WCS
METER ΔH@: 1.802
METER Yd: 0.994
STACK AREA, FT²: 38.8
TRAVERSE POINTS, MIN/POINT: 4x30
ΔH= 1.85 X ΔP:
Probe Condition, pre/post test:
Silica Gel Expanded, Y/N:
Filter Condition after Test:
Check Weight:

AMBIENT TEMPERATURE: 84°
BAROMETRIC PRESSURE: 30.01
ASSUMED MOISTURE: 12.5
PITOT TUBE COEFF, Cp: 0.84
PROBE ID NO/MATERIAL: 74 Glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: 215 SS
NOZZLE DIAMETER: 0.240
FILTER NO/TYPE: quartz
PRE-TEST LEAK RATE: : CFM@ in. Hg.
POST-TEST LEAK RATE: ≤0.005 CFM@ 14" in. Hg.
PITOT LEAK CHECK - PRE: ✓ POST: ✓
CHAIN OF CUSTODY: SAMPLE CUSTODIAN DW
SAMPLER PW
SAMPLE CUSTODIAN DW

Imp. #	Contents	Post-Test	Pre-Test	Difference
1	O.1N H2SO4			
2	O.1N H2SO4			
3	Empty			
4	Silica gel			
	Rinse		50	
Total:				

Point	Time	Meter Volume, ft³	ΔP in. H₂O	ΔH in. H₂O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O₂ %	P. static in. H₂O
~~1445~~ 5	1443	17.038	1.4	2.6	365	250	259	59	98	97	7		
4	1447	20.230	1.4	2.6	365	251	250	54	99	97	7		
3	1451	24.422	1.0	1.8	363	252	254	55	102	96	6		
2	1455	27.680	.78	1.4	363	251	253	55	102	97	6		
1	1459	30.470	.75	1.4	362	251	250	56	102	98	6		
0	1503	33.254	—	—	—	—	—	—	—	—	—		
5	1505	33.254	1.2	2.2	365	251	253	57	98	96	6.5		
4	1509	36.452	1.2	2.2	365	251	251	57	101	97	6.5		
3	1513	39.650	1.2	2.2	365	251	252	58	101	98	6.5		
2	1517	42.900	1.4	2.6	365	252	254	58	102	98	7		
1	1521	46.380	1.2	2.2	366	251	255	59	102	98	6.5		
0	1525	49.005	—	—	—	—	—	—	—	—	—		
5	1527	49.005	1.5	2.8	367	250	257	60	98	96	7		
4	1531	52.800	1.5	2.8	366	250	252	57	101	97	7		
3	1535	56.500	1.4	2.6	366	252	253	58	102	97	7		
2	1539	60.110	1.4	2.6	368	252	254	58	102	98	7		
1	1543	63.604	1.2	2.2	369	253	253	59	102	98	6.5		
Average:	1547	66.884											

Run 1234 1/19/19 DT 694

Comments:

MONTROSE
AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: Desert View Power
LOCATION: Unit 1 Stack Breaching
DATE: 3-19-2019
RUN NO: FB-HCL-U1
OPERATOR: Patrick Whitman
METER BOX NO: 30-WCS
METER ΔH@: 1.802
METER Yd: 0.994
STACK AREA, FT²: 38.8
TRAVERSE POINTS, MIN/POINT: 4x30
ΔH= _____ X ΔP:
Probe Condition, pre/post test: ✓/✓
Silica Gel Expanded, Y/N: N
Filter Condition after Test: ✓ - not recovered
Check Weight: 500.0 / 500.0

AMBIENT TEMPERATURE: NA
BAROMETRIC PRESSURE: NA
ASSUMED MOISTURE: 12.5
PITOT TUBE COEFF, Cp: 0.84
PROBE ID NO/MATERIAL: 74 Glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: 215 SS
NOZZLE DIAMETER: 0.240
FILTER NO/TYPE: quartz
PRE-TEST LEAK RATE: : <0.005 CFM@ 15" in. Hg.
POST-TEST LEAK RATE: <0.005 CFM@ 15" in. Hg.
PITOT LEAK CHECK - PRE: NA POST: NA
CHAIN OF CUSTODY: SAMPLE CUSTODIAN DW
SAMPLER PW
SAMPLE CUSTODIAN DW

Imp. #	Contents		Post-Test - Pre-Test = Difference
1	0.1N H2SO4	✓	756.4
2	0.1N H2SO4	✓	623.1
3	Empty	✓	622.1
4	Silica gel	✓	933.3
	-50 blank		
	Rinse		50
Total:			

Point	Time	Meter Volume, ft³	ΔP in. H₂O	ΔH in. H₂O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O₂ %	P. static in. H₂O
	1400-1500												
Average:													

Field Blank

Comments: _____

DS834049

002AS-541589-RT-1364
124 of 694

Appendix A.1.5
Unit 1 Particulate Data

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

002AS-541589-RT-1364

126 of 694

CLIENT: Desert View Power
LOCATION: Unit 1 Stack Breaching
DATE: 3-22-2019
RUN NO: 1-PM-U1
OPERATOR: Patrick Whitman
METER BOX NO: 17-WCS
METER ΔH@: 1.499
METER Yd: 0.994
STACK AREA, FT²: 38.8
TRAVERSE POINTS, MIN/POINT: 4x30
ΔH= _____ X ΔP:
Probe Condition, pre/post test: V/ok
Silica Gel Expanded, Y/N: N
Filter Condition after Test: ok
Check Weight: 500.0 / 500

AMBIENT TEMPERATURE: 55°F
BAROMETRIC PRESSURE: 30.22
ASSUMED MOISTURE: 12.5
PITOT TUBE COEFF, Cp: 0.84
PROBE ID NO/MATERIAL: 119 Glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: #103 SS
NOZZLE DIAMETER: 0.247
FILTER NO/TYPE: # 83- 3583 FG
PRE-TEST LEAK RATE: : 0.005 CFM@ 15 in. Hg.
POST-TEST LEAK RATE: : 0.005 CFM@ 15 in. Hg.
PITOT LEAK CHECK - PRE: ✓ POST: ✓
CHAIN OF CUSTODY: SAMPLE CUSTODIAN DW
SAMPLER PW
SAMPLE CUSTODIAN DW

Imp. #	Contents	Post-Test	Pre-Test	Difference
1	DI H2O	943.0	702.5	240.5
2	DI H2O	691.8	593.8	98.0
3	Empty	654.1	653.3	0.8
4	Silica gel	920.5	894.7	25.8
	N/A ~~50 Rinse~~			
		MW	3-22-19	
Total:				365.1

Point	Time	Meter Volume, ft³	ΔP in. H2O	ΔH in. H2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O2 %	P. static in. H2O
5	0638	144.300	1.3	2.3	349	255	253	40	53	52	7"		+.35
4	0642	147.715	1.1	2.0	348	255	252	39	53	54	6"		
3	0646	150.895	1.1	2.0	348	252	258	39	54	54	6"		
2	0650	153.990	1.2	2.2	347	254	256	38	56	54	7"		
1	0654	157.485	1.3	2.3	347	251	238	39	58	54	7"		
E	0658	160.918											
5	0700	160.918	1.4	2.5	346	255	257	40	58	56	7"		
4	0704	164.575	1.3	2.3	348	257	255	39	57	56	7"		
3	0708	168.010	1.2	2.2	346	252	258	41	63	57	7"		
2	0712	171.560	1.4	2.5	347	253	255	42	64	57	7"		
1	0716	174.815	1.3	2.3	346	252	256	42	64	58	7"		
E	0720	178.272											
5	0722	178.272	1.0	1.8	345	255	257	43	62	59	6"		
4	0726	181.512	1.1	2.0	345	252	257	43	65	59	6"		
3	0730	184.525	.99	1.8	346	253	258	43	65	60	6"		
2	0734	187.650	1.0	1.8	346	254	257	44	67	61	6"		
1	0738	190.685	1.1	2.0	348	258	255	45	68	62	6"		
Average	0742	193.874											

Comments: Factor 0.0630=1.8

DS834049

MONTROSE

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: Desert View Power
LOCATION: Unit 1 Stack Breaching
DATE: 3-22-2019
RUN NO: 1-PM-U1
OPERATOR: Patrick Whitman
METER BOX NO: 17-WCS
METER ΔH@: 1.499
METER Yd: 0.994
STACK AREA, FT²: 38.8
TRAVERSE POINTS, MIN/POINT: 4x30
ΔH= _____ X ΔP:
Probe Condition, pre/post test: _____
Silica Gel Expanded, Y/N: _____
Filter Condition after Test: _____
Check Weight: _____

AMBIENT TEMPERATURE: 60°F
BAROMETRIC PRESSURE: 30.22
ASSUMED MOISTURE: 12.5
PITOT TUBE COEFF, Cp: 0.84
PROBE ID NO/MATERIAL: 119 Glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: #103 SS
NOZZLE DIAMETER: 0.247
FILTER NO/TYPE: # 83- 3583 FG
PRE-TEST LEAK RATE: : <0.005 CFM@ 15 in. Hg.
POST-TEST LEAK RATE: : <0.005 CFM@ 15 in. Hg.
PITOT LEAK CHECK - PRE: ✓ POST: ✓
CHAIN OF CUSTODY: SAMPLE CUSTODIAN DW
SAMPLER PW
SAMPLE CUSTODIAN DW

Imp. #	Contents	Post-Test	Pre-Test	Difference
1	DI H2O			
2	DI H2O			
3	Empty			
4	Silica gel			
Total:				

Point	Time	Meter Volume, ft³	ΔP in. H₂O	ΔH in. H₂O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O₂ %	P. static in. H₂O
5	0744	193.874	1.2	2.2	346	252	255	44	67	63	7"		+.38
4	0748	197.290	1.3	2.5	343	256	255	45	65	62	7"		
3	0752	200.795	1.1	2.1	345	250	253	46	67	62	7"		
2	0756	203.995	.98	1.9	346	251	254	47	67	63	6"		
1	0800	208.005	.94	1.8	346	255	257	49	68	63	6"		
E	0804	211.017											
5	0806	211.017	1.0	1.9	345	251	253	48	67	62	6"		
0810/4	~~0808~~	214.185	1.1	2.1	346	251	252	48	67	64	7"		
3	0814	217.650	1.2	2.3	346	253	251	49	67	64	7"		
2	0818	221.133	1.1	2.1	346	255	250	49	68	64	7"		
1	0822	224.140	1.0	1.9	345	256	252	49	68	64	7"		
E	0826	227.316											
5	0828	227.316	1.3	2.5	346	251	257	48	69	65	7"		
4	0832	230.815	1.1	2.1	346	252	258	49	67	64	7"		
3	0836	234.150	1.3	2.5	347	255	253	50	67	64	7"		
2	0840	237.685	1.0	1.9	348	252	253	50	68	64	6"		
1	0844	241.020	1.1	2.1	349	253	254	50	67	63	7"		
Average E	0848	244.207											

Comments: Factor @ 0746 = 1.9 A = PW 3/22/19

Date of last revision 2/14/2017 Page 2 of 2 Master Document Storage\Forms\Datasheets\Field Datasheets DS834049

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

002AS-541589-RT-1364

CLIENT: Desert View Power
LOCATION: Unit 1 Stack Breaching
DATE: 3-22-2019
RUN NO: 2-PM-U1
OPERATOR: Patrick Whitman
METER BOX NO: 17-WCS
METER ΔH@: 1.499
METER Yd: 0.994
STACK AREA, FT²: 38.8
TRAVERSE POINTS, MIN/POINT: 4x30
ΔH= _____ X ΔP:
Probe Condition, pre/post test: ✓/
Silica Gel Expanded, Y/N: ok
Filter Condition after Test: ok
Check Weight: 500.0 / 500

AMBIENT TEMPERATURE: 68°F
BAROMETRIC PRESSURE: 30.22
ASSUMED MOISTURE: 12.5
PITOT TUBE COEFF, Cp: 0.84
PROBE ID NO/MATERIAL: 89 Glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: #176 SS
NOZZLE DIAMETER: 0.248
FILTER NO/TYPE: # 83- 3584 FG
PRE-TEST LEAK RATE: : 0.005 CFM@ 13 in. Hg.
POST-TEST LEAK RATE: : 0.005 CFM@ 13 in. Hg.
PITOT LEAK CHECK - PRE: ✓ POST: ✓
CHAIN OF CUSTODY: SAMPLE CUSTODIAN DW
SAMPLER PW
SAMPLE CUSTODIAN DW

Imp. #	Contents	Post-Test	Pre-Test	Difference
1	DI H2O	967.5	723.5	244.0
2	DI H2O	679.3	581.2	98.1
3	Empty	586.3	584.3	2.0
4	Silica gel	943.3	920.8	22.5
Total:				366.6

Point	Time	Meter Volume, ft³	ΔP in. H2O	ΔH in. H2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O2 %	P. static in. H2O
5	0901	244.700	~~244.700~~ * ~~1.2~~	2.3	349	255	250	44	65	65	7"		1.38
4	0905	248.325	1.1	2.1	349	257	253	49	69	65	7"		
3	0909	251.880	1.3	2.5	349	253	254	40	69	66	7"		
2	0913	253.245	1.0	1.9	349	252	257	40	70	66	6"		
1	0917	258.760	1.1	2.1	350	257	258	41	71	67	6"		
	0921	262.018											
5	0923	262.018	1.0	1.9	349	255	256	46	70	67	6"		
4	0927	265.265	1.1	2.1	350	256	258	42	71	67	7"		
3	0931	268.555	1.2	2.3	351	254	257	42	71	68	7"		
2	0935	272.015	1.0	2.1	350	258	252	43	72	68	7"		
1	0939	275.330	.98	1.9	351	257	254	44	72	68	7"		
	0943	278.377											
5	0945	278.377	1.3	2.5	351	255	253	43	71	70	7"		
4	0949	282.010	1.4	2.7	350	256	254	42	73	69	8"		
3	0953	285.685	1.0	1.9	352	255	257	40	75	69	6"		
2	0957	288.950	.97	1.8	351	253	252	40	76	70	6"		
1	1001	292.110	.92	1.7	351	256	251	41	76	71	6"		
Average	1005	295.261	1.1187	2.143	351.6				72.1	–			

128 of 694

Comments: Factor @ 0900 = 1.9
* = PW 3/22/19

DS834049

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: Desert View Power
LOCATION: Unit 1 Stack Breaching
DATE: 3-22-2019
RUN NO: 2-PM-U1
OPERATOR: Patrick Whitman
METER BOX NO: 17-WCS
METER ΔH@: 1.499
METER Yd: 0.994
STACK AREA, FT²: 38.8
TRAVERSE POINTS, MIN/POINT: 4x30
ΔH= _____ X ΔP:
Probe Condition, pre/post test: ✓/
Silica Gel Expanded, Y/N:
Filter Condition after Test:
Check Weight:

AMBIENT TEMPERATURE: 72°F
BAROMETRIC PRESSURE: 30.22
ASSUMED MOISTURE: 12.5
PITOT TUBE COEFF, Cp: 0.84
PROBE ID NO/MATERIAL: 89 Glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: #176 SS
NOZZLE DIAMETER: 0.248
FILTER NO/TYPE: # 83- 3584 FG
PRE-TEST LEAK RATE: : 0.005 CFM@ 15 in. Hg.
POST-TEST LEAK RATE: : 0.005 CFM@ 15 in. Hg.
PITOT LEAK CHECK - PRE: ✓ POST: ✓
CHAIN OF CUSTODY: SAMPLE CUSTODIAN DW
SAMPLER PW
SAMPLE CUSTODIAN DW

Imp. #	Contents	Post-Test	Pre-Test	Difference
1	DI H2O			
2	DI H2O			
3	Empty			
4	Silica gel			
Total:				

Point	Time	Meter Volume, ft³	ΔP in. H₂O	ΔH in. H₂O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O₂ %	P. static in. H₂O
5	1007	295.261	.96	1.8	352	254	253	41	74	71	6"		-.38
4	1011	298.510	1.0	1.9	352	256	258	43	76	71	6"		
3	1015	301.725	.99	1.9	352	257	253	42	77	72	6"		
2	1019	304.840	.97	1.8	351	255	254	43	77	72	6"		
1	1023	308.035	1.1	~~2.5~~ 2.1	352	256	255	44	78	73	6"		
E	1027	311.182											
5	1029	311.182	1.3	2.5	353	253	257	43	77	73	7"		
4	1033	314.845	1.4	2.7	352	255	252	43	78	74	8"		
3	1037	318.570	1.2	2.3	354	257	253	42	79	74	7"		
2	1041	322.335	1.3	2.5	355	258	256	44	80	75	7"		
1	1045	326.060	1.2	2.3	354	257	252	45	82	76	7"		
E	1049	329.562											
5	1051	329.562	1.3	2.5	355	253	254	46	81	77	7"		
4	1055	333.020	1.1	2.1	354	256	258	45	82	77	7"		
3	1059	336.415	1.2	2.3	354	257	255	45	81	78	6"		
2	1063	340.080	1.1	2.1	353	258	253	46	81	77	6"		
1	1067	343.430	1.0	1.9	354	257	255	47	82	78	6"		
Average	1111	346.578											

Comments:

002AS-541589-RT-1364
129 of 694

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

002AS-541589-RT-1364

CLIENT: Desert View Power
LOCATION: Unit 1 Stack Breaching
DATE: 3-22-2019
RUN NO: 3-PM-U1
OPERATOR: Patrick Whitman
METER BOX NO: 17-WCS
METER ΔH@: 1.499
METER Yd: 0.994
STACK AREA, FT²: 38.8
TRAVERSE POINTS, MIN/POINT: 4x30
ΔH= _____ X ΔP:
Probe Condition, pre/post test: ✓
Silica Gel Expanded, Y/N: N O
Filter Condition after Test: OK
Check Weight: 500.0 / 500

AMBIENT TEMPERATURE: 80°F
BAROMETRIC PRESSURE: 30.22
ASSUMED MOISTURE: 12.5
PITOT TUBE COEFF, Cp: 0.84
PROBE ID NO/MATERIAL: 119 Glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: #103 SS
NOZZLE DIAMETER: 0.247
FILTER NO/TYPE: # 83- 3527 FG
PRE-TEST LEAK RATE: : 0.005 CFM@ 15 in. Hg.
POST-TEST LEAK RATE: : 0.005 CFM@ 15 in. Hg.
PITOT LEAK CHECK - PRE: ✓ POST: ✓
CHAIN OF CUSTODY: SAMPLE CUSTODIAN DW
SAMPLER PW
SAMPLE CUSTODIAN DW

Imp. #	Contents	Post-Test	Pre-Test	Difference
1	DI H2O	944.8	741.8	203.0
2	DI H2O	728.6	608.8	119.8
3	Empty	655.5	653.9	1.6
4	Silica gel	935.6	920.5	15.1
Total:				339.5

Point	Time	Meter Volume, ft³	ΔP in. H2O	ΔH in. H2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	%O2 %	P. static in. H2O
5	1126	346.800	1.3	2.5	354	251	253	41	75	74	7"		1.38
4	1130	350.410	1.1	~~1.5~~ 2.1	354	252	254	46	77	76	7"		
3	1134	353.825	1.0	1.9	355	253	256	47	78	77	6"		
2	1138	358.010	1.2	2.3	354	252	257	49	79	78	7"		
1	1142	360.775	1.3	2.5	355	253	258	49	80	78	7"		
E	1146	364.148											
5	1148	364.148	1.4	2.7	354	253	256	48	80	78	8"		
4	1152	367.940	1.3	~~2.5~~ 2.6	354	256	255	48	83	79	7"		
3	1156	371.655	1.2	2.3	354	255	253	49	83	79	7"		
2	1200	375.190	1.3	2.5	355	256	258	49	83	79	7"		
1	1204	378.725	1.3	2.5	355	251	252	48	84	79	7"		
E	1208	382.406											
5	1210	382.406	1.0	1.9	354	256	253	45	82	77	6"		
4	1214	385.840	1.1	2.1	353	254	258	47	84	81	7"		
3	1218	389.095	.98	1.9	354	258	252	47	86	82	6"		
2	1222	392.470	1.0	1.9	354	257	253	47	87	81	6"		
1	1226	395.655	.99	1.9	353	252	251	48	87	81	6"		
Average	E 1230	398.801											

Comments: Factor @ 1123 ~~1.89~~ 1.9
A=PW 3/22/19

130 of 694

DS834049

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: Desert View Power
LOCATION: Unit 1 Stack Breaching
DATE: 3-22-2019
RUN NO: 3-PM-U1
OPERATOR: Patrick Whitman
METER BOX NO: 17-WCS
METER ΔH@: 1.499
METER Yd: 0.994
STACK AREA, FT²: 38.8
TRAVERSE POINTS, MIN/POINT: 4x30
ΔH= _____ X ΔP:
Probe Condition, pre/post test: ✓
Silica Gel Expanded, Y/N:
Filter Condition after Test:
Check Weight:

AMBIENT TEMPERATURE: 80°F
BAROMETRIC PRESSURE: 30.22
ASSUMED MOISTURE: 12.5
PITOT TUBE COEFF, Cp: 0.84
PROBE ID NO/MATERIAL: 119 Glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: #103 SS
NOZZLE DIAMETER: 0.247
FILTER NO/TYPE: # 83- 3527 FG
PRE-TEST LEAK RATE: : <0.005 CFM@ 15 in. Hg.
POST-TEST LEAK RATE: : <0.005 CFM@ 15 in. Hg.
PITOT LEAK CHECK - PRE: ✓ POST: ✓
CHAIN OF CUSTODY: SAMPLE CUSTODIAN DW
SAMPLER PW
SAMPLE CUSTODIAN DW

Imp. #	Contents	Post-Test	Pre-Test	Difference
1	DI H2O			
2	DI H2O			
3	Empty			
4	Silica gel			
Total:				

Point	Time	Meter Volume, ft³	ΔP in. H₂O	ΔH in. H₂O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O₂ %	P. static in. H₂O
5	1232	398.801	1.2	2.3	353	257	258	49	84	82	6"		-.38
4	1236	402.335	1.3	2.5	354	258	253	48	86	82	7"		
3	1240	406.040	1.0	1.9	354	253	256	50	86	82	6"		
2	1244	409.265	.97	1.8	355	252	258	50	85	82	6"		
1	1248	412.480	.90	1.7	354	253	257	49	85	82	6"		
E	1252	415.542											
5	1254	415.542	1.0	1.9	353	256	253	49	81	80	6"		
1258/4	~~1258~~	418.755	1.1	2.1	354	254	256	49	84	80	6"		
3	1302	422.050	1.2	2.3	354	258	251	48	84	80	7"		
2	1306	425.555	1.1	2.1	356	253	258	49	85	80	6"		
1	1310	428.910	.99	1.9	355	255	254	50	86	80	6"		
E	1314	432.158											
5	1316	432.158	1.3	2.5	354	256	252	51	87	82	7"		
4	1320	435.770	1.1	2.1	356	258	251	50	84	80	6"		
3	1324	439.130	1.3	2.5	355	252	254	49	84	79	7"		
2	1328	442.645	1.0	1.9	356	258	251	47	85	80	6"		
1	1332	446.005	1.1	2.1	355	257	253	49	85	81	6"		
Average	1336	449.362											

Comments:

002AS-541589-RT-1364
131 of 694

Appendix A.1.6
Unit 1 SO_2 Data and Velocity Data

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power
LOCATION/UNIT: Unit - 1
PERFORMED BY: Patrick Whitman
TEST DATE: 3/19/2019
BAR. PRESSURE: 30.01
TC READOUT ID: #42
DP INDICATOR ID: CC-2
TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer
PITOT TUBE ID: #058
Cp: 0.84
ZERO: ✓ LEVEL: ✓
LEAK CHECK PRE- ✓ POST- ✓

Run #: 1 Ps: +.40
Start: 820 Stop: 920

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.2	352	5	.90	353	5	1.2	354
4	1.4	353	4	.95	354	4	1.3	354
3	.70	353	3	.96	354	3	1.4	354
2	.94	353	2	.94	354	2	1.4	354
1	1.2	352	1	.85	353	1	1.3	353
5	1.4	353	5	1.2	353	5	1.4	354
4	1.3	353	4	1.4	354	4	1.4	354
3	1.0	353	3	1.3	354	3	1.3	354
2	.64	353	2	1.5	355	2	1.3	355
1	.72	352	1	1.4	354	1	1.2	356
	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	305	0.5	1			1		
2	305	0.6	2			2		
3	305	0.6	3			3		

MOISTURE DATA FOR TEST RUNS 1 THROUGH 1

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
820	981.11	1.0	69	67	59	2	#1	H_2O_2	897.3	751.3	
840	992.70	1.0	70	72	50	2	#2	H_2O_2	757.7	734.3	
900	1103.405	1.0	76	75	56	2	#3	Empty	602.1	602.5	
920	1115.720						#4	Silica Gel	966.0	958.6	
							Total				

Pre-Test Leak Check: <0.001 CFM @ 12" in. Hg., Post-Test Leak Check: <0.001 CFM @ 6 in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power
LOCATION/UNIT: Unit - 1
PERFORMED BY: Patrick Whitman
TEST DATE: 3/19/2019
BAR. PRESSURE: 30.01
TC READOUT ID: #42
DP INDICATOR ID: CC-2
TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer
PITOT TUBE ID: #058
Cp: 0.84
ZERO: ✓
LEVEL: ✓
LEAK CHECK PRE- ✓
POST- ✓

Run #: 2
Ps: +2.00
Start: 975
Stop: 1035

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.2	363	5	1.1	364	5	1.2	364
4	1.3	363	4	1.2	364	4	1.3	364
3	.80	364	3	1.1	364	3	1.4	365
2	.94	364	2	.95	365	2	1.3	365
1	1.2	364	1	.97	364	1	1.2	365
5	1.1	364	5	1.2	364	5	1.4	365
4	1.0	364	4	1.7	364	4	1.4	364
3	.90	365	3	1.5	364	3	1.5	365
2	.94	365	2	1.4	364	2	1.3	365
1	.80	364	1	1.3	364	1	1.2	364
	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	305	0.6	1			1		
2	305	0.6	2			2		
3	305	0.7	3			3		

MOISTURE DATA FOR TEST RUNS 2 THROUGH 2

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T imp	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
0935	416.001	1.0	80	79	60	2	#1	H_2O_2	749.7	756.8	
0955	428.20	1.0	89	83	54	2	#2	H_2O_2	877.2	745.0	
1015	441.721	1.0	92	87	58	2	#3	Empty	612.9	612.8	
1035	452.999						#4	Silica Gel	916.5	908.9	
							Total				

Pre-Test Leak Check: <0.005 CFM @ 10" in. Hg., Post-Test Leak Check: <0.001 CFM @ 8 in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power
LOCATION/UNIT: Unit - 1
PERFORMED BY: Patrick Whitman
TEST DATE: 3/19/2019
BAR. PRESSURE: 30.01
TC READOUT ID: #42
DP INDICATOR ID: CC-2
TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer
PITOT TUBE ID: #058
Cp: 0.84
ZERO: ✓ LEVEL: ✓
LEAK CHECK PRE- ✓ POST- ✓

Run #: 3	Ps: +.40							
Start: 1101	Stop: 1201							
Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.2	368	5	1.2	367	5	1.1	368
4	1.4	368	4	1.3	367	4	1.0	368
3	1.5	368	3	1.4	368	3	.90	368
2	1.5	368	2	1.5	368	2	.85	369
1	1.3	369	1	1.1	368	1	.84	369
5	1.3	368	5	1.2	368	5	1.2	368
4	1.4	368	4	1.2	369	4	1.0	368
3	1.4	369	3	1.0	369	3	.98	368
2	1.3	368	2	.90	369	2	.94	369
1	1.3	367	1	.82	369	1	.86	368
	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	304	0.7	1			1		
2	304	0.7	2			2		
3	307	0.7	3			3		

MOISTURE DATA FOR TEST RUNS 3 THROUGH 3

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data 1153/19/15				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1101	455.131	1.0	90	89	61	2	#1	H_2O_2	849.1	802.1	
1121	467.281	1.0	94	90	63	2	#2	H_2O_2	859.0	837.5	
1149	479.500	1.0	97	92	57	2	#3	Empty	599.4	598.7	
1201 ~~1209~~	487.319						#4	Silica Gel	973.7	966.0	
							Total		50 ml		

Pre-Test Leak Check <0.001 CFM @ 10" in. Hg., Post-Test Leak Check <0.002 CFM @ 10" in. Hg

MONTROSE AIR QUALITY SERVICES

Date of last revision 2/10/2017

DS1205097
Master Document Storage\Forms\Datasheets\Field Datasheets

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power
LOCATION/UNIT: Unit - 1
PERFORMED BY: Patrick Whitman
TEST DATE: 3/19/2019
BAR. PRESSURE: 30.01
TC READOUT ID: #42
DP INDICATOR ID: CC-2
TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer
PITOT TUBE ID: #058
Cp: 0.84
ZERO: ✓ LEVEL: ✓
LEAK CHECK PRE- ✓ POST- ✓

Run #: 4 Ps: +.40
Start: Stop:

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.1	369	5	1.1	369	5	1.3	368
4	1.3	370	4	1.2	369	4	1.4	369
3	.82	370	3	.95	369	3	1.5	370
2	.69	370	2	.90	370	2	1.2	370
1	.82	368	1	.85	368	1	1.1	368
5	1.3	369	5	1.2	368	5	1.3	368
4	1.2	369	4	1.0	368	4	1.4	369
3	.93	370	3	1.2	369	3	1.4	369
2	.91	370	2	1.1	369	2	1.3	369
1	.84	369	1	.97	369	1	1.2	369

	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	306	0.8	1			1		
2	307	0.8	2			2		
3	307	0.8	3			3		

MOISTURE DATA FOR TEST RUNS 4 THROUGH 4

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T imp	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1217	489.221	1.0	96	94	61	3	#1	H_2O_2	896.7	855.6	
1227	502.315	1.0	98	96	54	3	#2	H_2O_2	739.0	704.6	
1237	514.624	1.0	99	96	57	3	#3	Empty	615.1	613.6	
1317	528.634						#4	Silica Gel	927.4	916.5	
							Total				

Pre-Test Leak Check <0.005 CFM @ 10" in. Hg., Post-Test Leak Check <0.002 CFM @ 10" in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power LOCATION/UNIT: Unit - 1
PERFORMED BY: Patrick Whitman TEST DATE: 3/20/2019
BAR. PRESSURE: 30.02 TC READOUT ID: #42
DP INDICATOR ID: CC-2 TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer PITOT TUBE ID: #058 ✓ Cp: 0.84
ZERO: ✓ LEVEL: ✓ LEAK CHECK PRE- ✓ POST- ✓

Run #: 1-SG Ps: 7.41
Start: 0936 Stop: 1006

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.4	331	5	1.3	332	5	1.3	334
4	1.3	333	4	1.1	334	4	1.2	335
3	1.2	334	3	.85	335	3	.93	335
2	1.2	335	2	.80	335	2	.64	334
1	1.0	333	1	.75	334	1	.69	332
5	1.2	331	5	.85	334	5	1.3	331
4	1.1	331	4	.83	336	4	.94	332
3	1.1	333	3	.82	335	3	.97	333
2	1.2	332	2	.89	334	2	1.1	332
1	1.3	331	1	.94	333	1	1.0	331

	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	309	00.5	1			1		
2	307	00.6	2			2		
3	306	00.5	3			3		

MOISTURE DATA FOR TEST RUNS 1 THROUGH 1

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
0936	585.000	2.5	73	72	55	9	#1	H_2O_2	842.5	830.4	
0946	593.255	2.5	75	74	50	9	#2	H_2O_2	748.3	730.5	
0956	601.970	2.5	77	75	51	9	#3	Empty	637.4	635.9	
1006	610.864						#4	Silica Gel	921.4	911.9	
							Total	Line rinse		50	

Pre-Test Leak Check: <0.005 CFM @ 18 in. Hg., Post-Test Leak Check: <0.005 CFM @ 18 in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power LOCATION/UNIT: Unit - 1
PERFORMED BY: Patrick Whitman TEST DATE: 3/20/2019
BAR. PRESSURE: 3.2.02 TC READOUT ID: #42
DP INDICATOR ID: CC-2 TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer PITOT TUBE ID: #058 Cp: 0.84
ZERO: ✓ LEVEL: ✓ LEAK CHECK PRE- ✓ POST- ✓

Run #: ~~3-SQ~~ 3/20/19 2-SQ Ps: 1.41
Start: 1035 Stop: 1105

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.5	340	5	1.3	341	5	1.3	341
4	1.4	341	4	1.0	344	4	1.0	344
3	1.1	342	3	.89	344	3	.95	345
2	1.1	342	2	.83	343	2	.66	344
1	1.0	343	1	.72	342	1	.64	343
5	1.3	339	5	.86	342	5	1.2	342
4	1.1	341	4	.84	344	4	.91	345
3	1.0	343	3	.81	345	3	.94	345
2	1.2	344	2	.90	344	2	1.2	344
1	1.2	342	1	.95	343	1	.98	343
	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	302	22.4	1			1		
2	304	22.5	2			2		
3	303	20.6	3			3		

MOISTURE DATA FOR TEST RUNS 2 THROUGH 2

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1035	623.500	2.5	78	77	51	4	#1	H_2O_2	834.4	693.0	
1045	632.250	2.5	82	80	50	4	#2	H_2O_2	731.3	728.1	
1055	641.260	2.5	81	79	48	4	#3	Empty	636.0	636.9	
1105	650.083						#4	Silica Gel	930.5	921.4	
							Total	Line rinse		50	

Pre-Test Leak Check: 0.005 CFM @ 18 in. Hg., Post-Test Leak Check: 0.005 CFM @ 18 in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power
LOCATION/UNIT: Unit - 1
PERFORMED BY: Patrick Whitman
TEST DATE: 3/20/2019
BAR. PRESSURE: 30.02
TC READOUT ID: #42
DP INDICATOR ID: CC-2
TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer
PITOT TUBE ID: #058
Cp: 0.84
ZERO: ✓ LEVEL: ✓
LEAK CHECK PRE- ✓ POST- ✓

Run #: 3506 Ps: 1.41
Start: 1120 Stop: 1150

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.2	347	5	.89	347	5	1.3	347
4	.91	348	4	.84	347	4	1.0	348
3	.94	349	3	.82	349	3	1.1	349
2	1.0	349	2	.91	349	2	1.1	348
1	1.1	348	1	.96	347	1	1.2	347
5	1.4	346	5	1.2	346	5	1.4	347
4	1.1	348	4	1.0	347	4	1.2	348
3	.96	349	3	.87	348	3	1.3	349
2	.62	348	2	.81	349	2	1.1	348
1	.65	347	1	.74	347	1	1.0	346
	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	306	00.5	1			1		
2	304	00.4	2			2		
3	305	00.5	3			3		

MOISTURE DATA FOR TEST RUNS 3 THROUGH 3

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T imp	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1120	651.500	2.5	77	76	49	9"	#1	H_2O_2	848.9	704.9	
1130	660.635	2.5	81	79	47	9"	#2	H_2O_2	766.5	761.9	
1140	669.655	2.5	87	84	49	9"	#3	Empty	684.9	684.5	
1150	678.593						#4	Silica Gel	990.4	983.9	
							Total	Line rinse		50	

Pre-Test Leak Check: 0.005 CFM @ 18 in. Hg., Post-Test Leak Check: 0.005 CFM @ 18 in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power LOCATION/UNIT: Unit - 1
PERFORMED BY: Patrick Whitman TEST DATE: 3/20/2019
BAR. PRESSURE: 27.02 TC READOUT ID: #42
DP INDICATOR ID: CC-2 TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer PITOT TUBE ID: #058 Cp: 0.84
ZERO: ✓ LEVEL: ✓ LEAK CHECK PRE- ✓ POST- ✓

Run #: 4-Sor Ps: 1.41
Start: 1205 Stop: 1235

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.5	349	5	1.4	347	5	1.3	348
4	1.3	350	4	1.1	348	4	1.1	349
3	1.1	351	3	1.0	349	3	.91	350
2	1.0	350	2	.82	350	2	.63	351
1	.98	348	1	.77	347	1	.64	350
5	1.3	347	5	.91	347	5	1.0	346
4	1.0	349	4	.85	348	4	.92	348
3	1.1	350	3	.81	347	3	.95	349
2	1.2	351	2	.88	349	2	1.2	347
1	1.2	350	1	.92	347	1	1.0	346

	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	307	00.6	1			1		
2	306	00.5	2			2		
3	303	00.4	3			3		

MOISTURE DATA FOR TEST RUNS 4 THROUGH 6

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1205	682.500	2.5	85	82	53	9"	#1	H_2O_2	852.5	737.5	
1215	689.620	2.5	87	85	50	9"	#2	H_2O_2	737.7	716.8	
1225	698.725	2.5	89	87	51	9"	#3	Empty	636.1	635.1	
1235	707.762						#4	Silica Gel	939.4	930.5	
							Total	Line rinse		50	

Pre-Test Leak Check: 0.005 CFM @ 18 in. Hg., Post-Test Leak Check: 0.005 CFM @ 18 in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power
LOCATION/UNIT: Unit - 1
PERFORMED BY: Patrick Whitman
TEST DATE: 3/20/2019
BAR. PRESSURE: 30.02
TC READOUT ID: #42
DP INDICATOR ID: CC-2
TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer
PITOT TUBE ID: #058
Cp: 0.84
ZERO: ✓
LEVEL: ✓
LEAK CHECK PRE- ✓
POST- ✓

Run #: 5-Sox Ps: 4.41
Start: 1248 Stop: 1318

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.4	350	5	1.3	349	5	1.4	350
4	1.2	351	4	1.2	350	4	1.1	351
3	1.3	352	3	.87	351	3	.94	352
2	1.1	352	2	.79	352	2	.60	352
1	1.0	351	1	.76	352	1	.65	350
5	1.3	350	5	.86	347	5	1.2	351
4	1.0	351	4	.84	348	4	.90	352
3	1.2	352	3	.83	349	3	.91	352
2	1.3	352	2	.92	350	2	1.2	353
1	1.1	350	1	.95	351	1	.97	351
	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	304	00.5	1			1		
2	305	00.5	2			2		
3	309	00.6	3			3		

MOISTURE DATA FOR TEST RUNS 5 THROUGH 5

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T imp	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1248	709.500	2.5	86	85	53	9"	#1	H_2O_2	839.3	693.5	
1258	718.055	2.5	85	84	47	9"	#2	H_2O_2	742.8	738.9	
1308	726.443	2.5	86	84	46	9"	#3	Empty	600.2	599.6	
1318	735.648						#4	Silica Gel	996.3	990.4	
							Total	Line rinse		50	

Pre-Test Leak Check: 0.005 CFM @ 18 in. Hg., Post-Test Leak Check: 0.005 CFM @ 18 in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power
LOCATION/UNIT: Unit - 1
PERFORMED BY: Patrick Whitman
TEST DATE: 3/20/2019
BAR. PRESSURE: 30.02
TC READOUT ID: #42
DP INDICATOR ID: CC-2
TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer
PITOT TUBE ID: #058
Cp: 0.84
ZERO: ✓ LEVEL: ✓
LEAK CHECK PRE- ✓ POST- ✓

Run #: 6-SO_2 Ps: 4.41
Start: 1332 Stop: 1402

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.3	348	5	.88	347	5	1.2	349
4	.95	349	4	.85	349	4	1.0	350
3	.92	350	3	.80	351	3	1.1	351
2	1.0	351	2	.94	351	2	1.3	351
1	1.1	350	1	.91	350	1	1.0	350
5	1.3	347	5	1.3	350	5	1.3	347
4	1.2	348	4	1.1	351	4	1.2	348
3	.89	349	3	.88	352	3	1.2	348
2	.62	349	2	.81	351	2	1.0	349
1	.67	350	1	.77	349	1	1.1	347

	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	301	00.7	1			1		
2	306	00.5	2			2		
3			3			3		

MOISTURE DATA FOR TEST RUNS 6 THROUGH 6

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1332	738.000	2.5	86	85	52	9"	#1	H_2O_2	830.5	698.1	
1342	746.845	2.5	89	87	50	9"	#2	H_2O_2	718.1	714.9	
1352	755.580	2.5	90	86	53	9"	#3	Empty	636.4	635.6	
1402	764.358						#4	Silica Gel	947.3	939.4	
							Total	Line rinse		50	

Pre-Test Leak Check: 0.005 CFM @ 18 in. Hg., Post-Test Leak Check: 0.005 CFM @ 18 in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power
LOCATION/UNIT: Unit - 1
PERFORMED BY: Patrick Whitman
TEST DATE: 3/20/2019
BAR. PRESSURE: 30.02
TC READOUT ID: #42
DP INDICATOR ID: CC-2
TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer
PITOT TUBE ID: #058 ✓ Cp: 0.84
ZERO: ✓ LEVEL: ✓
LEAK CHECK PRE- ✓ POST- ✓

Run #: 7-502 Ps: 1.41
Start: 1416 Stop: 1446

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.5	347	5	1.4	347	5	1.3	348
4	1.3	348	4	1.0	348	4	1.2	350
3	1.2	349	3	.87	350	3	.90	351
2	1.1	350	2	.80	351	2	.65	351
1	1.0	350	1	.73	350	1	.66	350
5	1.3	351	5	.84	347	5	1.0	347
4	1.0	350	4	.85	348	4	.92	348
3	1.1	351	3	.81	349	3	.97	349
2	1.2	350	2	.90	348	2	1.0	348
1	1.2	348	1	.94	350	1	.98	346
	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	310	20.5	1			1		
2	308	20.7	2			2		
3	306	20.4	3			3		

MOISTURE DATA FOR TEST RUNS 7 THROUGH 7

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T imp	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1416	766.000	2.5	85	84	51	9"	#1	H_2O_2	823.5	696.6	
1426	775.875	2.5	90	87	50	9"	#2	H_2O_2	743.9	740.5	
1436	784.625	2.5	92	89	54	9"	#3	Empty	599.5	599.2	
1446	793.842						#4	Silica Gel	1001.8	996.3	
							Total	Line rinse		50	

Pre-Test Leak Check: <0.005 CFM @ 18 in. Hg., Post-Test Leak Check: <0.005 CFM @ 18 in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power
LOCATION/UNIT: Unit - 1
PERFORMED BY: Patrick Whitman
TEST DATE: 3/20/2019
BAR. PRESSURE: 30.02
TC READOUT ID: #42
DP INDICATOR ID: CC-2
TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer
PITOT TUBE ID: #058
Cp: 0.84
ZERO: ✓ LEVEL: ✓
LEAK CHECK PRE- ✓ POST- ✓

Run #: 8-[illegible] Ps: 4.41
Start: 1500 Stop: 1530

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.2	346	5	.87	346	5	1.3	348
4	.91	347	4	.82	347	4	1.0	349
3	.94	348	3	.80	347	3	1.1	347
2	1.1	348	2	.90	347	2	1.1	348
1	1.0	347	1	.93	348	1	1.2	348
5	1.3	345	5	1.3	346	5	1.3	347
4	1.1	348	4	1.0	347	4	1.4	348
3	.96	348	3	.86	346	3	1.0	347
2	.63	347	2	.81	346	2	1.1	348
1	.66	348	1	.77	345	1	.98	346
	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	307	00.6	1			1		
2	308	00.5	2			2		
3	306	00.4	3			3		

MOISTURE DATA FOR TEST RUNS 8 THROUGH 8

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1500	796.200	2.5	89	88	53	9	#1	H_2O_2	846.0	730.4	
1510	805.490	2.5	90	88	50	9	#2	H_2O_2	740.0	716.0	
1520	814.120	2.5	91	89	52	9	#3	Empty	639.8	635.7	
1530	823.366						#4	Silica Gel	955.5	947.3	
							Total	Line rinse		50	

Pre-Test Leak Check: 0.005 CFM @ 18 in. Hg., Post-Test Leak Check: 0.005 CFM @ 18 in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power
LOCATION/UNIT: Unit - 1
PERFORMED BY: Patrick Whitman
TEST DATE: 3/20/2019
BAR. PRESSURE: 30.02
TC READOUT ID: #42
DP INDICATOR ID: CC-2
TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer
PITOT TUBE ID: #058 ✓
Cp: 0.84 ✓
ZERO: ✓ LEVEL: ✓
LEAK CHECK PRE- ✓ POST- ✓

Run #: 9-50K	Ps: 4.41							
Start: 1544	Stop: 1614							
Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.5	346	5	1.3	348	5	1.4	348
4	1.7	349	4	1.0	349	4	1.1	349
3	1.1	349	3	.87	350	3	.90	350
2	1.2	350	2	.82	351	2	.62	351
1	1.0	349	1	.77	350	1	.63	350
5	1.2	348	5	.86	351	5	1.2	348
4	1.0	349	4	.83	350	4	.91	350
3	1.1	348	3	.81	351	3	.96	351
2	1.0	347	2	.88	350	2	1.0	351
1	1.2	346	1	.95	348	1	1.1	350
	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	308	22.6	1			1		
2	309	22.5	2			2		
3	306	22.5	3			3		

MOISTURE DATA FOR TEST RUNS 9 THROUGH 9

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1544	826.300	2.5	87	84	52	9"	#1	H_2O_2	836.6	695.5	
1554	835.105	2.5	88	86	48	9"	#2	H_2O_2	752.6	749.2	
1604	843.810	2.5	84	82	51	9"	#3	Empty	600.3	599.7	
1614	852.577						#4	Silica Gel	1007.1	1001.8	
							Total	Line rinse		50	

Pre-Test Leak Check: 0.005 CFM @ 18 in. Hg., Post-Test Leak Check: 0.005 CFM @ 18 in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power
LOCATION/UNIT: Unit - 1
PERFORMED BY: Patrick Whitman
TEST DATE: 3/20/2019
BAR. PRESSURE: 30.02
TC READOUT ID: #42
DP INDICATOR ID: CC-2
TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer
PITOT TUBE ID: #058
Cp: 0.84
ZERO: ✓ LEVEL: ✓
LEAK CHECK PRE- ✓ POST- ✓

Run #: 10-SO2 Ps: 4.41
Start: 1638 Stop: 1708

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.2	351	5	.84	349	5	1.3	350
4	.90	350	4	.82	350	4	1.0	351
3	.95	350	3	.80	351	3	1.1	351
2	1.0	351	2	.90	350	2	1.2	350
1	.97	350	1	.95	351	1	1.3	349
5	1.4	351	5	1.3	350	5	1.5	350
4	1.1	350	4	1.0	351	4	1.2	351
3	.90	351	3	.85	350	3	1.0	350
2	.61	351	2	.82	351	2	1.1	351
1	.63	350	1	.74	350	1	1.1	348

	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	311	00.6	1			1		
2	308	00.5	2			2		
3	306	00.4	3			3		

MOISTURE DATA FOR TEST RUNS 10 THROUGH 12

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1638	655.000	2.5	77	76	52	9"	#1	H_2O_2	850.2	700.5	
1648	863.735	2.5	75	74	49	9"	#2	H_2O_2	720.3	718.5	
1658	872.355	2.5	75	73	52	9"	#3	Empty	636.0	635.5	
1708	880.944						#4	Silica Gel	958.7	953.5	
							Total	Line rinse		50	

Pre-Test Leak Check: 0.005 CFM @ 18 in. Hg., Post-Test Leak Check: 0.005 CFM @ 18 in. Hg

Appendix A.1.7
Unit 1 Hydrocarbon Data

SCAQMD METHOD 25.3
EVACUATED CANISTER SAMPLING DATA

Client/Facility: Desert View Power Date: 3/19/2019

Unit/Location: Unit 1 Stack Breaching Performed By: Patrick Whitman

Probe Material SS Probe Length 36"

Connecting Tubing Material Teflon Connecting Tubing Length 12"

Barometric Pressure _____ Ambient Temperature _____

Test No.		1A-VOC-U1		1B-VOC-U1			
Vial ID		M35		M36			
Canister ID		#156		#134			
		Time	Vacuum	Time	Vacuum	Time	Vacuum
Pre-Test Leak Check	Start	0705	29	0705	30		
Pre-Test Leak Check	Stop	0715	29	0715	30		
Sample Collection	Start	0725	30	0725	30		
		0735	25	0735	26		
		0742	21	0742	21		
		0632	21	0632	21		
		0842	17	0842	17		
		0852	14	0852	14		
		0902	11	0902	11		
Sample Collection	Stop	0907	10	0907	10		
Post -Test Leak Check	Start	0910	10	0910	10		
Post-Test Leak Check	Stop	0920	10	0920	10		
Line Rinse Volume							

Comments: _____

Appendix A.1.8
Unit 1 Plant Data

CeDAR 1-Minute Data

Timestamp	(Boiler 1) NOx ppm 1-Min	(Boiler 1) NOx ppm @3% O2 1-Min	(Boiler 1) NOx lb/hr 1-Min Avg	(Boiler 1) SO2 ppm 1-Min	(Boiler 1) SO2 ppm @3% O2 1-Min	(Boiler 1) SO2 lb/hr 1-Min Avg	(Boiler 1) CO ppm 1-Min	(Boiler 1) CO ppm @3% O2 1 Min	(Boiler 1) CO lb/hr 1-Min	(Boiler 1) CO2% 1-Min	(Boiler 1) O2% 1-Min	Stack Flow kdscf/hr 1-Min	Calculated CO @ 3% O2	Calculated CO lb/hr
3/20/2019 9:37	69.3	94.84	46.36	18.36	25.13	17.09	1.82	13.69	4.07	12.75	7.82	5603	2.49	0.74
3/20/2019 9:38	65.71	91.75	42.57	19.72	27.53	17.78	1.76	13.96	3.94	12.47	8.08	5427	2.46	0.69
3/20/2019 9:39	57.36	81.75	36.26	18.16	25.88	15.97	1.73	14.25	3.85	12.21	8.34	5295	2.47	0.67
3/20/2019 9:40	43.88	63.45	27.38	16.31	23.58	14.16	1.73	14.46	3.8	12.04	8.52	5227	2.50	0.66
3/20/2019 9:41	37.14	54.05	23.05	14.92	21.71	12.88	1.78	14.55	3.78	11.98	8.6	5199	2.59	0.67
3/20/2019 9:42	34.23	48.86	21.77	14.27	20.37	12.62	1.87	14.27	3.87	12.23	8.36	5326	2.67	0.72
3/20/2019 9:43	38.34	54.51	24.31	16.01	22.76	14.12	1.8	14.22	3.86	12.27	8.31	5311	2.56	0.69
3/20/2019 9:44	51.35	69.48	34.34	18.34	24.81	17.07	1.88	13.53	4.07	12.9	7.67	5602	2.54	0.77
3/20/2019 9:45	53.13	73.72	34.26	19.76	27.42	17.73	1.9	13.88	3.92	12.55	8	5401	2.64	0.75
3/20/2019 9:46	42.9	61.98	26.43	16.73	24.17	14.34	1.71	14.45	3.75	12.05	8.51	5160	2.47	0.64
3/20/2019 9:47	48	66.76	30.86	17.08	23.76	15.28	1.84	13.91	3.91	12.56	8.03	5385	2.56	0.72
3/20/2019 9:48	40.01	59.68	24.32	15.85	23.64	13.4	1.73	14.92	3.7	11.65	8.9	5091	2.58	0.64
3/20/2019 9:49	32.68	47.48	20.39	13.44	19.53	11.67	1.73	14.53	3.8	12.08	8.58	5227	2.51	0.66
3/20/2019 9:50	31.79	45.45	20.35	14.17	20.26	12.62	1.83	14.3	3.9	12.22	8.38	5362	2.62	0.71
3/20/2019 9:51	41.43	57.05	27.31	16.35	22.51	15	1.82	13.77	4.01	12.7	7.9	5522	2.51	0.73
3/20/2019 9:52	47.71	65.69	30.92	16.46	22.66	14.84	1.82	13.77	3.95	12.69	7.9	5429	2.51	0.72
3/20/2019 9:53	63.37	81.61	44.46	21.09	27.16	20.59	1.77	12.88	4.27	13.58	7	5877	2.28	0.76
3/20/2019 9:54	71.13	97.42	44.84	24.9	34.1	21.84	1.78	13.7	3.84	12.71	7.83	5280	2.44	0.68
3/20/2019 9:55	55.84	78.58	33.95	20.1	28.29	17	1.75	14.07	3.7	12.43	8.18	5092	2.46	0.65
3/20/2019 9:56	43.69	63.12	26.04	19.22	27.77	15.94	1.76	14.45	3.63	12.05	8.51	4992	2.54	0.64
3/20/2019 9:57	22.32	33.57	13.07	14.77	22.22	12.03	1.72	15.04	3.56	11.61	9	4903	2.59	0.61
3/20/2019 9:58	19.27	29.48	11.4	13.34	20.41	10.98	1.6	15.3	3.6	11.45	9.2	4955	2.45	0.58
3/20/2019 9:59	18.73	28.53	11.38	13.76	20.96	11.63	1.77	15.23	3.7	11.48	9.15	5088	2.70	0.65
3/20/2019 10:00	24.33	35.79	15.22	14.83	21.81	12.91	1.62	14.71	3.81	11.93	8.73	5241	2.38	0.62
3/20/2019 10:01	34.39	49.36	22.15	18.11	26	16.23	1.55	14.35	3.92	12.17	8.43	5395	2.22	0.61
3/20/2019 10:02	33.1	47.9	21.35	17.5	25.32	15.7	1.47	14.47	3.93	12.06	8.53	5402	2.13	0.58
3/20/2019 10:03	25.14	38.36	15.1	15.09	23.03	12.61	1.41	15.26	3.66	11.51	9.17	5031	2.15	0.52
3/20/2019 10:04	31.47	45.36	20.32	18.17	26.19	16.32	1.35	14.41	3.93	12.12	8.48	5408	1.95	0.53
3/20/2019 10:05	27.41	41.2	16.95	17.16	25.79	14.76	1.45	15.03	3.76	11.64	8.99	5179	2.18	0.55
3/20/2019 10:06	23.64	35.8	14.7	15.7	23.78	13.59	1.31	15.14	3.79	11.6	9.08	5210	1.98	0.50
Average	**40.96**	**58.09**	**26.06**	**16.99**	**24.29**	**14.96**	**1.70**			**12.19**	**8.41**	**5287.33**	**2.44**	**0.65**

Flow	kdscfh	5287.33
O2	% dry	8.41
CO2	% dry	12.19
NOx	ppm dry	40.96
NOx	ppm @ 3% O2	58.09
NOx	lb/hr	26.06
SO2	ppm dry	16.99
SO2	ppm @ 3% O2	24.29
SO2	lb/hr	14.96
CO	ppm dry	1.70
CO	ppm @ 3% O2	2.44
CO	lb/hr	0.65

CeDAR 1-Minute Data

Timestamp	(Boiler 1) NOx ppm 1-Min	(Boiler 1) NOx ppm @3% O2 1-Min	(Boiler 1) NOx lb/hr 1-Min Avg	(Boiler 1) SO2 ppm 1-Min	(Boiler 1) SO2 ppm @3% O2 1-Min	(Boiler 1) SO2 lb/hr 1-Min Avg	(Boiler 1) CO ppm 1-Min	(Boiler 1) CO ppm @3% O2 1 Min	(Boiler 1) CO lb/hr 1-Min	(Boiler 1) CO2% 1-Min	(Boiler 1) O2% 1-Min	Stack Flow kdscf/hr 1-Min	Calculated CO @ 3% O2	Calculated CO lb/hr
3/20/2019 10:36	43.93	60.4	28.88	12.05	16.57	11.02	0.37	13.75	4	12.7	7.88	5506	0.51	0.15
3/20/2019 10:37	46.38	63.67	30.16	11.54	15.84	10.44	0.56	13.73	3.96	12.73	7.86	5447	0.77	0.22
3/20/2019 10:38	45.93	64.08	29.22	11.93	16.64	10.56	0.46	13.95	3.87	12.51	8.07	5328	0.64	0.18
3/20/2019 10:39	51.6	68.22	35.1	12.94	17.11	12.25	0.59	13.22	4.14	13.23	7.36	5698	0.78	0.24
3/20/2019 10:40	57.55	76.48	38.46	14.22	18.9	13.22	0.54	13.29	4.07	13.12	7.43	5598	0.72	0.22
3/20/2019 10:41	51.04	67.93	33.2	13.43	17.87	12.15	0.5	13.31	3.96	13.17	7.45	5448	0.67	0.20
3/20/2019 10:42	69.13	89.67	46.75	17.23	22.35	16.21	0.55	12.97	4.12	13.42	7.1	5665	0.71	0.23
3/20/2019 10:43	60.79	79.6	40.13	15.29	20.02	14.04	0.51	13.09	4.02	13.29	7.23	5530	0.67	0.20
3/20/2019 10:44	38.25	56.54	23.13	11.04	16.32	9.29	0.59	14.78	3.68	11.71	8.79	5066	0.87	0.22
3/20/2019 10:45	10.45	19.94	5.48	4.85	9.26	3.54	0.27	19.08	3.19	9.21	11.52	4391	0.52	0.09
3/20/2019 10:46	8.64	16.04	5.51	2.7	5.01	2.07	0.34	18.57	3.35	9.51	11.26	4613	0.63	0.11
3/20/2019 10:47	9.56	15.17	6.24	2.32	3.68	2.01	0.65	15.87	3.8	11.07	9.62	5226	1.03	0.25
3/20/2019 10:48	9.5	14.93	6.29	2.21	3.47	1.93	0.72	15.72	3.83	11.1	9.51	5268	1.13	0.28
3/20/2019 10:49	10	15.93	6.23	1.3	2.07	1.13	0.46	15.93	3.79	11	9.66	5221	0.73	0.17
3/20/2019 10:50	10.25	16.38	6.43	0.58	0.93	0.51	0.45	15.98	3.82	10.99	9.7	5254	0.72	0.17
3/20/2019 10:51	14.75	21.19	10.07	0.26	0.37	0.25	0.55	14.37	4.15	12.2	8.44	5717	0.79	0.23
3/20/2019 10:52	25.68	35.09	17.97	0.6	0.82	0.58	0.53	13.66	4.26	12.77	7.8	5862	0.72	0.23
3/20/2019 10:53	32.7	44.89	22.19	1.84	2.53	1.74	0.59	13.73	4.13	12.7	7.86	5683	0.81	0.24
3/20/2019 10:54	38.58	52.96	26.12	3.94	5.41	3.71	0.59	13.73	4.12	12.65	7.86	5670	0.81	0.24
3/20/2019 10:55	25.62	38.28	15.62	4.1	6.13	3.48	0.49	14.94	3.71	11.68	8.92	5108	0.73	0.18
3/20/2019 10:56	20.08	30.91	12.13	2.87	4.42	2.41	0.43	15.39	3.68	11.33	9.27	5058	0.66	0.16
3/20/2019 10:57	17.43	26.2	10.78	1.95	2.93	1.68	0.33	15.03	3.76	11.63	8.99	5180	0.50	0.12
3/20/2019 10:58	29.52	41.64	19.37	2.33	3.29	2.13	0.46	14.11	3.99	12.37	8.21	5495	0.65	0.18
3/20/2019 10:59	27.3	41.66	16.82	3.1	4.73	2.66	0.45	15.26	3.75	11.38	9.17	5161	0.69	0.17
3/20/2019 11:00	26.38	39.38	16.16	2.63	3.93	2.24	0.28	14.93	3.73	11.74	8.91	5132	0.42	0.10
3/20/2019 11:01	32.54	48.46	20.04	3.26	4.85	2.79	0.32	14.89	3.75	11.67	8.88	5158	0.48	0.12
3/20/2019 11:02	32.96	47.5	20.8	3.52	5.07	3.09	0.38	14.41	3.84	12.14	8.48	5286	0.55	0.15
3/20/2019 11:03	35.24	50.26	22.36	3.79	5.41	3.35	0.37	14.26	3.86	12.25	8.35	5315	0.53	0.14
3/20/2019 11:04	42.64	58.98	27.68	4.15	5.74	3.75	0.49	13.83	3.95	12.6	7.96	5437	0.68	0.19
3/20/2019 11:05	42.41	59.03	27.34	4.41	6.14	3.95	0.51	13.92	3.92	12.5	8.04	5399	0.71	0.20
Average	**32.23**	**45.38**	**20.89**	**5.88**	**8.26**	**5.27**	**0.48**			**12.01**	**8.59**	**5330.67**	**0.69**	**0.19**

Flow	kdscfh	5330.67
O2	% dry	8.59
CO2	% dry	12.01
NOx	ppm dry	32.23
NOx	ppm @ 3% O2	45.38
NOx	lb/hr	20.89
SO2	ppm dry	5.88
SO2	ppm @ 3% O2	8.26
SO2	lb/hr	5.27
CO	ppm dry	0.48
CO	ppm @ 3% O2	0.69
CO	lb/hr	0.19

CeDAR 1-Minute Data

Timestamp	(Boiler 1) NOx ppm 1-Min	(Boiler 1) NOx ppm @3% O2 1-Min	(Boiler 1) NOx lb/hr 1-Min Avg	(Boiler 1) SO2 ppm 1-Min	(Boiler 1) SO2 ppm @3% O2 1-Min	(Boiler 1) SO2 lb/hr 1-Min Avg	(Boiler 1) CO ppm 1-Min	(Boiler 1) CO ppm @3% O2 1 Min	(Boiler 1) CO lb/hr 1-Min	(Boiler 1) CO2% 1-Min	(Boiler 1) O2% 1-Min	Stack Flow kdscf/hr 1-Min	Calculated CO @ 3% O2	Calculated CO lb/hr
3/20/2019 11:21	55.86	78.24	33.71	6.74	9.44	5.66	0.61	14.01	3.67	12.45	8.12	5055	0.85	0.22
3/20/2019 11:22	60.97	81.87	39.22	8.67	11.64	7.76	0.6	13.43	3.92	12.96	7.57	5388	0.81	0.23
3/20/2019 11:23	52.65	72.44	32.48	8.71	11.98	7.48	0.6	13.76	3.76	12.66	7.89	5168	0.83	0.23
3/20/2019 11:24	60.08	80.98	38.62	8.72	11.75	7.8	0.8	13.48	3.91	12.87	7.62	5384	1.08	0.31
3/20/2019 11:25	47.21	67.44	27.71	8.13	11.61	6.64	0.61	14.29	3.57	12.23	8.37	4916	0.87	0.22
3/20/2019 11:26	64.02	84.51	42.03	10.51	13.87	9.6	0.8	13.2	4	13.16	7.34	5499	1.06	0.32
3/20/2019 11:27	61.52	81.81	38.96	11.14	14.81	9.81	0.66	13.3	3.85	13.11	7.44	5304	0.88	0.25
3/20/2019 11:28	67.53	90.75	42.32	12.87	17.3	11.22	0.66	13.44	3.81	12.89	7.58	5249	0.89	0.25
3/20/2019 11:29	44.41	62.64	26.38	10.03	14.15	8.29	0.66	14.11	3.62	12.32	8.21	4975	0.93	0.24
3/20/2019 11:30	46.29	63.2	28.93	10.55	14.4	9.17	0.67	13.65	3.8	12.71	7.79	5234	0.91	0.25
3/20/2019 11:31	40.43	56.58	24.45	10.62	14.86	8.93	0.71	14	3.68	12.43	8.11	5065	0.99	0.26
3/20/2019 11:32	35.17	51.27	20.58	10.12	14.75	8.24	0.66	14.58	3.56	11.94	8.62	4902	0.96	0.24
3/20/2019 11:33	26.76	39.23	15.55	9.26	13.58	7.49	0.52	14.66	3.54	11.87	8.69	4868	0.76	0.18
3/20/2019 11:34	36.86	51.55	22.81	11.6	16.22	9.99	0.73	13.98	3.77	12.42	8.1	5183	1.02	0.27
3/20/2019 11:35	34.98	49.77	21.22	11.85	16.86	10	0.55	14.23	3.69	12.23	8.32	5081	0.78	0.20
3/20/2019 11:36	32.83	47.89	19.46	11.48	16.75	9.47	0.63	14.59	3.61	11.92	8.63	4965	0.92	0.23
3/20/2019 11:37	34.68	48.76	21.26	12.28	17.27	10.48	0.66	14.06	3.73	12.39	8.17	5136	0.93	0.25
3/20/2019 11:38	51.54	69.73	32.9	15.42	20.86	13.7	0.78	13.53	3.89	12.87	7.67	5347	1.06	0.30
3/20/2019 11:39	50.93	70.78	31.04	15.06	20.93	12.77	0.64	13.9	3.71	12.54	8.02	5105	0.89	0.24
3/20/2019 11:40	48.51	67.36	29.71	13.96	19.39	11.9	0.61	13.89	3.73	12.52	8.01	5130	0.85	0.23
3/20/2019 11:41	36.83	53.69	21.97	10.99	16.02	9.12	0.61	14.58	3.63	11.91	8.62	4996	0.89	0.22
3/20/2019 11:42	24.13	36.48	13.88	8.59	12.99	6.87	0.66	15.12	3.5	11.54	9.06	4818	1.00	0.23
3/20/2019 11:43	27.15	39.48	16.22	8.01	11.65	6.66	0.65	14.54	3.64	11.97	8.59	5003	0.95	0.24
3/20/2019 11:44	35.41	50.46	21.29	9.47	13.5	7.92	0.68	14.25	3.66	12.23	8.34	5036	0.97	0.25
3/20/2019 11:45	51.11	70.43	31.7	12.83	17.68	11.07	0.63	13.78	3.78	12.64	7.91	5195	0.87	0.24
3/20/2019 11:46	49.16	70.4	29.22	12.99	18.6	10.74	0.49	14.32	3.62	12.12	8.4	4979	0.70	0.18
3/20/2019 11:47	40.5	57.81	24.02	11.33	16.17	9.35	0.63	14.27	3.61	12.22	8.36	4968	0.90	0.23
3/20/2019 11:48	42.98	61.3	25.48	12.48	17.8	10.29	0.74	14.26	3.61	12.17	8.35	4965	1.06	0.27
3/20/2019 11:49	40.69	57.53	24.51	11.41	16.13	9.56	0.64	14.14	3.67	12.32	8.24	5046	0.90	0.23
3/20/2019 11:50	36.97	53.03	21.81	10.59	15.19	8.69	0.57	14.34	3.59	12.16	8.42	4942	0.82	0.20
Average	**44.61**	**62.25**	**27.31**	**10.88**	**15.27**	**9.22**	**0.65**			**12.39**	**8.15**	**5096.73**	**0.91**	**0.24**

Flow	kdscfh	5096.73
O2	% dry	8.15
CO2	% dry	12.39
NOx	ppm dry	44.61
NOx	ppm @ 3% O2	62.25
NOx	lb/hr	27.31
SO2	ppm dry	10.88
SO2	ppm @ 3% O2	15.27
SO2	lb/hr	9.22
CO	ppm dry	0.65
CO	ppm @ 3% O2	0.91
CO	lb/hr	0.24

002AS-541589-R1-1364

CeDAR 1-Minute Data

Timestamp	(Boiler 1) NOx ppm 1-Min	(Boiler 1) NOx ppm @3% O2 1-Min	(Boiler 1) NOx lb/hr 1-Min Avg	(Boiler 1) SO2 ppm 1-Min	(Boiler 1) SO2 ppm @3% O2 1-Min	(Boiler 1) SO2 lb/hr 1-Min Avg	(Boiler 1) CO ppm 1-Min	(Boiler 1) CO ppm @3% O2 1 Min	(Boiler 1) CO lb/hr 1-Min	(Boiler 1) CO2% 1-Min	(Boiler 1) O2% 1-Min	Stack Flow kdscf/hr 1-Min	Calculated CO @ 3% O2	Calculated CO lb/hr
3/20/2019 12:06	25.25	37.89	14.75	8.34	12.51	6.78	0.29	15	3.56	11.63	8.97	4894	0.44	0.10
3/20/2019 12:07	35.84	50.32	22.55	9.86	13.84	8.63	0.36	14.04	3.83	12.41	8.15	5269	0.51	0.14
3/20/2019 12:08	41.81	57.39	26.98	11.19	15.36	10.05	0.3	13.73	3.93	12.66	7.86	5406	0.41	0.12
3/20/2019 12:09	43.69	60.48	27.59	11.93	16.52	10.48	0.21	13.84	3.84	12.64	7.97	5289	0.29	0.08
3/20/2019 12:10	59.66	81.71	38.52	15.63	21.41	14.04	0.04	13.7	3.93	12.67	7.83	5408	0.05	0.02
3/20/2019 12:11	38.48	57.93	22.6	11.69	17.6	9.55	0.02	15.05	3.57	11.56	9.01	4919	0.03	0.01
3/20/2019 12:12	24.49	36.78	14.7	8.79	13.2	7.34	0.02	15.02	3.65	11.65	8.98	5027	0.03	0.01
3/20/2019 12:13	23.76	34.61	14.61	7.8	11.36	6.68	0	14.56	3.74	12.02	8.61	5152	0.00	0.00
3/20/2019 12:14	37.14	52.93	23.62	8.62	12.28	7.63	0	14.25	3.87	12.24	8.34	5327	0.00	0.00
3/20/2019 12:15	42.86	59.89	27.01	8.26	11.54	7.24	0	13.97	3.84	12.52	8.09	5278	0.00	0.00
3/20/2019 12:16	62.98	84.32	42.82	13.01	17.42	12.31	0	13.39	4.14	13.01	7.53	5695	0.00	0.00
3/20/2019 12:17	60.8	80.74	40.06	16	21.25	14.67	0	13.28	4.01	13.2	7.42	5519	0.00	0.00
3/20/2019 12:18	72.23	93.69	48.95	21.8	28.28	20.56	0	12.97	4.13	13.4	7.1	5677	0.00	0.00
3/20/2019 12:19	66.62	88.66	43.65	18.8	25.02	17.14	0	13.31	3.99	13.11	7.45	5488	0.00	0.00
3/20/2019 12:20	47.71	67.78	28.8	14.96	21.25	12.57	0	14.21	3.67	12.26	8.3	5057	0.00	0.00
3/20/2019 12:21	31.72	48.24	18.33	11.94	18.16	9.6	0	15.21	3.52	11.45	9.13	4840	0.00	0.00
3/20/2019 12:22	18.04	27.62	10.56	8.91	13.64	7.26	0	15.31	3.56	11.41	9.21	4904	0.00	0.00
3/20/2019 12:23	18.71	29.25	11.09	8.76	13.69	7.22	0	15.63	3.61	11.14	9.45	4963	0.00	0.00
3/20/2019 12:24	19.47	30.49	11.45	8.16	12.78	6.67	0	15.66	3.58	11.24	9.47	4924	0.00	0.00
3/20/2019 12:25	21.71	33.13	13.3	10.1	15.41	8.61	0	15.26	3.73	11.43	9.17	5130	0.00	0.00
3/20/2019 12:26	19.78	29.46	12.28	9.18	13.67	7.93	0	14.89	3.78	11.77	8.88	5202	0.00	0.00
3/20/2019 12:27	38.51	54.36	25.34	14.41	20.34	13.19	0	14.12	4.01	12.34	8.22	5512	0.00	0.00
3/20/2019 12:28	44.59	65.05	28.1	16.3	23.78	14.29	0	14.59	3.84	11.93	8.63	5278	0.00	0.00
3/20/2019 12:29	38.37	56.62	23.96	14.9	21.99	12.95	0	14.76	3.8	11.87	8.77	5231	0.00	0.00
3/20/2019 12:30	48.05	67.83	31.26	18.75	26.47	16.97	0	14.12	3.96	12.4	8.22	5450	0.00	0.00
3/20/2019 12:31	54.68	76.05	35.75	22.83	31.75	20.77	0	13.91	3.98	12.56	8.03	5476	0.00	0.00
3/20/2019 12:32	65.04	87.47	44.39	29.49	39.66	28	0	13.45	4.15	12.95	7.59	5717	0.00	0.00
3/20/2019 12:33	57.87	81.56	36.88	25.23	35.56	22.37	0	14.09	3.88	12.34	8.2	5338	0.00	0.00
3/20/2019 12:34	47.36	69.09	29.47	19.84	28.94	17.18	0	14.59	3.79	11.93	8.63	5212	0.00	0.00
3/20/2019 12:35	29.16	44.35	17.73	14.47	22.01	12.24	0	15.21	3.7	11.46	9.13	5094	0.00	0.00
Average	**41.21**	**58.19**	**26.24**	**14.00**	**19.89**	**12.36**	**0.04**			**12.17**	**8.41**	**5255.87**	**0.06**	**0.02**

Flow	kdscfh	5255.87
O2	% dry	8.41
CO2	% dry	12.17
NOx	ppm dry	41.21
NOx	ppm @ 3% O2	58.19
NOx	lb/hr	26.24
SO2	ppm dry	14.00
SO2	ppm @ 3% O2	19.89
SO2	lb/hr	12.36
CO	ppm dry	0.04
CO	ppm @ 3% O2	0.06
CO	lb/hr	0.02

0067A3-54-586-R1-1394
153 of 694

CeDAR 1-Minute Data

Timestamp	(Boiler 1) NOx ppm 1-Min	(Boiler 1) NOx ppm @3% O2 1-Min	(Boiler 1) NOx lb/hr 1-Min Avg	(Boiler 1) SO2 ppm 1-Min	(Boiler 1) SO2 ppm @3% O2 1-Min	(Boiler 1) SO2 lb/hr 1-Min Avg	(Boiler 1) CO ppm 1-Min	(Boiler 1) CO ppm @3% O2 1 Min	(Boiler 1) CO lb/hr 1-Min	(Boiler 1) CO2% 1-Min	(Boiler 1) O2% 1-Min	Stack Flow kdscf/hr 1-Min	Calculated CO @ 3% O2	Calculated CO lb/hr
3/20/2019 12:49	32.17	45.34	19.74	4.72	6.65	4.03	0	14.09	3.74	12.34	8.2	5140	0.00	0.00
3/20/2019 12:50	30.68	42.77	19.45	4.69	6.54	4.14	0	13.94	3.86	12.46	8.06	5310	0.00	0.00
3/20/2019 12:51	21.17	30.98	12.61	4.07	5.96	3.37	0	14.64	3.63	11.9	8.67	4989	0.00	0.00
3/20/2019 12:52	28.12	38.42	18.04	3.29	4.50	2.94	0	13.66	3.91	12.75	7.8	5374	0.00	0.00
3/20/2019 12:53	35.49	50.18	22.05	3.9	5.51	3.37	0	14.14	3.78	12.25	8.24	5203	0.00	0.00
3/20/2019 12:54	24.54	36.94	14.21	3.46	5.21	2.79	0	15.05	3.52	11.58	9.01	4850	0.00	0.00
3/20/2019 12:55	34	47.81	21.27	3.41	4.79	2.97	0	14.06	3.81	12.35	8.17	5241	0.00	0.00
3/20/2019 12:56	35.92	50.43	22.37	3.87	5.43	3.35	0	14.04	3.79	12.38	8.15	5216	0.00	0.00
3/20/2019 12:57	41.89	58.86	26.06	4.02	5.65	3.48	0	14.05	3.79	12.34	8.16	5210	0.00	0.00
3/20/2019 12:58	36.99	52.38	23.07	3.8	5.38	3.3	0	14.16	3.8	12.25	8.26	5225	0.00	0.00
3/20/2019 12:59	35.34	51.02	22.13	3.57	5.15	3.11	0	14.44	3.81	12.03	8.5	5245	0.00	0.00
3/20/2019 13:00	34.32	49.5	21.43	3.52	5.08	3.06	0	14.42	3.8	12.06	8.49	5229	0.00	0.00
3/20/2019 13:01	42.08	60.99	26.66	3.64	5.28	3.21	0	14.49	3.86	11.93	8.55	5307	0.00	0.00
3/20/2019 13:02	30.41	46.29	18.52	3.02	4.60	2.56	0	15.22	3.71	11.43	9.14	5102	0.00	0.00
3/20/2019 13:03	31.66	46.53	20.3	2.93	4.31	2.61	0	14.7	3.9	11.83	8.72	5370	0.00	0.00
3/20/2019 13:04	35.93	52.33	22.93	3.23	4.70	2.87	0	14.56	3.88	11.95	8.61	5346	0.00	0.00
3/20/2019 13:05	39.22	58.26	24.45	3.19	4.74	2.77	0	14.85	3.79	11.68	8.85	5222	0.00	0.00
3/20/2019 13:06	35.69	53.64	22.12	3.24	4.87	2.79	0	15.03	3.77	11.54	8.99	5192	0.00	0.00
3/20/2019 13:07	35.39	51.88	22.46	3.47	5.09	3.06	0	14.66	3.86	11.86	8.69	5315	0.00	0.00
3/20/2019 13:08	32.38	50.01	19.77	3.63	5.61	3.08	0	15.44	3.72	11.28	9.31	5115	0.00	0.00
3/20/2019 13:09	31.16	46.52	19.54	3.26	4.87	2.84	0	14.93	3.82	11.67	8.91	5252	0.00	0.00
3/20/2019 13:10	42.66	59.19	28.29	4.98	6.91	4.6	0	13.88	4.04	12.51	8	5555	0.00	0.00
3/20/2019 13:11	52.16	72.38	34.54	6.57	9.12	6.05	0	13.88	4.03	12.5	8	5546	0.00	
3/20/2019 13:12	44.51	63.74	28.59	6.12	8.76	5.47	0	14.32	3.91	12.09	8.4	5381	0.00	
3/20/2019 13:13	38.25	55.89	23.45	5.75	8.40	4.9	0	14.61	3.73	11.96	8.65	5135	0.00	0.00
3/20/2019 13:14	58.03	76.6	39.96	10.47	13.82	10.03	0	13.2	4.19	13.15	7.34	5768	0.00	0.00
3/20/2019 13:15	72.7	94.16	50.63	18.04	23.37	17.48	0	12.95	4.24	13.4	7.08	5833	0.00	0.00
3/20/2019 13:16	69.73	95.5	44.68	19.73	27.02	17.59	0	13.7	3.9	12.62	7.83	5367	0.00	0.00
3/20/2019 13:17	58.27	81.94	36.4	15.18	21.35	13.19	0	14.06	3.8	12.34	8.17	5232	0.00	0.00
													0.00	0.00
Average	**39.34**	**55.88**	**25.02**	**5.61**	**7.88**	**5.00**	**0.00**			**12.15**	**8.38**	**5285.17**	**0.00**	**0.00**

Flow	kdscfh	5285.17
O2	% dry	8.38
CO2	% dry	12.15
NOx	ppm dry	39.34
NOx	ppm @ 3% O2	55.88
NOx	lb/hr	25.02
SO2	ppm dry	5.61
SO2	ppm @ 3% O2	7.88
SO2	lb/hr	5.00
CO	ppm dry	0.00
CO	ppm @ 3% O2	0.00
CO	lb/hr	0.00

CeDAR 1-Minute Data

Timestamp	(Boiler 1) NOx ppm 1-Min	(Boiler 1) NOx ppm @3% O2 1-Min	(Boiler 1) NOx lb/hr 1-Min Avg	(Boiler 1) SO2 ppm 1-Min	(Boiler 1) SO2 ppm @3% O2 1-Min	(Boiler 1) SO2 lb/hr 1-Min Avg	(Boiler 1) CO ppm 1-Min	(Boiler 1) CO ppm @3% O2 1 Min	(Boiler 1) CO lb/hr 1-Min	(Boiler 1) CO2% 1-Min	(Boiler 1) O2% 1-Min	Stack Flow kdscf/hr 1-Min	Calculated CO @ 3% O2	Calculated CO lb/hr
3/20/2019 13:33	22.31	32.6	14.22	8.19	11.97	7.26	0	14.61	3.88	11.83	8.65	5339	0.00	0.00
3/20/2019 13:34	29.04	41.55	19.12	8.63	12.35	7.91	0	14.31	4.01	12.11	8.39	5516	0.00	0.00
3/20/2019 13:35	23.78	35.71	14.63	7.56	11.35	6.47	0	15.02	3.74	11.62	8.98	5152	0.00	0.00
3/20/2019 13:36	26.65	39.42	16.49	7.03	10.4	6.05	0	14.79	3.77	11.77	8.8	5182	0.00	0.00
3/20/2019 13:37	40.96	58.01	27.1	8.61	12.19	7.93	0	14.16	4.03	12.23	8.26	5542	0.00	0.00
3/20/2019 13:38	39.74	54.97	26.14	8.65	11.97	7.92	0	13.83	4	12.63	7.96	5509	0.00	0.00
3/20/2019 13:39	55.1	74.89	36.99	11.16	15.17	10.42	0	13.59	4.09	12.71	7.73	5623	0.00	0.00
3/20/2019 13:40	54.55	76.4	35.12	10.2	14.29	9.14	0	14.01	3.92	12.34	8.12	5392	0.00	0.00
3/20/2019 13:41	53.18	76.52	33.55	10.19	14.66	8.95	0	14.39	3.84	12	8.46	5285	0.00	0.00
3/20/2019 13:42	32.71	50.47	19.3	7.87	12.14	6.46	0	15.43	3.59	11.31	9.3	4943	0.00	0.00
3/20/2019 13:43	28.42	42.68	17.32	7.01	10.53	5.94	0	15.02	3.71	11.58	8.98	5104	0.00	0.00
3/20/2019 13:44	33.4	49	20.6	6.49	9.52	5.57	0	14.67	3.75	11.84	8.7	5167	0.00	0.00
3/20/2019 13:45	34.11	49.68	21.35	7.08	10.31	6.16	0	14.56	3.81	11.92	8.61	5242	0.00	0.00
3/20/2019 13:46	44.56	61.88	29.22	8.57	11.9	7.82	0	13.89	3.99	12.55	8.01	5493	0.00	0.00
3/20/2019 13:47	64.33	84.05	44.58	13.19	17.23	12.72	0	13.07	4.22	13.29	7.2	5805	0.00	0.00
3/20/2019 13:48	69.2	93.56	45.14	15.85	21.43	14.39	0	13.52	3.97	12.81	7.66	5464	0.00	0.00
3/20/2019 13:49	55.62	78.46	34.46	12.35	17.42	10.65	0	14.11	3.77	12.28	8.21	5190	0.00	0.00
3/20/2019 13:50	44.83	63.04	28.08	10.62	14.93	9.25	0	14.06	3.81	12.35	8.17	5246	0.00	0.00
3/20/2019 13:51	46.42	62.85	29.77	11.04	14.95	9.85	0	13.54	3.9	12.85	7.68	5372	0.00	0.00
3/20/2019 13:52	53.75	72.5	34.21	12.75	17.2	11.29	0	13.49	3.87	12.85	7.63	5331	0.00	0.00
3/20/2019 13:53	50.85	67.67	32.47	11.76	15.65	10.45	0	13.31	3.89	13.06	7.45	5348	0.00	0.00
3/20/2019 13:54	59.48	78.75	38.44	11.74	15.54	10.56	0	13.24	3.93	13.08	7.38	5413	0.00	0.00
3/20/2019 13:55	45.72	65.73	26.76	9.91	14.25	8.07	0	14.38	3.56	12.05	8.45	4903	0.00	0.00
3/20/2019 13:56	38.41	56.22	22.32	8.55	12.51	6.91	0	14.64	3.54	11.86	8.67	4868	0.00	0.00
3/20/2019 13:57	33.81	48.45	20.25	9.12	13.07	7.6	0	14.33	3.65	12.12	8.41	5017	0.00	0.00
3/20/2019 13:58	35.64	52.38	21.01	9.09	13.36	7.45	0	14.7	3.59	11.78	8.72	4937	0.00	0.00
3/20/2019 13:59	36.79	53.54	21.91	8.63	12.56	7.15	0	14.55	3.62	11.93	8.6	4988	0.00	0.00
3/20/2019 14:00	33.02	49.38	19.57	9.09	13.59	7.49	0	14.95	3.61	11.6	8.93	4963	0.00	0.00
3/20/2019 14:01	26.97	39.38	16.23	7.85	11.46	6.57	0	14.6	3.66	11.93	8.64	5041	0.00	0.00
3/20/2019 14:02	41.21	59.25	25.6	8.51	12.24	7.35	0	14.38	3.78	12.02	8.45	5203	0.00	0.00
Average	**41.82**	**58.97**	**26.40**	**9.58**	**13.54**	**8.39**	**0.00**			**12.21**	**8.31**	**5252.60**	**0.00**	**0.00**

Flow	kdscfh	5252.60
O2	% dry	8.31
CO2	% dry	12.21
NOx	ppm dry	41.82
NOx	ppm @ 3% O2	58.97
NOx	lb/hr	26.40
SO2	ppm dry	9.58
SO2	ppm @ 3% O2	13.54
SO2	lb/hr	8.39
CO	ppm dry	0.00
CO	ppm @ 3% O2	0.00
CO	lb/hr	0.00

CeDAR 1-Minute Data

Timestamp	(Boiler 1) NOx ppm 1-Min	(Boiler 1) NOx ppm @3% O2 1-Min	(Boiler 1) NOx lb/hr 1-Min Avg	(Boiler 1) SO2 ppm 1-Min	(Boiler 1) SO2 ppm @3% O2 1-Min	(Boiler 1) SO2 lb/hr 1-Min Avg	(Boiler 1) CO ppm 1-Min	(Boiler 1) CO ppm @3% O2 1 Min	(Boiler 1) CO lb/hr 1-Min	(Boiler 1) CO2% 1-Min	(Boiler 1) O2% 1-Min	Stack Flow kdscf/hr 1-Min	Calculated CO @ 3% O2	Calculated CO lb/hr
3/20/2019 14:17	46.69	68.5	26.8	13.17	19.32	10.52	0	14.67	3.49	11.79	8.7	4808	0.00	0.00
3/20/2019 14:18	24.17	35.96	13.74	8.59	12.78	6.79	0	14.88	3.46	11.71	8.87	4760	0.00	0.00
3/20/2019 14:19	36.95	51.59	22.85	9.9	13.82	8.52	0	13.96	3.76	12.44	8.08	5180	0.00	0.00
3/20/2019 14:20	39.22	53.55	24.75	11.09	15.14	9.74	0	13.65	3.84	12.71	7.79	5286	0.00	0.00
3/20/2019 14:21	42.75	60.54	25.91	12.31	17.43	10.38	0	14.16	3.69	12.17	8.26	5076	0.00	0.00
3/20/2019 14:22	22.72	34.47	13.06	8.94	13.56	7.15	0	15.17	3.5	11.44	9.1	4816	0.00	0.00
3/20/2019 14:23	19.61	28.26	11.97	8.21	11.83	6.97	0	14.41	3.72	12.05	8.48	5114	0.00	0.00
3/20/2019 14:24	24.1	34.93	14.5	9.17	13.29	7.68	0	14.49	3.66	11.98	8.55	5039	0.00	0.00
3/20/2019 14:25	29.99	42.57	18.48	11.48	16.3	9.84	0	14.2	3.75	12.19	8.29	5161	0.00	0.00
3/20/2019 14:26	24.26	35.74	14.61	10.34	15.23	8.66	0	14.73	3.67	11.76	8.75	5044	0.00	0.00
3/20/2019 14:27	23.06	33.18	14.07	9.43	13.57	8.01	0	14.39	3.71	12.1	8.46	5111	0.00	0.00
3/20/2019 14:28	32	45.57	19.82	11.67	16.62	10.06	0	14.24	3.77	12.15	8.33	5188	0.00	0.00
3/20/2019 14:29	30.58	44.43	18.37	10.28	14.94	8.59	0	14.53	3.66	11.94	8.58	5033	0.00	0.00
3/20/2019 14:30	40.07	54.67	25.9	13.58	18.53	12.21	0	13.64	3.93	12.76	7.78	5413	0.00	0.00
3/20/2019 14:31	57.66	78.61	37.15	17.33	23.63	15.54	0	13.63	3.92	12.7	7.77	5397	0.00	0.00
3/20/2019 14:32	37.5	55.11	22.18	13.42	19.72	11.04	0	14.7	3.6	11.84	8.72	4954	0.00	0.00
3/20/2019 14:33	42.31	57.29	27.3	14.05	19.02	12.61	0	13.54	3.93	12.84	7.68	5404	0.00	0.00
3/20/2019 14:34	54.04	72.89	34.25	17.78	23.98	15.68	0	13.49	3.86	12.88	7.63	5308	0.00	0.00
3/20/2019 14:35	62.98	82.29	41.83	19.45	25.41	17.97	0	13.07	4.04	13.27	7.2	5563	0.00	0.00
3/20/2019 14:36	61.42	81.14	39.38	19.95	26.35	17.8	0	13.21	3.9	13.13	7.35	5371	0.00	0.00
3/20/2019 14:37	56.3	77.64	34.31	18.52	25.54	15.7	0	13.79	3.71	12.56	7.92	5104	0.00	0.00
3/20/2019 14:38	38.32	54.4	22.67	14.19	20.14	11.68	0	14.2	3.6	12.21	8.29	4956	0.00	0.00
3/20/2019 14:39	44.8	62.85	27.24	17.47	24.51	14.78	0	14.03	3.7	12.34	8.14	5093	0.00	0.00
3/20/2019 14:40	38.79	54.98	23.56	16.57	23.48	14	0	14.17	3.7	12.23	8.27	5087	0.00	0.00
3/20/2019 14:41	29.65	42.22	17.54	15	21.36	12.35	0	14.24	3.6	12.22	8.33	4956	0.00	0.00
3/20/2019 14:42	57.67	76.18	37.57	22.99	30.37	20.84	0	13.21	3.97	13.12	7.35	5457	0.00	0.00
3/20/2019 14:43	61.14	83.22	38.43	23.48	31.96	20.53	0	13.61	3.83	12.71	7.75	5265	0.00	0.00
3/20/2019 14:44	50.7	71.86	30.59	20.02	28.37	16.81	0	14.17	3.67	12.24	8.27	5054	0.00	0.00
3/20/2019 14:45	41.97	60.05	24.97	18.79	26.89	15.56	0	14.31	3.62	12.15	8.39	4984	0.00	0.00
3/20/2019 14:46	46.92	65.26	28.84	16.72	23.25	14.3	0	13.91	3.74	12.55	8.03	5148	0.00	0.00
Average	**40.61**	**56.67**	**25.09**	**14.46**	**20.21**	**12.41**	**0.00**			**12.34**	**8.17**	**5137.67**	**0.00**	**0.00**

Flow	kdscfh	5137.67
O2	% dry	8.17
CO2	% dry	12.34
NOx	ppm dry	40.61
NOx	ppm @ 3% O2	56.67
NOx	lb/hr	25.09
SO2	ppm dry	14.46
SO2	ppm @ 3% O2	20.21
SO2	lb/hr	12.41
CO	ppm dry	0.00
CO	ppm @ 3% O2	0.00
CO	lb/hr	0.00

CeDAR 1-Minute Data

Timestamp	(Boiler 1) NOx ppm 1-Min	(Boiler 1) NOx ppm @3% O2 1-Min	(Boiler 1) NOx lb/hr 1-Min Avg	(Boiler 1) SO2 ppm 1-Min	(Boiler 1) SO2 ppm @3% O2 1-Min	(Boiler 1) SO2 lb/hr 1-Min Avg	(Boiler 1) CO ppm 1-Min	(Boiler 1) CO ppm @3% O2 1 Min	(Boiler 1) CO lb/hr 1-Min	(Boiler 1) CO2% 1-Min	(Boiler 1) O2% 1-Min	Stack Flow kdscf/hr 1-Min	Calculated CO @ 3% O2	Calculated CO lb/hr
3/20/2019 15:01	46.78	65.83	28.5	17.28	24.32	14.65	0	14.07	3.71	12.3	8.18	5103	0.00	0.00
3/20/2019 15:02	43.34	59.91	26.92	16.06	22.2	13.88	0	13.82	3.78	12.58	7.95	5203	0.00	0.00
3/20/2019 15:03	55.12	73.63	36.08	20.06	26.8	18.27	0	13.36	3.98	12.97	7.5	5482	0.00	0.00
3/20/2019 15:04	43.8	61.06	26.81	17.26	24.06	14.7	0	13.94	3.73	12.43	8.06	5127	0.00	0.00
3/20/2019 15:05	38.33	52.9	23.93	16.44	22.69	14.28	0	13.8	3.8	12.55	7.93	5229	0.00	0.00
3/20/2019 15:06	35.31	49.34	21.43	14.32	20.01	12.09	0	13.97	3.69	12.39	8.09	5084	0.00	0.00
3/20/2019 15:07	45.62	62.62	28.48	16.68	22.9	14.49	0	13.73	3.8	12.63	7.86	5230	0.00	0.00
3/20/2019 15:08	37.29	51.82	22.92	14.1	19.6	12.06	0	13.9	3.74	12.47	8.02	5149	0.00	0.00
3/20/2019 15:09	38.54	52.18	24.28	13.72	18.58	12.03	0	13.54	3.83	12.82	7.68	5277	0.00	0.00
3/20/2019 15:10	51.07	68.07	32.81	16.95	22.59	15.15	0	13.33	3.91	12.99	7.47	5381	0.00	0.00
3/20/2019 15:11	48.14	65.73	29.56	16.04	21.9	13.71	0	13.65	3.74	12.7	7.79	5144	0.00	0.00
3/20/2019 15:12	55.89	74.27	35.77	16.72	22.22	14.89	0	13.29	3.9	13.05	7.43	5361	0.00	0.00
3/20/2019 15:13	50.99	68.63	31.89	12.67	17.05	11.03	0	13.46	3.81	12.87	7.6	5239	0.00	0.00
3/20/2019 15:14	42.09	59.09	25.28	12.19	17.11	10.18	0	14.04	3.66	12.31	8.15	5030	0.00	0.00
3/20/2019 15:15	33.75	47.87	20.25	9.54	13.53	7.96	0	14.18	3.65	12.22	8.28	5025	0.00	0.00
3/20/2019 15:16	34.15	47.42	21.05	8.56	11.89	7.34	0	13.89	3.75	12.48	8.01	5163	0.00	0.00
3/20/2019 15:17	35.57	50.37	21.49	9.99	14.15	8.4	0	14.16	3.68	12.23	8.26	5061	0.00	0.00
3/20/2019 15:18	46.38	62.8	29.5	11.66	15.79	10.32	0	13.54	3.87	12.82	7.68	5328	0.00	0.00
3/20/2019 15:19	49.53	66.76	31.35	13.58	18.3	11.96	0	13.48	3.85	12.84	7.62	5301	0.00	0.00
3/20/2019 15:20	41.76	57.63	25.82	14.8	20.43	12.73	0	13.8	3.76	12.52	7.93	5178	0.00	0.00
3/20/2019 15:21	32.27	44.57	19.74	13.24	18.29	11.27	0	13.81	3.72	12.56	7.94	5123	0.00	0.00
3/20/2019 15:22	41.81	57.35	26.26	14.02	19.23	12.25	0	13.72	3.82	12.58	7.85	5261	0.00	0.00
3/20/2019 15:23	32.68	45.17	20.14	11.09	15.33	9.51	0	13.82	3.75	12.56	7.95	5161	0.00	0.00
3/20/2019 15:24	38.64	53.49	24.03	11.22	15.53	9.71	0	13.84	3.79	12.5	7.97	5209	0.00	0.00
3/20/2019 15:25	30.57	42.99	18.71	10.42	14.65	8.87	0	14.06	3.73	12.3	8.17	5127	0.00	0.00
3/20/2019 15:26	35.59	49.58	22.17	11.92	16.6	10.33	0	13.93	3.79	12.42	8.05	5218	0.00	0.00
3/20/2019 15:27	29.73	40.84	18.49	10.17	13.97	8.8	0	13.74	3.78	12.66	7.87	5208	0.00	0.00
3/20/2019 15:28	43	57.44	27.71	9.69	12.94	8.69	0.03	13.36	3.92	12.95	7.5	5397	0.04	0.01
3/20/2019 15:29	34.89	48.64	21.64	9.5	13.24	8.2	0	13.94	3.77	12.4	8.06	5194	0.00	0.00
3/20/2019 15:30	26.38	37.45	15.88	7.82	11.1	6.55	0	14.2	3.66	12.24	8.29	5043	0.00	0.00
Average	**40.63**	**55.85**	**25.30**	**13.26**	**18.23**	**11.48**	**0.00**			**12.58**	**7.90**	**5201.20**	**0.00**	**0.00**

Flow	kdscfh	5201.20
O2	% dry	7.90
CO2	% dry	12.58
NOx	ppm dry	40.63
NOx	ppm @ 3% O2	55.85
NOx	lb/hr	25.30
SO2	ppm dry	13.26
SO2	ppm @ 3% O2	18.23
SO2	lb/hr	11.48
CO	ppm dry	0.00
CO	ppm @ 3% O2	0.00
CO	lb/hr	0.00

CeDAR 1-Minute Data

Timestamp	(Boiler 1) NOx ppm 1-Min	(Boiler 1) NOx ppm @3% O2 1-Min	(Boiler 1) NOx lb/hr 1-Min Avg	(Boiler 1) SO2 ppm 1-Min	(Boiler 1) SO2 ppm @3% O2 1-Min	(Boiler 1) SO2 lb/hr 1-Min Avg	(Boiler 1) CO ppm 1-Min	(Boiler 1) CO ppm @3% O2 1 Min	(Boiler 1) CO lb/hr 1-Min	(Boiler 1) CO2% 1-Min	(Boiler 1) O2% 1-Min	Stack Flow kdscf/hr 1-Min	Calculated CO @ 3% O2	Calculated CO lb/hr
3/20/2019 15:45	39.17	57.33	24.56	6.12	8.96	5.34	0	14.64	3.82	11.86	8.67	5251		
3/20/2019 15:46	32.38	50.05	19.6	4.89	7.56	4.12	0	15.46	3.68	11.23	9.32	5069	0.00	0.00
3/20/2019 15:47	29.86	43.56	18.96	4.96	7.24	4.38	0.01	14.59	3.86	11.96	8.63	5318	0.01	0.00
3/20/2019 15:48	44.81	62.62	29.71	7.38	10.31	6.81	0.05	13.97	4.04	12.41	8.09	5553	0.07	0.02
3/20/2019 15:49	52	72.38	34.75	9.25	12.88	8.6	0	13.92	4.07	12.46	8.04	5597	0.00	0.00
3/20/2019 15:50	58.86	78.74	39.94	10.62	14.21	10.03	0.07	13.38	4.13	13.03	7.52	5684	0.09	0.03
3/20/2019 15:51	62.85	88.03	40.65	12.6	17.65	11.34	0.07	14.01	3.94	12.32	8.12	5417	0.10	0.03
3/20/2019 15:52	47.91	67.05	30.98	9.09	12.72	8.18	0.07	14	3.94	12.43	8.11	5417	0.10	0.03
3/20/2019 15:53	52.4	73.28	33.79	9.12	12.75	8.18	0.07	13.98	3.92	12.44	8.1	5401	0.10	0.03
3/20/2019 15:54	53.4	73.87	34.79	10.01	13.85	9.07	0.05	13.83	3.97	12.56	7.96	5457	0.07	0.02
3/20/2019 15:55	51.9	72.81	33.27	9.23	12.95	8.23	0.16	14.03	3.9	12.34	8.14	5369	0.22	0.06
3/20/2019 15:56	41.2	58.81	26.1	8.13	11.61	7.17	0.04	14.27	3.86	12.13	8.36	5307	0.06	0.02
3/20/2019 15:57	36.75	53.14	23.25	7.36	10.64	6.48	0	14.46	3.85	11.98	8.52	5299	0.00	0.00
3/20/2019 15:58	32.94	48.97	20.5	6.6	9.81	5.72	0	14.87	3.79	11.66	8.86	5214	0.00	0.00
3/20/2019 15:59	31.87	47.15	19.96	5.84	8.64	5.09	0.01	14.79	3.81	11.74	8.8	5245	0.01	0.00
3/20/2019 16:00	42.03	60.43	27.18	6.21	8.93	5.59	0.07	14.38	3.94	12.05	8.45	5417	0.10	0.03
3/20/2019 16:01	40.47	59.92	25.4	6.04	8.94	5.27	0	14.81	3.82	11.71	8.81	5257	0.00	0.00
3/20/2019 16:02	37.93	55.15	24.28	5.74	8.35	5.11	0	14.54	3.9	11.95	8.59	5362	0.00	0.00
3/20/2019 16:03	38.52	56.01	24.49	6	8.72	5.31	0.06	14.54	3.87	11.92	8.59	5325	0.09	0.02
3/20/2019 16:04	42.84	60.67	28.37	4.85	7.08	4.47	0.23	14.16	4.03	12.22	8.26	5547	0.33	0.09
3/20/2019 16:05	34.92	52.48	21.81	5.33	8.01	4.63	0.05	15.03	3.8	11.55	8.99	5231	0.08	0.02
3/20/2019 16:06	37.59	52.86	24.93	5.17	7.27	4.77	0.14	14.06	4.04	12.39	8.17	5555	0.20	
3/20/2019 16:07	41.93	59.57	27.17	6.9	9.8	6.22	0.12	14.21	3.94	12.2	8.3	5428	0.17	
3/20/2019 16:08	52.99	72.74	35.83	7.59	10.42	7.14	0.26	13.73	4.12	12.63	7.86	5664	0.36	0.11
3/20/2019 16:09	45.25	64.23	28.96	7.3	10.36	6.5	0.25	14.2	3.9	12.21	8.29	5360	0.35	0.10
3/20/2019 16:10	42.09	58.68	27.24	6.32	8.81	5.69	0.2	13.94	3.94	12.44	8.06	5421	0.28	0.08
3/20/2019 16:11	50.45	68.05	34.21	6.3	8.5	5.94	0.27	13.49	4.13	12.82	7.63	5680	0.36	0.11
3/20/2019 16:12	47.85	67.18	30.54	6.49	9.11	5.76	0.26	14.04	3.88	12.33	8.15	5346	0.37	0.10
3/20/2019 16:13	35.97	51.97	22.58	6.23	9	5.44	0.15	14.45	3.82	11.97	8.51	5258	0.22	0.06
3/20/2019 16:14	26.38	38.99	16.31	4.89	7.39	4.21	0.13	14.78	3.76	11.73	8.79	5180	0.19	0.05
Average	**42.85**	**60.89**	**27.67**	**7.09**	**10.08**	**6.36**	**0.09**			**12.16**	**8.36**	**5387.63**	**0.14**	**0.04**

Flow	kdscfh	5387.63
O2	% dry	8.36
CO2	% dry	12.16
NOx	ppm dry	42.85
NOx	ppm @ 3% O2	60.89
NOx	lb/hr	27.67
SO2	ppm dry	7.09
SO2	ppm @ 3% O2	10.08
SO2	lb/hr	6.36
CO	ppm dry	0.09
CO	ppm @ 3% O2	0.14
CO	lb/hr	0.04

CeDAR 1-Minute Data

Timestamp	(Boiler 1) NOx ppm 1-Min	(Boiler 1) NOx ppm @3% O2 1-Min	(Boiler 1) NOx lb/hr 1-Min Avg	(Boiler 1) SO2 ppm 1-Min	(Boiler 1) SO2 ppm @3% O2 1-Min	(Boiler 1) SO2 lb/hr 1-Min Avg	(Boiler 1) CO ppm 1-Min	(Boiler 1) CO ppm @3% O2 1 Min	(Boiler 1) CO lb/hr 1-Min	(Boiler 1) CO2% 1-Min	(Boiler 1) O2% 1-Min	Stack Flow kdscf/hr 1-Min	Calculated CO @ 3% O2	Calculated CO lb/hr
3/20/2019 16:39	22.2	34.32	13.27	2.49	3.85	2.07	0.2	15.46	3.64	11.21	9.32	5007	0.31	0.07
3/20/2019 16:40	16.06	25.37	9.58	2.14	3.38	1.78	0.27	15.8	3.63	10.98	9.57	4995	0.43	0.10
3/20/2019 16:41	20.07	30.5	12.37	2.25	3.42	1.93	0.26	15.2	3.75	11.42	9.12	5161	0.40	0.10
3/20/2019 16:42	27.31	39.33	17.56	2.58	3.72	2.31	0.47	14.4	3.91	12.02	8.47	5386	0.68	0.18
3/20/2019 16:43	32.67	47.47	20.86	3.18	4.62	2.83	0.38	14.53	3.89	11.89	8.58	5349	0.55	0.15
3/20/2019 16:44	25.84	40.15	15.47	2.52	3.92	2.1	0.16	15.54	3.64	11.16	9.38	5014	0.25	0.06
3/20/2019 16:45	28.37	43.11	17.37	1.82	2.77	1.55	0.19	15.2	3.73	11.42	9.12	5128	0.29	0.07
3/20/2019 16:46	30.41	46.21	18.78	2.16	3.28	1.86	0.2	15.2	3.76	11.38	9.12	5173	0.30	0.08
3/20/2019 16:47	31.29	45.98	19.91	2.16	3.17	1.91	0.19	14.7	3.87	11.81	8.72	5329	0.28	0.07
3/20/2019 16:48	39.7	56.18	25.83	3.46	4.90	3.13	0.43	14.15	3.96	12.27	8.25	5449	0.61	0.17
3/20/2019 16:49	46.73	65.81	30.44	4.81	6.77	4.36	0.29	14.08	3.97	12.27	8.19	5457	0.41	0.12
3/20/2019 16:50	42.75	62.37	26.43	4.47	6.52	3.85	0.39	14.59	3.76	11.88	8.63	5179	0.57	0.15
3/20/2019 16:51	50.67	71.81	32.93	4.74	6.72	4.29	0.49	14.17	3.96	12.18	8.27	5443	0.69	0.19
3/20/2019 16:52	49.57	71.85	30.98	4.75	6.88	4.13	0.37	14.49	3.8	11.93	8.55	5235	0.54	0.14
3/20/2019 16:53	54.03	76.82	34.63	4.97	7.07	4.43	0.35	14.22	3.9	12.14	8.31	5369	0.50	0.14
3/20/2019 16:54	54.72	78.55	34.91	5.27	7.56	4.68	0.39	14.35	3.88	12.04	8.43	5343	0.56	0.15
3/20/2019 16:55	41.4	62.43	25.13	4.41	6.65	3.72	0.4	15.08	3.69	11.47	9.03	5084	0.60	0.15
3/20/2019 16:56	41.8	61.84	25.77	4.48	6.63	3.84	0.29	14.79	3.75	11.69	8.8	5164	0.43	0.11
3/20/2019 16:57	40.04	58.65	24.77	4.47	6.55	3.85	0.48	14.65	3.77	11.81	8.68	5182	0.70	0.18
3/20/2019 16:58	45.13	65.52	27.87	5.25	7.62	4.51	0.44	14.52	3.76	11.92	8.57	5173	0.64	0.17
3/20/2019 16:59	40.01	57.71	24.47	5.24	7.56	4.46	0.53	14.42	3.72	11.97	8.49	5122	0.76	0.20
3/20/2019 17:00	37.36	53.67	22.54	5.23	7.51	4.39	0.44	14.37	3.67	12.07	8.44	5053	0.63	0.16
3/20/2019 17:01	43.38	61.48	26.63	5.82	8.25	4.97	0.51	14.17	3.74	12.16	8.27	5141	0.72	0.19
3/20/2019 17:02	38.35	55.81	23.08	5.35	7.79	4.48	0.45	14.55	3.66	11.86	8.6	5041	0.65	0.16
3/20/2019 17:03	26.87	40.35	15.63	4.15	6.23	3.36	0.38	15.02	3.54	11.56	8.98	4871	0.57	0.13
3/20/2019 17:04	37.47	51.83	23.42	3.82	5.28	3.32	0.51	13.83	3.81	12.58	7.96	5236	0.71	0.19
3/20/2019 17:05	48.57	67.34	30.19	7.57	10.5	6.55	0.76	13.87	3.78	12.41	7.99	5207	1.05	0.29
3/20/2019 17:06	43.37	59.86	26.58	6.77	9.34	5.77	0.62	13.8	3.73	12.56	7.93	5133	0.86	0.23
3/20/2019 17:07	44.28	63.21	26.5	6.8	9.71	5.66	0.68	14.27	3.64	12.07	8.36	5012	0.97	0.25
3/20/2019 17:08	36.31	52.97	21.23	6	8.75	4.88	0.54	14.59	3.56	11.87	8.63	4898	0.79	0.19
Average	**37.89**	**54.95**	**23.50**	**4.30**	**6.23**	**3.70**	**0.40**			**11.87**	**8.63**	**5177.80**	**0.58**	**0.15**

Flow	kdscfh	5177.80
O2	% dry	8.63
CO2	% dry	11.87
NOx	ppm dry	37.89
NOx	ppm @ 3% O2	54.95
NOx	lb/hr	23.50
SO2	ppm dry	4.30
SO2	ppm @ 3% O2	6.23
SO2	lb/hr	3.70
CO	ppm dry	0.40
CO	ppm @ 3% O2	0.58
CO	lb/hr	0.15

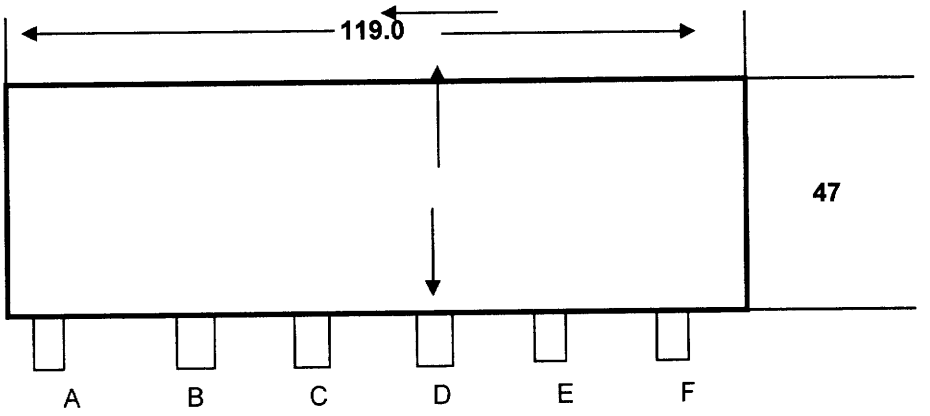
Appendix A.2
Unit 2 Data

Appendix A.2.1
Unit 2 Sample Location

Method 1

Client: Desert View Power Date: 3/21/2019

Sample Location: Unit 1-2 Prepared By: Dave Wonderly



H (in.)	**119.0**
W (in.)	**47.0**
Nipple length	**13.0**
Distance between points	**9.40**
Stack Area (ft^2)	**38.84**

Point No.	Sample Point	Inches from nozzle
1	4.7	17.7
2	14.1	27.1
3	23.5	36.5
4	32.9	45.9
5	42.3	55.3

Appendix A.2.2
Unit 2 CEM Data

Date	Time	O2 %	CO2 %	NOx ppm	CO ppm	
3/21/2019	6:21	14.585	15.045	65.106	2.72	
3/21/2019	6:22	19.399	19.051	89.82	8.477	
3/21/2019	6:23	19.327	18.949	90.134	8.585	
3/21/2019	6:24	19.317	18.934	90.599	8.584	High
3/21/2019	6:25	18.954	18.187	87.34	8.587	
3/21/2019	6:26	10.504	10.594	46.262	6.439	
3/21/2019	6:27	10.467	10.604	46.012	4.654	Mid
3/21/2019	6:28	8.497	8.29	35.677	4.584	
3/21/2019	6:29	-0.006	0.031	0.086	1.269	
3/21/2019	6:30	-0.011	0.024	0.042	0.01	Zero
3/21/2019	6:31	12.968	0.027	0.03	0.047	NO Mode Zero
3/21/2019	6:32	20.831	0.08	68.681	0.312	
3/21/2019	6:33	18.569	2.751	91.365	0.396	NO Mode High
3/21/2019	6:34	7.799	12.686	27.094	0.05	
3/21/2019	6:35	8.061	12.513	0.075	-0.09	NO2 Gas NO Mode
3/21/2019	6:36	7.889	12.676	35.28	-0.074	
3/21/2019	6:37	6.979	13.574	43.25	-0.147	NO2 Gas NOx Mode
3/21/2019	6:38	6.83	13.656	54.542	-0.214	
3/21/2019	6:39	7.236	13.294	46.129	-0.186	
3/21/2019	6:40	7.484	12.999	43.14	-0.18	
3/21/2019	6:41	7.833	12.689	36.811	-0.128	
3/21/2019	6:42	7.877	12.658	35.558	-0.127	
3/21/2019	6:43	7.803	12.769	38.609	-0.117	
3/21/2019	6:44	7.333	13.152	45.769	-0.146	
3/21/2019	6:45	7.504	13.005	41.354	-0.148	
3/21/2019	6:46	7.667	12.853	41.333	-0.127	
3/21/2019	6:47	7.715	12.775	37.604	-0.138	
3/21/2019	6:48	7.823	12.69	38.646	-0.122	
3/21/2019	6:49	6.58	13.953	59.909	-0.145	
3/21/2019	6:50	6.47	13.986	73.477	-0.186	
3/21/2019	6:51	7.092	13.387	59.519	-0.189	
3/21/2019	6:52	7.926	12.486	40.359	-0.174	
3/21/2019	6:53	8.167	12.317	33.463	-0.074	
3/21/2019	6:54	7.931	12.575	39.455	-0.076	
3/21/2019	6:55	7.084	13.473	46.608	-0.082	
3/21/2019	6:56	7.131	13.363	46.246	-0.137	
3/21/2019	6:57	7.137	13.318	51.668	-0.144	
3/21/2019	6:58	7.9	12.519	45.807	-0.136	
3/21/2019	6:59	3.062	3.783	41.528	-0.123	
3/21/2019	7:00	-0.002	0.055	45.427	0.043	
3/21/2019	7:01	-0.005	0.046	45.411	0.086	NOx Bias
3/21/2019	7:02	0.693	1.491	32.934	0.265	
3/21/2019	7:03	1.439	2.405	6.43	3.226	
3/21/2019	7:04	0.503	0.804	2.391	4.122	
3/21/2019	7:05	-0.006	0.04	0.101	4.545	
3/21/2019	7:06	-0.009	0.035	0.112	4.678	CO Bias
3/21/2019	7:07	6.988	7.488	0.178	3.791	
3/21/2019	7:08	10.408	10.512	0.074	-0.12	O2 CO2 Bias
3/21/2019	7:09	8.978	11.93	24.586	-0.386	

3/21/2019	7:10	7.86	12.626	35.954	-0.217
3/21/2019	7:11	7.912	12.635	30.2	-0.105
3/21/2019	7:12	7.344	13.193	35.403	-0.11
3/21/2019	7:13	7.469	13.017	32.048	-0.116
3/21/2019	7:14	8.385	12.14	26.756	-0.107
3/21/2019	7:15	8.4	12.103	23.715	-0.1
3/21/2019	7:16	8.155	12.306	27.943	-0.065
3/21/2019	7:17	8.24	12.348	26.425	-0.045
3/21/2019	7:18	7.715	12.877	32.425	-0.079
3/21/2019	7:19	7.123	13.349	38.712	-0.111
3/21/2019	7:20	7.866	12.52	27.761	-0.121
3/21/2019	7:21	7.79	12.775	26.852	-0.03
3/21/2019	7:22	7.57	12.947	35.29	-0.092
3/21/2019	7:23	8.137	12.318	28.308	-0.126
3/21/2019	7:24	6.93	13.683	45.716	-0.109
3/21/2019	7:25	6.111	14.4	67.515	-0.189
3/21/2019	7:26	6.94	13.496	52.685	-0.206
3/21/2019	7:27	8.141	12.357	28.261	-0.144
3/21/2019	7:28	8.314	12.237	19.25	-0.016
3/21/2019	7:29	6.9	13.707	46.415	-0.06
3/21/2019	7:30	7.657	12.778	40.854	-0.167
3/21/2019	7:31	8.057	12.479	27.761	-0.097
3/21/2019	7:32	7.91	12.699	33.796	-0.086
3/21/2019	7:33	7.11	13.406	47.906	-0.132
3/21/2019	7:34	8.045	12.386	32.698	-0.176
3/21/2019	7:35	8.5	12.017	24.431	-0.098
3/21/2019	7:36	7.71	12.813	35.906	-0.112
3/21/2019	7:37	7.749	12.797	31.599	-0.098
3/21/2019	7:38	7.823	12.697	39.152	-0.134
3/21/2019	7:39	7.338	13.143	44.277	-0.181
3/21/2019	7:40	7.662	12.875	38.622	-0.156
3/21/2019	7:41	6.827	13.671	60.419	-0.182
3/21/2019	7:42	8.287	12.142	33.525	-0.197
3/21/2019	7:43	7.732	12.767	37.393	-0.146
3/21/2019	7:44	8.269	12.239	28.111	-0.112
3/21/2019	7:45	7.488	13.036	40.116	-0.158
3/21/2019	7:46	7.591	12.872	35.389	-0.15
3/21/2019	7:47	8.079	12.453	29.524	-0.114
3/21/2019	7:48	7.778	12.675	38.09	-0.156
3/21/2019	7:49	8.309	12.258	25.616	-0.109
3/21/2019	7:50	8.172	12.299	27.353	-0.121
3/21/2019	7:51	8.27	12.241	27.465	-0.119
3/21/2019	7:52	6.926	13.643	57.503	-0.19
3/21/2019	7:53	6.356	14.102	76.799	-0.266
3/21/2019	7:54	7.321	13.066	72.256	-0.274
3/21/2019	7:55	8.487	12.035	40.403	-0.24
3/21/2019	7:56	7.382	13.174	57.358	-0.22
3/21/2019	7:57	7.01	13.454	58.043	-0.249
3/21/2019	7:58	8.109	12.364	37.952	-0.212
3/21/2019	7:59	7.915	12.606	39.482	-0.171
3/21/2019	8:00	7.997	12.453	34.346	-0.192
3/21/2019	8:01	7.91	12.642	38.12	-0.127

3/21/2019	16:27	7.783	12.561	34.495	-0.086	
3/21/2019	16:28	7.885	12.432	32.01	-0.074	
3/21/2019	16:29	8.091	12.238	27.733	-0.052	
3/21/2019	16:30	8.265	12.057	23.958	-0.052	
3/21/2019	16:31	7.826	12.551	33.948	-0.04	
3/21/2019	16:32	7.628	12.719	38.428	-0.114	
3/21/2019	16:33	7.299	13.018	43.561	-0.109	
3/21/2019	16:34	7.612	12.765	39.701	-0.113	
3/21/2019	16:35	6.758	13.59	60.049	-0.153	
3/21/2019	16:36	6.715	13.568	60.873	-0.172	
Run 10 Average		7.52	12.83	43.64	-0.13	
3/21/2019	16:37	1.213	1.248	42.079	-0.127	
3/21/2019	16:38	-0.004	0.053	45.417	0.052	NOx Bias
3/21/2019	16:39	-0.005	0.046	19.281	1.071	
3/21/2019	16:40	-0.009	0.043	0.128	4.566	
3/21/2019	16:41	-0.009	0.038	0.083	4.702	CO Bias
3/21/2019	16:42	8.267	8.631	0.067	3.421	
3/21/2019	16:43	10.383	10.422	0.061	-0.113	
3/21/2019	16:44	8.313	8.697	0.043	0.048	
3/21/2019	16:45	-0.008	0.032	0.04	0.073	Zero
3/21/2019	16:46	7.032	7.407	31.659	1.451	
3/21/2019	16:47	10.455	10.485	46.063	4.638	
3/21/2019	16:48	10.458	10.486	45.95	4.698	Span
3/21/2019	16:49	15.641	15.117	65.949	4.898	
3/21/2019	16:50	19.291	18.733	90.836	8.112	
3/21/2019	16:51	19.294	18.753	90.734	8.669	High
3/21/2019	16:52	10.499	13.543	49.271	6.482	

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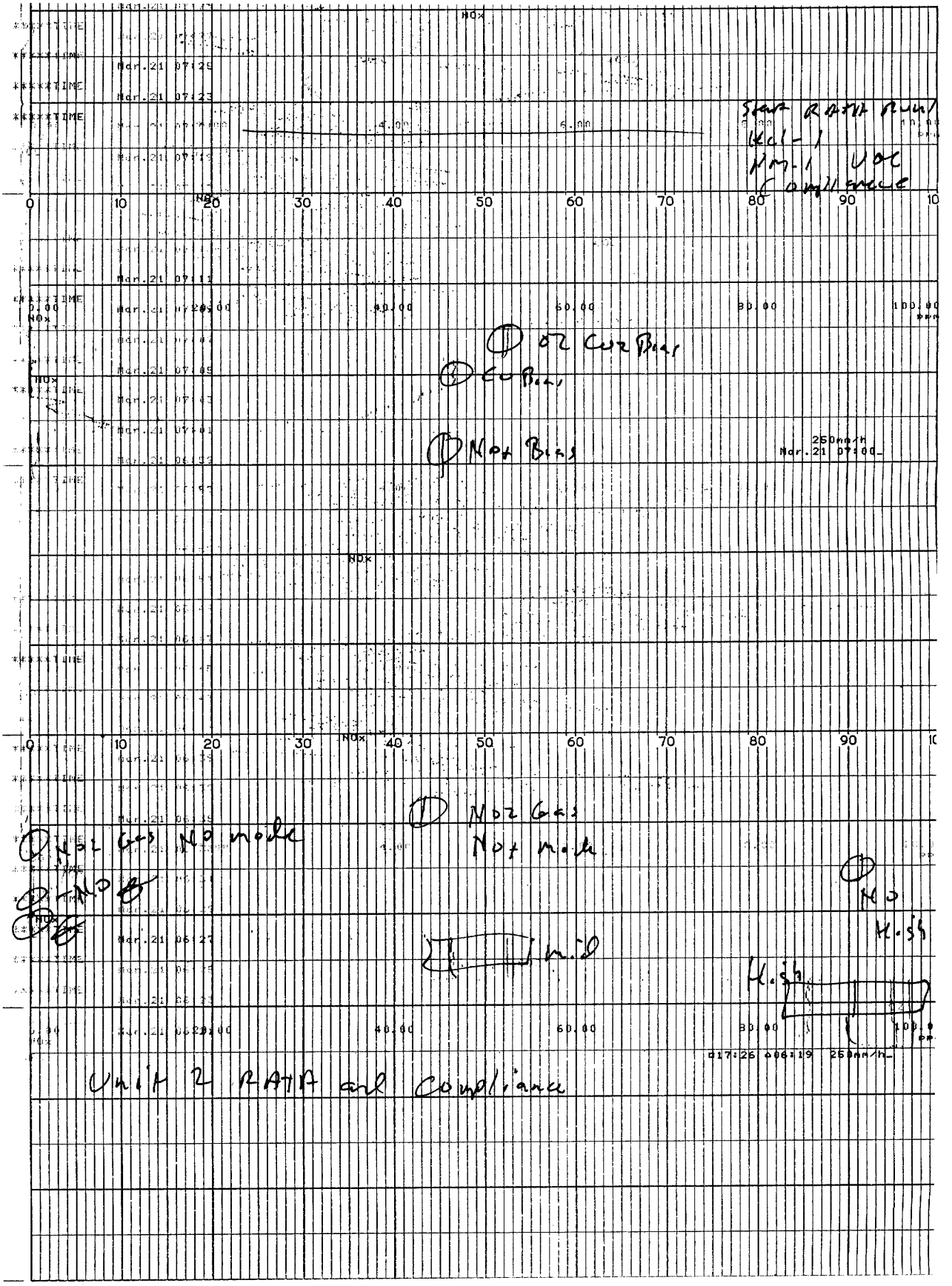
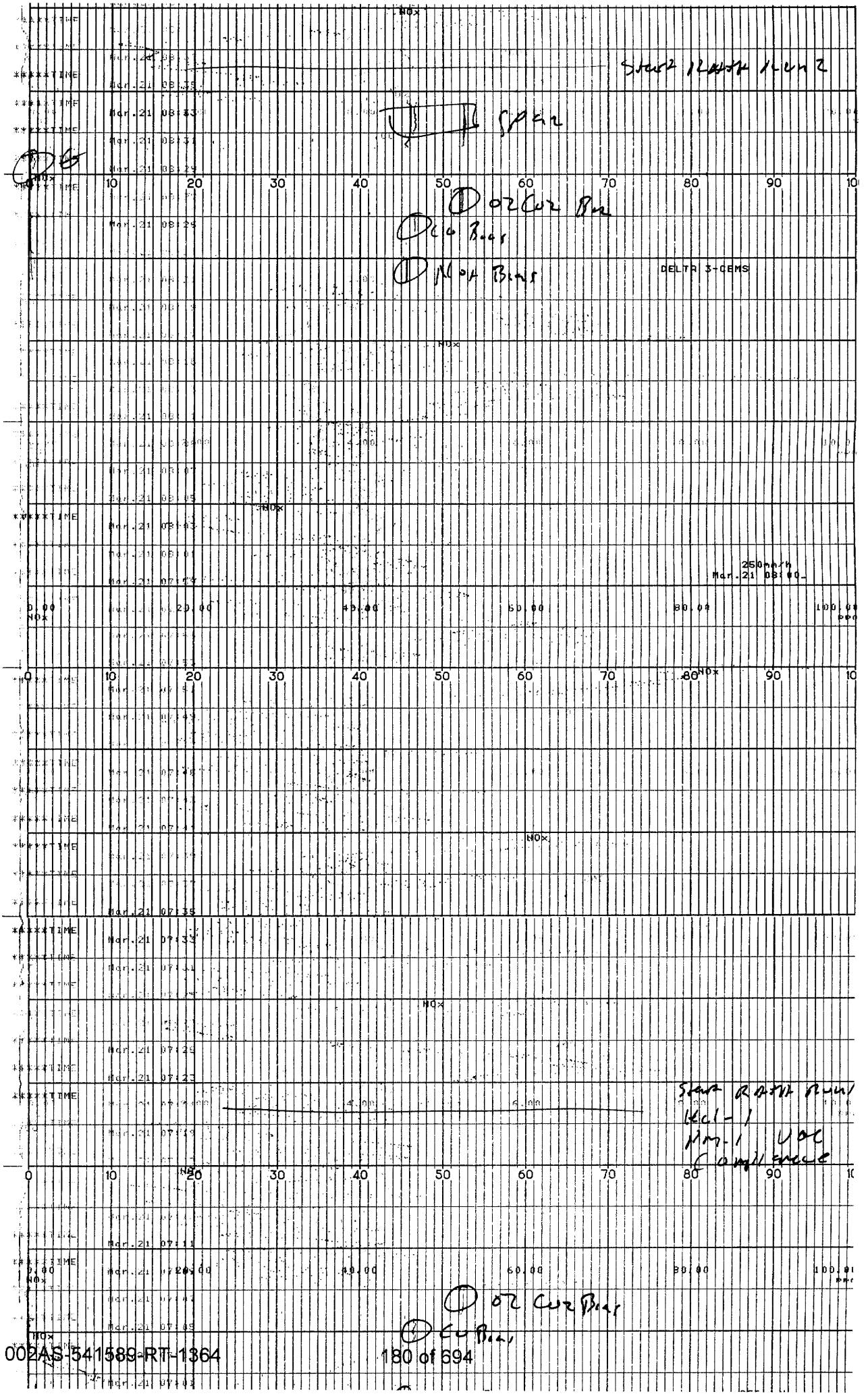
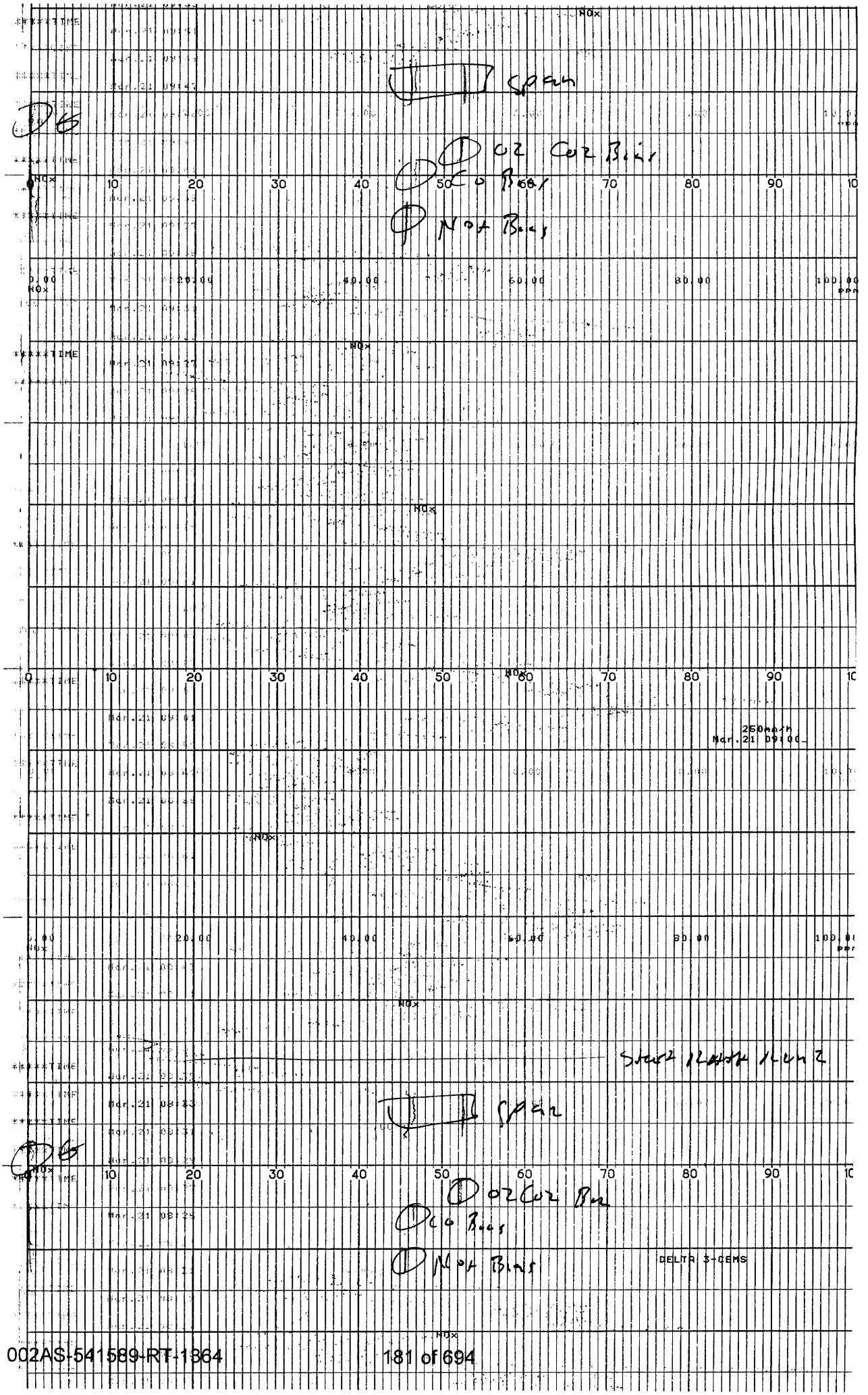
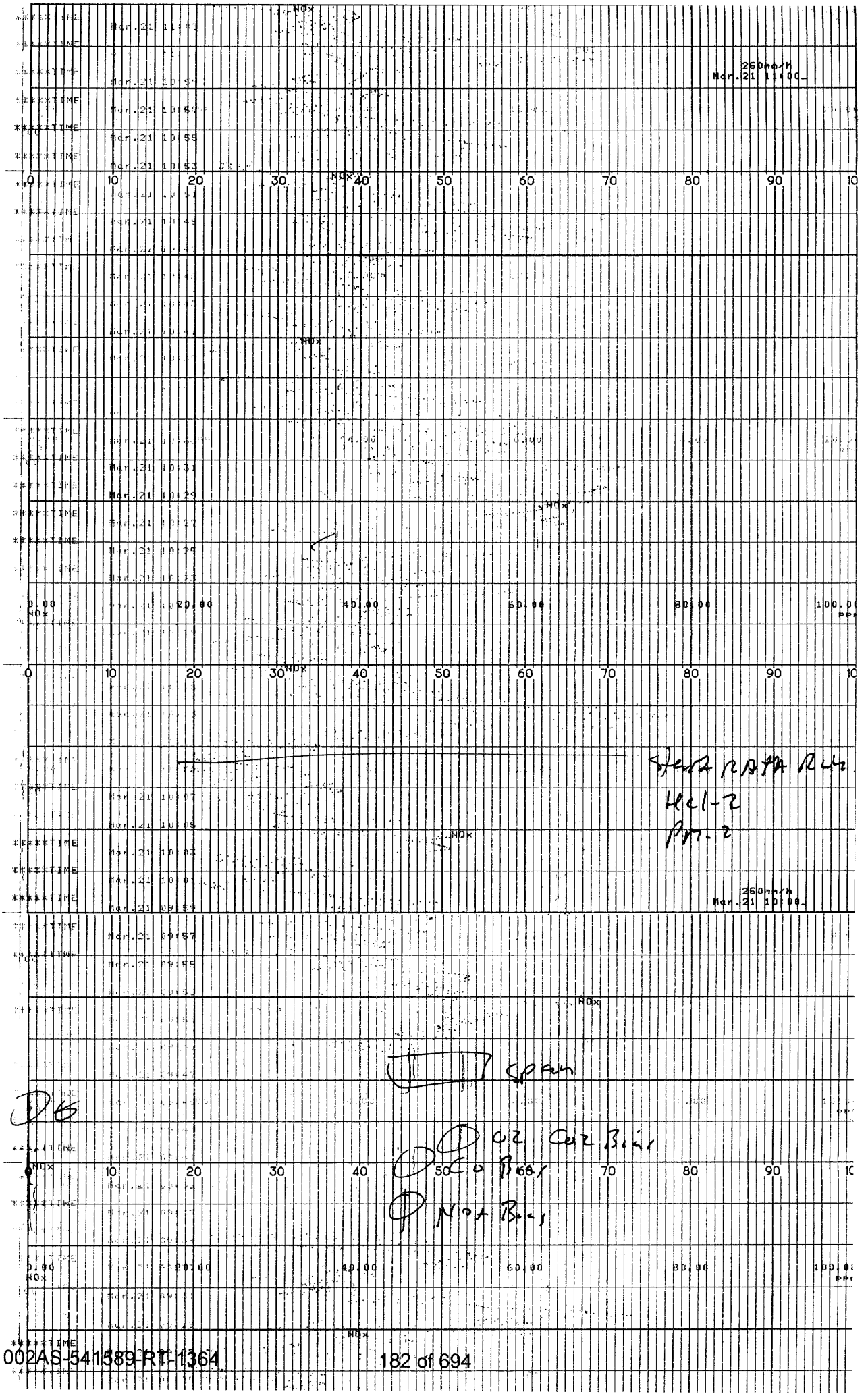
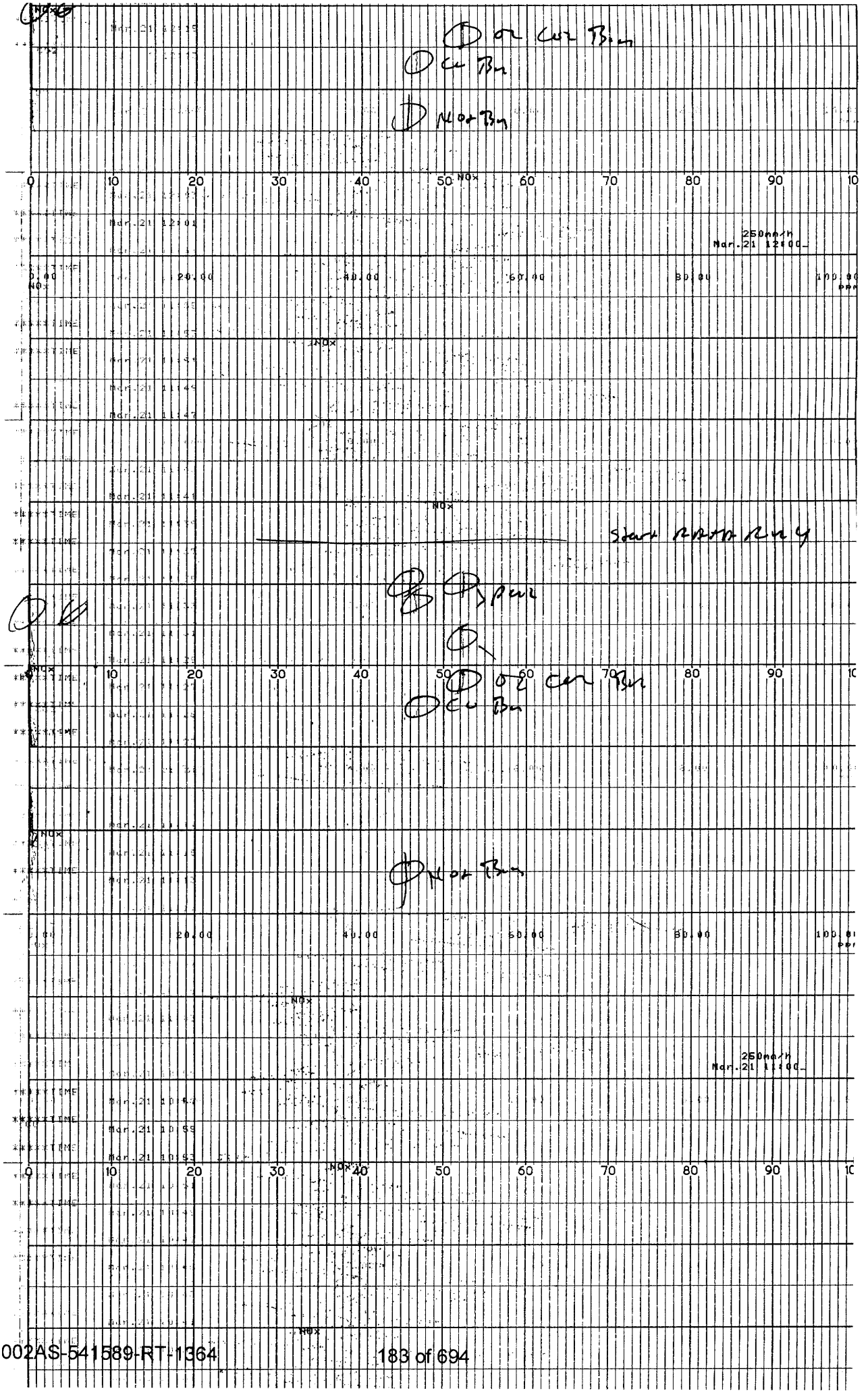
Appendix A.2.3
Unit 2 Instrument Strip Charts

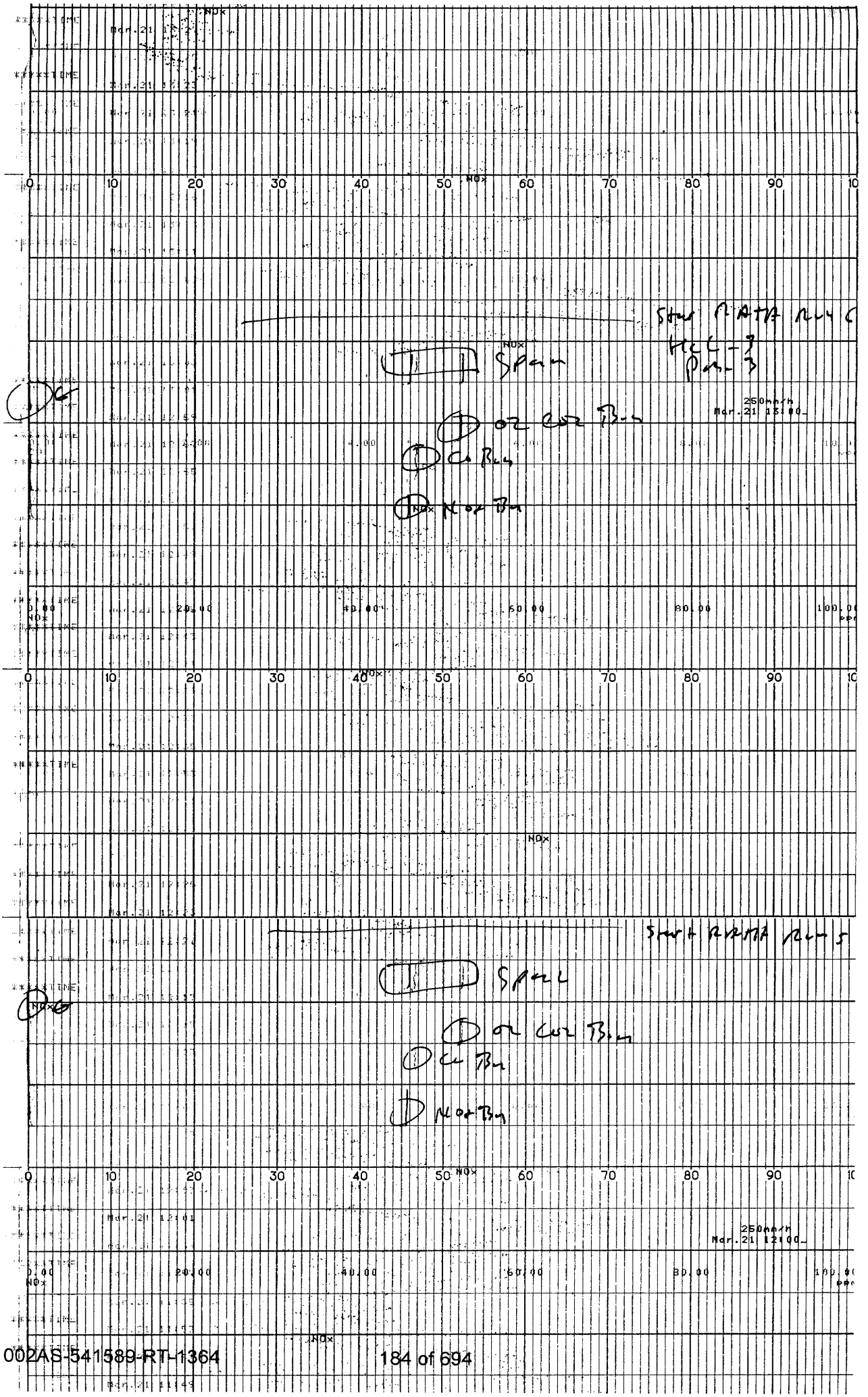

NOx
Mar.21 07:29
Mar.21 07:23
Mar.21 07:11
Mar.21 07:05
Mar.21 06:53
Mar.21 06:39
Mar.21 06:27
Start RATA Run
Unit-1
Unit-1 UOC
Compliance
O2 Cur Bias
CO Bias
NOx Bias
250mm/h
Mar.21 07:00
NOx Gas
Not made
NO
High
Mid
Unit 2 RATA and Compliance

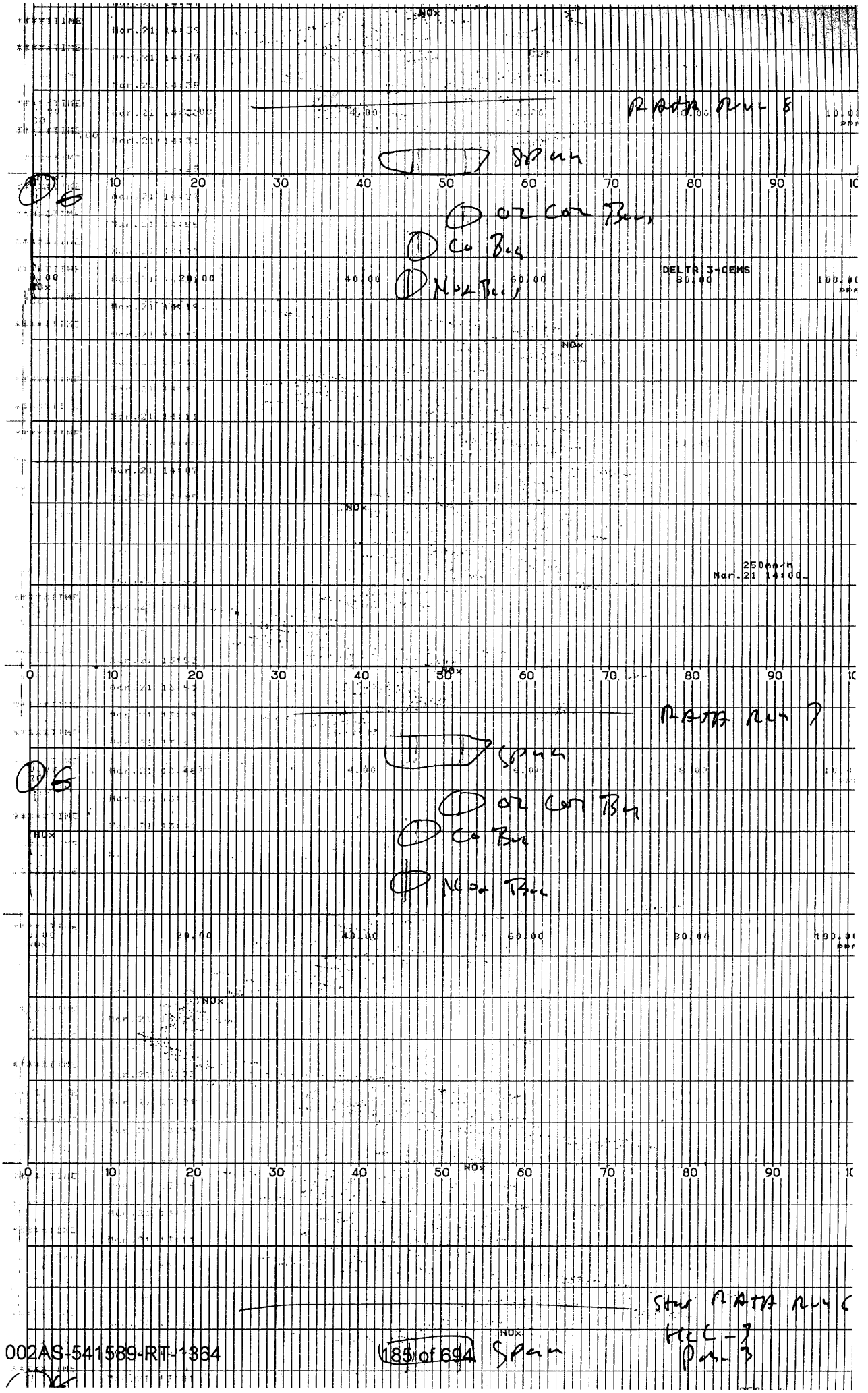

NOx
TIME
INTVL
Mar.21 08:33
Mar.21 08:31
Mar.21 08:29
Mar.21 08:25
Mar.21 08:07
Mar.21 08:05
Mar.21 08:03
Mar.21 08:01
Mar.21 07:59
Mar.21 07:35
Mar.21 07:33
Mar.21 07:31
Mar.21 07:29
Mar.21 07:27
Mar.21 07:11
Mar.21 07:09
Mar.21 07:07
0 10 20 30 40 50 60 70 80 90 100
0.00 20.00 40.00 60.00 80.00 100.00
DELTA 3-CEMS
250mg/m
Mar.21 08:00
4.00 6.00
Span
O2 Cur Bar
CO Bar
NOx Bar
Start Rata Run 2
Start Rata Run
Kcl-1
Mm-1 UOC
Comparence
O2 Cur Bar
CO Bar

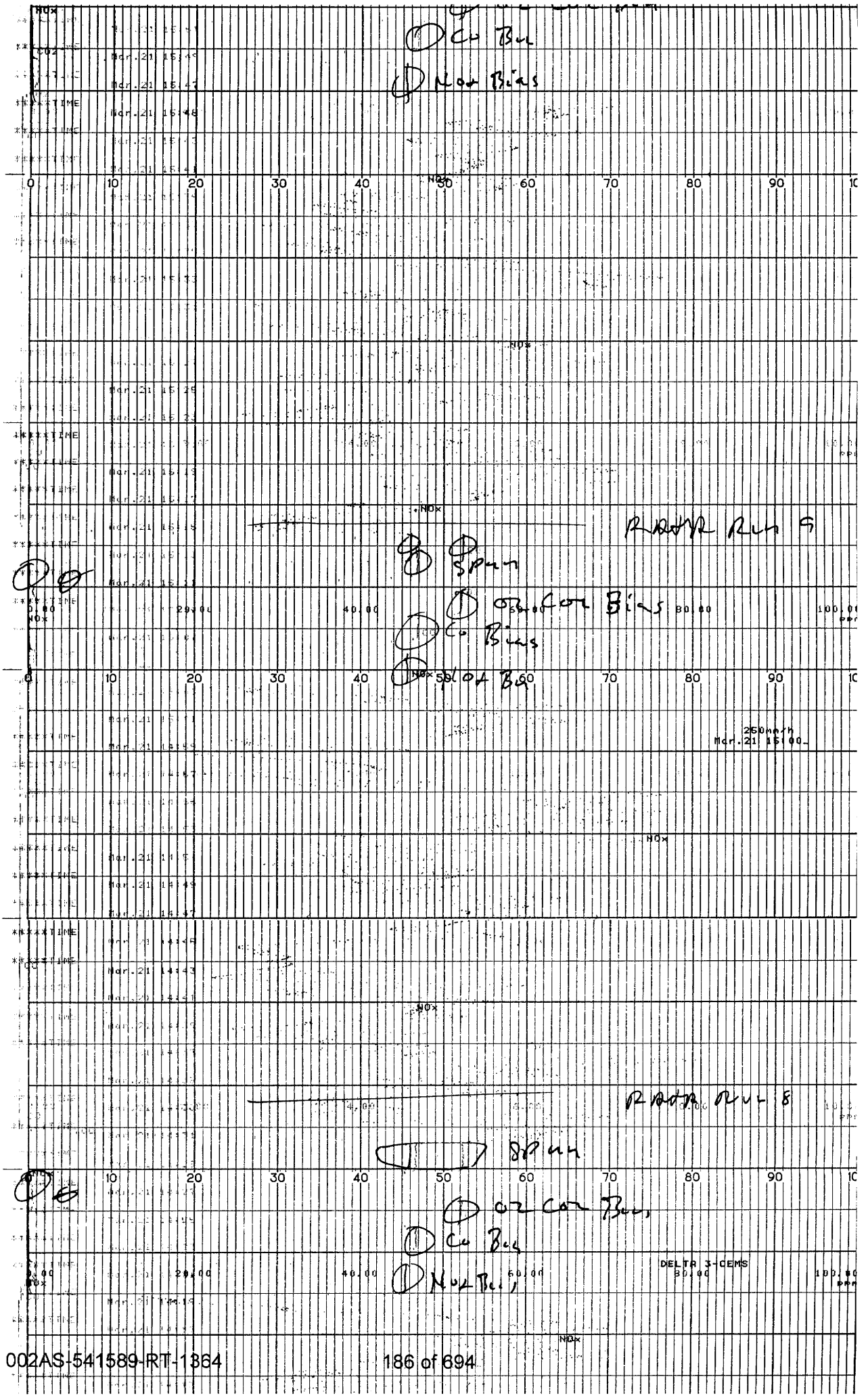

NOx
Span
D6
O2 Cor Bias
CO Bias
NOx Bias
NOx
NOx
250mar/M
Mar.21 09:00
Stack Leak Check
Span
D6
O2 Cor Bias
CO Bias
NOx Bias
DELTA 3-GEMS
NOx

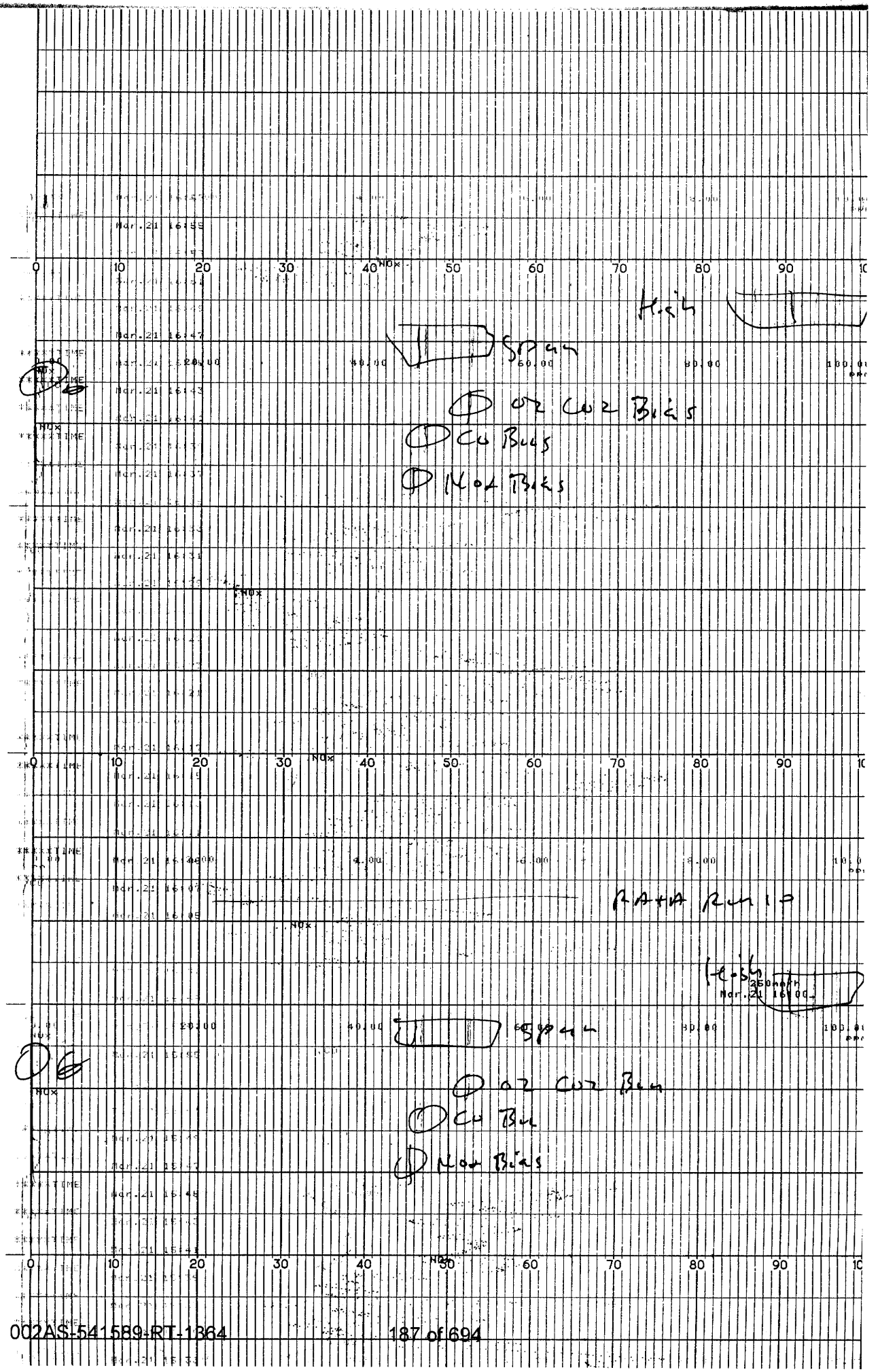

NOx
250mg/M
Mar.21 11:00
Mar.21 10:59
Mar.21 10:53
0 10 20 30 40 50 60 70 80 90
Mar.21 10:31
Mar.21 10:29
Mar.21 10:27
0.00 20.00 40.00 60.00 80.00
Mar.21 10:07
Mar.21 10:05
Mar.21 10:03
Mar.21 10:01
Mar.21 09:59
Mar.21 09:57
Mar.21 09:55
Span
O2 Cor Bias
CO Bias
NOx Bias


NOx
Mar.21 12:15
Mar.21 12:01
250ma/h
Mar.21 12:00
0.00
20.00
40.00
60.00
80.00
100.00
ppm
Mar.21 11:49
Mar.21 11:47
Mar.21 11:41
Start RATA Run 4
Mar.21 11:00
Mar.21 10:59
Mar.21 10:53
TIME
INTVL


NOx
Mar.21 12:00
0 10 20 30 40 50 60 70 80 90
Start RATA Run 6
Span
O2 Cor Bias
CO Bias
NOx Bias
250mm/h
Mar.21 13:00
0.00 20.00 40.00 60.00 80.00 100.00
Start RATA Run 5
Span
O2 Cor Bias
CO Bias
NOx Bias
Mar.21 12:01
Mar.21 11:49


TIME
INTVL 1
NOx
Mar.21 14:39
Mar.21 14:37
Mar.21 14:35
Mar.21 14:33
Mar.21 14:31
Mar.21 14:19
Mar.21 14:11
Mar.21 14:07
Mar.21 13:45
Mar.21 13:43
Mar.21 13:41
Mar.21 13:39
Mar.21 13:37
Mar.21 13:35
Mar.21 13:33
Mar.21 13:31
Mar.21 13:29
Mar.21 13:27
Mar.21 13:25
Mar.21 13:23
Mar.21 13:21
Mar.21 13:19
Mar.21 13:17
Mar.21 13:15
Mar.21 13:13
Mar.21 13:11
Mar.21 13:09
Mar.21 13:07
Mar.21 13:05
Mar.21 13:03
Mar.21 13:01
0
10
20
30
40
50
60
70
80
90
100
0.00
20.00
40.00
60.00
80.00
100.00
ppm
DELTA 3-CEMS
250ppm
Mar.21 14:00
RATA Run 8
Span
O2 Cor Bag
CO Bag
NOx Bag
RATA Run 7
Span
O2 Cor Bag
CO Bag
NOx Bag
Start RATA Run 6
Span
HCL-3
Part-3


NOx
CO Bias
NOx Bias
0 10 20 30 40 50 60 70 80 90 100
NOx
RATA Run 9
Span
O2 Cor Bias
CO Bias
NOx Span
0.00 20.00 40.00 60.00 80.00 100.00
250ma/h
Mar.21 15:00
NOx
RATA Run 8
Span
O2 Cor Bias
CO Bias
NOx Bias
DELTA 3-CEMS
NOx


INTVL 1
Mar.21 16:55
0 10 20 30 40 NOx 50 60 70 80 90
High
Spray
O2 CO2 Bias
CO Bias
NOx Bias
Mar.21 16:31
NOx
0 10 20 30 NOx 40 50 60 70 80 90
RAHA Run 10
High
250mph
Mar.21 16:00
Spray
O2 CO2 Bias
CO Bias
NOx Bias
0 10 20 30 40 NOx 50 60 70 80 90

Appendix A.2.4
Unit 2 Hydrogen Chloride Data

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: Desert View Power
LOCATION: Unit 2 Stack Breaching
DATE: 3-21-2019
RUN NO: 2-PM-U2
OPERATOR: Patrick Whitman
METER BOX NO: 17-WCS
METER ΔH@: 1.499
METER Yd: 0.994
STACK AREA, FT²: 38.8
TRAVERSE POINTS, MIN/POINT: 4x30
ΔH= _____ X ΔP:
Probe Condition, pre/post test: ✓
Silica Gel Expanded, Y/N: ✓
Filter Condition after Test: ✓
Check Weight: 500.0 / 500.0

AMBIENT TEMPERATURE: 80°F
BAROMETRIC PRESSURE: 30.13
ASSUMED MOISTURE: 12.5
PITOT TUBE COEFF, Cp: 0.84
PROBE ID NO/MATERIAL: 119 Glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: #103 SS
NOZZLE DIAMETER: 0.247
FILTER NO/TYPE: # 83- 3499 FG
PRE-TEST LEAK RATE: : <0.005 CFM@ 13 in. Hg.
POST-TEST LEAK RATE: <0.005 CFM@ 13 in. Hg.
PITOT LEAK CHECK - PRE: ✓ POST: ✓
CHAIN OF CUSTODY: SAMPLE CUSTODIAN DW
SAMPLER PW
SAMPLE CUSTODIAN DW

Imp. #	Contents	Post-Test	Pre-Test	Difference
1	DI H2O			
2	DI H2O			
3	Empty			
4	Silica gel			
Total:				

Point	Time	Meter Volume, ft³	ΔP in. H2O	ΔH in. H2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O2 %	P. static in. H2O
1138/8	1146*	1000.786	.96	1.8	358	251	259	50	73	72	6"		
4	1142	1004.015	.90	1.7	357	253	254	49	71	73	6"		
3	1146	1007.080	.87	1.6	358	257	255	47	74	72	6"		
2	1150	1010.110	.91	1.7	358	259	257	48	76	73	6"		
1	1154	1013.165	.85	1.6	357	258	257	48	76	73	6"		
12	1158	1016.217											
5	1200	1016.217	1.3	2.4	360	255	256	49	74	73	7"		
4	1204	1019.620	1.1	2.0	360	254	255	50	77	74	6"		
3	1208	1022.775	.74	1.4	360	255	258	50	78	74	6"		
2	1212	1025.655	.70	1.3	360	257	259	49	79	75	8"		
1	1216	1028.600	.65	1.2	360	258	257	48	80	75	5"		
12	1220	1031.179											
5	1222	1031.179	1.0	1.9	361	257	258	50	79	76	7"		
4	1226	1034.270	.96	1.8	361	258	259	49	80	76	6"		
3	1230	1037.373	1.1	2.0	360	259	258	49	82	77	6"		
2	1234	1040.530	.99	1.9	361	258	259	50	84	78	7"		
1	1238	1043.975	1.0	1.9	364	259	257	49	84	79	6"		
Average/Σ	1242	1047.008											

Comments: *=PW 3/21/19

Date of last revision 2/14/2017 Page 2 of 2 Master Document Storage\Forms\Datasheets\Field Datasheets

DS834049

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: Desert View Power
LOCATION: Unit 2 Stack Breaching
DATE: 3-21-2019
RUN NO: 3-PM-U2
OPERATOR: Patrick Whitman
METER BOX NO: 17-WCS
METER ΔH@: 1.499
METER Yd: 0.994
STACK AREA, FT²: 38.8
TRAVERSE POINTS, MIN/POINT: 4x30
ΔH= _____ X ΔP:
Probe Condition, pre/post test: ✓/✓
Silica Gel Expanded, Y/N: N/N
Filter Condition after Test: ✓ – white
Check Weight: 500.0 / 500.0

AMBIENT TEMPERATURE: 85°F
BAROMETRIC PRESSURE: 32.13
ASSUMED MOISTURE: 12.5
PITOT TUBE COEFF, Cp: 0.84
PROBE ID NO/MATERIAL: 89 Glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: #176 SS
NOZZLE DIAMETER: 0.248
FILTER NO/TYPE: # 83- 3585 FG
PRE-TEST LEAK RATE: : 0.005 CFM@ 15 in. Hg.
POST-TEST LEAK RATE: : _____ CFM@ _____ in. Hg.
PITOT LEAK CHECK - PRE: ✓ POST: _____
CHAIN OF CUSTODY: SAMPLE CUSTODIAN DW
SAMPLER PW
SAMPLE CUSTODIAN DW

Imp. #	Contents	Post-Test	Pre-Test	Difference
1	DI H2O	946.7	731.1	215.6
2	DI H2O	727.4	603.8	123.6
3	Empty	587.6	588.8	-1.2
4	Silica gel	965.9 / 946.7	952.3	17.6
		3/21/19		
Total:				357.6

Point	Time	Meter Volume, ft³	ΔP in. H₂O	ΔH in. H₂O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O₂ %	P. static in. H₂O
5	1306	47.310	.99	1.82	367	251	252	82	78	77	6		+.68
4	1310	50.785	1.0	1.8	366	255	254	42	79	78	6		
3	1314	53.780	.98	1.7	364	254	258	43	80	78	6		
2	1318	56.895	.98	1.8	365	255	253	43	81	78	6		
1	1322	60.006	.92	1.7	364	258	252	44	82	78	6		
E	1326	63.287											
5	1328	63.287	1.1	2.0	365	257	253	45	82	78	6		
4	1332	66.635	1.2	2.2	366	258	255	41	83	79	6		
3	1336	69.770	.78	1.4	367	256	254	41	83	79	6		
2	1340	72.845	.70	1.3	368	257	255	42	82	78	6		
1	1344	75.810	.66	1.2	368	252	255	43	82	78	5		
E	1348	78.483											
5	1350	78.483	.95	1.7	370	255	259	44	75	76	6		
4	1354	81.505	.93	1.7	371	254	255	43	76	75	6		
3	1358	84.430	.87	1.6	370	258	257	42	75	74	6		
2	1402	87.510	.92	1.7	371	255	254	43	75	73	6		
1	1406	90.515	.78	1.4	369	254	254	44	72	72	6		
Average	1410	93.338											

Comments: Vector Q 1300/1.84

002AS-541589-RT-1364
200 of 694

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

002AS-541589-RT-1364

CLIENT: Desert View Power
LOCATION: Unit 2 Stack Breaching
DATE: 3-21-2019
RUN NO: 3-PM-U2
OPERATOR: Patrick Whitman
METER BOX NO: 17-WCS
METER ΔH@: 1.499
METER Yd: 0.994
STACK AREA, FT²: 38.8
TRAVERSE POINTS, MIN/POINT: 4x30
ΔH= _____ X ΔP:
Probe Condition, pre/post test: ✓/
Silica Gel Expanded, Y/N:
Filter Condition after Test:
Check Weight:

AMBIENT TEMPERATURE: 83°F
BAROMETRIC PRESSURE: 30.13
ASSUMED MOISTURE: 12.5
PITOT TUBE COEFF, Cp: 0.84
PROBE ID NO/MATERIAL: 89 Glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: #176 SS
NOZZLE DIAMETER: 0.248
FILTER NO/TYPE: # 83- 3585 FG
PRE-TEST LEAK RATE: : <0.005 CFM@ 15 in. Hg.
POST-TEST LEAK RATE: <0.005 CFM@ 15 in. Hg.
PITOT LEAK CHECK - PRE: ✓ POST: ✓
CHAIN OF CUSTODY: SAMPLE CUSTODIAN DW
SAMPLER PW
SAMPLE CUSTODIAN DW

Imp. #	Contents	Post-Test	Pre-Test	Difference
1	DI H2O			
2	DI H2O			
3	Empty			
4	Silica gel			
Total:				

Point	Time	Meter Volume, ft³	ΔP in. H2O	ΔH in. H2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O2 %	P. static in. H2O
5	1412	93.338	1.3	2.4	368	254	258	46	70	71	7"		1.28
4	1416	96.725	1.0	1.8	366	257	258	44	71	70	6"		
3	1420	99.980	.98	1.8	367	255	252	43	72	70	6"		
2	1424	103.095	.88	1.6	364	254	255	46	69	68	6"		
1	1428	106.180	.72	1.3	366	257	258	46	70	68	6"		
E	1432	108.887											
5	1434	108.887	1.1	2.0	362	253	257	49	67	67	6"		
4	1438	112.075	1.2	2.2	363	255	258	44	68	67	7"		
3	1442	115.360	1.2	2.2	364	258	257	43	69	67	7"		
2	1446	118.675	1.1	2.0	364	255	255	42	68	66	6"		
1	1450	121.940	1.2	2.2	363	258	257	42	68	65	6"		
E	1454	125.268											
5	1456	125.268	1.3	2.4	362	258	255	44	67	68	7"		
4	1500	128.585	1.2	2.2	364	257	254	42	67	65	6"		
3	1504	131.945	1.1	2.0	366	258	253	43	67	66	6"		
1508/2	~~1510~~ *	135.285	1.2	2.2	365	257	255	43	67	65	6"		
1512/1	~~1514~~ *	138.480	1.2	2.2	366	255	257	42	68	66	6"		
1516 Average	~~1518~~ *	141.797											

Comments: * = PV 3/21/19

201 of 694

DS834049

Appendix A.2.6
Unit 2 SO_2 Data and Velocity Data

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power LOCATION/UNIT: Unit - 2
PERFORMED BY: Patrick Whitman TEST DATE: 3/21/2019
BAR. PRESSURE: 30.13 TC READOUT ID: #42
DP INDICATOR ID: CC-2 TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer PITOT TUBE ID: #058 Cp: 0.84
ZERO: ✓ LEVEL: ✓ LEAK CHECK PRE- ✓ POST- ✓

Run #: 1 Ps: +.28
Start: 721 Stop: 821

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.0	352	5	.94	355	5	1.3	353
4	.96	353	4	.93	356	4	1.2	355
3	1.1	353	3	.91	356	3	1.2	356
2	.97	354	2	.90	356	2	1.1	356
1	.92	354	1	.84	355	1	1.2	356
					3			
5	1.0	354	5	1.2	354	5	1.3	354
4	1.3	355	4	1.2	354	4	1.3	355
3	.75	356	3	1.0	354	3	1.3	356
2	.70	356	2	.90	355	2	1.2	356
1	.64	356	1	.70	354	1	1.2	354
	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	302	0.1	1			1		
2	302	0.1	2			2		
3	302	0.1	3			3		

MOISTURE DATA FOR TEST RUNS 1 THROUGH 1

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
721	883.000	1.0	70	68	59	3	#1	H_2O_2	863.0	694.0	
741	894.100	1.0	73	70	53	3	#2	H_2O_2	740.9	734.0	
801	907.539	1.0	76	71	57	3	#3	Empty	600.2	599.3	
821	917.190						#4	Silica Gel	922.2	914.2	
							Total	Line rinse		50	

Pre-Test Leak Check: <0.005 CFM @ 18 in. Hg., Post-Test Leak Check: <0.001 CFM @ 8 in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power
PERFORMED BY: Patrick Whitman
BAR. PRESSURE: 30.13
DP INDICATOR ID: CC-2
DP INDICATOR TYPE: 0-10" Manometer
ZERO: ✓ LEVEL: ✓

LOCATION/UNIT: Unit - 2
TEST DATE: 3/21/2019
TC READOUT ID: #42
TC ID: #058
PITOT TUBE ID: #058 Cp: 0.84
LEAK CHECK PRE- ✓ POST- ✓

Run #: 2 Ps: +.28
Start: 836 Stop: 936

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.4	351	5	1.2	354	5	1.0	354
4	1.3	354	4	1.2	354	4	1.3	354
3	1.2	356	3	.98	356	3	.80	354
2	1.2	356	2	.85	356	2	.70	356
1	1.3	354	1	.72	354	1	.64	355
5	1.3	354	5	.98	355	5	1.0	355
4	1.0	356	4	.94	356	4	1.0	356
3	1.0	356	3	.80	356	3	.94	356
2	1.2	356	2	.76	356	2	.96	355
1	1.2	354	1	.85	356	1	.54	355
	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	304	0.2	1			1		
2	305	0.3	2			2		
3	305	0.3	3			3		

MOISTURE DATA FOR TEST RUNS 2 THROUGH 2

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
836	918.806	1.0	76	72	58	3	#1	H_2O_2	860.0	693.3	
856	931.340	1.0	78	74	54	3	#2	H_2O_2	737.5	719.2	
916	944.150	1.0	80	76	57	3	#3	Empty	636.0	634.9	
936	956.368						#4	Silica Gel	903.4	891.8	
							Total	Line rinse		50	

Pre-Test Leak Check <0.001 CFM @ 10" in. Hg., Post-Test Leak Check <0.005 CFM @ 10 in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power
LOCATION/UNIT: Unit - 2
PERFORMED BY: Patrick Whitman
TEST DATE: 3/21/2019
BAR. PRESSURE: 30.13
TC READOUT ID: #42
DP INDICATOR ID: CC-2
TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer
PITOT TUBE ID: #058
Cp: 0.84
ZERO: ✓
LEVEL: ✓
LEAK CHECK PRE- ✓
POST- ✓

Run #: 3 Ps: 7.28
Start: 1010 Stop: 1110

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	.94	356	5	.93	355	5	1.2	356
4	.90	357	4	.87	356	4	1.1	356
3	.87	357	3	.89	356	3	1.1	357
2	.84	357	2	.84	357	2	1.2	357
1	.80	355	1	.88	357	1	1.1	356
5	.96	354	5	1.1	356	5	1.2	354
4	1.0	356	4	1.0	357	4	1.1	354
3	.70	357	3	.94	357	3	1.1	354
2	.67	357	2	.86	357	2	1.0	355
1	.63	354	1	.64	357	1	1.0	354

	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	306	0.4	1			1		
2	306	0.5	2			2		
3	306	0.5	3			3		

MOISTURE DATA FOR TEST RUNS 3 THROUGH 3

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1010	957.275	1.0	78	77	61	3	#1	H_2O_2	876.3	699.6	
1030	970.341	1.0	81	76	55	3	#2	H_2O_2	725	554.7	
1050	982.700	1.0	84	77	52	3	#3	Empty	599.4	599.2	
1110	993.644						#4	Silica Gel	929.9	920.2	
							Total	Line rinse		50	

Pre-Test Leak Check 0.002 CFM @ 10" in. Hg., Post-Test Leak Check 0.001 CFM @ 10" in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power
LOCATION/UNIT: Unit - 2
PERFORMED BY: Patrick Whitman
TEST DATE: 3/21/2019
BAR. PRESSURE: 30.13
TC READOUT ID: #42
DP INDICATOR ID: CC-2
TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer
PITOT TUBE ID: #058
Cp: 0.84
ZERO: ✓
LEVEL: ✓
LEAK CHECK PRE- ✓
POST- ✓

Run #: 4
Ps: +.29
Start: 1138
Stop: 1208

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	.96	356	5	.96	354	5	1.1	355
4	.92	357	4	.93	355	4	1.2	357
3	.99	357	3	.81	357	3	1.2	357
2	.97	357	2	.85	357	2	1.1	357
1	.91	354	1	.88	354	1	1.1	356
5	1.0	356	5	1.1	354	5	1.2	357
4	1.1	356	4	1.2	356	4	1.2	357
3	.75	357	3	.90	356	3	1.2	357
2	.70	357	2	.84	356	2	1.1	356
1	.65	356	1	.71	356	1	1.0	355
	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	306	0.3	1			1		
2	306	0.4	2			2		
3	306	0.4	3			3		

MOISTURE DATA FOR TEST RUNS 4 THROUGH 4

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1138	994.670	2.5	79	77	61	8	#1	H_2O_2	871.2	715.2	
1148	1004.700	2.5	84	79	57	8	#2	H_2O_2	730.0	727.3	
1158	1013.770	2.5	87	81	59	8	#3	Empty	635.5	634.5	
1208	022.870						#4	Silica Gel	911.5	903.4	
							Total	Line rinse		50	

Pre-Test Leak Check: 0.00 CFM @ 10 in. Hg., Post-Test Leak Check: 0.005 CFM @ 16 in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power LOCATION/UNIT: Unit - 2
PERFORMED BY: Patrick Whitman TEST DATE: 3/21/2019
BAR. PRESSURE: 30.13 TC READOUT ID: #42
DP INDICATOR ID: CC-2 TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer PITOT TUBE ID: #058 Cp: 0.84
ZERO: ✓ LEVEL: ✓ LEAK CHECK PRE- ✓ POST- ✓

Run #: 5 Ps: +.20
Start: 1222 Stop: 1252

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.2	357	5	1.2	357	5	1.0	355
4	1.2	357	4	1.0	357	4	1.1	356
3	1.1	357	3	.86	357	3	.64	357
2	1.0	357	2	.77	356	2	.70	357
1	.99	356	1	.80	356	1	.62	357
5	1.3	356	5	.93	356	5	.97	356
4	1.0	356	4	.85	357	4	.99	357
3	1.1	357	3	.90	357	3	.95	357
2	1.1	357	2	.91	357	2	.84	357
1	1.0	354	1	.84	357	1	.87	356
	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	306	0.4	1			1		
2	306	0.4	2			2		
3	306	0.5	3			3		

MOISTURE DATA FOR TEST RUNS 5 THROUGH 5

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1222	24.360	2.5	82	80	61	8	#1	H_2O_2	843.8	692.0	
1232	33.510	2.5	87	84	57	8	#2	H_2O_2	766.3	761.8	
1242	42.840	2.5	91	87	59	8	#3	Empty	600.6	599.4	
1252	51.700						#4	Silica Gel	936.6	929.9	
							Total	Line rinse		50	

Pre-Test Leak Check: <0.002 CFM @ 10" in. Hg., Post-Test Leak Check: <0.002 CFM @ 10" in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power
LOCATION/UNIT: Unit - 2
PERFORMED BY: Patrick Whitman
TEST DATE: 3/21/2019
BAR. PRESSURE: 30.13
TC READOUT ID: #42
DP INDICATOR ID: CC-2
TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer
PITOT TUBE ID: #058
Cp: 0.84
ZERO: ✓ LEVEL: ✓
LEAK CHECK PRE- ✓ POST- ✓

Run #: 6 Ps: +.25
Start: 1306 Stop: 1336

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	.96	362	5	1.0	366	5	1.2	365
4	.94	365	4	1.2	366	4	1.3	366
3	.92	365	3	.98	366	3	1.1	367
2	.90	365	2	.83	367	2	1.0	367
1	.81	366	1	.75	366	1	1.2	366
5	.99	366	5	1.0	366	5	1.2	366
4	.97	366	4	1.3	367	4	1.2	367
3	.94	366	3	1.0	367	3	1.0	367
2	.85	367	2	1.1	367	2	1.1	367
1	.73	365	1	1.0	365	1	1.2	366
	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	308	0.5	1			1		
2	308	0.6	2			2		
3	308	0.6	3			3		

MOISTURE DATA FOR TEST RUNS 6 THROUGH 6

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1306	56.880	2.5	87	85	60	8	#1	H_2O_2	842.5	705.5	
1316	65.420	2.5	90	87	54	8	#2	H_2O_2	720.6	717.0	
1326	75.030	2.5	92	87	56	8	#3	Empty	635.8	635.5	
1336	83.546						#4	Silica Gel	918.9	911.5	
							Total	Line rinse		50	

Pre-Test Leak Check <0.001 CFM @ 8" in. Hg., Post-Test Leak Check <0.005 CFM @ 8" in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power
LOCATION/UNIT: Unit - 2
PERFORMED BY: Patrick Whitman
TEST DATE: 3/21/2019
BAR. PRESSURE: 30.13
TC READOUT ID: #42
DP INDICATOR ID: CC-2
TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer
PITOT TUBE ID: #058
Cp: 0.84
ZERO: ✓
LEVEL: ✓
LEAK CHECK PRE- ✓
POST- ✓

Run #: 7 Ps: 7.28
Start: 1350 Stop: 1420

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.1	365	5	1.1	364	5	.83	364
4	1.1	365	4	1.0	365	4	.90	364
3	.97	365	3	.99	365	3	.85	365
2	.94	365	2	.70	364	2	.81	365
1	.97	363	1	.63	364	1	.77	364
5	1.2	364	5	.89	363	5	.79	364
4	1.1	364	4	.85	363	4	.80	364
3	1.0	365	3	.80	364	3	.84	365
2	.97	364	2	.73	365	2	.80	365
1	.94	364	1	.62	364	1	.78	364
	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	304	.4	1			1		
2	304	.4	2			2		
3	304	.4	3			3		

MOISTURE DATA FOR TEST RUNS 7 THROUGH 7

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1350	84.506	2.5	86	84	50	8	#1	H_2O_2	839.5	691.2	
1400	93.710	2.5	89	87	52	8	#2	H_2O_2	732.7	729.2	
1410	102.800	2.5	89	87			#3	Empty	600.1	599.4	
1420	111.900						#4	Silica Gel	943.5	936.6	
							Total	Line rinse		50	

Pre-Test Leak Check: <0.001 CFM @ 7" in. Hg., Post-Test Leak Check: <0.002 CFM @ 10" in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power
LOCATION/UNIT: Unit - 2
PERFORMED BY: Patrick Whitman
TEST DATE: 3/21/2019
BAR. PRESSURE: 30.13
TC READOUT ID: #42
DP INDICATOR ID: CC-2
TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer
PITOT TUBE ID: #058 Cp: 0.84
ZERO: ✓ LEVEL: ✓
LEAK CHECK PRE- ✓ POST- ✓

Run #: 8 Ps: +.28
Start: 1434 Stop: 1504

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	1.0	363	5	1.0	362	5	.99	360
4	1.1	363	4	.97	362	4	.81	361
3	1.0	364	3	.95	363	3	.75	361
2	.99	363	2	.90	363	2	.64	362
1	.94	362	1	.89	361	1	.62	361
5	1.1	362	5	1.0	361	5	1.0	362
4	1.0	362	4	.99	362	4	.99	362
3	1.1	362	3	.85	362	3	.85	363
2	.95	363	2	.79	362	2	.78	362
1	.80	362	1	.68	361	1	.70	361

	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	302	0.4	1			1		
2	302	0.4	2			2		
3	302	0.4	3			3		

MOISTURE DATA FOR TEST RUNS 8 THROUGH 8

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
234	113.001	2.5	80	79	54	8	#1	H_2O_2	855.9	709.1	
244	121.750	2.5	81	78	54	8	#2	H_2O_2	722.9	720.5	
254	130.584	2.5	80	77	55	8	#3	Empty	636.3	635.2	
304	139.240						#4	Silica Gel	924.5	918.9	
							Total	Line rinse		50	

Pre-Test Leak Check: <0.001 CFM @ 10" in. Hg., Post-Test Leak Check: <0.001 CFM @ 8" in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power LOCATION/UNIT: Unit - 2
PERFORMED BY: Patrick Whitman TEST DATE: 3/21/2019
BAR. PRESSURE: 30.13 TC READOUT ID: #42
DP INDICATOR ID: CC-2 TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer PITOT TUBE ID: #058 Cp: 0.84
ZERO: ✓ LEVEL: ✓ LEAK CHECK PRE- ✓ POST- ✓

Run #: 9 Ps: 7.28
Start: 1516 Stop: 1546

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	.96	362	5	.89	361	5	1.1	361
4	.90	363	4	.85	362	4	1.2	362
3	.83	363	3	.80	362	3	1.0	362
2	.72	362	2	.73	361	2	1.0	361
1	.61	361	1	.61	360	1	.99	360
5	.99	362	5	.99	361	5	1.1	360
4	.90	362	4	.97	362	4	1.1	361
3	.87	362	3	.94	362	3	1.0	361
2	.73	362	2	.98	362	2	.98	361
1	.70	361	1	.96	361	1	.95	360
	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	301	0.4	1			1		
2	301	0.4	2			2		
3	301	0.4	3			3		

MOISTURE DATA FOR TEST RUNS 9 THROUGH 9

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1516	140.366	2.5	76	75	52	8	#1	H_2O_2	835.2	689.1	
1526	148.945	2.5	74	73	50	8	#2	H_2O_2	832.5	736.8	
1536	158.150	2.5	74	72	51	8	#3	Empty	602.0	600.1	
1546	166.905						#4	Silica Gel	950.6	943.5	
							Total	Line rinse		50	

Pre-Test Leak Check: <0.001 CFM @ 8 in. Hg., Post-Test Leak Check: <0.001 CFM @ 10" in. Hg

FLUE GAS VELOCITY AND MOISTURE DATA AND WORKSHEET

CLIENT: Desert View Power LOCATION/UNIT: Unit - 2
PERFORMED BY: Patrick Whitman TEST DATE: 3/21/2019
BAR. PRESSURE: 30.13 TC READOUT ID: #42
DP INDICATOR ID: CC-2 TC ID: #058
DP INDICATOR TYPE: 0-10" Manometer PITOT TUBE ID: #058 Cp: 0.84
ZERO: ✓ LEVEL: ✓ LEAK CHECK PRE- ✓ POST- ✓

Run #: 10 Ps: +.28
Start: 1606 Stop: 1636

Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F	Sample Point	Velocity Head inches H_2O	Temp, °F
5	.94	360	5	.99	361	5	1.1	361
4	.87	361	4	1.0	362	4	1.2	362
3	.80	361	3	.99	362	3	1.1	362
2	.77	360	2	.97	361	2	1.0	361
1	.68	360	1	.90	361	1	1.1	360
		360 Ru						
5	.92		5	1.0	361	5	1.0	361
4	.98	360	4	1.1	361	4	1.1	361
3	.96	361	3	1.0	362	3	1.1	360
2	.90	360	2	.99	362	2	1.1	360
1	.80	360	1	.98	361	1	1.0	360

	Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C		Heated Line Temp. °F	Chiller Temp. °C
1	300	0.2	1			1		
2	300	0.2	2			2		
3	300	0.2	3			3		

MOISTURE DATA FOR TEST RUNS 10 THROUGH 10

METER ID: 1-P&M METER Yd: 0.992 BALANCE CHECK WEIGHT: 500.0 / 500

Dry Gas Meter							Impinger Data				
Time	Volume	Delta H	Tm (in)	Tm (out)	T_{imp}	Vacuum	No.	Material	End Wt.	Start Wt.	Diff.
1606	167.900	2.5	77	76	56	8	#1	H_2O_2	860.0	738.1	
1616	176.600	2.5	78	76	52	8	#2	H_2O_2	728.1	762.9	
1626	185.307	2.5	78	74	54	8	#3	Empty	638.5	636.6	
1636	194.112						#4	Silica Gel	971.7	924.5	
							Total	Line rinse		50	

Pre-Test Leak Check: ____ CFM @ ____ in. Hg., Post-Test Leak Check: 2.001 CFM @ 10" in. Hg

Appendix A.2.7
Unit 2 Hydrocarbon Data

SCAQMD METHOD 25.3
EVACUATED CANISTER SAMPLING DATA

Client/Facility: Desert View Power Date: 3/21/2019

Unit/Location: Unit 2Stack Breaching Performed By: Patrick Whitman

Probe Material SS Probe Length 36"

Connecting Tubing Material Teflon Connecting Tubing Length 12"

Barometric Pressure 30.13 Ambient Temperature 70°F

Test No.		1A-VOC-U2		1B-VOC-U2			
Vial ID		~~#~~M37		#M38			
Canister ID		272		296			
		Time	Vacuum	Time	Vacuum	Time	Vacuum
Pre-Test Leak Check	Start	0630	30	0630	30		
Pre-Test Leak Check	Stop	0640	28	0640	28		
Sample Collection	Start	0725	30	0725	30		
		0735	27	0735	27		
		0745	23	0745	23		
		0755	19	0755	19		
		0805	15	0805	15		
		0815	12	0815	12		
		~~08~~ PW 3/21/19					
Sample Collection	Stop	0821	10	0821	10		
Post -Test Leak Check	Start	824	10	824	10		
Post-Test Leak Check	Stop	834	10	834	10		
Line Rinse Volume							

Comments:

Appendix A.2.8
Unit 2 Plant Data

CeDAR 1-Minute Data

Timestamp	(Boiler 2) NOx ppm 1-Min	(Boiler 2) NOx ppm @3% O2 1-Min	(Boiler 2) NOx lb/hr 1-Min Avg	(Boiler 2) SO2 ppm 1-Min	(Boiler 2) SO2 ppm @3% O2 1-Min	(Boiler 2) SO2 lb/hr 1-Min Avg	(Boiler 2) CO ppm 1-Min	(Boiler 2) CO ppm @3% O2 1 Min	(Boiler 2) CO lb/hr 1-Min	(Boiler 2) CO2% 1-Min	(Boiler 2) O2% 1-Min	Stack Flow kdscf/hr 1-Min		
3/21/2019 7:22	37.87	51.79	21.79	10.68	14.60	8.55	2.39	13.67	3.5	12.88	7.81	4820	3.27	0.84
3/21/2019 7:23	31.22	42.95	17.25	8.17	11.24	6.28	2.3	13.76	3.36	12.85	7.89	4627	3.16	0.77
3/21/2019 7:24	62.25	76.27	40.3	15.84	19.41	14.27	2.35	12.25	3.94	14.33	6.29	5422	2.88	0.93
3/21/2019 7:25	67.84	84.15	42.1	20.23	25.09	17.47	2.33	12.4	3.78	14.1	6.47	5198		
3/21/2019 7:26	46.43	63.49	25.25	14.64	20.02	11.08	2.28	13.67	3.31	12.83	7.81	4555	3.12	0.75
3/21/2019 7:27	24.42	35.08	12.83	9.5	13.65	6.94	2.13	14.37	3.2	12.27	8.44	4399	3.06	0.68
3/21/2019 7:28	32.09	42.64	18.1	9.19	12.21	7.21	2.31	13.29	3.43	13.26	7.43	4725	3.07	0.79
3/21/2019 7:29	54.1	70.53	32.02	14.73	19.2	12.13	2.25	13.04	3.6	13.43	7.17	4958	2.93	0.81
3/21/2019 7:30	30.94	43.92	16.28	8.78	12.46	6.43	2.12	14.2	3.2	12.42	8.29	4407	3.01	0.68
3/21/2019 7:31	32.59	45.93	17.51	8.45	11.91	6.32	2.13	14.09	3.27	12.46	8.2	4500	3.00	0.70
3/21/2019 7:32	37.92	50.62	21.45	9.51	12.69	7.48	2.17	13.35	3.44	13.23	7.49	4737	2.90	0.75
3/21/2019 7:33	51.98	70.01	29.51	11.48	15.46	9.07	2.1	13.47	3.46	13.02	7.61	4756	2.83	0.73
3/21/2019 7:34	28.94	42.08	15.05	8.8	12.8	6.37	1.92	14.54	3.17	12.12	8.59	4356	2.79	0.61
3/21/2019 7:35	32.74	45.47	18.07	8.67	12.04	6.66	1.95	13.89	3.36	12.7	8.01	4622	2.71	0.65
3/21/2019 7:36	34.86	48.15	19.35	10.14	14.01	7.83	2.09	13.81	3.38	12.75	7.94	4649	2.89	0.71
3/21/2019 7:37	35.54	49.2	19.56	10.24	14.18	7.84	1.95	13.84	3.35	12.71	7.97	4610	2.70	0.65
3/21/2019 7:38	50.14	65.7	29.81	9.3	12.19	7.69	1.97	13.1	3.62	13.42	7.24	4980	2.58	0.71
3/21/2019 7:39	42.36	58.1	23.35	9.62	13.2	7.38	1.99	13.72	3.36	12.83	7.85	4618	2.73	0.67
3/21/2019 7:40	46.92	61.66	26.81	10.77	14.15	8.56	1.92	13.14	3.48	13.42	7.28	4786	2.52	0.67
3/21/2019 7:41	56.79	77.36	32.14	13.65	18.59	10.75	2.05	13.62	3.45	12.85	7.76	4741	2.79	0.71
3/21/2019 7:42	36.54	50.86	19.84	9.87	13.74	7.46	1.95	13.92	3.31	12.68	8.04	4548	2.71	0.64
3/21/2019 7:43	34.86	49.52	18.72	10.5	14.92	7.84	1.95	14.21	3.27	12.38	8.3	4498	2.77	0.64
3/21/2019 7:44	38.37	52.11	21.71	9.45	12.83	7.44	2.02	13.58	3.44	12.97	7.72	4739	2.74	0.70
3/21/2019 7:45	42.25	56.4	24.35	11.42	15.24	9.16	1.97	13.35	3.51	13.17	7.49	4828	2.63	0.69
3/21/2019 7:46	33.02	46.07	17.95	10.68	14.9	8.08	1.97	13.95	3.31	12.6	8.07	4554	2.75	0.65
3/21/2019 7:47	40.28	55.55	22.21	10.36	14.29	7.95	1.97	13.79	3.36	12.76	7.92	4619	2.72	0.66
3/21/2019 7:48	30.92	44.56	16.15	10.19	14.69	7.41	1.88	14.41	3.18	12.19	8.48	4376	2.71	0.60
3/21/2019 7:49	30.42	42.98	16.5	9.42	13.31	7.11	1.87	14.13	3.3	12.47	8.23	4543	2.64	0.62
3/21/2019 7:50	28.31	40.22	15.52	9.44	13.41	7.2	1.92	14.21	3.34	12.43	8.3	4592	2.73	0.64
3/21/2019 7:51	38.41	51.85	21.9	9.97	13.46	7.91	1.88	13.5	3.47	13.07	7.64	4775	2.54	0.65
3/21/2019 7:52	71.48	88.61	45.07	16.41	20.34	14.39	1.97	12.4	3.84	14.18	6.46	5281	2.44	0.76
3/21/2019 7:53	84.58	106.54	51.19	20.73	26.11	17.45	1.87	12.6	3.68	13.89	6.69	5069	2.36	0.69
3/21/2019 7:54	59.34	85.59	33.06	13.02	18.78	10.09	1.86	14.42	3.39	12.17	8.49	4666	2.68	0.63
3/21/2019 7:55	49.07	68.14	29.54	9.99	13.87	8.37	1.83	13.89	3.66	12.71	8.01	5042	2.54	0.67
3/21/2019 7:56	60.75	78.86	39.35	14.31	18.57	12.9	1.97	12.98	3.94	13.55	7.11	5426	2.56	0.78
3/21/2019 7:57	52.73	72.16	30.83	15.07	20.62	12.26	1.94	13.69	3.56	12.82	7.82	4897	2.65	0.69
3/21/2019 7:58	38.58	54.46	21.63	11.77	16.62	9.18	1.9	14.12	3.41	12.5	8.22	4696	2.68	0.65
3/21/2019 7:59	45.88	62.55	27.25	12.89	17.57	10.65	1.95	13.63	3.62	12.9	7.77	4975	2.66	0.70
3/21/2019 8:00	34.6	48.84	19.55	10.1	14.26	7.94	1.96	14.12	3.44	12.46	8.22	4732	2.77	0.67
3/21/2019 8:01	45.78	61.71	28.33	11.14	15.02	9.59	2.11	13.48	3.77	13.05	7.62	5184	2.84	0.79
3/21/2019 8:02	40.94	56.37	23.49	11.67	16.07	9.32	2.12	13.77	3.49	12.81	7.9	4806	2.92	0.74
3/21/2019 8:03	39.31	55.41	21.9	11.55	16.28	8.95	2	14.09	3.39	12.45	8.2	4667	2.82	0.68
3/21/2019 8:04	23.27	33.97	12.18	8.77	12.80	6.39	1.93	14.6	3.19	12.08	8.64	4384	2.82	0.61
3/21/2019 8:05	31.11	43.34	17.13	9.37	13.05	7.18	2.1	13.93	3.35	12.65	8.05	4613	2.93	0.70
3/21/2019 8:06	33.18	46.51	18.3	9.5	13.32	7.29	2.08	14.02	3.36	12.53	8.13	4620	2.92	0.70
3/21/2019 8:07	34.11	48.69	18.72	9.18	13.1	7.01	2	14.27	3.34	12.32	8.36	4598	2.85	0.67
3/21/2019 8:08	43.28	58.07	25.94	9.9	13.28	8.26	2.02	13.42	3.65	13.15	7.56	5021	2.71	0.74
3/21/2019 8:09	43.89	59.79	25.97	11.43	15.57	9.41	2.15	13.62	3.6	12.9	7.76	4957	2.93	0.77
3/21/2019 8:10	45.48	59.77	28.79	12.07	15.86	10.63	2.09	13.14	3.85	13.38	7.28	5302	2.75	0.81
3/21/2019 8:11	40.5	53.5	25.32	9.16	12.10	7.97	2.1	13.21	3.81	13.3	7.35	5236	2.77	0.80
3/21/2019 8:12	47.9	62.31	30.26	9.71	12.63	8.54	2.04	13.01	3.85	13.51	7.14	5292	2.65	0.78
3/21/2019 8:13	60.54	76.64	37.68	12.39	15.68	10.73	2.1	12.66	3.79	13.86	6.76	5213	2.66	0.80
3/21/2019 8:14	62.79	78.76	38.93	15.05	18.88	12.98	2.13	12.54	3.77	14.02	6.63	5193	2.67	0.80
3/21/2019 8:15	66.43	86.61	39.19	18.59	24.24	15.26	2.14	13.04	3.59	13.39	7.17	4942	2.79	0.77
3/21/2019 8:16	41.87	58.05	22.63	11.31	15.68	8.5	2.03	13.87	3.29	12.68	7.99	4527	2.81	0.67
3/21/2019 8:17	43.32	57.87	24.6	9.17	12.25	7.24	2.14	13.36	3.46	13.21	7.5	4756	2.86	0.74
3/21/2019 8:18	70.84	88.49	45.37	15.29	19.1	13.63	2.28	12.49	3.9	14	6.57	5365	2.85	0.89
3/21/2019 8:19	64.85	84.48	37.67	14.25	18.56	11.52	2.22	13.03	3.54	13.44	7.16	4866	2.89	0.79
3/21/2019 8:20	41.63	56.11	22.27	10.85	14.62	8.07	2.26	13.48	3.26	13.06	7.62	4480	3.05	0.74
3/21/2019 8:21	42.35	57.82	22.56	11.56	15.78	8.57	2.16	13.65	3.24	12.81	7.79	4462	2.95	0.70

Average		**44.20**	**59.42**	**25.63**	**11.50**	**15.51**	**9.24**	**2.06**	**12.97**	**7.70**	**4796.77**	**2.79**	**0.72**

Flow	kdscfh	4796.77
O2	% dry	7.70
CO2	% dry	12.97
NOx	ppm dry	44.20
NOx	ppm @ 3% O2	59.42
NOx	lb/hr	25.63
SO2	ppm dry	11.50
SO2	ppm @ 3% O2	15.51
SO2	lb/hr	9.24
CO	ppm dry	2.06
CO	ppm @ 3% O2	2.79
CO	lb/hr	0.72

002AS-589-RT-1364

CEDAR 1-Minute Data

Timestamp	(Boiler 2) NOx ppm 1-Min	(Boiler 2) NOx ppm @3% O2 1-Min	(Boiler 2) NOx lb/hr 1-Min Avg	(Boiler 2) SO2 ppm 1-Min	(Boiler 2) SO2 ppm @3% O2 1-Min	(Boiler 2) SO2 lb/hr 1-Min Avg	(Boiler 2) CO ppm 1-Min	(Boiler 2) CO ppm @3% O2 1 Min	(Boiler 2) CO lb/hr 1-Min	(Boiler 2) CO2% 1-Min	(Boiler 2) O2% 1-Min	Stack Flow kdscf/hr 1-Min		
3/21/2019 8:37	22	32.84	11.05	5.93	8.85	4.14	2.19	14.93	3.06	11.74	8.91	4206	3.27	0.67
3/21/2019 8:38	17.21	26.26	8.47	4.86	7.63	3.33	2.34	15.26	3	11.51	9.17	4124	3.57	0.70
3/21/2019 8:39	22.09	30.87	11.65	4.8	6.99	3.52	2.28	13.97	3.21	12.65	8.09	4418	3.19	0.73
3/21/2019 8:40	45.72	58.58	26.34	8.22	10.53	6.59	2.45	12.81	3.51	13.69	6.93	4825	3.14	0.86
3/21/2019 8:41	55.91	73.97	30.97	9.1	12.04	7.01	2.32	13.23	3.37	13.2	7.37	4640	3.07	0.78
3/21/2019 8:42	46.15	62.87	24.56	6.88	9.37	5.09	2.19	13.62	3.24	12.9	7.76	4457	2.98	0.71
3/21/2019 8:43	48.17	66.84	25.56	6.81	9.45	5.03	2.37	13.88	3.23	12.64	8	4445	3.29	0.77
3/21/2019 8:44	50.47	68.13	28.4	7.27	9.81	5.69	2.25	13.5	3.42	13.01	7.64	4713	3.04	0.77
3/21/2019 8:45	44.59	62.75	24.01	7.02	9.88	5.26	2.25	14.07	3.28	12.48	8.18	4510	3.17	0.74
3/21/2019 8:46	63.35	82.89	37.98	8.19	10.72	6.83	2.41	13.08	3.65	13.4	7.22	5022	3.15	0.88
3/21/2019 8:47	64.85	86.43	38.38	10.52	14.02	8.66	2.37	13.33	3.6	13.15	7.47	4957	3.16	0.85
3/21/2019 8:48	63.97	83.04	39.51	10.78	13.99	9.26	2.35	12.98	3.76	13.52	7.11	5174	3.05	0.88
3/21/2019 8:49	57.9	76.32	34.8	12.75	16.81	10.66	2.4	13.18	3.66	13.29	7.32	5034	3.16	0.88
3/21/2019 8:50	57.47	75.98	33.13	10.63	14.05	8.53	2.46	13.22	3.51	13.25	7.36	4829	3.25	0.86
3/21/2019 8:51	49.39	67.9	27.74	10.96	15.07	8.56	2.42	13.75	3.42	12.75	7.88	4704	3.33	0.83
3/21/2019 8:52	45.73	61.59	26.35	11.31	15.23	9.07	2.44	13.47	3.51	13	7.61	4826	3.29	0.86
3/21/2019 8:53	34.74	48.24	18.72	10.18	14.14	7.63	2.4	13.89	3.28	12.63	8.01	4514	3.33	0.79
3/21/2019 8:54	36.9	50.89	19.68	10.09	13.91	7.49	2.34	13.79	3.25	12.72	7.92	4467	3.23	0.76
3/21/2019 8:55	39.84	55.07	21.17	10.64	14.71	7.87	2.54	13.82	3.23	12.68	7.95	4451	3.51	0.82
3/21/2019 8:56	34.94	48.86	18.48	9.43	13.19	6.94	2.51	13.98	3.22	12.55	8.1	4431	3.51	0.81
3/21/2019 8:57	37.63	51.18	21	9.16	12.46	7.11	2.57	13.6	3.4	12.91	7.74	4675	3.50	0.87
3/21/2019 8:58	37.69	51.66	21.55	7.41	10.16	5.9	2.49	13.71	3.48	12.8	7.84	4790	3.41	0.87
3/21/2019 8:59	32.87	46.22	18.83	6.93	9.74	5.52	2.41	14.06	3.49	12.49	8.17	4798	3.39	0.84
3/21/2019 9:00	37.33	50.58	22.38	7.21	9.77	6.01	2.43	13.55	3.65	12.97	7.69	5021	3.29	0.89
3/21/2019 9:01	56.55	71.89	34.83	11.7	14.87	10.03	2.34	12.71	3.75	13.76	6.82	5159	2.97	0.88
3/21/2019 9:02	64.56	80.87	38.24	13.98	17.51	11.52	2.46	12.53	3.61	13.99	6.61	4961	3.08	0.89
3/21/2019 9:03	80.43	98.74	49.19	18.97	23.29	16.14	2.63	12.28	3.72	14.23	6.32	5123	3.23	0.98
3/21/2019 9:04	68.3	88.72	39.03	17.32	22.5	13.77	2.43	12.99	3.48	13.44	7.12	4787	3.16	0.85
3/21/2019 9:05	55.98	74.61	30.68	14.07	18.75	10.73	2.5	13.33	3.34	13.17	7.47	4590	3.33	0.83
3/21/2019 9:06	48.83	66.32	26.38	12.85	17.45	9.66	2.39	13.58	3.29	12.88	7.72	4525	3.25	0.79
3/21/2019 9:07	39.98	55.61	21.56	11.21	15.59	8.41	2.53	13.91	3.28	12.58	8.03	4517	3.52	0.83
3/21/2019 9:08	35.06	49.69	19.28	9.44	13.38	7.22	2.51	14.17	3.35	12.38	8.27	4605	3.56	0.84
3/21/2019 9:09	37.43	51.58	20.82	9.31	12.83	7.21	2.58	13.78	3.39	12.75	7.91	4660	3.56	0.87
3/21/2019 9:10	42.59	58.11	23.56	10.51	14.34	8.09	2.5	13.64	3.37	12.84	7.78	4633	3.41	0.84
3/21/2019 9:11	40.08	56.05	21.28	10.15	14.19	7.5	2.5	13.98	3.23	12.54	8.1	4448	3.50	0.81
3/21/2019 9:12	44.25	58.98	25.03	10.17	13.55	8	2.48	13.33	3.44	13.16	7.47	4738	3.31	0.85
3/21/2019 9:13	53.24	70.85	29.73	9.08	12.08	7.05	2.51	13.31	3.4	13.17	7.45	4677	3.34	0.85
3/21/2019 9:14	61.71	79.7	36.59	11.66	15.06	9.62	2.51	12.91	3.61	13.55	7.04	4967	3.24	0.91
3/21/2019 9:15	49.62	65.4	29.24	12.66	16.69	10.38	2.52	13.18	3.59	13.29	7.32	4936	3.32	0.90
3/21/2019 9:16	43.39	59.2	23.95	11.5	15.69	8.83	2.57	13.64	3.36	12.84	7.78	4624	3.51	0.86
3/21/2019 9:17	41.18	56.7	22.1	10.29	14.17	7.68	2.56	13.77	3.27	12.73	7.9	4496	3.52	0.84
3/21/2019 9:18	40.15	55.2	21.89	10.43	14.34	7.91	2.55	13.75	3.32	12.75	7.88	4566	3.51	0.85
3/21/2019 9:19	36.4	50.47	19.58	9.6	13.31	7.19	2.36	13.87	3.27	12.68	7.99	4506	3.27	0.77
3/21/2019 9:20	44.54	59.54	25.23	10.7	14.3	8.43	2.42	13.37	3.45	13.1	7.51	4745	3.24	0.83
3/21/2019 9:21	39.46	54.04	22.03	11.56	15.83	8.98	2.51	13.7	3.4	12.8	7.83	4677	3.44	0.85
3/21/2019 9:22	43.95	60.52	24.35	12.09	16.65	9.32	2.5	13.77	3.37	12.72	7.9	4641	3.44	0.84
3/21/2019 9:23	45.46	61.65	25.46	11.58	15.7	9.02	2.51	13.56	3.41	12.95	7.7	4691	3.40	0.86
3/21/2019 9:24	47.51	66.7	24.23	12.55	17.62	8.9	2.46	14.04	3.1	12.47	8.15	4271	3.45	0.76
3/21/2019 9:25	39.63	54.99	19.93	10.78	14.96	7.54	2.56	13.88	3.06	12.63	8	4212	3.55	0.78
3/21/2019 9:26	33.21	46.77	16.28	8.61	12.13	5.87	2.5	14.08	2.98	12.44	8.19	4107	3.52	0.75
3/21/2019 9:27	26.27	37.14	12.6	7.76	10.97	5.18	2.53	14.14	2.92	12.43	8.24	4016	3.58	0.74
3/21/2019 9:28	35.73	49.46	17.36	8.61	11.92	5.82	2.62	13.84	2.96	12.67	7.97	4069	3.63	0.77
3/21/2019 9:29	48.56	63.87	25.13	11.87	15.61	8.55	2.67	13.15	3.15	13.3	7.29	4335	3.51	0.84
3/21/2019 9:30	55.91	71.54	29.1	13.11	16.77	9.49	2.46	12.79	3.17	13.73	6.91	4359	3.15	0.78
3/21/2019 9:31	63.78	84.26	32.62	16.58	21.9	11.8	2.53	13.21	3.11	13.21	7.35	4284	3.34	0.79
3/21/2019 9:32	42.76	59.2	20.9	12.61	17.46	8.58	2.44	13.84	2.98	12.66	7.97	4094	3.38	0.73
3/21/2019 9:33	37.19	51.6	18.53	11.55	16.03	8.01	2.38	13.88	3.03	12.65	8	4174	3.30	0.72
3/21/2019 9:34	49.18	65.16	26.41	13.14	17.41	9.82	2.49	13.25	3.27	13.23	7.39	4498	3.30	0.81
3/21/2019 9:35	51.37	69.35	27.26	14.21	19.18	10.49	2.43	13.5	3.23	12.96	7.64	4445	3.28	0.78
3/21/2019 9:36	40.89	56.78	21.51	10.96	15.22	8.02	2.49	13.89	3.2	12.59	8.01	4406	3.46	0.80

Average		**45.53**	**61.35**	**25.21**	**10.50**	**14.20**	**8.04**	**2.45**		**12.92**	**7.71**	**4592.88**	**3.33**	**0.82**

Flow	kdscfh	4592.88
O2	% dry	7.71
CO2	% dry	12.92
NOx	ppm dry	45.53
NOx	ppm @ 3% O2	61.35
NOx	lb/hr	25.21
SO2	ppm dry	10.50
SO2	ppm @ 3% O2	14.20
SO2	lb/hr	8.04
CO	ppm dry	2.45
CO	ppm @ 3% O2	3.33
CO	lb/hr	0.82

092ASC54 05894RT 01 3640

CeDAR 1-Minute Data

Timestamp	(Boiler 2) NOx ppm 1-Min	(Boiler 2) NOx ppm @3% O2 1-Min	(Boiler 2) NOx lb/hr 1-Min Avg	(Boiler 2) SO2 ppm 1-Min	(Boiler 2) SO2 ppm @3% O2 1-Min	(Boiler 2) SO2 lb/hr 1-Min Avg	(Boiler 2) CO ppm 1-Min	(Boiler 2) CO ppm @3% O2 1 Min	(Boiler 2) CO lb/hr 1-Min	(Boiler 2) CO2% 1-Min	(Boiler 2) O2% 1-Min	Stack Flow kdscf/hr 1-Min		
3/21/2019 10:11	28.34	39.79	16.14	8.22	11.54	6.51	2.31	14.04	3.47	12.5	8.15	4769	3.24	0.80
3/21/2019 10:12	38.18	51.81	21.98	9.06	12.3	7.26	2.29	13.57	3.5	12.93	7.71	4822	3.11	0.80
3/21/2019 10:13	56.77	73.05	35.81	13.26	17.06	11.64	2.38	12.87	3.84	13.64	6.99	5284	3.06	0.91
3/21/2019 10:14	68.03	88.24	40.69	16.55	21.47	13.77	2.27	12.97	3.64	13.46	7.1	5010	2.94	0.83
3/21/2019 10:15	56.27	78.14	30.36	13.82	19.19	10.37	2.3	13.89	3.28	12.6	8.01	4519	3.19	0.76
3/21/2019 10:16	42.57	61.25	22.12	9.23	13.28	6.67	2.14	14.39	3.16	12.18	8.46	4353	3.08	0.68
3/21/2019 10:17	38.09	55.16	19.67	8.99	13.02	6.46	2.22	14.48	3.14	12.12	8.54	4325	3.22	0.70
3/21/2019 10:18	36.48	51.09	19.47	9.04	12.66	6.71	2.2	14.01	3.25	12.54	8.12	4471	3.08	0.71
3/21/2019 10:19	37.75	53.59	20.24	9.48	13.46	7.07	2.29	14.2	3.26	12.35	8.29	4490	3.25	0.75
3/21/2019 10:20	38.33	52.18	22.4	10.04	13.67	8.16	2.28	13.61	3.56	12.89	7.75	4896	3.10	0.81
3/21/2019 10:21	41.61	55.63	25.39	12.83	17.15	10.89	2.23	13.37	3.71	13.13	7.51	5110	2.98	0.83
3/21/2019 10:22	41.58	55.42	25.17	13.56	18.07	11.42	2.31	13.33	3.68	13.15	7.47	5070	3.08	0.85
3/21/2019 10:23	50.49	67.4	28.25	15.37	20.52	11.97	2.17	13.35	3.41	13.11	7.49	4687	2.90	0.74
3/21/2019 10:24	43.46	60.4	23.24	11.89	16.52	8.85	2.12	13.9	3.26	12.59	8.02	4480	2.95	0.69
3/21/2019 10:25	41.01	56.47	23.01	12.48	17.18	9.74	2	13.77	3.42	12.76	7.9	4700	2.75	0.68
3/21/2019 10:26	55.62	73.21	31.93	15.78	20.77	12.6	2.22	13.16	3.49	13.34	7.3	4808	2.92	0.78
3/21/2019 10:27	58.22	75.85	33.46	17.61	22.94	14.08	2.17	13.03	3.5	13.43	7.16	4814	2.83	0.76
3/21/2019 10:28	66.48	87.44	38.1	18.39	24.19	14.67	2.12	13.15	3.49	13.3	7.29	4801	2.79	0.74
3/21/2019 10:29	66.87	86.49	40.66	18.36	23.75	15.53	2.2	12.93	3.7	13.52	7.06	5093	2.85	0.81
3/21/2019 10:30	54.02	71.52	30.62	15.76	20.87	12.43	2.08	13.24	3.45	13.26	7.38	4748	2.75	0.72
3/21/2019 10:31	57.68	77.05	31.53	15.97	21.33	12.15	2.15	13.36	3.33	13.08	7.5	4579	2.87	0.72
3/21/2019 10:32	53.34	70.41	29.32	11.83	15.62	9.05	2.14	13.2	3.35	13.25	7.34	4604	2.82	0.72
3/21/2019 10:33	51.84	69.25	27.81	12.47	16.66	9.31	2.09	13.36	3.27	13.13	7.5	4494	2.79	0.68
3/21/2019 10:34	52.94	72.62	27.51	10.95	15.02	7.92	2.06	13.72	3.16	12.75	7.85	4352	2.83	0.65
3/21/2019 10:35	42.56	59.24	21.94	10.39	14.46	7.45	1.98	13.92	3.14	12.62	8.04	4318	2.76	0.62
3/21/2019 10:36	45.68	62.37	25.59	11	15.02	8.57	2.12	13.65	3.41	12.83	7.79	4692	2.89	0.72
3/21/2019 10:37	34.54	48.99	19.17	10.26	14.55	7.92	2.05	14.18	3.38	12.35	8.28	4650	2.91	0.69
3/21/2019 10:38	46.69	62.74	27.92	11.57	15.55	9.62	2.11	13.44	3.64	13.03	7.58	5008	2.84	0.77
3/21/2019 10:39	37.06	51.83	19.89	11.68	16.33	8.72	2.01	13.98	3.27	12.53	8.1	4496	2.81	0.66
3/21/2019 10:40	39.98	53.85	22.63	10.17	13.7	8.01	2.17	13.47	3.45	13.02	7.61	4742	2.92	0.75
3/21/2019 10:41	43.61	59.77	23.84	11.16	15.3	8.49	2.08	13.71	3.33	12.75	7.84	4578	2.85	0.69
3/21/2019 10:42	39.83	54.18	21.91	9.67	13.15	7.4	2.04	13.6	3.35	12.9	7.74	4607	2.77	0.68
3/21/2019 10:43	47.48	64.14	26.48	8.88	12	6.89	2.04	13.51	3.4	12.96	7.65	4672	2.76	0.69
3/21/2019 10:44	42.14	57.36	23.15	9.34	12.71	7.14	1.97	13.61	3.34	12.88	7.75	4601	2.68	0.66
3/21/2019 10:45	40.48	56.43	23.02	9.03	12.59	7.14	2	13.94	3.46	12.54	8.06	4763	2.79	0.69
3/21/2019 10:46	41.14	56.65	23.27	9.31	12.82	7.33	2	13.77	3.44	12.72	7.9	4737	2.75	0.69
3/21/2019 10:47	48.84	65	27.56	9.55	12.71	7.5	2.01	13.31	3.43	13.17	7.45	4726	2.68	0.69
3/21/2019 10:48	57.21	75.58	31.77	9.51	12.56	7.35	2.01	13.21	3.38	13.23	7.35	4652	2.66	0.68
3/21/2019 10:49	44.42	58.94	23.99	8.7	11.54	6.54	2	13.27	3.29	13.18	7.41	4524	2.65	0.66
3/21/2019 10:50	46.95	63.72	24.67	9.42	12.78	6.89	2.03	13.57	3.2	12.9	7.71	4402	2.75	0.65
3/21/2019 10:51	38.64	53.87	19.77	8.68	12.1	6.18	1.9	13.94	3.11	12.57	8.06	4285	2.65	0.59
3/21/2019 10:52	38.58	53.49	21.7	8.87	12.3	6.94	1.92	13.87	3.42	12.59	7.99	4711	2.66	0.66
3/21/2019 10:53	35.08	49.02	20.21	7.72	10.79	6.19	1.85	13.97	3.51	12.55	8.09	4826	2.59	0.65
3/21/2019 10:54	50.02	65.35	32.56	9.45	12.35	8.56	1.91	13.07	3.96	13.38	7.2	5452	2.50	0.76
3/21/2019 10:55	43	57.31	25.23	10.22	13.62	8.34	1.96	13.33	3.57	13.16	7.47	4915	2.61	0.70
3/21/2019 10:56	46.49	63.38	24.2	10.1	13.77	7.32	1.97	13.63	3.17	12.77	7.77	4361	2.69	0.62
3/21/2019 10:57	33.79	47.78	16.93	8.19	11.58	5.71	1.86	14.14	3.05	12.38	8.24	4196	2.63	0.57
3/21/2019 10:58	36.51	50.5	19.01	7.75	10.72	5.61	1.82	13.83	3.17	12.64	7.96	4361	2.52	0.58
3/21/2019 10:59	38.63	51.91	20.62	6.42	8.63	4.77	1.89	13.44	3.25	13.02	7.58	4470	2.54	0.61
3/21/2019 11:00	58.39	76.63	32.16	8.05	10.56	6.17	1.83	13.12	3.35	13.29	7.26	4613	2.40	0.61
3/21/2019 11:01	45.32	60.9	23.56	8.75	11.76	6.33	1.8	13.44	3.16	13.06	7.58	4354	2.42	0.57
3/21/2019 11:02	42.4	57.41	22.25	7.97	10.79	5.82	1.94	13.54	3.19	12.88	7.68	4396	2.63	0.62
3/21/2019 11:03	37.99	51.48	19.73	7.69	10.42	5.56	1.88	13.55	3.16	12.93	7.69	4351	2.55	0.59
3/21/2019 11:04	30.24	42.29	15.3	7.4	10.35	5.21	1.79	13.98	3.08	12.51	8.1	4239	2.50	0.55
3/21/2019 11:05	38.1	51.78	19.7	6.13	8.33	4.41	1.85	13.59	3.15	12.91	7.73	4332	2.51	0.58
3/21/2019 11:06	54.34	72	29.61	8.31	11.01	6.3	1.94	13.25	3.32	13.16	7.39	4564	2.57	0.64
3/21/2019 11:07	44.97	61.64	23.03	7.38	10.12	5.26	1.85	13.71	3.12	12.77	7.84	4289	2.54	0.58
3/21/2019 11:08	57.52	77.53	30.32	9.01	12.14	6.61	1.88	13.48	3.21	12.92	7.62	4415	2.53	0.60
3/21/2019 11:09	68.12	89.2	36.92	10.01	13.11	7.55	1.73	13.09	3.3	13.35	7.23	4540	2.27	0.57
3/21/2019 11:10	56.33	76.1	29.29	10.08	13.62	7.29	1.71	13.51	3.16	12.92	7.65	4355	2.31	0.54

Average		**46.15**	**62.40**	**25.56**	**10.65**	**14.40**	**8.24**	**2.04**		**12.91**	**7.70**	**4624.53**	**2.77**	**0.69**
Flow	kdscfh			4624.53										
O2	% dry			7.70										
CO2	% dry			12.91										
NOx	ppm dry			46.15										
NOx	ppm @ 3% O2			62.40										
NOx	lb/hr			25.56										
SO2	ppm dry			10.65										
SO2	ppm @ 3% O2			14.40										
SO2	lb/hr			8.24										
CO	ppm dry			2.04										
CO	ppm @ 3% O2			2.77										
CO	lb/hr			0.69										

NOx AS 54-589-RT-1364

CEDAR 1-Minute Data

Timestamp	(Boiler 2) NOx ppm 1-Min	(Boiler 2) NOx ppm @3% O2 1-Min	(Boiler 2) NOx lb/hr 1-Min Avg	(Boiler 2) SO2 ppm 1-Min	(Boiler 2) SO2 ppm @3% O2 1-Min	(Boiler 2) SO2 lb/hr 1-Min Avg	(Boiler 2) CO ppm 1-Min	(Boiler 2) CO ppm @3% O2 1 Min	(Boiler 2) CO lb/hr 1-Min	(Boiler 2) CO2% 1-Min	(Boiler 2) O2% 1-Min	Stack Flow kdscf/hr 1-Min		
3/21/2019 11:39	55.4	75.64	28.88	7.4	10.1	5.37	1.37	13.65	3.17	12.77	7.79	4367	1.87	0.43
3/21/2019 11:40	50.91	70.86	25.61	7.48	10.41	5.24	1.2	13.92	3.06	12.56	8.04	4214	1.67	0.37
3/21/2019 11:41	58.91	80.31	31.07	8.72	11.89	6.4	1.36	13.63	3.21	12.78	7.77	4417	1.85	0.44
3/21/2019 11:42	52.19	69.77	27.86	8.48	11.34	6.3	1.28	13.37	3.25	13.07	7.51	4471	1.71	0.42
3/21/2019 11:43	68.28	86.8	38.3	10.81	13.74	8.44	1.35	12.71	3.41	13.71	6.82	4698	1.72	0.46
3/21/2019 11:44	69.93	92.11	37.14	12.38	16.31	9.15	1.34	13.17	3.23	13.16	7.31	4449	1.76	0.43
3/21/2019 11:45	48.07	65.63	24.72	9.63	13.15	6.89	1.16	13.65	3.13	12.78	7.79	4308	1.58	0.36
3/21/2019 11:46	40.8	55.5	20.72	7.59	10.32	5.36	1.16	13.6	3.09	12.84	7.74	4254	1.58	0.36
3/21/2019 11:47	53.04	69.15	28.74	9.42	12.28	7.1	1.25	13.04	3.3	13.36	7.17	4538	1.63	0.41
3/21/2019 11:48	50.72	67.05	26.98	10.1	13.35	7.47	1.13	13.22	3.24	13.2	7.36	4455	1.49	0.37
3/21/2019 11:49	55.69	71.51	30.26	11.22	14.41	8.48	1.15	12.84	3.31	13.56	6.96	4551	1.48	0.38
3/21/2019 11:50	51.21	69.76	26.48	11.52	15.69	8.29	1.11	13.62	3.15	12.76	7.76	4331	1.51	0.35
3/21/2019 11:51	46.98	68.15	22.41	9.23	13.39	6.12	1.14	14.51	2.9	12.03	8.56	3995	1.65	0.33
3/21/2019 11:52	54.13	72.31	29.18	10.54	14.08	7.91	1.14	13.36	3.28	13.04	7.5	4516	1.52	0.37
3/21/2019 11:53	41.78	57.71	21.36	10.28	14.2	7.31	1.06	13.81	3.11	12.64	7.94	4282	1.46	0.33
3/21/2019 11:54	43.34	60.85	21.92	9.06	12.72	6.37	1.1	14.04	3.08	12.39	8.15	4236	1.54	0.34
3/21/2019 11:55	40.69	55.35	21.72	9.45	12.85	7.02	0.95	13.6	3.25	12.82	7.74	4471	1.29	0.31
3/21/2019 11:56	36.48	50.39	18.61	9.34	12.9	6.63	0.96	13.81	3.11	12.65	7.94	4274	1.33	0.30
3/21/2019 11:57	48.43	63	26.86	11.12	14.47	8.58	1.01	13.01	3.38	13.39	7.14	4645	1.31	0.34
3/21/2019 11:58	51.31	66.99	27.52	10.01	13.07	7.47	1.08	13.06	3.26	13.34	7.19	4492	1.41	0.35
3/21/2019 11:59	49.25	65.16	25.44	10.73	14.2	7.71	1.01	13.23	3.14	13.13	7.37	4326	1.34	0.32
3/21/2019 12:00	49.5	65.49	25.44	11.36	15.03	8.12	0.85	13.23	3.13	13.19	7.37	4305	1.12	0.27
3/21/2019 12:01	56.3	71.68	30.18	11.93	15.19	8.9	0.91	12.73	3.26	13.71	6.84	4490	1.16	0.30
3/21/2019 12:02	55.08	73.3	27.66	12.51	16.65	8.74	0.82	13.31	3.06	13.04	7.45	4207	1.09	0.25
3/21/2019 12:03	44.82	61.81	22.31	10.77	14.85	7.46	0.67	13.79	3.03	12.63	7.92	4170	0.92	0.20
3/21/2019 12:04	36.49	50.44	17.77	9.22	12.74	6.25	0.64	13.82	2.96	12.68	7.95	4078	0.88	0.19
3/21/2019 12:05	55.91	72.31	30.06	11.8	15.26	8.83	0.61	12.93	3.27	13.44	7.06	4504	0.79	0.20
3/21/2019 12:06	45.73	62.34	22.76	11.4	15.54	7.89	0.69	13.63	3.03	12.77	7.77	4169	0.94	0.21
3/21/2019 12:07	41.55	56.64	20.82	9.9	13.5	6.9	0.61	13.63	3.05	12.78	7.77	4197	0.83	0.19
3/21/2019 12:08	39.49	53.55	20.11	9.14	12.39	6.48	0.45	13.56	3.1	12.86	7.7	4266	0.61	0.14
3/27/2018 13:25	31.96	47.95	22.17	5.68	8.52	5.48	0.7	15	4.22	11.74	8.97	5810	1.05	0.30
Average	**49.17**	**66.11**	**25.84**	**9.94**	**13.37**	**7.25**	**1.01**			**12.93**	**7.62**	**4402.77**	**1.36**	**0.32**

Flow	kdscfh	4402.77
O2	% dry	7.62
CO2	% dry	12.93
NOx	ppm dry	49.17
NOx	ppm @ 3% O2	66.11
NOx	lb/hr	25.84
SO2	ppm dry	9.94
SO2	ppm @ 3% O2	13.37
SO2	lb/hr	7.25
CO	ppm dry	1.01
CO	ppm @ 3% O2	1.36
CO	lb/hr	0.32

CeDAR 1-Minute Data

Timestamp	(Boiler 2) NOx ppm 1-Min	(Boiler 2) NOx ppm @3% O2 1-Min	(Boiler 2) NOx lb/hr 1-Min Avg	(Boiler 2) SO2 ppm 1-Min	(Boiler 2) SO2 ppm @3% O2 1-Min	(Boiler 2) SO2 lb/hr 1-Min Avg	(Boiler 2) CO ppm 1-Min	(Boiler 2) CO ppm @3% O2 1 Min	(Boiler 2) CO lb/hr 1-Min	(Boiler 2) CO2% 1-Min	(Boiler 2) O2% 1-Min	Stack Flow kdscf/hr 1-Min		
3/21/2019 12:23	46.01	61.88	24.59	8.73	11.74	6.49	0.43	13.45	3.25	12.94	7.59	4477	0.58	0.14
3/21/2019 12:24	47.61	64.08	24.82	9.65	12.99	7	0.42	13.46	3.17	12.97	7.6	4367	0.57	0.13
3/21/2019 12:25	63.07	81.69	34.88	11.86	15.36	9.13	0.53	12.95	3.37	13.42	7.08	4632	0.69	0.18
3/21/2019 12:26	58.79	78.24	30.76	12.28	16.34	8.94	0.5	13.31	3.19	13.07	7.45	4383	0.67	0.16
3/21/2019 12:27	47.51	65.27	24.1	11.95	16.42	8.43	0.52	13.74	3.09	12.66	7.87	4248	0.71	0.16
3/21/2019 12:28	45.23	62.42	22.84	10.76	14.85	7.56	0.55	13.8	3.07	12.63	7.93	4230	0.76	0.17
3/21/2019 12:29	58.19	78.61	30.66	13.92	18.81	10.21	0.51	13.51	3.21	12.87	7.65	4414	0.69	0.16
3/21/2019 12:30	52.47	72.36	26.94	13.6	18.76	9.72	0.41	13.79	3.13	12.63	7.92	4301	0.57	0.13
3/21/2019 12:31	56.47	76.69	29.75	15.05	20.44	11.03	0.41	13.58	3.21	12.83	7.72	4413	0.56	0.13
3/21/2019 12:32	58.93	80.09	31.05	15.51	21.08	11.37	0.42	13.59	3.21	12.81	7.73	4414	0.57	0.13
3/21/2019 12:33	56.01	76.24	29.86	14.29	19.45	10.6	0.48	13.61	3.25	12.81	7.75	4466	0.65	0.16
3/21/2019 12:34	57.88	78.25	30.6	16.21	21.92	11.92	0.45	13.52	3.22	12.9	7.66	4428	0.61	0.14
3/21/2019 12:35	53.51	70.64	28.68	16.77	22.14	12.51	0.48	13.2	3.26	13.2	7.34	4490	0.63	0.16
3/21/2019 12:36	66.3	85.63	36.88	18.83	24.32	14.57	0.59	12.91	3.39	13.46	7.04	4659	0.76	0.20
3/21/2019 12:37	62.14	82.7	33.05	19.37	25.78	14.33	0.47	13.31	3.24	13.07	7.45	4455	0.63	0.15
3/21/2019 12:38	56.52	76.07	29.15	16.96	22.83	12.17	0.46	13.46	3.14	12.97	7.6	4320	0.62	0.14
3/21/2019 12:39	59.56	79.09	32.13	18.38	24.41	13.8	0.43	13.28	3.28	13.1	7.42	4519	0.57	0.14
3/21/2019 12:40	46.14	63	23.91	15.97	21.8	11.51	0.45	13.65	3.15	12.77	7.79	4340	0.61	0.14
3/21/2019 12:41	46.3	62.64	24.16	14.69	19.88	10.66	0.4	13.53	3.18	12.89	7.67	4370	0.54	0.13
3/21/2019 12:42	54.04	71.44	29.13	14.52	19.2	10.89	0.42	13.22	3.28	13.2	7.36	4515	0.56	0.14
3/21/2019 12:43	56.57	76.14	30.35	17.53	23.59	13.09	0.38	13.46	3.27	12.92	7.6	4494	0.51	0.12
3/21/2019 12:44	54.85	73.6	29.14	15.06	20.21	11.13	0.38	13.42	3.23	13.02	7.56	4450	0.51	0.12
3/21/2019 12:45	68.83	92.08	36.68	20.31	27.17	15.06	0.5	13.38	3.24	13.01	7.52	4464	0.67	0.16
3/21/2019 12:46	54.2	73.61	28.32	17.97	24.41	13.06	0.38	13.58	3.18	12.84	7.72	4377	0.52	0.12
3/21/2019 12:47	42.97	58.63	22.31	16.42	22.4	11.86	0.38	13.64	3.16	12.79	7.78	4348	0.52	0.12
3/21/2019 12:48	41.23	56.29	21.79	13.81	18.86	10.16	0.35	13.65	3.22	12.76	7.79	4427	0.48	0.11
3/21/2019 12:49	43.43	57.97	23.36	14.85	19.82	11.11	0.35	13.35	3.27	13.09	7.49	4506	0.47	0.11
3/21/2019 12:50	49.48	63.9	27.65	18.05	23.31	14.03	0.44	12.91	3.4	13.5	7.04	4680	0.57	0.15
3/21/2019 12:51	53.84	71.97	28.42	18.82	25.16	13.82	0.37	13.37	3.21	13.03	7.51	4422	0.49	0.12
3/21/2019 12:52	45.75	62.7	23.72	16.73	22.93	12.07	0.28	13.71	3.16	12.73	7.84	4343	0.38	0.09
Average	**53.46**	**71.80**	**28.32**	**15.30**	**20.55**	**11.27**	**0.44**			**12.96**	**7.58**	**4431.73**	**0.59**	**0.14**

Flow	kdscfh	4431.73
O2	% dry	7.58
CO2	% dry	12.96
NOx	ppm dry	53.46
NOx	ppm @ 3% O2	71.80
NOx	lb/hr	28.32
SO2	ppm dry	15.30
SO2	ppm @ 3% O2	20.55
SO2	lb/hr	11.27
CO	ppm dry	0.44
CO	ppm @ 3% O2	0.59
CO	lb/hr	0.14

CEDARS 1-Minute Data

Timestamp	(Boiler 2) NOx ppm 1-Min	(Boiler 2) NOx ppm @3% O2 1-Min	(Boiler 2) NOx lb/hr 1-Min Avg	(Boiler 2) SO2 ppm 1-Min	(Boiler 2) SO2 ppm @3% O2 1-Min	(Boiler 2) SO2 lb/hr 1-Min Avg	(Boiler 2) CO ppm 1-Min	(Boiler 2) CO ppm @3% O2 1 Min	(Boiler 2) CO lb/hr 1-Min	(Boiler 2) CO2% 1-Min	(Boiler 2) O2% 1-Min	Stack Flow kdscf/hr 1-Min		
3/21/2019 13:07	71.37	89.9	39.74	19.06	24.01	14.77	0.27	12.6	3.39	13.82	6.69	4664	0.34	0.09
3/21/2019 13:08	72.12	89.03	40.85	21.07	26.01	16.6	0.29	12.34	3.45	14.13	6.4	4744	0.36	0.10
3/21/2019 13:09	68.78	87.63	37.07	21.15	26.95	15.86	0.2	12.74	3.28	13.65	6.85	4514	0.25	0.07
3/21/2019 13:10	43.91	59.63	21.6	15.58	21.16	10.66	0.02	13.58	2.99	12.87	7.72	4120	0.03	0.01
3/21/2019 13:11	45.17	58.89	23.84	15.44	20.13	11.34	0.12	13.04	3.21	13.42	7.17	4421	0.16	0.04
3/21/2019 13:12	48.25	63.37	25.15	16.53	21.71	11.99	0.07	13.13	3.17	13.29	7.27	4366	0.09	0.02
3/21/2019 13:13	45.59	60.23	23.76	13.04	17.23	9.46	0.05	13.21	3.17	13.23	7.35	4366	0.07	0.02
3/21/2019 13:14	50.01	64.31	27.05	12.95	16.65	9.75	0.13	12.86	3.29	13.58	6.98	4531	0.17	0.04
3/21/2019 13:15	44.91	61.32	22.43	13.53	18.47	9.4	0.03	13.65	3.04	12.78	7.79	4183	0.04	0.01
3/21/2019 13:16	45.91	61.33	24.37	11.82	15.79	8.73	0.07	13.36	3.23	13.09	7.5	4446	0.09	0.02
3/21/2019 13:17	47.11	62.88	24.61	12.62	16.85	9.17	0.08	13.35	3.18	13.11	7.49	4376	0.11	0.03
3/21/2019 13:18	54.09	70.83	28.88	15.43	20.2	11.46	0	13.09	3.25	13.35	7.23	4472	0.00	0.00
3/21/2019 13:19	68.66	86.13	38.72	17.36	21.78	13.62	0.08	12.54	3.43	13.91	6.63	4723	0.10	0.03
3/21/2019 13:20	57.33	75.85	29.64	16.2	21.43	11.65	0.06	13.23	3.15	13.16	7.37	4330	0.08	0.02
3/21/2019 13:21	48.86	66.86	24.74	11.99	16.41	8.45	0	13.69	3.08	12.75	7.82	4241	0.00	0.00
3/21/2019 13:22	48.32	63.5	25.78	11.59	15.23	8.6	0.02	13.14	3.25	13.32	7.28	4469	0.03	0.01
3/21/2019 13:23	45.56	62.21	23.08	12.84	17.53	9.05	0	13.65	3.08	12.77	7.79	4244	0.00	0.00
3/21/2019 13:24	33.63	47.93	16.78	10.35	14.75	7.18	0	14.25	3.04	12.24	8.34	4179	0.00	0.00
3/21/2019 13:25	22.75	33.41	11.14	7.71	11.32	5.25	0	14.68	2.98	11.92	8.71	4100	0.00	0.00
3/21/2019 13:26	17.95	26.29	9.08	6.93	10.15	4.88	0	14.65	3.08	11.95	8.68	4237	0.00	0.00
3/21/2019 13:27	17.47	25.4	8.85	6.57	9.55	4.63	0	14.54	3.08	12.03	8.59	4241	0.00	0.00
3/21/2019 13:28	21.18	29.97	11.2	7.17	10.15	5.28	0	14.15	3.22	12.38	8.25	4431	0.00	0.00
3/21/2019 13:29	20.38	28.63	10.73	6.4	8.99	4.69	0	14.05	3.2	12.45	8.16	4409	0.00	
3/21/2019 13:30	30.14	39.47	17.14	5.49	7.19	4.34	0	13.09	3.46	13.36	7.23	4764	0.00	
3/21/2019 13:31	34.49	46.98	18.36	7.68	10.46	5.69	0	13.62	3.24	12.83	7.76	4458	0.00	0.00
3/21/2019 13:32	42.83	56.83	23.31	8.94	11.86	6.77	0	13.27	3.31	13.16	7.41	4559	0.00	0.00
3/21/2019 13:33	44.24	59.23	23.63	10.47	14.02	7.78	0	13.39	3.25	13.05	7.53	4473	0.00	0.00
3/21/2019 13:34	43.9	57.36	24.15	11.58	15.13	8.86	0	13.07	3.35	13.37	7.2	4608	0.00	0.00
3/21/2019 13:35	46.62	60.17	25.5	12.9	16.65	9.82	0.01	12.91	3.33	13.54	7.03	4582	0.01	
3/21/2019 13:36	66.08	80.46	38.96	18.3	22.28	15.01	0	12.18	3.59	14.33	6.2	4939	0.00	
Average	**44.92**	**59.20**	**24.00**	**12.62**	**16.67**	**9.36**	**0.05**			**13.09**	**7.48**	**4439.67**	**0.06**	**0.02**

Flow	kdscfh	4439.67
O2	% dry	7.48
CO2	% dry	13.09
NOx	ppm dry	44.92
NOx	ppm @ 3% O2	59.20
NOx	lb/hr	24.00
SO2	ppm dry	12.62
SO2	ppm @ 3% O2	16.67
SO2	lb/hr	9.36
CO	ppm dry	0.05
CO	ppm @ 3% O2	0.06
CO	lb/hr	0.02

CeDAR 1-Minute Data

Timestamp	(Boiler 2) NOx ppm 1-Min	(Boiler 2) NOx ppm @3% O2 1-Min	(Boiler 2) NOx lb/hr 1-Min Avg	(Boiler 2) SO2 ppm 1-Min	(Boiler 2) SO2 ppm @3% O2 1-Min	(Boiler 2) SO2 lb/hr 1-Min Avg	(Boiler 2) CO ppm 1-Min	(Boiler 2) CO ppm @3% O2 1 Min	(Boiler 2) CO lb/hr 1-Min	(Boiler 2) CO2% 1-Min	(Boiler 2) O2% 1-Min	Stack Flow kdscf/hr 1-Min		
3/21/2019 13:51	48.92	65.25	26.16	11.09	14.79	8.25	0	13.34	3.25	13.08	7.48	4479	0.00	0.00
3/21/2019 13:52	45.91	61.74	23.52	10.62	14.28	7.57	0	13.45	3.12	13.02	7.59	4292	0.00	0.00
3/21/2019 13:53	62.99	83.33	33.41	13.21	17.48	9.75	0.11	13.23	3.23	13.15	7.37	4443	0.15	0.04
3/21/2019 13:54	48.74	66.55	24.51	10.13	13.83	7.09	0.01	13.65	3.06	12.81	7.79	4212	0.01	0.00
3/21/2019 13:55	41.59	58.16	20.94	7.94	11.1	5.56	0.06	13.98	3.06	12.44	8.1	4217	0.08	0.02
3/21/2019 13:56	32.56	46.44	16.09	7.38	10.53	5.08	0	14.26	3.01	12.26	8.35	4140	0.00	0.00
3/21/2019 13:57	33.82	48.94	16.87	7.87	11.39	5.46	0	14.47	3.04	12.05	8.53	4178	0.00	0.00
3/21/2019 13:58	37.55	53.56	19.16	7.67	10.94	5.45	0.01	14.26	3.11	12.28	8.35	4274	0.01	0.00
3/21/2019 13:59	48.21	65.67	25.24	9.27	12.63	6.75	0	13.62	3.19	12.87	7.76	4385	0.00	0.00
3/21/2019 14:00	63.41	84.14	34.1	10.55	14	7.89	0.08	13.27	3.27	13.14	7.41	4505	0.11	0.03
3/21/2019 14:01	59.92	80.52	31.5	11.27	15.15	8.24	0.04	13.44	3.2	12.97	7.58	4404	0.05	0.01
3/21/2019 14:02	54.9	75.13	28.18	11.16	15.27	7.97	0.11	13.69	3.12	12.75	7.82	4300	0.15	0.03
3/21/2019 14:03	59.29	80.28	30.76	11.68	15.81	8.43	0.12	13.54	3.16	12.92	7.68	4345	0.16	0.04
3/21/2019 14:04	62.45	81.6	34.21	14.15	18.49	10.79	0.16	13.07	3.33	13.35	7.2	4589	0.21	0.05
3/21/2019 14:05	53.42	73.22	27.05	13.73	18.82	9.67	0.05	13.71	3.08	12.75	7.84	4242	0.07	0.02
3/21/2019 14:06	53.29	70.61	28.27	13.33	17.66	9.84	0.23	13.25	3.23	13.2	7.39	4444	0.30	0.07
3/21/2019 14:07	58.56	74.39	31.92	16.26	20.66	12.33	0.31	12.7	3.32	13.74	6.81	4566	0.39	0.10
3/21/2019 14:08	67.46	84.27	37.92	21.33	26.64	16.68	0.36	12.49	3.42	13.93	6.57	4708	0.45	0.12
3/21/2019 14:09	55.53	72.4	28.65	18.49	24.11	13.27	0.23	13.04	3.14	13.39	7.17	4321	0.30	0.07
3/21/2019 14:10	61.72	80.12	32.64	19.32	25.08	14.22	0.25	12.98	3.22	13.45	7.11	4430	0.32	0.08
3/21/2019 14:11	58.35	75.25	31.49	19.91	25.68	14.95	0.33	12.9	3.28	13.54	7.02	4520	0.43	0.11
3/21/2019 14:12	56.72	73.04	30.74	19.61	25.25	14.79	0.37	12.88	3.3	13.56	7	4540	0.48	0.12
3/21/2019 14:13	49.8	68.68	24.95	18.88	26.04	13.16	0.22	13.79	3.05	12.62	7.92	4196	0.30	0.07
3/21/2019 14:14	43.18	60.67	21.76	15.37	21.6	10.78	0.28	14.05	3.07	12.45	8.16	4221	0.39	0.09
3/21/2019 14:15	40.68	54.83	21.49	12.89	17.37	9.47	0.32	13.48	3.21	12.99	7.62	4424	0.43	0.10
3/21/2019 14:16	58.35	73.92	33.35	17.15	21.73	13.64	0.42	12.67	3.48	13.79	6.77	4787	0.53	0.15
3/21/2019 14:17	62.23	80.37	34.26	21.52	27.79	16.49	0.46	12.91	3.35	13.49	7.04	4612	0.59	0.15
3/21/2019 14:18	64.37	83.01	34.54	21.46	27.68	16.02	0.48	12.9	3.27	13.55	7.02	4494	0.62	0.16
3/21/2019 14:19	52.5	69.82	27.99	21.37	28.42	15.85	0.45	13.3	3.24	13.08	7.44	4465	0.60	0.15
3/21/2019 14:20	24.66	36.97	11.64	12.8	19.19	8.4	0.31	14.99	2.87	11.68	8.96	3953	0.46	0.09
Average	**52.04**	**69.43**	**27.44**	**14.25**	**18.98**	**10.46**	**0.19**			**13.01**	**7.56**	**4389.53**	**0.25**	**0.06**

Flow	kdscfh	4389.53
O2	% dry	7.56
CO2	% dry	13.01
NOx	ppm dry	52.04
NOx	ppm @ 3% O2	69.43
NOx	lb/hr	27.44
SO2	ppm dry	14.25
SO2	ppm @ 3% O2	18.98
SO2	lb/hr	10.46
CO	ppm dry	0.19
CO	ppm @ 3% O2	0.25
CO	lb/hr	0.06

CEMS 1-Minute Data

Timestamp	(Boiler 2) NOx ppm 1-Min	(Boiler 2) NOx ppm @3% O2 1-Min	(Boiler 2) NOx lb/hr 1-Min Avg	(Boiler 2) SO2 ppm 1-Min	(Boiler 2) SO2 ppm @3% O2 1-Min	(Boiler 2) SO2 lb/hr 1-Min Avg	(Boiler 2) CO ppm 1-Min	(Boiler 2) CO ppm @3% O2 1 Min	(Boiler 2) CO lb/hr 1-Min	(Boiler 2) CO2% 1-Min	(Boiler 2) O2% 1-Min	Stack Flow kdscf/hr 1-Min		
3/21/2019 14:35	51.48	67.21	28.33	17.52	22.87	13.42	0.83	13.06	3.35	13.4	7.19	4610	1.08	0.28
3/21/2019 14:36	54.12	67.89	30.78	19.53	24.5	15.45	0.88	12.54	3.46	13.94	6.63	4764	1.10	0.30
3/21/2019 14:37	66.25	80.67	38.99	25.59	31.16	20.96	0.93	12.18	3.58	14.3	6.2	4930	1.13	0.33
3/21/2019 14:38	50.9	70.19	24.92	15.59	21.5	10.62	0.79	13.79	2.98	12.63	7.92	4101	1.09	0.24
3/21/2019 14:39	39.7	56.49	19.57	10.64	15.14	7.3	0.64	14.23	3	12.27	8.32	4128	0.91	0.19
3/21/2019 14:40	35.62	50.05	17.82	9.66	13.57	6.72	0.63	14.05	3.04	12.5	8.16	4190	0.89	0.19
3/21/2019 14:41	50.17	66.87	26.8	13.77	18.35	10.23	0.8	13.33	3.25	13.13	7.47	4474	1.07	0.26
3/21/2019 14:42	46.67	64.61	23.75	13.5	18.69	9.56	0.86	13.84	3.1	12.62	7.97	4263	1.19	0.27
3/21/2019 14:43	41.44	58.32	21.15	11.08	15.59	7.87	0.76	14.07	3.11	12.41	8.18	4275	1.07	0.24
3/21/2019 14:44	32.21	45.76	16.45	9.74	13.84	6.92	0.84	14.21	3.11	12.32	8.3	4279	1.19	0.26
3/21/2019 14:45	32.14	46.81	16.17	9.81	14.29	6.87	0.83	14.56	3.06	12	8.61	4213	1.21	0.25
3/21/2019 14:46	41.54	56.63	22.52	10.05	13.7	7.58	0.85	13.63	3.3	12.88	7.77	4541	1.16	0.28
3/21/2019 14:47	52.76	69.14	29.27	13.4	17.56	10.34	1	13.1	3.38	13.36	7.24	4647	1.31	0.34
3/21/2019 14:48	58.85	75.79	32.97	13.17	16.96	10.27	1.06	12.88	3.41	13.53	7	4693	1.37	0.36
3/21/2019 14:49	55.75	75.03	29.41	11.83	15.92	8.68	1.08	13.46	3.21	12.98	7.6	4419	1.45	0.35
3/21/2019 14:50	48.11	65.94	24.71	10.52	14.42	7.52	0.9	13.71	3.13	12.77	7.84	4302	1.23	0.28
3/21/2019 14:51	50.4	70.48	25.58	11.1	15.52	7.84	0.95	13.98	3.09	12.49	8.1	4252	1.33	0.29
3/21/2019 14:52	45.19	61.61	23.87	9.9	13.5	7.28	0.97	13.63	3.22	12.82	7.77	4425	1.32	0.31
3/21/2019 14:53	56.53	75.4	30.73	11.36	15.15	8.59	1.04	13.34	3.31	13.1	7.48	4554	1.39	0.34
3/21/2019 14:54	58.5	76.43	32.24	10.14	13.25	7.77	1.03	13.07	3.35	13.39	7.2	4616	1.35	0.35
3/21/2019 14:55	66.86	84.22	37.97	13.08	16.48	10.34	1.11	12.6	3.46	13.87	6.69	4757	1.40	0.38
3/21/2019 14:56	70.14	86.53	40.29	15.78	19.47	12.61	1.2	12.34	3.5	14.14	6.39	4812	1.48	0.42
3/21/2019 14:57	56.49	76.6	29.21	15.55	21.09	11.19	1.12	13.56	3.15	12.81	7.7	4331	1.52	0.35
3/21/2019 14:58	35.93	50.48	17.7	9.82	13.8	6.73	1.08	14.05	3	12.49	8.16	4127	1.52	0.32
3/21/2019 14:59	36.59	50.23	18.93	10.38	14.25	7.47	1.28	13.73	3.15	12.75	7.86	4334	1.76	0.40
3/21/2019 15:00	35.95	49.27	18.76	9.78	13.4	7.1	1.19	13.71	3.18	12.76	7.84	4370	1.63	0.38
3/21/2019 15:01	50.43	64.39	28.39	11.64	14.86	9.12	1.29	12.77	3.43	13.7	6.88	4715	1.65	0.44
3/21/2019 15:02	61.78	77.44	35.13	15.5	19.43	12.26	1.31	12.54	3.46	13.91	6.62	4763	1.64	0.45
3/21/2019 15:03	55.41	71.15	30.34	14.89	19.12	11.34	1.34	12.84	3.33	13.57	6.96	4586	1.72	0.45
3/21/2019 15:04	34.7	48.64	17.16	8.93	12.52	6.14	1.26	14.02	3.01	12.44	8.13	4141	1.77	0.38
Average	**49.09**	**65.34**	**26.33**	**12.78**	**17.00**	**9.54**	**1.00**			**13.04**	**7.54**	**4453.73**	**1.33**	**0.32**

Flow	kdscfh	4453.73
O2	% dry	7.54
CO2	% dry	13.04
NOx	ppm dry	49.09
NOx	ppm @ 3% O2	65.34
NOx	lb/hr	26.33
SO2	ppm dry	12.78
SO2	ppm @ 3% O2	17.00
SO2	lb/hr	9.54
CO	ppm dry	1.00
CO	ppm @ 3% O2	1.33
CO	lb/hr	0.32

CeDAR 1-Minute Data

Timestamp	(Boiler 2) NOx ppm 1-Min	(Boiler 2) NOx ppm @3% O2 1-Min	(Boiler 2) NOx lb/hr 1-Min Avg	(Boiler 2) SO2 ppm 1-Min	(Boiler 2) SO2 ppm @3% O2 1-Min	(Boiler 2) SO2 lb/hr 1-Min Avg	(Boiler 2) CO ppm 1-Min	(Boiler 2) CO ppm @3% O2 1 Min	(Boiler 2) CO lb/hr 1-Min	(Boiler 2) CO2% 1-Min	(Boiler 2) O2% 1-Min	Stack Flow kdscf/hr 1-Min		
3/21/2019 15:17	40.72	55.56	21.96	7.11	9.7	5.34	1.48	13.64	3.28	12.8	7.78	4518	2.02	
3/21/2019 15:18	51.84	67.88	29.21	8.46	11.08	6.63	1.47	13.09	3.43	13.36	7.23	4720	1.92	
3/21/2019 15:19	57.68	76.48	31.28	7.62	10.1	5.75	1.53	13.26	3.3	13.14	7.4	4543	2.03	0.51
3/21/2019 15:20	63.12	82.53	34.46	7.98	10.43	6.06	1.62	13.08	3.32	13.35	7.21	4573	2.12	0.54
3/21/2019 15:21	57.14	76.73	30.18	8.62	11.58	6.33	1.48	13.43	3.21	13.01	7.57	4424	1.99	0.48
3/21/2019 15:22	55.44	75.12	28.9	8.5	11.52	6.16	1.48	13.55	3.17	12.86	7.69	4366	2.01	0.47
3/21/2019 15:23	47.47	66.64	24.28	8.06	11.32	5.74	1.54	14.04	3.11	12.42	8.15	4284	2.16	0.48
3/21/2019 15:24	36.83	53.21	18.5	6.69	9.67	4.67	1.41	14.45	3.06	12.09	8.51	4207	2.04	0.43
3/21/2019 15:25	46.77	62.06	25.85	6.34	8.41	4.87	1.55	13.27	3.36	13.2	7.41	4629	2.06	0.52
3/21/2019 15:26	53.01	72.16	28.49	8.95	12.18	6.69	1.42	13.61	3.27	12.77	7.75	4502	1.93	0.46
3/21/2019 15:27	44.48	62.35	22.65	7.95	11.14	5.63	1.44	14.02	3.1	12.47	8.13	4266	2.02	0.45
3/21/2019 15:28	56.56	74.99	31.33	9.35	12.4	7.21	1.55	13.26	3.37	13.13	7.4	4640	2.06	0.52
3/21/2019 15:29	55.16	74.02	29.63	9.43	12.65	7.05	1.54	13.42	3.27	13.01	7.56	4499	2.07	0.50
3/21/2019 15:30	49.78	71.46	25.23	8.92	12.8	6.29	1.52	14.35	3.09	12.12	8.43	4246	2.18	0.47
3/21/2019 15:31	45.48	63.6	23.7	7.57	10.59	5.49	1.56	13.98	3.17	12.55	8.1	4365	2.18	0.49
3/21/2019 15:32	45.07	63.52	23.64	8.26	11.64	6.03	1.57	14.09	3.19	12.37	8.2	4393	2.21	0.50
3/21/2019 15:33	48.29	65.34	25.99	7.83	10.59	5.86	1.52	13.53	3.28	12.94	7.67	4508	2.06	0.50
3/21/2019 15:34	72.26	89.64	43.76	10.18	12.63	8.58	1.71	12.4	3.69	14.04	6.47	5072	2.12	0.63
3/21/2019 15:35	59.77	78.49	32.33	10.94	14.37	8.23	1.67	13.13	3.29	13.26	7.27	4530	2.19	0.55
3/21/2019 15:36	43.99	58.98	22.93	9.62	12.9	6.98	1.72	13.41	3.17	13.01	7.55	4367	2.31	0.55
3/21/2019 15:37	45.39	60.09	24.59	9.92	13.13	7.48	1.69	13.24	3.3	13.17	7.38	4538	2.24	0.56
3/21/2019 15:38	44.23	59.35	23.68	9.8	13.15	7.3	1.75	13.42	3.26	12.99	7.56	4484	2.35	0.57
3/21/2019 15:39	41.98	57.67	21.79	9.82	13.49	7.09	1.72	13.74	3.16	12.72	7.87	4348	2.36	0.54
3/21/2019 15:40	45.22	60.91	24	9.51	12.81	7.02	1.67	13.47	3.23	12.97	7.61	4446	2.25	0.54
3/21/2019 15:41	57.96	76.34	32.2	10.46	13.78	8.08	1.81	13.17	3.38	13.22	7.31	4653	2.38	0.61
3/21/2019 15:42	55.92	75.54	29.84	10.4	14.05	7.72	1.72	13.51	3.25	12.92	7.65	4469	2.32	0.56
3/21/2019 15:43	57.05	76.04	30.9	10.88	14.5	8.2	1.74	13.33	3.3	13.11	7.47	4537	2.32	0.57
3/21/2019 15:44	56.56	76.52	30.07	11.68	15.8	8.64	1.68	13.53	3.24	12.89	7.67	4453	2.27	0.54
3/21/2019 15:45	59.39	77.2	33.01	12.37	16.08	9.56	1.64	13	3.38	13.43	7.13	4655	2.13	0.55
3/21/2019 15:46	66.74	84.07	38.17	15.25	19.21	12.13	1.83	12.6	3.48	13.83	6.69	4790	2.31	0.64
Average	**52.04**	**69.82**	**28.09**	**9.28**	**12.46**	**6.96**	**1.60**			**12.97**	**7.59**	**4500.83**	**2.15**	**0.53**

Flow	kdscfh	4500.83
O2	% dry	7.59
CO2	% dry	12.97
NOx	ppm dry	52.04
NOx	ppm @ 3% O2	69.82
NOx	lb/hr	28.09
SO2	ppm dry	9.28
SO2	ppm @ 3% O2	12.46
SO2	lb/hr	6.96
CO	ppm dry	1.60
CO	ppm @ 3% O2	2.15
CO	lb/hr	0.53

CEDAR 1-Minute Data

Timestamp	(Boiler 2) NOx ppm 1-Min	(Boiler 2) NOx ppm @3% O2 1-Min	(Boiler 2) NOx lb/hr 1-Min Avg	(Boiler 2) SO2 ppm 1-Min	(Boiler 2) SO2 ppm @3% O2 1-Min	(Boiler 2) SO2 lb/hr 1-Min Avg	(Boiler 2) CO ppm 1-Min	(Boiler 2) CO ppm @3% O2 1 Min	(Boiler 2) CO lb/hr 1-Min	(Boiler 2) CO2% 1-Min	(Boiler 2) O2% 1-Min	Stack Flow kdscf/hr 1-Min		
3/21/2019 16:07	33.11	48.38	16.52	6.54	9.56	4.54	1.83	14.61 <56>	3.04 <56>	11.92	8.65	4178	2.67	0.56
3/21/2019 16:08	25.1	37.13	12.51	5.18	7.66	3.59	1.73	14.79 <56>	3.03 <56>	11.82	8.8	4176	2.56	0.53
3/21/2019 16:09	40.08	54.06	22.38	5.12	6.91	3.98	1.86	13.49 <56>	3.40 <56>	12.95	7.63	4677	2.51	0.63
3/21/2019 16:10	52.83	69.69	29.92	7.28	9.6	5.74	1.94	13.19 <56>	3.45 <56>	13.19	7.33	4743	2.56	0.67
3/21/2019 16:11	49.71	67.1	27.37	7.86	10.61	6.02	1.86	13.50 <56>	3.35 <56>	12.89	7.64	4612	2.51	0.62
3/21/2019 16:12	45.17	63.51	23.5	7.18	10.1	5.2	1.8	14.06 <56>	3.17 <56>	12.42	8.17	4357	2.53	0.57
3/21/2019 16:13	46.7	62.8	25.64	6.89	9.27	5.26	1.9	13.45 <56>	3.34 <56>	12.97	7.59	4599	2.56	0.64
3/21/2019 16:14	52.63	68.66	29.59	7.47	9.75	5.84	1.93	13.05 <56>	3.42 <56>	13.36	7.18	4710	2.52	0.66
3/21/2019 16:15	63.83	78.91	37.75	11.19	13.83	9.21	1.97	12.36 <56>	3.60 <56>	14.11	6.42	4954	2.44	0.71
3/21/2019 16:16	70.37	89.84	39.39	13.92	17.77	10.84	1.99	12.77 <56>	3.41 <56>	13.57	6.88	4689	2.54	0.68
3/21/2019 16:17	42.2	60.43	20.85	9.81	14.05	6.74	1.83	14.32 <56>	3.01 <56>	12.13	8.4	4139	2.62	0.55
3/21/2019 16:18	41.24	56.44	21.66	8.03	10.99	5.87	1.86	13.69 <56>	3.20 <56>	12.77	7.82	4400		
3/21/2019 16:19	45.39	61.41	24.4	9.6	12.99	7.18	1.95	13.53 <56>	3.27 <56>	12.87	7.67	4502		
3/21/2019 16:20	46.8	62.28	25.73	9.75	12.98	7.46	1.98	13.31 <56>	3.35 <56>	13.1	7.45	4605	2.64	0.66
3/21/2019 16:21	47.91	64.14	25.66	10.57	14.15	7.88	1.86	13.39 <56>	3.26 <56>	13.01	7.53	4487	2.49	0.61
3/21/2019 16:22	61.61	77.39	35.78	13.27	16.67	10.72	2.03	12.56 <56>	3.53 <56>	13.86	6.65	4864	2.55	0.72
3/21/2019 16:23	66.04	82.67	37.61	14.92	18.68	11.82	2.04	12.52 <56>	3.47 <56>	13.89	6.6	4770	2.55	0.71
3/21/2019 16:24	61.9	79.94	33.36	11.26	14.54	8.44	2.03	12.91 <56>	3.28 <56>	13.45	7.04	4514	2.62	0.67
3/21/2019 16:25	48.92	66.9	24.95	10.06	13.76	7.14	1.94	13.67 <56>	3.10 <56>	12.71	7.81	4272	2.65	0.60
3/21/2019 16:26	39.97	54.91	20.65	8.42	11.57	6.05	1.82	13.74 <56>	3.14 <56>	12.67	7.87	4327	2.50	0.57
3/21/2019 16:27	38.18	52.29	20.05	8.58	11.75	6.27	1.93	13.70 <56>	3.20 <56>	12.72	7.83	4399	2.64	0.62
3/21/2019 16:28	32.58	45.67	16.72	8.98	12.59	6.41	1.87	14.02 <56>	3.12 <56>	12.43	8.13	4298	2.62	0.58
3/21/2019 16:29	29.68	41.93	15.42	8.84	12.49	6.39	1.84	14.13 <56>	3.16 <56>	12.32	8.23	4351	2.60	0.58
3/21/2019 16:30	25.61	36.73	12.98	8.03	11.52	5.66	1.92	14.34 <56>	3.08 <56>	12.16	8.42	4244	2.75	0.59
3/21/2019 16:31	41.9	56.26	23.13	8.33	11.19	6.4	1.94	13.43 <56>	3.36 <56>	12.97	7.57	4623	2.61	0.65
3/21/2019 16:32	42.08	56.46	22.65	9.74	13.07	7.29	2.06	13.42 <56>	3.28 <56>	12.98	7.56	4508	2.76	0.67
3/21/2019 16:33	46.34	61.81	25.39	11.03	14.71	8.41	2.02	13.34 <56>	3.34 <56>	13.04	7.48	4590	2.69	0.67
3/21/2019 16:34	47.43	62.61	25.61	11.01	14.53	8.27	1.97	13.20 <56>	3.29 <56>	13.22	7.34	4523	2.60	0.65
3/21/2019 16:35	66.12	83.52	37.34	14.88	18.8	11.69	2.03	12.63 <56>	3.44 <56>	13.76	6.73	4730	2.56	0.70
3/21/2019 16:36	59.09	78.47	31.51	14.65	19.45	10.87	2.06	13.28 <56>	3.25 <56>	13.04	7.42	4466	2.74	0.67
Average	**47.02**	**62.74**	**25.53**	**9.61**	**12.85**	**7.24**	**1.93**			**12.94**	**7.59**	**4510.23**	**2.59**	**0.63**

Flow	kdscfh	4510.23
O2	% dry	7.59
CO2	% dry	12.94
NOx	ppm dry	47.02
NOx	ppm @ 3% O2	62.74
NOx	lb/hr	25.53
SO2	ppm dry	9.61
SO2	ppm @ 3% O2	12.85
SO2	lb/hr	7.24
CO	ppm dry	1.93
CO	ppm @ 3% O2	2.59
CO	lb/hr	0.63

Appendix A.3
Calibration Data

NO2 to NO Converter Efficiency Test

				Cylinder #
Analyzer Manufacturer:	CAI	NO Cal Gas Value:	90.4	CC258526
Analyzer Model:	600 Series	NO2 Cal Gas Value:	43.8	CC301497
Analyzer Serial Number:	D05005	Performed By:	DW	
Date:	3/19/2019	CEMS ID#:	3-CEMS	

GAS	ANALYZER MODE	ANALYZER RESPONSE	CAL CORRECTED	LABEL
Zero	NOx	0.1	--	--
Zero	NO	0.0	--	--
NO	NO	90.9	--	--
NO	NOx	90.5	--	--
NO2	NO	0.1	0.1	C_1
NO2	NOx	43.4	43.3	C_2

		Label	Requirement
Abs. Value C_o-C_1:	43.7	D_1	--
Abs. Value C_2-C_1:	43.2	D_2	--
C_1/C_2	0%	D_3	< 5%
CE = D_2/D_1 * 100%:	98.9%	--	> 90%

Montrose AQS
SPAN GAS RECORD

CLIENT/LOCATION: Desert View Power
Unit 1

DATE: 3/19/2019
BY: DW

	MID SPAN CYLINDER		HIGH SPAN CYLINDER	
	CYLINDER NO.	CONCENTRATION	CYLINDER NO.	CONCENTRATION
ZERO	CB10100	99.999		
O_2	CC81569	10.48	DT0020015	19.31
CO_2	CC81569	10.56	DT0020015	18.91
NO_x	DT0018907	45.3	CC258526	90.4
CO	CC257884	4.68	CC707422	8.59

PRE-TEST INSTRUMENT CALIBRATION ERROR

	ANALYZER					STATUS
	O_2	CO_2	NO_x	CO		
Analyzer Range	20	20	100	10		
Zero Gas Value	0	0	0	0		--
Analyzer Reads	-0.01	0.03	0.05	0.02		--
Error (% of scale)	0.0%	0.1%	0.1%	0.2%		PASS
High Gas Value	19.31	18.91	90.4	8.59		--
Analyzer Reads	19.30	18.94	90.54	8.61		--
Error (% of scale)	0.0%	0.1%	0.1%	0.2%		PASS
Mid Gas Value	10.48	10.56	45.3	4.68		--
Analyzer Reads	10.47	10.57	46.26	4.66		--
Error (% of scale)	-0.1%	0.0%	1.0%	-0.2%		PASS
Linearity at Mid Point	0.0%	-0.1%	0.9%	-0.35%		

POST-TEST INSTRUMENT CALIBRATION ERROR

	ANALYZER					STATUS
	O_2	CO_2	NO_x	CO		
Analyzer Range	20	20	100	10		
Zero Gas Value	0	0	0	0		--
Analyzer Reads	-0.008	0.029	0.01	0.022		--
Error (% of scale)	0.0%	0.1%	0.0%	0.2%		PASS
High Gas Value	19.31	18.91	90.4	8.59		--
Analyzer Reads	19.279	18.549	90.787	8.612		--
Error (% of scale)	-0.2%	-1.8%	0.4%	0.2%		PASS
Mid Gas Value	10.48	10.56	45.3	4.68		--
Analyzer Reads	10.453	10.403	45.839	4.669		--
Error (% of scale)	-0.1%	-0.8%	0.5%	-0.1%		PASS
Linearity at Mid Point	0.0%	0.2%	0.3%	-0.3%		

% ERROR CALCULATION:
(AS FOUND - ACTUAL VALUE OF SPAN)/RANGE * 100%
ALLOWABLE DEVIATION IS 2% OF FULL SCALE (2 SQUARES ON STRIPCHART)

Montrose AQS
EPA SPAN GAS RECORD

CLIENT/LOCATION: Desert View Power

DATE: 3/19/2019
BY: DW

	MID SPAN CYLINDER		HIGH SPAN CYLINDER	
	CYLINDER NO.	CONCENTRATION	CYLINDER NO.	CONCENTRATION
ZERO		99.999		
O_2	CC81569	10.48	DT0020015	19.31
CO_2	CC81569	10.56	DT0020015	18.91
NO_x	DT0018907	45.3	CC258526	90.4
CO	CC257884	4.68	CC707422	8.59

PRE-TEST INSTRUMENT CALIBRATION ERROR

	ANALYZER					STATUS
	O_2	CO_2	NO_x	CO		
Analyzer Span	19.31	18.91	90.4	8.59		
Zero Gas Value	0	0	0	0		--
Analyzer Reads	-0.007	0.029	0.052	0.022		--
Error (% of cal span)	0.0%	0.2%	0.1%	0.3%		PASS
High Gas Value	19.31	18.91	90.4	8.59		--
Analyzer Reads	19.301	18.935	90.544	8.606		--
Error (% of cal span)	0.0%	0.1%	0.2%	0.2%		PASS
Mid Gas Value	10.48	10.56	45.3	4.68		--
Analyzer Reads	10.467	10.565	46.257	4.664		--
Error (% of cal span)	-0.1%	0.0%	1.1%	-0.2%		PASS

POST-TEST INSTRUMENT CALIBRATION ERROR

	ANALYZER					STATUS
	O_2	CO_2	NO_x	CO		
Analyzer Span	19.31	18.91	90.4	8.59		
Zero Gas Value	0	0	0	0		--
Analyzer Reads	-0.008	0.029	0.01	0.022		--
Error (% of cal span)	0.0%	0.2%	0.0%	0.3%		PASS
High Gas Value	19.31	18.91	90.4	8.59		--
Analyzer Reads	19.279	18.549	90.787	8.612		--
Error (% of cal span)	-0.2%	-1.9%	0.4%	0.3%		PASS
Mid Gas Value	10.48	10.56	45.3	4.68		--
Analyzer Reads	10.453	10.403	45.839	4.669		--
Error (% of cal span)	-0.1%	-0.8%	0.6%	-0.1%		PASS

% ERROR CALCULATION:
(AS FOUND - ACTUAL VALUE)/HIGH SPAN * 100%
ALLOWABLE DEVIATION IS 2% OF HIGH SPAN

NO2 to NO Converter Efficiency Test

				Cylinder #
Analyzer Manufacturer:	CAI	NO Cal Gas Value:	90.4	CC258526
Analyzer Model:	600 Series	NO2 Cal Gas Value:	43.8	CC301497
Analyzer Serial Number:	D05005	Performed By:	DW	
Date:	3/20/2019	CEMS ID#:	3-CEMS	

GAS	ANALYZER MODE	ANALYZER RESPONSE	CAL CORRECTED	LABEL
Zero	NOx	0.1	--	--
Zero	NO	0.0	--	--
NO	NO	90.9	--	--
NO	NOx	90.4	--	--
NO2	NO	0.1	0.1	C_1
NO2	NOx	42.4	42.3	C_2

		Label	Requirement
Abs. Value C_o-C_1:	43.7	D_1	--
Abs. Value C_2-C_1:	42.3	D_2	--
C_1/C_2	0%	D_3	< 5%
CE = D_2/D_1 * 100%:	96.7%	--	> 90%

Montrose AQS
SPAN GAS RECORD

CLIENT/LOCATION: Desert View Power
Unit 1

DATE: 3/20/2019
BY: DW

	MID SPAN CYLINDER		HIGH SPAN CYLINDER	
	CYLINDER NO.	CONCENTRATION	CYLINDER NO.	CONCENTRATION
ZERO	CB10100	99.999		
O_2	CC81569	10.48	DT0020015	19.31
CO_2	CC81569	10.56	DT0020015	18.91
NO_x	DT0018907	45.3	CC258526	90.4
CO	CC257884	4.68	CC707422	8.59

PRE-TEST INSTRUMENT CALIBRATION ERROR

	ANALYZER					STATUS
	O_2	CO_2	NO_x	CO		
Analyzer Range	20	20	100	10		
Zero Gas Value	0	0	0	0		--
Analyzer Reads	0.00	0.03	0.06	0.01		--
Error (% of scale)	0.0%	0.2%	0.1%	0.1%		PASS
High Gas Value	19.31	18.91	90.4	8.59		--
Analyzer Reads	19.34	18.93	90.42	8.59		--
Error (% of scale)	0.1%	0.1%	0.0%	0.0%		PASS
Mid Gas Value	10.48	10.56	45.3	4.68		--
Analyzer Reads	10.48	10.59	45.80	4.66		--
Error (% of scale)	0.0%	0.2%	0.5%	-0.2%		PASS
Linearity at Mid Point	-0.1%	0.0%	0.5%	-0.29%		

POST-TEST INSTRUMENT CALIBRATION ERROR

	ANALYZER					STATUS
	O_2	CO_2	NO_x	CO		
Analyzer Range	20	20	100	10		
Zero Gas Value	0	0	0	0		--
Analyzer Reads	-0.011	0.026	0.041	0.003		--
Error (% of scale)	-0.1%	0.1%	0.0%	0.0%		PASS
High Gas Value	19.31	18.91	90.4	8.59		--
Analyzer Reads	19.312	18.786	90.022	8.572		--
Error (% of scale)	0.0%	-0.6%	-0.4%	-0.2%		PASS
Mid Gas Value	10.48	10.56	45.3	4.68		--
Analyzer Reads	10.464	10.521	45.681	4.648		--
Error (% of scale)	-0.1%	-0.2%	0.4%	-0.3%		PASS
Linearity at Mid Point	-0.1%	0.1%	0.5%	-0.2%		

% ERROR CALCULATION:
(AS FOUND - ACTUAL VALUE OF SPAN)/RANGE * 100%
ALLOWABLE DEVIATION IS 2% OF FULL SCALE (2 SQUARES ON STRIPCHART)

Montrose AQS
EPA SPAN GAS RECORD

CLIENT/LOCATION: Desert View Power

DATE: 3/20/2019
BY: DW

	MID SPAN CYLINDER		HIGH SPAN CYLINDER	
	CYLINDER NO.	CONCENTRATION	CYLINDER NO.	CONCENTRATION
ZERO		99.999		
O_2	CC81569	10.48	DT0020015	19.31
CO_2	CC81569	10.56	DT0020015	18.91
NO_x	DT0018907	45.3	CC258526	90.4
CO	CC257884	4.68	CC707422	8.59

PRE-TEST INSTRUMENT CALIBRATION ERROR

	ANALYZER					STATUS
	O_2	CO_2	NO_x	CO		
Analyzer Span	19.31	18.91	90.4	8.59		
Zero Gas Value	0	0	0	0		--
Analyzer Reads	-0.001	0.031	0.056	0.008		--
Error (% of cal span)	0.0%	0.2%	0.1%	0.1%		PASS
High Gas Value	19.31	18.91	90.4	8.59		--
Analyzer Reads	19.337	18.926	90.418	8.592		--
Error (% of cal span)	0.1%	0.1%	0.0%	0.0%		PASS
Mid Gas Value	10.48	10.56	45.3	4.68		--
Analyzer Reads	10.482	10.592	45.801	4.656		--
Error (% of cal span)	0.0%	0.2%	0.6%	-0.3%		PASS

POST-TEST INSTRUMENT CALIBRATION ERROR

	ANALYZER					STATUS
	O_2	CO_2	NO_x	CO		
Analyzer Span	19.31	18.91	90.4	8.59		
Zero Gas Value	0	0	0	0		--
Analyzer Reads	-0.011	0.026	0.041	0.003		--
Error (% of cal span)	-0.1%	0.1%	0.0%	0.0%		PASS
High Gas Value	19.31	18.91	90.4	8.59		--
Analyzer Reads	19.312	18.786	90.022	8.572		--
Error (% of cal span)	0.0%	-0.7%	-0.4%	-0.2%		PASS
Mid Gas Value	10.48	10.56	45.3	4.68		--
Analyzer Reads	10.464	10.521	45.681	4.648		--
Error (% of cal span)	-0.1%	-0.2%	0.4%	-0.4%		PASS

% ERROR CALCULATION:
(AS FOUND - ACTUAL VALUE)/HIGH SPAN * 100%
ALLOWABLE DEVIATION IS 2% OF HIGH SPAN

NO2 to NO Converter Efficiency Test

				Cylinder #
Analyzer Manufacturer:	CAI	NO Cal Gas Value:	90.4	CC151542
Analyzer Model:	600 Series	NO2 Cal Gas Value:	43.8	CC301497
Analyzer Serial Number:	S03003	Performed By:	DW	
Date:	3/21/2019	CEMS ID#:	3-CEMS	

GAS	ANALYZER MODE	ANALYZER RESPONSE	CAL CORRECTED	LABEL
Zero	NOx	0.0	--	--
Zero	NO	0.0	--	--
NO	NO	91.4	--	--
NO	NOx	90.6	--	--
NO2	NO	0.1	0.0	C_1
NO2	NOx	43.3	43.1	C_2

		Label	Requirement
Abs. Value C_o-C_1:	43.8	D_1	--
Abs. Value C_2-C_1:	43.1	D_2	--
C_1/C_2	0%	D_3	< 5%
CE = D_2/D_1 * 100%:	98.5%	--	> 90%

Montrose
SPAN GAS RECORD

CLIENT/LOCATION: Desert View Power
Unit 2

DATE: 3/21/2019
BY: DW

	MID SPAN CYLINDER		HIGH SPAN CYLINDER	
	CYLINDER NO.	CONCENTRATION	CYLINDER NO.	CONCENTRATION
ZERO	CB10100	99.999		
O_2	CC81569	10.48	DT0020015	19.31
CO_2	CC81569	10.56	DT0020015	18.91
NO_x	DT0018907	45.3	CC258526	90.4
CO	CC257884	4.68	CC707422	8.59

PRE-TEST INSTRUMENT CALIBRATION ERROR

	ANALYZER					STATUS
	O_2	CO_2	NO_x	CO		
Analyzer Range	20	20	100	10		
Zero Gas Value	0	0	0	0		--
Analyzer Reads	-0.01	0.02	0.04	0.01		--
Error (% of scale)	-0.1%	0.1%	0.0%	0.1%		PASS
High Gas Value	19.31	18.91	90.4	8.59		--
Analyzer Reads	19.32	18.93	90.60	8.58		--
Error (% of scale)	0.0%	0.1%	0.2%	-0.1%		PASS
Mid Gas Value	10.48	10.56	45.3	4.68		--
Analyzer Reads	10.47	10.60	46.01	4.65		--
Error (% of scale)	-0.1%	0.2%	0.7%	-0.3%		PASS
Linearity at Mid Point	-0.1%	0.1%	0.6%	-0.27%		

POST-TEST INSTRUMENT CALIBRATION ERROR

	ANALYZER					STATUS
	O_2	CO_2	NO_x	CO		
Analyzer Range	20	20	100	10		
Zero Gas Value	0	0	0	0		--
Analyzer Reads	-0.01	0.03	0.04	0.07		--
Error (% of scale)	0.0%	0.2%	0.0%	0.7%		PASS
High Gas Value	19.31	18.91	90.4	8.59		--
Analyzer Reads	19.29	18.75	90.73	8.67		--
Error (% of scale)	-0.1%	-0.8%	0.3%	0.8%		PASS
Mid Gas Value	10.48	10.56	45.3	4.68		--
Analyzer Reads	10.46	10.49	45.95	4.70		--
Error (% of scale)	-0.1%	-0.4%	0.7%	0.2%		PASS
Linearity at Mid Point	0.0%	0.0%	0.5%	-0.6%		

% ERROR CALCULATION:
(AS FOUND - ACTUAL VALUE OF SPAN)/RANGE * 100%
ALLOWABLE DEVIATION IS 2% OF FULL SCALE (2 SQUARES ON STRIPCHART)

Montrose

EPA SPAN GAS RECORD

CLIENT/LOCATION: Desert View Power
Unit 2

DATE: 3/21/2019
BY: DW

	MID SPAN CYLINDER		HIGH SPAN CYLINDER	
	CYLINDER NO.	CONCENTRATION	CYLINDER NO.	CONCENTRATION
ZERO		99.999		
O_2	CC81569	10.48	DT0020015	19.31
CO_2	CC81569	10.56	DT0020015	18.91
NO_x	DT0018907	45.3	CC258526	90.4
CO	CC257884	4.68	CC707422	8.59

PRE-TEST INSTRUMENT CALIBRATION ERROR

	ANALYZER					STATUS
	O_2	CO_2	NO_x	CO		
Analyzer Span	19.31	18.91	90.4	8.59		
Zero Gas Value	0	0	0	0		--
Analyzer Reads	-0.011	0.024	0.042	0.01		--
Error (% of cal span)	-0.1%	0.1%	0.0%	0.1%		PASS
High Gas Value	19.31	18.91	90.4	8.59		--
Analyzer Reads	19.317	18.934	90.599	8.584		--
Error (% of cal span)	0.0%	0.1%	0.2%	-0.1%		PASS
Mid Gas Value	10.48	10.56	45.3	4.68		--
Analyzer Reads	10.467	10.604	46.012	4.654		--
Error (% of cal span)	-0.1%	0.2%	0.8%	-0.3%		PASS

POST-TEST INSTRUMENT CALIBRATION ERROR

	ANALYZER					STATUS
	O_2	CO_2	NO_x	CO		
Analyzer Span	19.31	18.91	90.4	8.59		
Zero Gas Value	0	0	0	0		--
Analyzer Reads	-0.008	0.032	0.04	0.073		--
Error (% of cal span)	0.0%	0.2%	0.0%	0.8%		PASS
High Gas Value	19.31	18.91	90.4	8.59		--
Analyzer Reads	19.294	18.753	90.734	8.669		--
Error (% of cal span)	-0.1%	-0.8%	0.4%	0.9%		PASS
Mid Gas Value	10.48	10.56	45.3	4.68		--
Analyzer Reads	10.458	10.486	45.95	4.698		--
Error (% of cal span)	-0.1%	-0.4%	0.7%	0.2%		PASS

% ERROR CALCULATION:
(AS FOUND - ACTUAL VALUE)/HIGH SPAN * 100%
ALLOWABLE DEVIATION IS 2% OF HIGH SPAN

SPAN GAS RECORD

CLIENT/LOCATION: Desert View Power
Unit 1

DATE: 3/22/2019
BY: DW

	MID SPAN CYLINDER		HIGH SPAN CYLINDER	
	CYLINDER NO.	CONCENTRATION	CYLINDER NO.	CONCENTRATION
ZERO				
O_2	CC81569	10.48	DT0020015	19.31
CO_2	CC81569	10.56	DT0020015	18.91

PRE-TEST INSTRUMENT CALIBRATION ERROR

	ANALYZER					STATUS
	O_2	CO_2				
Analyzer Range	20	20				
Zero Gas Value	0.0	0.0				--
Analyzer Reads	0.00	0.02				--
Error (% of scale)	0.0%	0.1%				PASS
High Gas Value	19.31	18.91				--
Analyzer Reads	19.35	18.95				--
Error (% of scale)	0.2%	0.2%				PASS
Mid Gas Value	10.48	10.56				--
Analyzer Reads	10.50	10.61				--
Error (% of scale)	0.1%	0.2%				PASS
Linearity at Mid Point	0.0%	0.1%				

POST-TEST INSTRUMENT CALIBRATION ERROR

	ANALYZER					STATUS
	O_2	CO_2				
Analyzer Range	20	20				
Zero Gas Value	0.0	0.0				--
Analyzer Reads	0.00	0.03				--
Error (% of scale)	0.0%	0.2%				PASS
High Gas Value	19.31	18.91				--
Analyzer Reads	19.32	18.77				--
Error (% of scale)	0.0%	-0.7%				PASS
Mid Gas Value	10.48	10.56				--
Analyzer Reads	10.47	10.53				--
Error (% of scale)	0.0%	-0.2%				PASS
Linearity at Mid Point	0.0%	0.2%				

% ERROR CALCULATION:
(AS FOUND - ACTUAL VALUE OF SPAN)/RANGE * 100%
ALLOWABLE DEVIATION IS 2% OF FULL SCALE (2 SQUARES ON STRIPCHART)

PRAXAIR
Making our planet more productive

Praxair Distribution, Inc.
5700 S. Alameda Street
Los Angeles, CA 90058
Tel: 323-585-2154
Fax: 714-542-6689

MONTROSE

Certificate Modification Date: **12/11/2018**

Certification Date: **12/11/2018**
Lot Number: **N70086834401**
Part Number: **NI 5.5CE-AS**

Montrose Air Quality Services, LLC 2250 LA PATA
631 E. St. Andrew Pl.
Santa Ana, CA 92705
Praxair Order Number: **70813559**

DocNumber: **23830**

N2
CB10100
D. 12/10/18

CERTIFICATE OF ANALYSIS

Nitrogen, 5.5 Continuous Emission Monitoring Zero

Analytes	Specification	Analytical Results	Analytical Reference	Analytical Uncertainty
Nitrogen	**99.9995 %**	**99.9995 %**	**3**	**------**
Carbon Dioxide	**≤ 1 ppm**	**≤ 0.2 ppm**	**4**	**± 10%**
Carbon Monoxide	**≤ 0.5 ppm**	**≤ 0.1 ppm**	**4**	**± 15%**
Total Hydrocarbons	**≤ 0.1 ppm**	**≤ 0.01 ppm**	**4**	**± 15%**
Oxides of Nitrogen	**≤ 0.1 ppm**	**≤ 0.001 ppm**	**2**	**± 15%**
Oxygen	**≤ 0.5 ppm**	**≤ 0.5 ppm**	**1**	**± 15%**
Sulfur Dioxide	**≤ 0.1 ppm**	**≤ 0.001 ppm**	**5**	**± 15%**
Water	**≤ 2 ppm**	**≤ 0.2 ppm**	**6**	**± 10%**

Cylinder Style: **AS**
Cylinder Pressure @ 70 F: **2000 psig**
Cylinder Volume: **142 ft3**
Valve Outlet Connection: **CGA 580**
Cylinder Number(s): **CC122662, CB10100, CC28299**
Analyzed Cylinder Number(s): **CC122662**

Fill Date: **12/10/2018**
Analysis Date: **12/10/2018**

Filling Method: **Pressure/Temperature**

Analyst: **Jenna Lockman**

Approved Signer: **Ying Yu**

Key to Analytical Techniques:

Reference	Analytical Instrument - Analytical Principle
1	Delta F DF-550 Nanotrace - Electrolytic Cell/Electrochemical
2	Horiba Instruments Inc. APNA-360CE - Chemiluminescence
3	N/A - By Difference of Typical Impurities
4	Peak Performer 1 - Gas Chromatography with FID
5	Thermo 43I-AKSCA S/N 1420962322 - UV Spectrometry
6	Tiger Optics MTO-1000 - Cavity Ring-down Spectroscopy

This analysis of the product described herein was prepared by Praxair Distribution, Inc. using instruments whose calibration is certified using Praxair Distribution, Inc. Reference Materials which are either prepared by weights traceable to the National Institute of Standards and Technology (NIST), Measurement Canada, or by using NIST Standard Reference Materials where available.

Note: All expressions for concentration (e.g., % or ppm) are for gas phase, by volume (e.g., ppmv) unless otherwise noted. Analytical uncertainty is expressed as a Relative % unless otherwise noted.

IMPORTANT
The information contained herein has been prepared at your request by personnel within Praxair Distribution, Inc.. While we believe the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall liability of Praxair Distribution, Inc. arising out of the use of the information contained herein exceed the fee established for providing such information.

PNJ 3-7-19

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Making our planet more productive

DocNumber: 230648

Praxair Distribution, Inc.
5700 S. Alameda Street
Los Angeles CA 90058
Tel: 323-585-2154
Fax: 714-542-6689
PGVP ID: F22018

OF ANALYSIS / EPA PROTOCOL GAS

Montrose Air Quality Services, LLC
1631 E. St. Andrew Pl.
Santa Ana, CA 92705

Certificate Modification Date: 12/13/2018
Praxair Order Number: 66503224
Part Number: NI CD10.5O6F-AS
Customer PO Number: MIKE MILLER

Fill Date: 12/04/2018
Lot Number: 70086833812
Cylinder Style & Outlet: AS CGA 590
Cylinder Pressure and Volume: 2000 psig 140 ft3

O2 - 10.48
CO2 - 10.56
CC81569
12/12/26
F22018

Certified Concentration

Expiration Date:	12/12/2026	NIST Traceable
Cylinder Number:	CC81569	Expanded Uncertainty
10.56 %	Carbon dioxide	± 0.3 %
10.48 %	Oxygen	± 0.4 %
Balance	Nitrogen	

ProSpec EZ Cert

Certification Information:

Certification Date: 12/12/2018 *Term:* 96 Months *Expiration Date:* 12/12/2026

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1.

Do Not Use this Standard if Pressure is less than 100 PSIG.

CO2 responses have been corrected for Oxygen IR Broadening effect. O2 responses have been corrected for CO2 interference.

Analytical Data:

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1. ***Component:*** **Carbon dioxide**

Requested Concentration: 10.5 %
Certified Concentration: 10.56 %
Instrument Used: Horiba VIA-510 S/N 20C194WK
Analytical Method: NDIR
Last Multipoint Calibration: 11/26/2018

Reference Standard: Type / Cylinder #: GMIS / CC141375
Concentration / Uncertainty: 14.02 % ±0.3%
Expiration Date: 06/11/2026
Traceable to: SRM # / Sample # / Cylinder #: SRM 1675b / 6-F-51 / CAL014538
SRM Concentration / Uncertainty: 13.963% / ±0.034%
SRM Expiration Date: 05/16/2022

First Analysis Data:			Date 12/12/2018
Z: 0	R: 14.02	C: 10.56	Conc: 10.56
R: 14.02	Z: 0	C: 10.55	Conc: 10.55
Z: 0	C: 10.57	R: 14.02	Conc: 10.57
UOM: %		Mean Test Assay:	10.56 %

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

2. ***Component:*** **Oxygen**

Requested Concentration: 10.5 %
Certified Concentration: 10.48 %
Instrument Used: OXYMAT 5E
Analytical Method: Paramagnetic
Last Multipoint Calibration: 12/05/2018

Reference Standard: Type / Cylinder #: NTRM / DT0010384
Concentration / Uncertainty: 9.875 % ±0.4%
Expiration Date: 11/18/2022
Traceable to: SRM # / Sample # / Cylinder #: NTRM / 170701 / NTRM DT0010384
SRM Concentration / Uncertainty: 9.875% / ±0.040%
SRM Expiration Date: 11/18/2022

First Analysis Data:			Date 12/12/2018
Z: 0	R: 9.88	C: 10.49	Conc: 10.48
R: 9.88	Z: 0	C: 10.5	Conc: 10.49
Z: 0	C: 10.48	R: 9.88	Conc: 10.47
UOM: %		Mean Test Assay:	10.48 %

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

Analyzed By Danielle Burns

Certified By Jose Vasquez

RH
1-18-19

Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Praxair Distribution, Inc., arising out of the use of the information contained herein exceed the fee established for providing such information.

PRAXAIR
Making our planet more productive

DocNumber: 224471

Praxair Distribution, Inc.
5700 S. Alameda Street
Los Angeles CA 90058
Tel: 323-585-2154
Fax: 714-542-6689
PGVP ID: F22018

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

MONTROSE

Montrose Air Quality Services, LLC
1631 E. St. Andrew Pl.
Santa Ana, CA 92705

Certificate Modification Date: 09/13/2018
Praxair Order Number: 70710636
Part Number: NI CD19O2E-AS

Fill Date: 09/07/2018
Lot Number: 70086825001
Cylinder Style & Outlet: AS CGA 590
Cylinder Pressure and Volume: 2000 psig 140 ft3

O2 - 19.31
CO2 - 18.91
DT0020015
9/13/26
F22018

Certified Concentration

Expiration Date:	09/13/2026	NIST Traceable
Cylinder Number:	DT0020015	Expanded Uncertainty
18.91 %	Carbon dioxide	± 0.3 %
19.31 %	Oxygen	± 0.2 %
Balance	Nitrogen	

ProSpec EZ Cert

Certification Information:

Certification Date: 09/13/2018 *Term:* 96 Months *Expiration Date:* 09/13/2026

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1.

Do Not Use this Standard if Pressure is less than 100 PSIG.

CO2 responses have been corrected for Oxygen IR Broadening effect. O2 responses have been corrected for CO2 interference

Analytical Data:

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1. *Component:* **Carbon dioxide**

Requested Concentration: 19 %
Certified Concentration: 18.91 %
Instrument Used: Horiba VIA-510 S/N 20C194WK
Analytical Method: NDIR
Last Multipoint Calibration: 08/20/2018

First Analysis Data:							Date	09/13/2018
Z:	0	R:	20.1	C:	18.91		Conc:	18.91
R:	20.1	Z:	0	C:	18.91		Conc:	18.91
Z:	0	C:	18.93	R:	20.11		Conc:	18.93
UOM:	%					Mean Test Assay:		18.91 %

Reference Standard: Type / Cylinder #: GMIS / CC187238
Concentration / Uncertainty: 20.10 % ±0.24%
Expiration Date: 06/07/2026
Traceable to: SRM # / Sample # / Cylinder #: RGM#CC193512 / N/A / RGM#CC193512
SRM Concentration / Uncertainty: 26.99% / ±0.05%
SRM Expiration Date: 05/15/2023

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

2. *Component:* **Oxygen**

Requested Concentration: 19 %
Certified Concentration: 19.31 %
Instrument Used: OXYMAT 5E
Analytical Method: Paramagnetic
Last Multipoint Calibration: 09/04/2018

First Analysis Data:							Date	09/13/2018
Z:	0	R:	20.86	C:	19.31		Conc:	19.3
R:	20.86	Z:	0	C:	19.32		Conc:	19.31
Z:	0	C:	19.32	R:	20.88		Conc:	19.31
UOM:	%					Mean Test Assay:		19.31 %

Reference Standard: Type / Cylinder #: GMIS / CC75874
Concentration / Uncertainty: 20.86 % ±0.111%
Expiration Date: 11/07/2025
Traceable to: SRM # / Sample # / Cylinder #: SRM 2659a / 71-E-19 / FF22331
SRM Concentration / Uncertainty: 20.863% / ±0.021%
SRM Expiration Date: 08/23/2021

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

Analyzed By Jose Vasquez

Certified By Danielle Burns

RH
10-3-18

Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Praxair Distribution, Inc., arising out of the use of the information contained herein exceed the fee established for providing such information.

PRAXAIR

Praxair
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PGVPID: F22018

DocNumber: 000125417

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

MONTROSE

Montrose Air Quality Services, LLC
1631 E. St. Andrew Pl.
Santa Ana, CA 92705

Praxair Order Number: 70613842
Customer P. O. Number:
Customer Reference Number:

Fill Date: 5/22/2018
Part Number: NI NO45MZE-AS
Lot Number: 70086814212
Cylinder Style & Outlet: AS CGA 660
Cylinder Pressure & Volume: 2000 psig 140 cu. ft.

NOx 45.3
DT 0018907
Exp. 6/11/2021
F22018

Certified Concentration:

	6/11/2021		NIST Traceable
Cylinder Number:	DT0018907		Analytical Uncertainty:
45.3 ppm	NITRIC OXIDE (as NOx)		± 0.7 %
Balance	NITROGEN		

NO = 45.0 ppm

NO for Reference Only

Certifcation Information: *Certification Date:* 6/11/2018 *Term:* 36 Months *Expiration Date:* 6/11/2021

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

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

1. **Component: NITRIC OXIDE (as NOx)**

Requested Concentration:	45 ppm
Certified Concentration:	45.3 ppm
Instrument Used:	Thermo Electron 42i-LS S/N 1030645077
Analytical Method:	Chemiluminescence
Last Multipoint Calibration:	5/24/2018

First Analysis Data:						Date:	6/4/2018
Z:	0	R:	51.2	C:	45.7	Conc:	45.524
R:	51.1	Z:	0	C:	45.6	Conc:	45.425
Z:	0	C:	45.7	R:	51.2	Conc:	45.524
UOM:	ppm			Mean Test Assay:			45.491 ppm

Reference Standard Type:	SRM
Ref. Std. Cylinder # :	CC362456
Ref. Std. Conc:	50.97 ppm
Ref. Std. Traceable to SRM # :	1683b
SRM Sample # :	45-V-37
SRM Cylinder # :	CAL017868

Second Analysis Data:						Date:	6/11/2018
Z:	0	R:	50.9	C:	45	Conc:	45.003
R:	51	Z:	0	C:	45.1	Conc:	45.103
Z:	0	C:	45.1	R:	51	Conc:	45.103
UOM:	ppm			Mean Test Assay:			45.07 ppm

Analyzed by: Amalia Real

Certified by: Henry Koung

RH
7/11/18

Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Praxair Distribution, Inc., arising out of the use of the information con tained herein exceed the fee established for providing such information

PRAXAIR

Praxair
5700 South Alameda Street
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Tel: (323) 585-2154 Fax:(714) 542-6689
PGVPID: F22018

DocNumber: 000126135

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

MONTROSE

Montrose Air Quality Services, LLC
1631 E. St. Andrew Pl.
Santa Ana, CA 92705

Praxair Order Number: 70638890
Customer P. O. Number:
Customer Reference Number:

Fill Date: 6/18/2018
Part Number: NI NO90MZ2E-AS
Lot Number: 70086816907
Cylinder Style & Outlet: AS CGA 660
Cylinder Pressure & Volume: 2000 psig 140 cu. ft.

NOx 90.4
CC258526
6/29/26
F22018

Certified Concentration:

Cylinder Number:	6/29/2026 CC258526		NIST Traceable Analytical Uncertainty:
90.4	ppm	NITRIC OXIDE (as NOx)	± 0.8 %
	Balance	NITROGEN	

NO = 89.5 ppm

NO for Reference Only

Certifcation Information: Certification Date: 6/29/2018 Term: 96 Months Expiration Date: 6/29/2026

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

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

1. **Component:** NITRIC OXIDE (as NOx)

Requested Concentration: 90 ppm
Certified Concentration: 90.4 ppm
Instrument Used: Thermo Electron 42i S/N 072602432C
Analytical Method: Chemiluminescence
Last Multipoint Calibration: 6/15/2018

Reference Standard Type: NTRM
Ref. Std. Cylinder #: CC336493
Ref. Std. Conc.: 101.3 ppm
Ref. Std. Traceable to SRM #: 1684b
SRM Sample #: 44-T-83
SRM Cylinder #: FF9258

First Analysis Data: Date: 6/22/2018

Z:	0	R:	101.3	C:	90.6	Conc:	90.6
R:	101.3	Z:	0	C:	90.7	Conc:	90.7
Z:	0	C:	90.6	R:	101.3	Conc:	90.6

UOM: ppm Mean Test Assay: 90.633 ppm

Second Analysis Data: Date: 6/29/2018

Z:	0	R:	101.5	C:	90.5	Conc:	90.381
R:	101.4	Z:	0	C:	90.4	Conc:	90.281
Z:	0	C:	90.2	R:	101.4	Conc:	90.081

UOM: ppm Mean Test Assay: 90.248 ppm

Analyzed by: Quinn Hailes

Certified by: Leeanna Rodriguez

RH
7/19/18

Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Praxair Distribution, Inc., arising out of the use of the information con tained herein exceed the fee established for providing such information.

PRAXAIR

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PGVPID: F22017

DocNumber: 000112467

E OF ANALYSIS / EPA PROTOCOL GAS

Montrose Air Quality Services, LLC
631 E. St. Andrew Pl.
Santa Ana, CA 92705

NOx- 43.8
Exp-7/21/20
CC301497
F22017

Praxair Order Number: 70297908
Customer P. O. Number:
Customer Reference Number:

Fill Date: 6/26/2017
Part Number: AI NX45MZ1E-AS
Lot Number: 70086717708
Cylinder Style & Outlet: AS CGA 660
Cylinder Pressure & Volume: 2000 psig 140 cu. ft.

Certified Concentration:

Expiration Date:	7/21/2020		NIST Traceable
Cylinder Number:	CC301497		Analytical Uncertainty:
43.8	ppm	NITROGEN DIOXIDE (as NOx)	± 1 %
	Balance	AIR	

Certifcation Information: *Certification Date:* 7/21/2017 *Term:* 36 Months *Expiration Date:* 7/21/2020

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

The above certified concentration of Total Oxides of Nitrogen (NOx) excludes HNO3. [HNO3]= 1.8 ppm (for reference only).

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

1. Component: NITROGEN DIOXIDE (as NOx)

Requested Concentration: 45 ppm
Certified Concentration: 43.8 ppm
Instrument Used: Thermo Env. 42i-HL
Analytical Method: Chemiluminescence
Last Multipoint Calibration. 6/26/2017

Reference Standard Type: GMIS
Ref. Std. Cylinder # : CC308835
Ref. Std. Conc: 97.5 ppm
Ref. Std. Traceable to SRM # : 2660a
SRM Sample # : 2660-C-45
SRM Cylinder # : CAL016152

First Analysis Data: **Date:** 7/14/2017

Z:	0	R:	97.4	C:	43.7	Conc:	43.7
R:	97.6	Z:	0	C:	44	Conc:	44
Z:	0	C:	43.9	R:	97.5	Conc:	43.9

UOM: ppm **Mean Test Assay:** 43.867 ppm

Second Analysis Data: **Date:** 7/21/2017

Z:	0	R:	97.5	C:	43.6	Conc:	43.6
R:	97.4	Z:	0	C:	43.8	Conc:	43.8
Z:	0	C:	43.7	R:	97.6	Conc:	43.7

UOM: ppm **Mean Test Assay:** 43.7 ppm

Analyzed by: Henry Koung

Certified by: Amalia Real

AD 11-26-18

Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Praxair Distribution, Inc., arising out of the use of the information con tained herein exceed the fee established for providing such information.

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DocNumber: 226576

MONTROSE

Montrose Air Quality Services, LLC
631 E. St. Andrew Pl.
Santa Ana, CA 92705

-CO- 4.68
-CC257884
-Exp- 10/9/26
-F22018

Praxair Distribution, Inc.
5700 S. Alameda Street
Los Angeles CA 90058
Tel: 323-585-2154
Fax: 714-542-6689
PGVP ID: F22018

E OF ANALYSIS / EPA PROTOCOL GAS

Certificate Modification Date: 10/10/2018
Praxair Order Number: 64609148
Part Number: NI CO4.7ME-AS
Customer PO Number: VERBAL

Fill Date: 10/05/2018
Lot Number: 70086827805
Cylinder Style & Outlet: AS CGA 350
Cylinder Pressure and Volume: 2000 psig 140 ft3

Certified Concentration

Expiration Date:	10/09/2026		NIST Traceable
Cylinder Number:	CC257884		Expanded Uncertainty
4.68 ppm	Carbon monoxide		± 0.6 %
Balance	Nitrogen		

ProSpec EZ Cert

Certification Information:

Certification Date: 10/09/2018 *Term:* 96 Months *Expiration Date:* 10/09/2026

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

Analytical Data:

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1. **Component:** Carbon monoxide

Requested Concentration: 4.7 ppm
Certified Concentration: 4.68 ppm
Instrument Used: MKS Multigas 2031 FTIR
Analytical Method: FTIR
Last Multipoint Calibration: 09/20/2018

Reference Standard: Type / Cylinder #: GMIS / CC15356
Concentration / Uncertainty: 4.995 ppm ±0.589%
Expiration Date: 08/10/2025
Traceable to: SRM # / Sample # / Cylinder #: SRM 1677c / 5-J-42 / CAL015337
SRM Concentration / Uncertainty: 9.825 PPM / ±0.047 PPM
SRM Expiration Date: 06/24/2024

First Analysis Data: Date 10/09/2018

Z:	0	R:	4.669	C:	4.377	Conc:	4.69
R:	4.67	Z:	0	C:	4.368	Conc:	4.68
Z:	0	C:	4.371	R:	4.66	Conc:	4.68

UOM: ppm Mean Test Assay: 4.68 ppm

Second Analysis Data: Date

Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0

UOM: ppm Mean Test Assay: ppm

Analyzed By Jose Vasquez

Certified By Danielle Burns

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BR 10/25/18

PRAXAIR

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Los Angeles, CA 90058
Tel: (323) 585-2154 Fax:(714) 542-6689
PGVPID: F22018

DocNumber: 000120877

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

MONTROSE

Montrose Air Quality Services, LLC
1631 E. St. Andrew Pl.
Santa Ana, CA 92705

CO - 8.59
CC707422
Exp- 2-21-26
F22018

Praxair Order Number: 70515396
Customer P. O. Number:
Customer Reference Number:

Fill Date: 2/16/2018
Part Number: NI CO8.5ME-AS
Lot Number: 70086804711
Cylinder Style & Outlet: AS CGA 350
Cylinder Pressure & Volume: 2000 psig 140 cu. ft.

Certified Concentration:

Expiration Date:	2/21/2026		NIST Traceable Analytical Uncertainty:
Cylinder Number:	CC707422		
8.59	ppm	CARBON MONOXIDE	± 0.5 %
	Balance	NITROGEN	

Certifcation Information: *Certification Date:* 2/21/2018 *Term:* 96 Months *Expiration Date:* 2/21/2026

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

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

1. **Component: CARBON MONOXIDE**

Requested Concentration: 8.5 ppm
Certified Concentration: 8.59 ppm
Instrument Used: MKS Multigas 2031 FTIR
Analytical Method: Fourier Transform Infrared
Last Multipoint Calibration: 2/10/2018

First Analysis Data: **Date:** 2/21/2018

Z:	0	R:	9.633	C:	8.326	Conc:	8.591
R:	9.632	Z:	0	C:	8.324	Conc:	8.589
Z:	0	C:	8.323	R:	9.632	Conc:	8.588

UOM: ppm **Mean Test Assay:** 8.589 ppm

Reference Standard Type GMIS
Ref. Std. Cylinder # : CC341074
Ref. Std. Conc: 9.939 ppm
Ref. Std. Traceable to SRM # : 1677c
SRM Sample # : 5-J-42
SRM Cylinder # : CAL015337

Second Analysis Data: **Date:**

Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0

UOM: ppm **Mean Test Assay:** 0 ppm

Analyzed by: Danielle Burns
Danielle Burns

Certified by:
Jose Vasquez

AC
4-12-18

Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Praxair Distribution, Inc., arising out of the use of the information con tained herein exceed the fee established for providing such information.

SEMI-ANNUAL DRY GAS METER/ORIFICE CALIBRATION

Orifice Method - Triplicate Runs/Four Calibration Points
English Meter Box Units, English K' Factor
Filename: C:\Users\Dave Wonderly\Information\Calibrations\Dry Gas Meters\17-wcs\2018\[Semi-Annual Meter Cal 11-2-18 WCS-17.xls
File Modified From: APEX 522 Series Meter box Calibration
Revised: 4/8/2005

Model #: C5000
ID #: 17WCS
Date: 11/2/2018
Bar. Pressure: 30.07 (in. Hg)
Performed By: R. Howard

DRY GAS METER READINGS									CRITICAL ORIFICE READINGS					
					Initial Temps.		Final Temps.					Ambient Temperature		
dH (in H2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Orifice Serial# (number)	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
0.11	26.00	868.900	874.273	5.373	67.0	64.0	66.0	66.0	33	0.1551	18.0	60.0	60.0	60.0
0.11	26.00	874.273	879.641	5.368	66.0	66.0	67.0	66.0	33	0.1551	18.0	60.0	60.0	60.0
0.11	26.00	879.641	885.016	5.375	67.0	66.0	67.0	67.0	33	0.1551	18.0	60.0	60.0	60.0
0.49	12.00	890.800	896.111	5.311	67.0	67.0	71.0	68.0	48	0.3345	15.0	60.0	60.0	60.0
0.49	12.00	896.111	901.429	5.318	71.0	68.0	71.0	69.0	48	0.3345	15.0	60.0	64.0	62.0
0.49	12.00	901.429	906.743	5.314	71.0	69.0	71.0	69.0	48	0.3345	15.0	60.0	64.0	62.0
1.60	7.00	907.700	913.107	5.407	71.0	68.0	74.0	67.0	63	0.5915	13.0	61.0	61.0	61.0
1.60	7.00	913.107	918.505	5.398	74.0	67.0	74.0	68.0	63	0.5915	13.0	61.0	61.0	61.0
1.60	7.00	918.505	923.900	5.395	74.0	68.0	75.0	70.0	63	0.5915	13.0	61.0	61.0	61.0
2.90	5.00	925.700	930.799	5.099	76.0	70.0	80.0	73.0	73	0.7678	11.0	61.0	61.0	61.0
2.90	5.00	930.799	935.893	5.094	80.0	73.0	79.0	74.0	73	0.7678	11.0	61.0	61.0	61.0
2.90	5.00	935.893	940.996	5.103	79.0	74.0	76.0	70.0	73	0.7678	11.0	61.0	61.0	61.0

DRY GAS METER		ORIFICE			DRY GAS METER CALIBRATION FACTOR	ORIFICE CALIBRATION FACTOR	Individual Run	Individual Orifice	Orifice Average	Orifice Average
VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (cu ft)	Y Value (number)	dH@ Value (in H2O)	0.95 < Y < 1.05?	Ymax - Ymin < 0.010?	0.98 < Y/Yd < 1.02?	dH@ - dH@ av < 0.155?
5.422	153.6	5.319	150.6	5.215	0.981	1.494	**Pass**			
5.412	153.3	5.319	150.6	5.215	0.983	1.491	**Pass**			
5.414	153.3	5.319	150.6	5.215	0.982	1.490	**Pass**			
				Average	**0.982**	**1.492**		**Pass**	**Pass**	**Pass**
5.339	151.2	5.292	149.9	5.188	0.991	1.425	**Pass**			
5.331	151.0	5.282	149.6	5.198	0.991	1.428	**Pass**			
5.325	150.8	5.282	149.6	5.198	0.992	1.427	**Pass**			
				Average	**0.991**	**1.427**		**Pass**	**Pass**	**Pass**
5.433	153.9	5.455	154.5	5.358	1.004	1.491	**Pass**			
5.416	153.4	5.455	154.5	5.358	1.007	1.491	**Pass**			
5.403	153.0	5.455	154.5	5.358	1.010	1.487	**Pass**			
				Average	**1.007**	**1.490**		**Pass**	**Pass**	**Pass**
5.094	144.3	5.058	143.2	4.968	0.993	1.592	**Pass**			
5.072	143.6	5.058	143.2	4.968	0.997	1.586	**Pass**			
5.098	144.4	5.058	143.2	4.968	0.992	1.590	**Pass**			
				Average	**0.994**	**1.589**		**Pass**	**Pass**	**Pass**

Average Yd: 0.994 **dH@: 1.499**

Q @ dH = 1: 0.613

SIGNED: Signature on file

Date: 11/2/2018

BI-MONTHLY DRY GAS METER CALIBRATION CHECK

Orifice Method - Triplicate Runs/Four Calibration Points
English Meter Box Units, English K' Factor
Filename: C:\Users\Dave Wonderly\Information\Calibrations\Dry Gas Meters\17-wcs\2019\[17-WCS bimonthly cal 3-8-19.xls]WCS
File Modified From: APEX 522 Series Meter box Calibration
Revised: 3/21/2002

Model #: c5000
ID #: 17-wcs
Date: 3/8/2019
Bar. Pressure: 30.03 (in. Hg)
Performed By: R. Howard
Yd from previous semi-annual calibration: 0.994

DRY GAS METER READINGS									CRITICAL ORIFICE READINGS					
		Volume	Volume	Volume	Initial Temps.		Final Temps.		Orifice	K' Orifice	Actual	Ambient Temperature		
dH	Time	Initial	Final	Total	Inlet	Outlet	Inlet	Outlet	Serial#	Coefficient	Vacuum	Initial	Final	Average
(in H2O)	(min)	(cu ft)	(cu ft)	(cu ft)	(deg F)	(deg F)	(deg F)		(number)	(see above)	(in Hg)	(deg F)	(deg F)	(deg F)
0.51	12.00	622.600	627.903	5.303	59.0	57.0	59.0	57.0	48	0.3345	16.0	53.0	53.0	53.0
0.51	12.00	627.903	633.216	5.313	59.0	57.0	59.0	58.0	48	0.3345	16.0	59.0	59.0	59.0
0.51	12.00	633.216	638.525	5.309	59.0	58.0	59.0	58.0	48	0.3345	16.0	59.0	59.0	59.0
1.60	7.00	603.800	609.175	5.375	59.0	56.0	58.0	56.0	63	0.5915	13.0	51.0	51.0	51.0
1.60	7.00	609.105	614.452	5.347	58.0	56.0	59.0	56.0	63	0.5915	13.0	51.0	51.0	51.0
1.60	7.00	614.452	619.825	5.373	59.0	56.0	62.0	56.0	63	0.5915	13.0	52.0	52.0	52.0

DRY GAS METER		ORIFICE				DRY GAS METER CALIBRATION FACTOR	ORIFICE CALIBRATION FACTOR
VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (cu ft)		Y Value (number)	dH@ Value (in H2O)
5.430	153.8	5.321	150.7	5.153		0.980	1.495
5.437	154.0	5.290	149.8	5.183		0.973	1.511
5.431	153.8	5.290	149.8	5.183		0.974	1.510
					Average	**0.976**	**1.506**
5.526	156.5	5.500	155.8	5.306		0.995	1.497
5.497	155.7	5.500	155.8	5.306		1.001	1.497
5.514	156.1	5.495	155.6	5.311		0.997	1.500
					Average	**0.998**	**1.498**

Average Yd: 0.987 dH@: 1.502

Pass Q @ dH = 1: 0.612

The Average Yd must be within +/- 2% of the most recent semi-annual calibration Yd. If not, perform 4-point calibration.

SIGNED: Signature on File

Date: 3/8/2019

SEMI-ANNUAL DRY GAS METER/ORIFICE CALIBRATION

Orifice Method - Triplicate Runs/Four Calibration Points
English Meter Box Units, English K' Factor
Filename: C:\Users\Dave Wonderly\Information\Calibrations\Dry Gas Meters\30-wcs\2019\[semi annual cal 30wcs 3-4-19.xlsx]WCS
File Modified From: APEX 522 Series Meter box Calibration
Revised: 4/8/2005

c-5000
ID #: 30-wcs
Date: 3/4/2019
Bar. Pressure: 30.08 (in. Hg)
Performed By: R. Howard
Meter Serial #:

DRY GAS METER READINGS									CRITICAL ORIFICE READINGS					
					Initial Temps.		Final Temps.					Ambiert Temperature		
dH (in H2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Orifice Serial# (number)	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
0.14	26.00	687.200	692.474	5.274	66.0	66.0	67.0	67.0	33	0.1551	16.0	65.0	65.0	65.0
0.14	26.00	692.474	697.721	5.247	67.0	67.0	69.0	68.0	33	0.1551	16.0	64.0	64.0	64.0
0.14	26.00	697.721	702.977	5.256	69.0	68.0	69.0	69.0	33	0.1551	16.0	63.0	63.0	63.0
0.63	12.00	743.300	748.583	5.283	71.0	72.0	72.0	72.0	48	0.3345	14.5	67.0	67.0	67.0
0.63	12.00	748.583	753.867	5.284	72.0	72.0	72.0	72.0	48	0.3345	14.5	67.0	67.0	67.0
0.63	12.00	753.867	759.149	5.282	73.0	71.0	74.0	71.0	48	0.3345	14.5	67.0	67.0	67.0
1.80	7.00	726.200	731.638	5.438	72.0	71.0	73.0	70.0	63	0.5915	12.0	67.0	67.0	67.0
1.80	7.00	731.638	737.076	5.438	73.0	70.0	74.0	71.0	63	0.5915	12.0	67.0	67.0	67.0
1.80	7.00	737.076	742.515	5.439	74.0	71.0	74.0	71.0	63	0.5915	12.0	67.0	67.0	67.0
3.20	5.00	706.300	711.394	5.094	73.0	70.0	73.0	70.0	73	0.7678	11.0	64.0	64.0	64.0
3.20	5.00	711.394	716.488	5.094	73.0	70.0	72.0	70.0	73	0.7678	11.0	65.0	65.0	65.0
3.20	5.00	716.488	721.582	5.094	73.0	70.0	73.0	70.0	73	0.7678	11.0	65.0	65.0	65.0

DRY GAS METER		ORIFICE				DRY GAS METER CALIBRATION FACTOR	ORIFICE CALIBRATION FACTOR	Individual Run	Individual Orifice	Orifice Average	Orifice Average
VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (cu ft)		Y Value (number)	dH@ Value (in H2O)	0.95 < Y < 1.05?	Ymax - Ymin < 0.010?	0.98 < Y/Yd < 1.02?	dH@ - dH@ av < 0.155?
5.317	150.6	5.296	150.0	5.240		0.996	1.914	**Pass**			
5.277	149.5	5.301	150.1	5.235		1.004	1.907	**Pass**			
5.276	149.4	5.306	150.3	5.230		1.006	1.899	**Pass**			
					Average	**1.002**	**1.907**		**Pass**	**Pass**	**Pass**
5.280	149.5	5.259	148.9	5.223		0.996	1.841	**Pass**			
5.278	149.5	5.259	148.9	5.223		0.996	1.841	**Pass**			
5.274	149.4	5.259	148.9	5.223		0.997	1.845	**Pass**			
					Average	**0.997**	**1.842**		**Pass**	**Pass**	**Pass**
5.453	154.4	5.425	153.6	5.388		0.995	1.687	**Pass**			
5.448	154.3	5.425	153.6	5.388		0.996	1.687	**Pass**			
5.444	154.2	5.425	153.6	5.388		0.997	1.685	**Pass**			
					Average	**0.996**	**1.686**		**Pass**	**Pass**	**Pass**
5.125	145.1	5.045	142.9	4.982		0.984	1.771	**Pass**			
5.128	145.2	5.040	142.7	4.987		0.983	1.774	**Pass**			
5.125	145.1	5.040	142.7	4.987		0.983	1.774	**Pass**			
					Average	**0.984**	**1.773**		**Pass**	**Pass**	**Pass**

Average Yd: 0.994 **dH@: 1.802**

Q @ dH = 1: 0.559

SIGNED: Signature on File

Date: 3/4/2019

BI-MONTHLY DRY GAS METER CALIBRATION CHECK

Orifice Method - Triplicate Runs/Four Calibration Points
English Meter Box Units, English K' Factor
Filename: C:\Users\Dave Wonderly\Information\Calibrations\Dry Gas Meters\1-P&M\2019\[1p-m 3-8-19 Bimonthly Meter Cal.xls]WCS
File Modified From: APEX 522 Series Meter box Calibration
Revised: 3/21/2002

Model #:
ID #: 1 P&M
Date: 3/8/2019
Bar. Pressure: 30.03 (in. Hg)
Performed By: R. Howard
Yd from previous semi-annual calibration: 0.992

DRY GAS METER READINGS									CRITICAL ORIFICE READINGS					
		Volume	Volume	Volume	Initial Temps.		Final Temps.		Orifice	K' Orifice	Actual	Ambient Temperature		
dH	Time	Initial	Final	Total	Inlet	Outlet	Inlet	Outlet	Serial#	Coefficient	Vacuum	Initial	Final	Average
(in H2O)	(min)	(cu ft)	(cu ft)	(cu ft)	(deg F)	(deg F)	(deg F)		(number)	(see above)	(in Hg)	(deg F)	(deg F)	(deg F)
0.54	12.00	97.900	103.302	5.402	66.0	63.0	65.0	64.0	48	0.3345	18.0	60.0	60.0	60.0
0.54	12.00	103.302	108.700	5.398	65.0	64.0	66.0	64.0	48	0.3345	18.0	60.0	60.0	60.0
0.54	12.00	108.700	114.106	5.406	66.0	64.0	66.0	65.0	48	0.3345	18.0	60.0	60.0	60.0
1.80	7.00	77.200	82.591	5.391	63.0	61.0	64.0	62.0	63	0.5915	13.0	59.0	59.0	59.0
1.80	7.00	82.591	87.964	5.373	64.0	62.0	66.0	64.0	63	0.5915	13.0	59.0	59.0	59.0
1.80	7.00	87.964	93.355	5.391	66.0	64.0	66.0	64.0	63	0.5915	13.0	60.0	60.0	60.0

DRY GAS METER		ORIFICE				DRY GAS METER CALIBRATION FACTOR	ORIFICE CALIBRATION FACTOR
VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (cu ft)		Y Value (number)	dH@ Value (in H2O)
5.463	154.7	5.285	149.7	5.188		0.967	1.585
5.456	154.5	5.285	149.7	5.188		0.969	1.583
5.459	154.6	5.285	149.7	5.188		0.968	1.582
					Average	**0.968**	**1.583**
5.490	155.5	5.458	154.6	5.347		0.994	1.692
5.456	154.5	5.458	154.6	5.347		1.000	1.688
5.464	154.7	5.453	154.4	5.353		0.998	1.688
					Average	**0.998**	**1.689**

Average Yd: 0.983 dH@: 1.636

Pass Q @ dH = 1: 0.586

The Average Yd must be within +/- 2% of the most recent semi-annual calibration Yd. If not, perform 4-point calibration.

SIGNED: Signature on File

Date: 3/8/2019

SEMI-ANNUAL DRY GAS METER/ORIFICE CALIBRATION

Orifice Method - Triplicate Runs/Four Calibration Points
English Meter Box Units, English K' Factor
Filename: C:\Users\Dave Wonderly\Information\Calibrations\Dry Gas Meters\1-P&M\2018\[Semi-Annual Meter Cal 1-pm 11-2-18.xls]W(
File Modified From: APEX 522 Series Meter box Calibration
Revised: 4/8/2005

Model #:
ID #: 1 p&m
Date: 11/2/2018
Bar. Pressure: 30.07 (in. Hg)
Performed By: R. Howard
Meter Serial #: 8520465.00

DRY GAS METER READINGS									CRITICAL ORIFICE READINGS					
					Initial Temps.		Final Temps.					Ambient Temperature		
dH (in H2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Orifice Serial# (number)	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
0.14	26.00	895.200	900.610	5.410	68.0	67.0	69.0	68.0	33	0.1551	20.0	58.0	58.0	58.0
0.14	26.00	900.610	906.011	5.401	69.0	68.0	70.0	68.0	33	0.1551	20.0	59.0	59.0	59.0
0.14	26.00	906.002	911.411	5.409	70.0	68.0	70.0	69.0	33	0.1551	20.0	60.0	60.0	60.0
0.62	12.00	871.200	876.544	5.344	71.0	69.0	72.0	70.0	48	0.3345	18.0	57.0	57.0	57.0
0.62	12.00	876.544	881.902	5.358	72.0	70.0	73.0	72.0	48	0.3345	18.0	57.0	57.0	57.0
0.62	12.00	881.902	887.281	5.379	73.0	72.0	74.0	71.0	48	0.3345	18.0	57.0	57.0	57.0
1.80	7.00	888.800	894.281	5.481	70.0	68.0	72.0	69.0	63	0.5915	15.0	59.0	59.0	59.0
1.80	7.00	894.281	899.757	5.476	72.0	66.0	72.0	68.0	63	0.5915	15.0	59.0	59.0	59.0
1.80	7.00	899.757	905.237	5.480	72.0	68.0	72.0	69.0	63	0.5915	15.0	59.0	59.0	59.0
3.10	5.00	912.900	917.903	5.003	71.0	68.0	71.0	69.0	73	0.7678	13.0	59.0	59.0	59.0
3.10	5.00	917.903	922.905	5.002	71.0	69.0	71.0	68.0	73	0.7678	13.0	60.0	60.0	60.0
3.10	5.00	922.905	927.900	4.995	71.0	68.0	71.0	69.0	73	0.7678	13.0	60.0	60.0	60.0

DRY GAS METER		ORIFICE			DRY GAS METER CALIBRATION FACTOR	ORIFICE CALIBRATION FACTOR				
VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (cu ft)	Y Value (number)	dH@ Value (in H2O)	Individual Run 0.95 < Y < 1.05?	Individual Orifice Ymax - Ymin < 0.010?	Orifice Average 0.98 < Y/Yd < 1.02?	Orifice Average dH@ - dH@ av < 0.155?
5.437	154.0	5.330	150.9	5.205	0.980	1.885	**Pass**			
5.420	153.5	5.324	150.8	5.210	0.982	1.887	**Pass**			
5.423	153.6	5.319	150.6	5.215	0.981	1.889	**Pass**			
				Average	**0.981**	**1.887**		**Pass**	**Pass**	**Pass**
5.351	151.6	5.308	150.3	5.173	0.992	1.786	**Pass**			
5.353	151.6	5.308	150.3	5.173	0.992	1.781	**Pass**			
5.366	152.0	5.308	150.3	5.173	0.989	1.780	**Pass**			
				Average	**0.991**	**1.783**		**Pass**	**Pass**	**Pass**
5.512	156.1	5.465	154.8	5.347	0.991	1.668	**Pass**			
5.510	156.0	5.465	154.8	5.347	0.992	1.672	**Pass**			
5.506	155.9	5.465	154.8	5.347	0.993	1.668	**Pass**			
				Average	**0.992**	**1.669**		**Pass**	**Pass**	**Pass**
5.047	142.9	5.067	143.5	4.958	1.004	1.705	**Pass**			
5.046	142.9	5.063	143.4	4.963	1.003	1.708	**Pass**			
5.039	142.7	5.063	143.4	4.963	1.005	1.708	**Pass**			
				Average	**1.004**	**1.707**		**Pass**	**Pass**	**Pass**

Average Yd: 0.992 dH@: 1.761

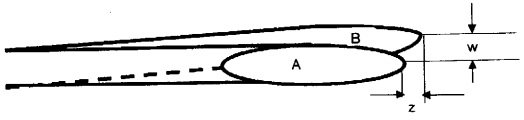
Q @ dH = 1: 0.565

SIGNED: Signature on File

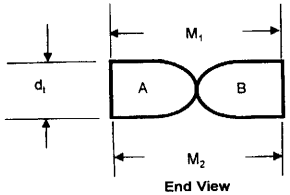
Date: 11/2/2018

MONTROSE AIR QUALITY SERVICES

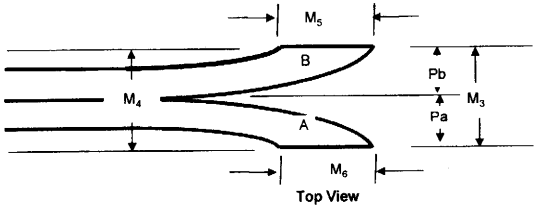
S Type Pitot Tube Dimensional Calibration Record



Side View



End View



Top View

Acceptability Criteria			z < 1/8"	w < 1/32"	Yes	"3/16" < Dt < 3/8"	n/a	n/a	n/a	n/a	n/a	n/a	10 degrees	5 degrees	1.05 Dt < P < 1.5 Dt	
Pitot ID	Date	Calibrated By	Side View, Impact openings Properly aligned, z < 1/8"	Side View, Impact openings Properly aligned, w < 1/32"	Pa = Pb	Tubing Diameter, dt	M1	M2	M3	M4	M5	M6	Average Face Opening Plane Angle, offset from perpendicular to transverse axis	Average Face Opening Plane Frontal Angle from parallel to Longitudinal Axis	Ratio of P/Dt	Status
119	12/31/18	RH	Y	Y	Y	0.375	0.935	0.956	0.937	0.933	0.418	0.433	-1.6	0.3	1.3	Pass
074	12/31/18	RH	Y	Y	Y	0.374	0.866	0.866	0.872	0.868	0.436	0.437	0.0	0.3	1.2	Pass
089	12/31/18	RH	Y	Y	Y	0.371	0.921	0.926	0.944	0.930	0.435	0.444	-0.4	0.9	1.2	Pass
042	12/31/18	RH	Y	Y	Y	0.374	0.833	0.829	0.834	0.839	0.424	0.476	0.3	-0.3	1.1	Pass

Notes: Reference "A Type-S Pitot Tube Calibration Study", Robert F. Vollaro, October 15, 1975
If tube is not visibly deformed it is assumed that Pa = Pb = .5 x avg. of M1 & M2, and that average face opening plane angles represent individual angles to tube axis

MONTROSE AIR QUALITY SERVICES

DIGITAL TEMPERATURE READOUT CALIBRATION

Digital Temperature Readout ID: PTC-42
Readout Description: Handheld
Date: 12/31/2018
Performed By: JG/DA/RH/JS

Calibrated Thermocouple ID: TC-CAL
T1 Reference Thermometer ID: 242196
T2 Reference Thermometer ID: 242196
T3 Reference Thermometer ID: 242167

T/C I.D. TC-CAL	Readout I.D.	T/C - Readout °F Reading 1	Reading 2	Reading 3	Average	Reference Thermometer °F Reading 1	Reading 2	Reading 3	Average	Difference °F	%, (°R)	
T3 (OIL)	PTC-42	365	365	365	365	370	370	370	370	5.0	0.6%	Pass
T2 (Boiling H_2O)	PTC-42	211	211	211	211	212	212	212	212	1.0	0.1%	Pass
T1 (Ice/Water)	PTC-42	31	31	31	31	32	32	32	32	1.0	0.2%	Pass

1) Difference % (°R) = Difference (°F) / (Average Tref + 460)
2) Pass if all Differences are less than 1.5% (°R)

Thermocouple Source Readings

	T/C Source S/N	T/C - Readout °F Reading 1	Reading 2	Reading 3	Average	T/C Source °F Reading 1	Reading 2	Reading 3	Average	Difference °F	%, (°R)	
T4 (~650 F)	S/N 106970	650	650	650	650	650	650	650	650	0.0	0.0%	Pass
T3 (~370 F)	S/N 106970	364	364	364	364	365	365	365	365	1.0	0.1%	Pass
T2 (~212 F)	S/N 106970	211	211	211	211	212	212	212	212	1.0	0.1%	Pass
T1 (~32 F)	S/N 106970	31	31	31	31	32	32	32	32	1.0	0.2%	Pass

1) Difference % (°R) = Difference (°F) / (Average Tref + 460)
2) Pass if all Differences are less than 1.5% (°R)

Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

EPA Method 26A

Analysis Date : 03/29/2019
Analyst : JZ/JD

Instrument ID : DIONEX IC

Calibration Verification of the 10/03/2018 Calibration

Sample ID	Analyte	Target Concentration (ug/mL)	Actual Concentration (ug/mL)	Percent Recovery (%)*
Opening CV	Chloride	25.0	24.1	96.5
Continuing CV	Chloride	25.0	24.7	98.7
Closing CV	Chloride	25.0	24.1	96.4
Second Source	Chloride	25.0	23.3	93.0

* Must be 85-115%

Sucha Parmar, PhD

Technical Director

1534 Eastman Ave., Ste. A • Ventura, • CA 93003 www.aaclab.com • (805) 650-1642

Atmospheric Analysis & Consulting, Inc.

QUALITY CONTROL/ASSURANCE REPORT

EPA Method 26A

Analysis Date : 03/29/2019
Analyst : JZ/JD

Instrument ID : DIONEX IC

Method Blank Analysis

Analyte	Concentration (ug/mL)	Reporting Limit (ug/mL)
Chloride	<RL	0.100

Laboratory Control Spike Analysis

Analyte	Target Sample Concentration (ug/mL)	Target Spike Concentration (ug/mL)	Lab Spike Concentration (ug/mL)	Duplicate Lab Spike Concentration (ug/mL)	Spike Recovery (%)**	Duplicate Spike Recovery (%)**	% RPD****
Chloride	0.000	12.5	12.2	12.2	98.0	97.9	0.0

Matrix Spike Analysis (Sample 190417-117148x10)

Analyte	Target Sample Concentration (ug/mL)	Target Spike Concentration (ug/mL)	Matrix Spike Concentration (ug/mL)	Duplicate Matrix Spike Concentration (ug/mL)	Spike Recovery (%)***	Duplicate Spike Recovery (%)***	% RPD****
Chloride	2.83	12.5	15.6	15.6	102	102	0.1

Duplicate Sample Analysis

Sample ID	Analyte	Result (ug/mL)	Duplicate Result (ug/mL)	%RPD *	DF
190417-117148	Chloride	56.6	56.7	0.3	10
190417-117150	Chloride	72.9	72.8	0.1	10

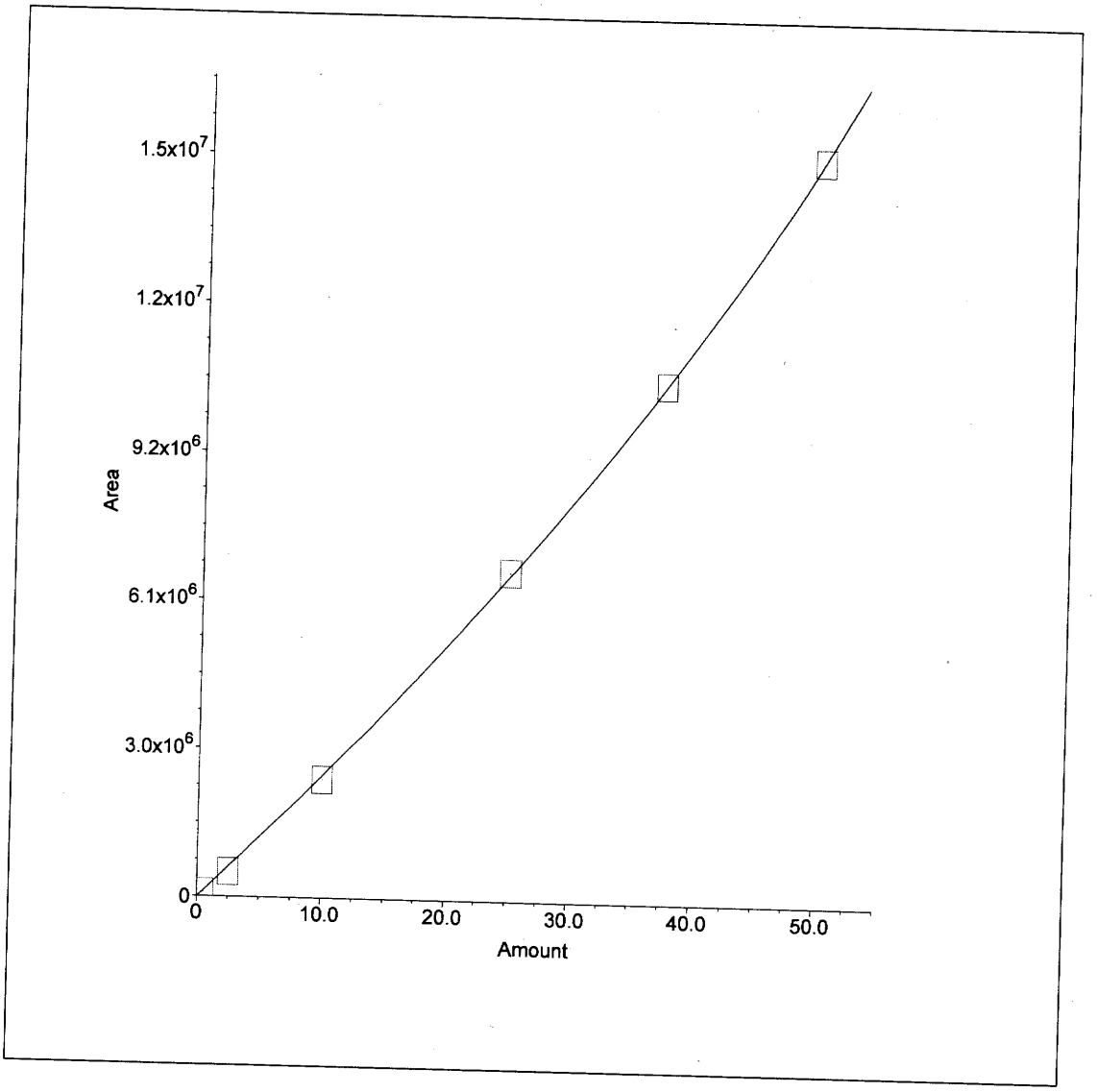
* Must be <10%
** Must be 85-115%
*** Must be 75-125%
**** Must be < 25%

Sucha Parmar, PhD
Technical Director

1534 Eastman Ave., Ste. A • Ventura, • CA 93003 www.aaclab.com • (805) 650-1642

Calibration Summary

2. Component:Chloride
Standard:External Fit Type:Quadratic
Origin:Force Calibration:Area
r^2=0.999851
Amt=-5.534420e-014*Resp²+
4.105339e-006*Resp+0



Raw Data

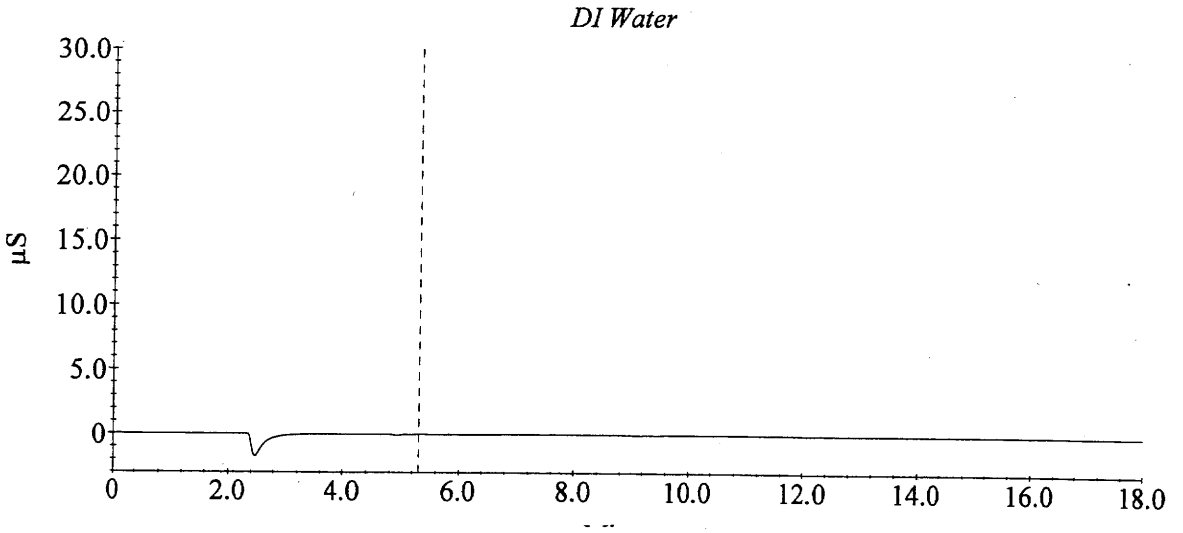
Sample Analysis Report

Sample Name : DI Water
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_001.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 11:41:19 AM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height



03/24/19

Sample Analysis Report

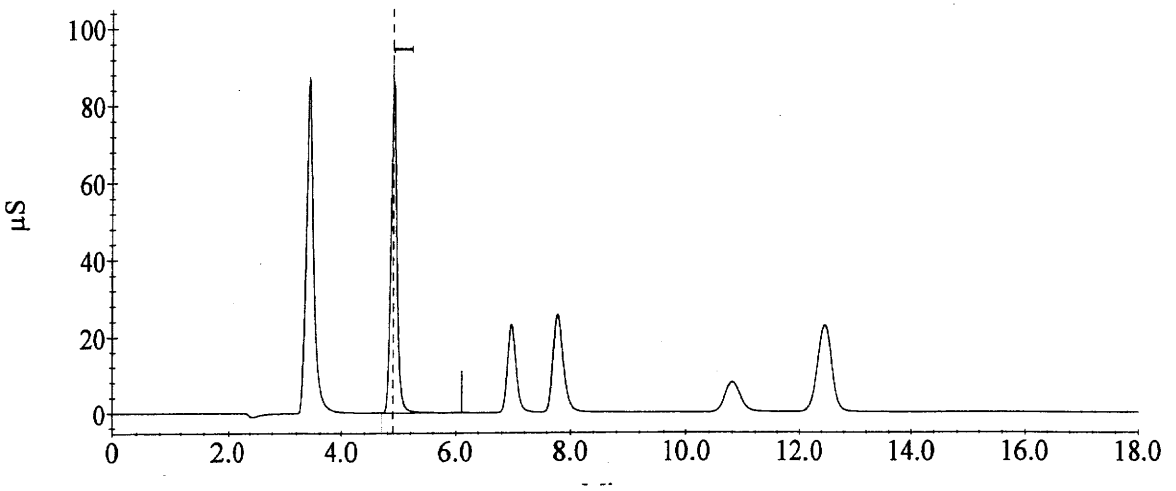
Sample Name : CCV 25.0ug/ml SS1100x4
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_002.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 11:59:23 AM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height
1	Chloride	4.90	24.126	6435034	826088

CCV 25.0ug/ml SS1100x4



Page 13

03/29/19

Sample Analysis Report

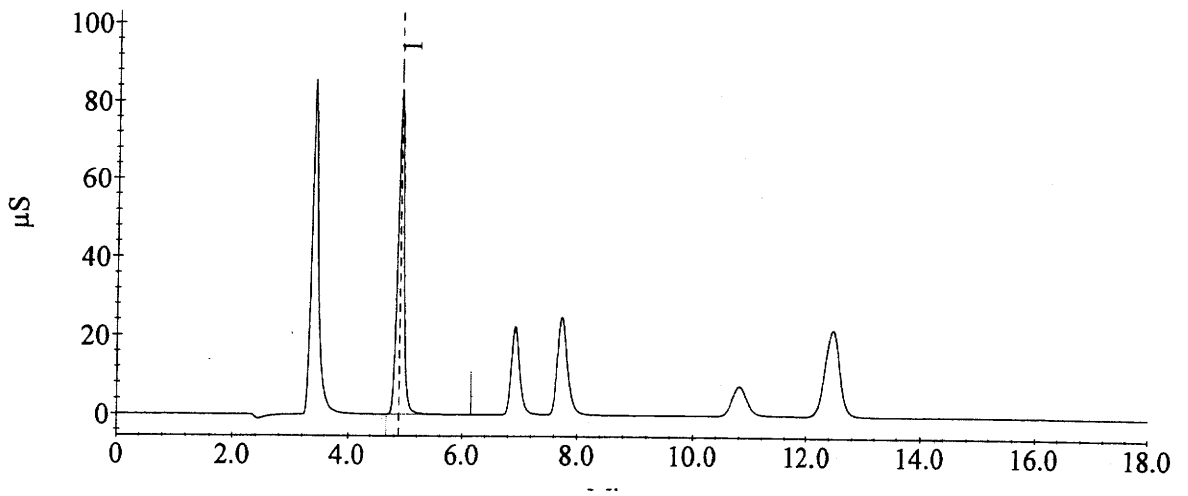
Sample Name : SS 25.0ug/ml SS1047x4
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_003.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 12:17:29 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height
1	Chloride	4.88	23.262	6181383	827022

SS 25.0ug/ml SS1047x4



03129/19
Current Date : 3/29/2019
Current Time : 13:32:38

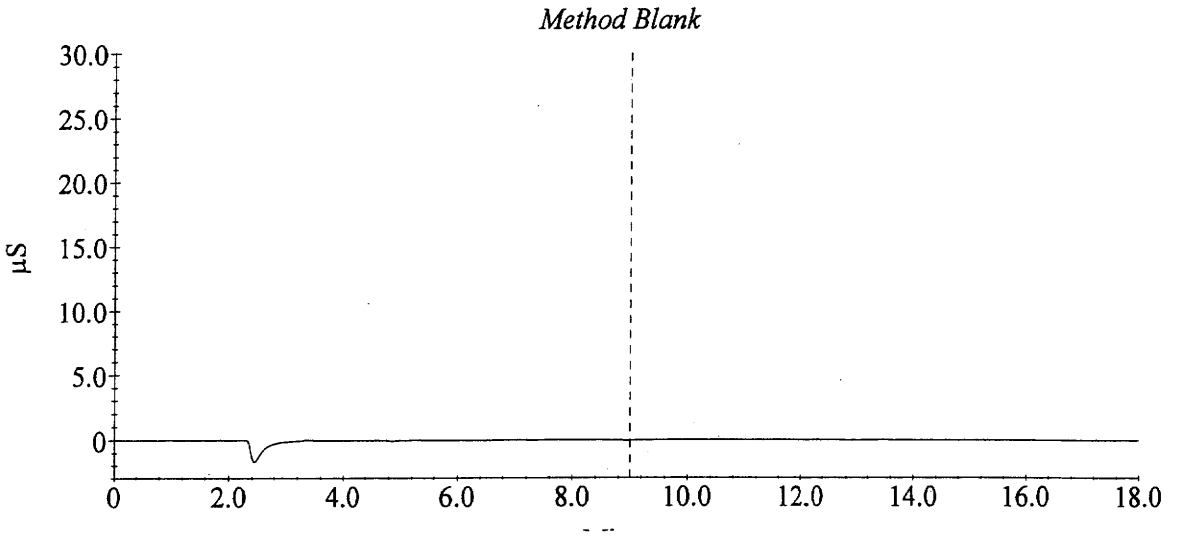
Sample Analysis Report

Sample Name : Method Blank
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_004.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 12:35:29 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height



03/29/19

Sample Analysis Report

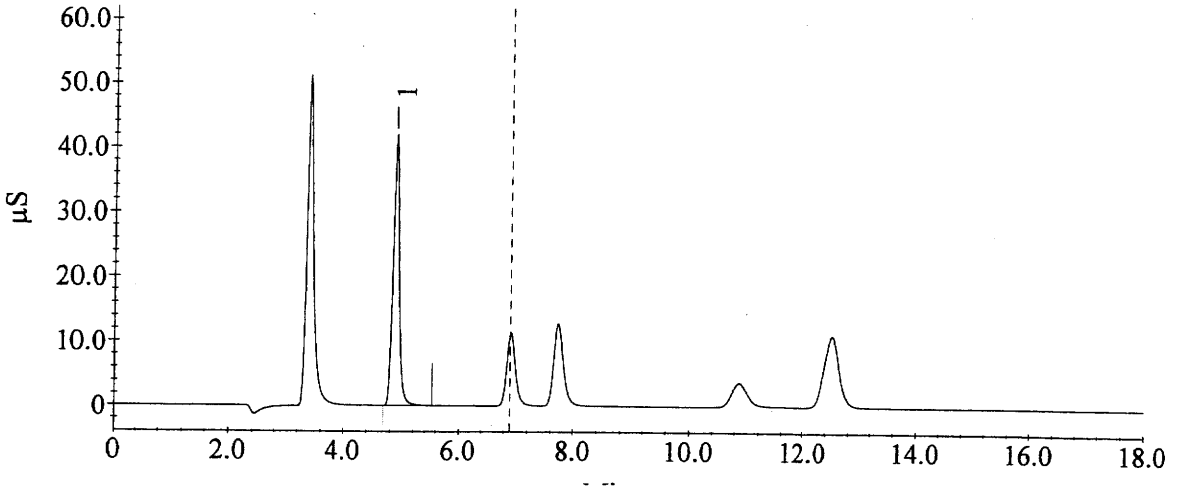
Sample Name : LCS 12.5ug/ml SS1100x8
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_005.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 12:53:35 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height
1	Chloride	4.87	12.249	3114334	415536

LCS 12.5ug/ml SS1100x8



Sample Analysis Report

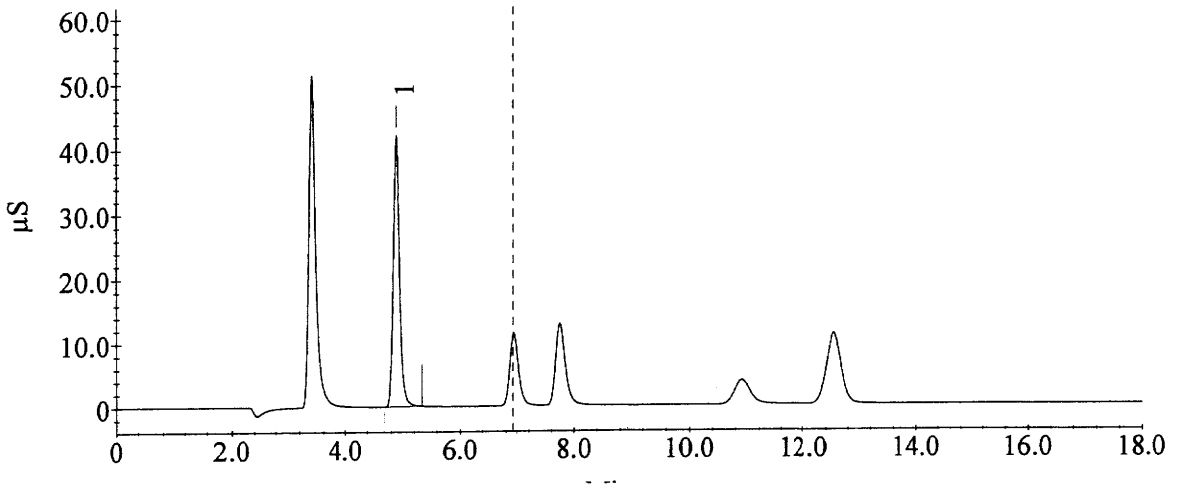
Sample Name : LCSD 12.5ug/ml SS1100x8
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_006.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 1:11:41 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height
1	Chloride	4.88	12.243	3112921	419574

LCSD 12.5ug/ml SS1100x8



03/29/19

Sample Analysis Report

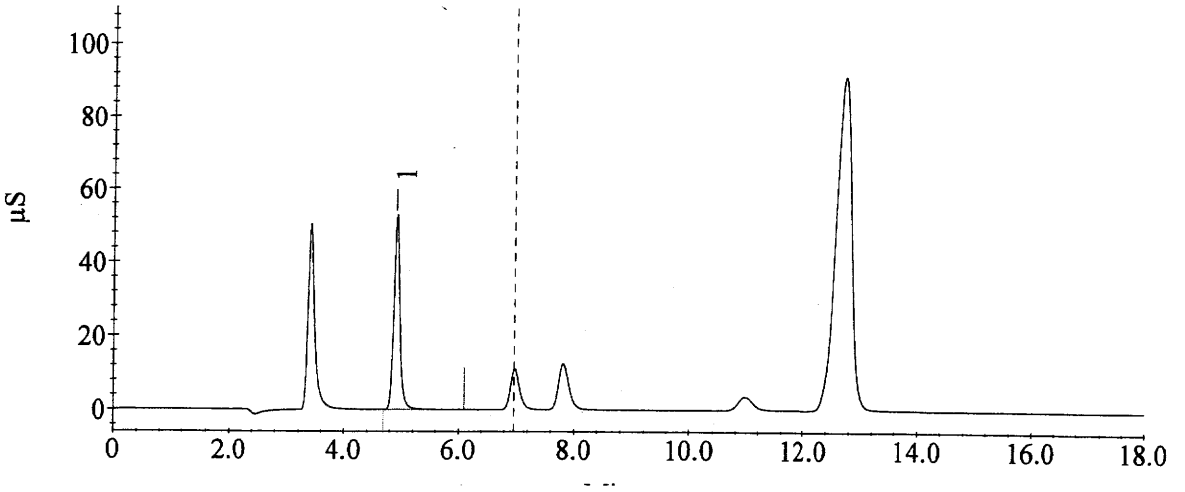
Sample Name : MS 12.5 ug/ml 190417-117148x10
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_007.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 1:29:47 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height
1	Chloride	4.90	15.562	4007209	517978

MS 12.5 ug/ml 190417-117148x10



gal 03/29/19

Sample Analysis Report

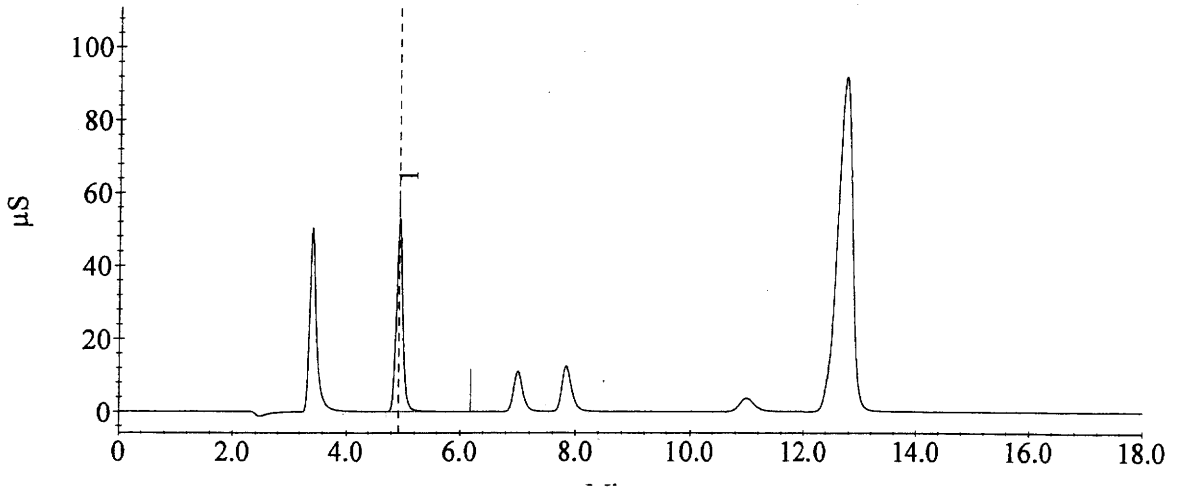
Sample Name : MSD 12.5 ug/ml 190417-117148x1
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_008.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 1:47:48 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height
1	Chloride	4.92	15.569	4008954	521366

MSD 12.5 ug/ml 190417-117148x1



Sample Analysis Report

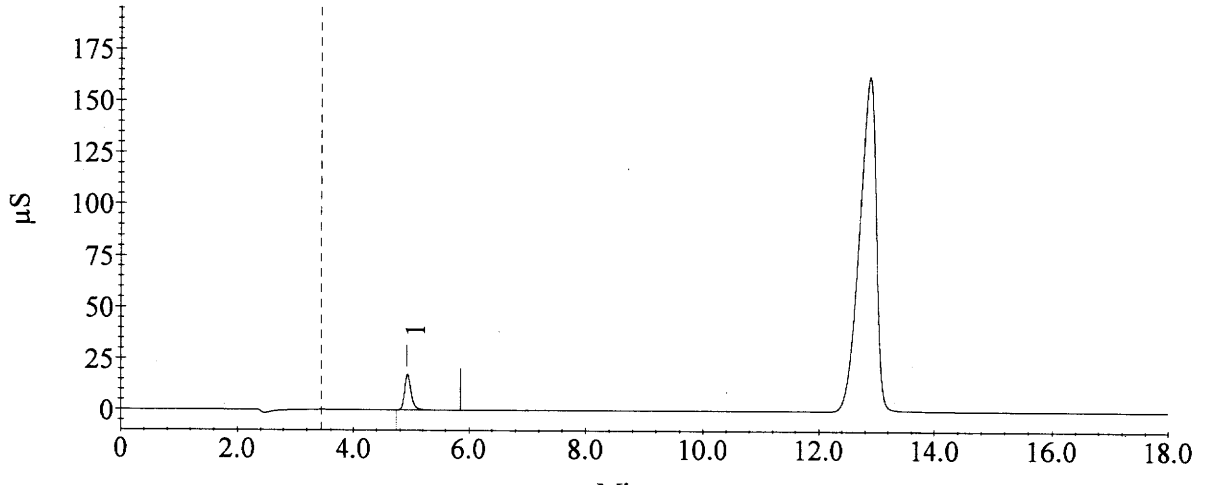
Sample Name : 190417-117148x10
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_009.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 2:05:53 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height
1	Chloride	4.92	56.578	1404754	172658

190417-117148x10



Page 20

03/29/19

Current Date : 3/29/2019
Current Time : 15:21:56

Sample Analysis Report

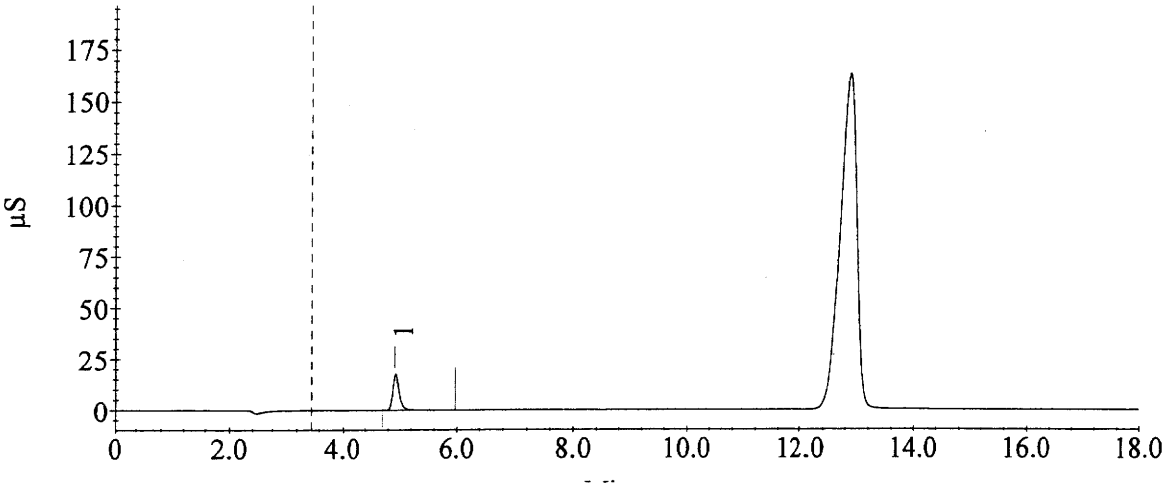
Sample Name : 190417-117148x10 dup
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_010.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 2:23:59 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height
1	Chloride	4.92	56.749	1409099	167541

190417-117148x10 dup



Page 21

03/29/19

Sample Analysis Report

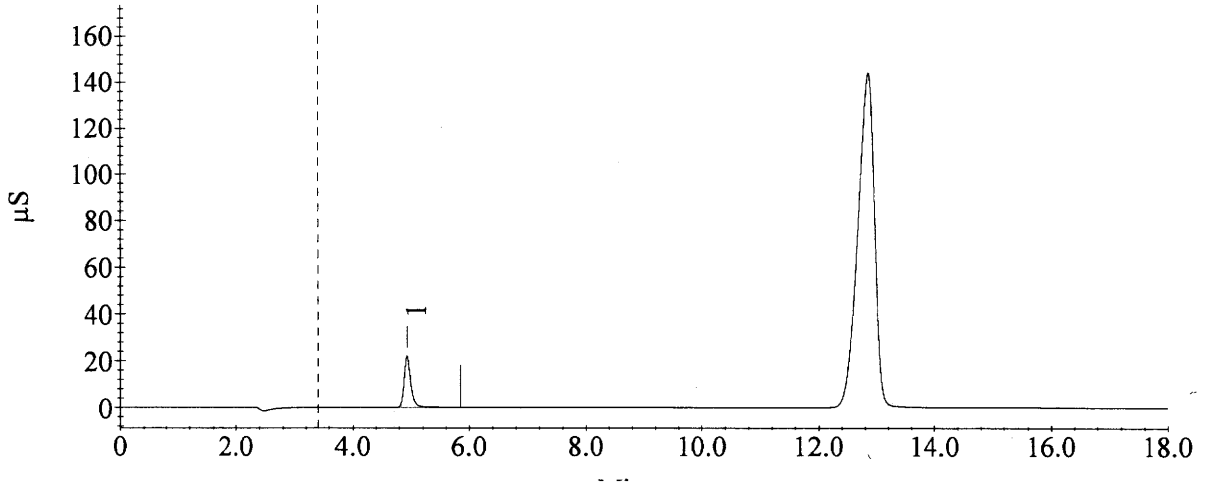
Sample Name : 190417-117149x10
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_011.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 2:42:06 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height
1	Chloride	4.93	69.850	1742364	220718

190417-117149x10



03/29/19

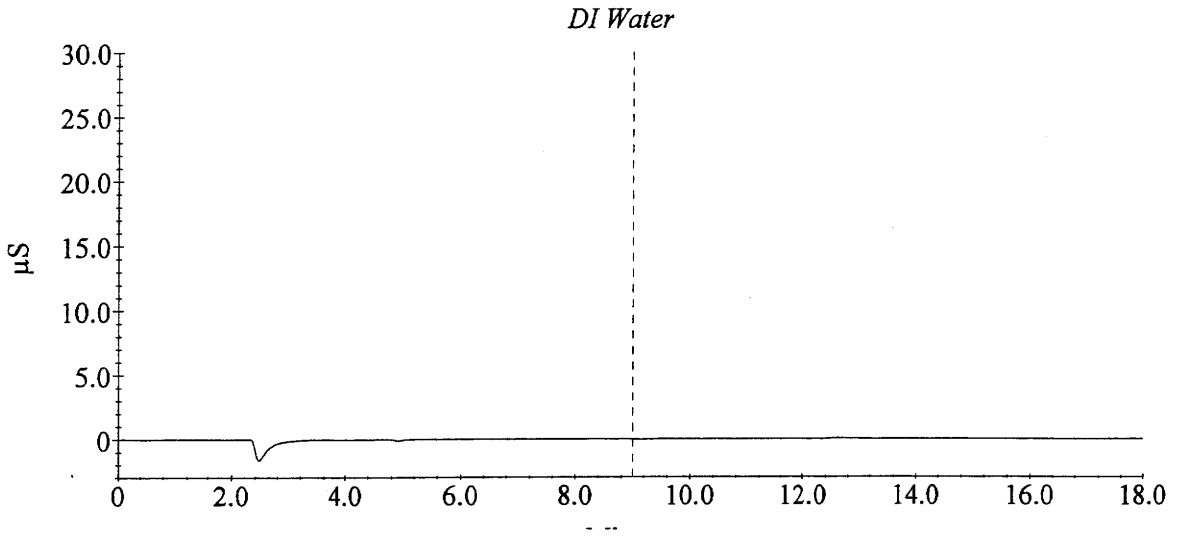
Sample Analysis Report

Sample Name : DI Water
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_012.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 3:00:12 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height



03/29/19

Sample Analysis Report

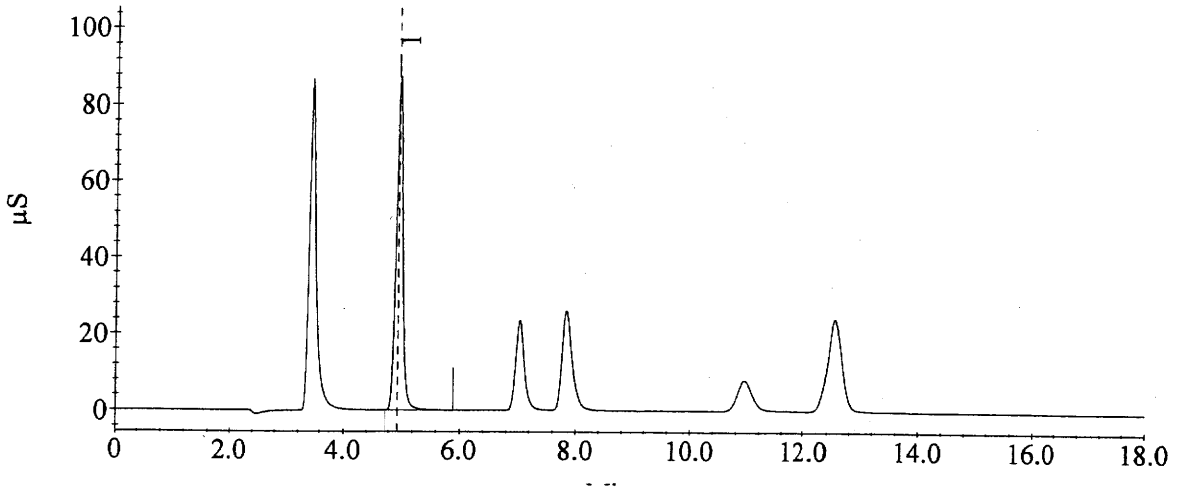
Sample Name : CCV 25.0ug/ml SS1100x4
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_013.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 3:18:17 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height
1	Chloride	4.95	24.686	6600328	850010

CCV 25.0ug/ml SS1100x4



Sample Analysis Report

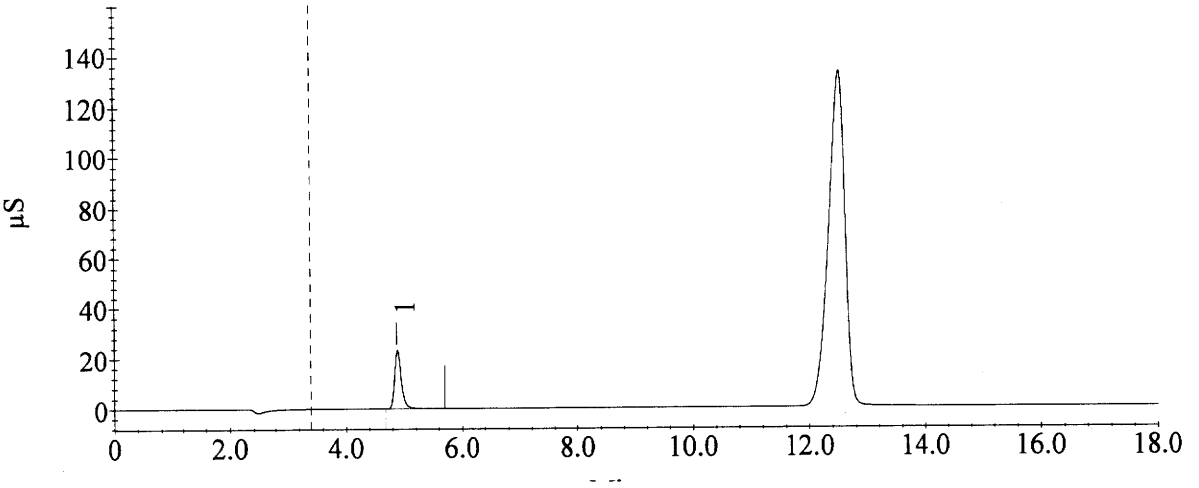
Sample Name : 190417-117150x10
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_014.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 3:36:23 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height
1	Chloride	4.87	72.854	1819229	222141

190417-117150x10



03/29/19

Current Date : 3/29/2019
Current Time : 16:02:21

Sample Analysis Report

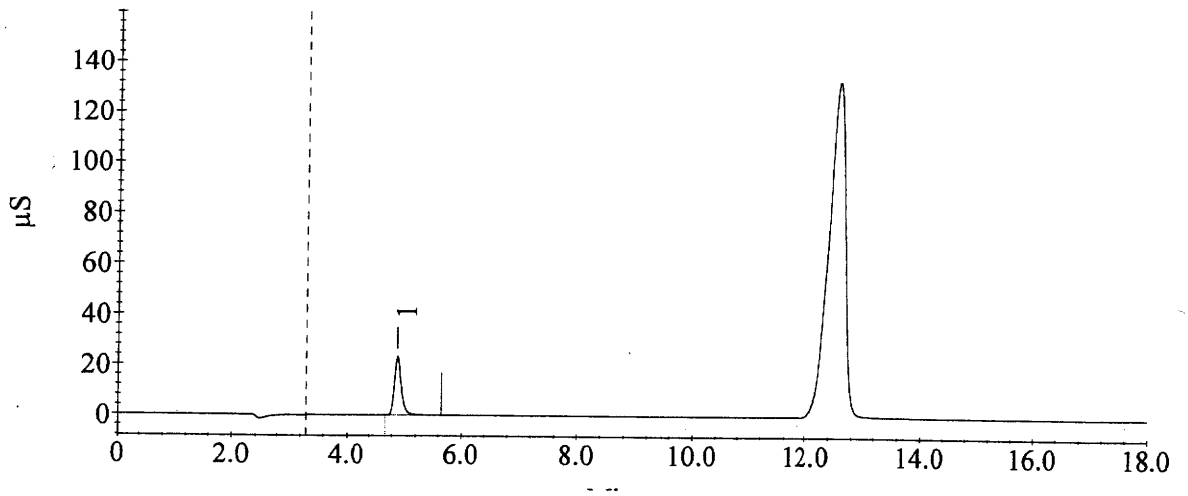
Sample Name : 190417-117150x10 dup
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_015.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 3:54:29 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height
1	Chloride	4.88	72.772	1817120	231704

190417-117150x10 dup



Sample Analysis Report

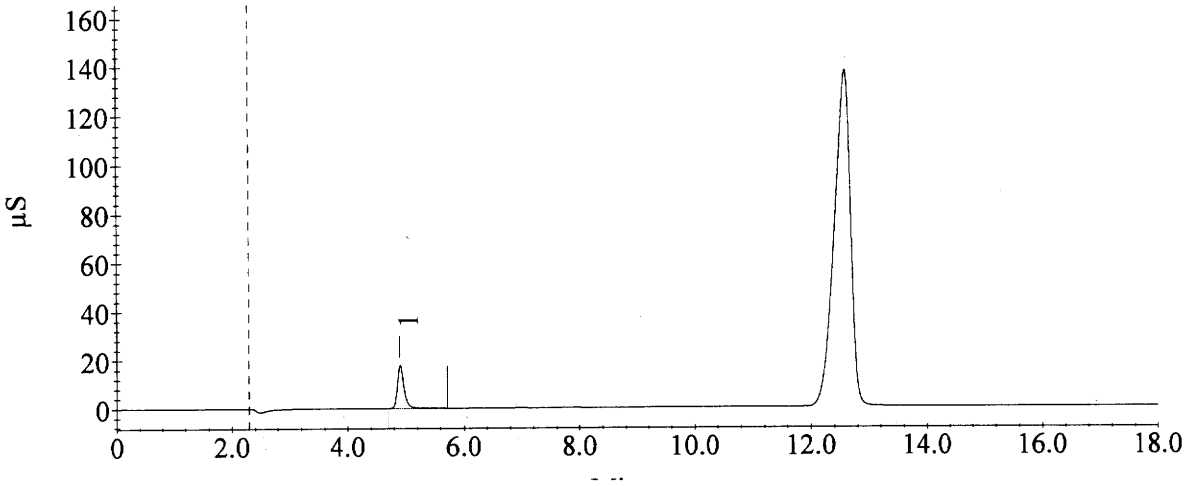
Sample Name : 190417-117151x10
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_016.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 4:12:36 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height
1	Chloride	4.90	56.285	1397340	175593

190417-117151x10



05/29/19

Current Date : 3/29/2019
Current Time : 16:31:17

Sample Analysis Report

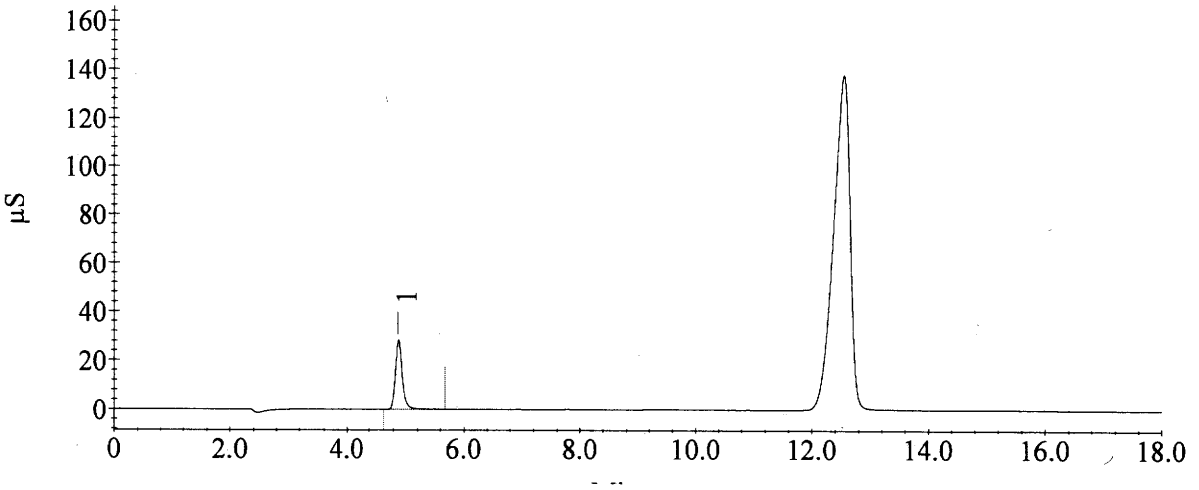
Sample Name : 190417-117152x10
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_017.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 4:30:36 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height
1	Chloride	4.87	86.998	2183417	272737

190417-117152x10



03/01/2019

Current Date : 4/1/2019
Current Time : 07:33:01

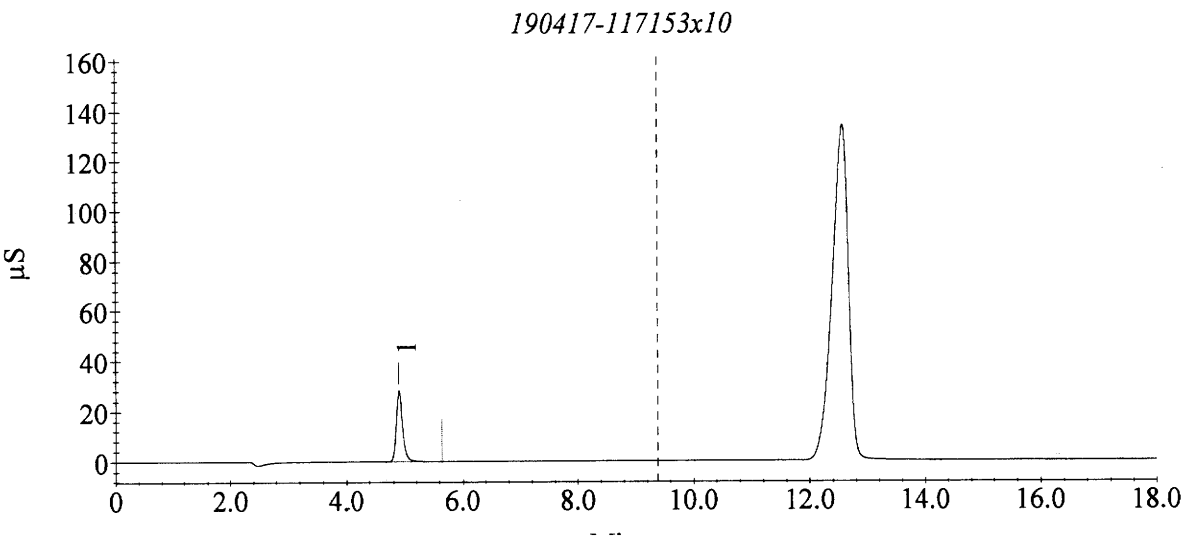
Sample Analysis Report

Sample Name : 190417-117153x10
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_018.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 4:48:43 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height
1	Chloride	4.88	86.359	2166878	274117



Current Date : 4/1/2019
Current Time : 07:32:47

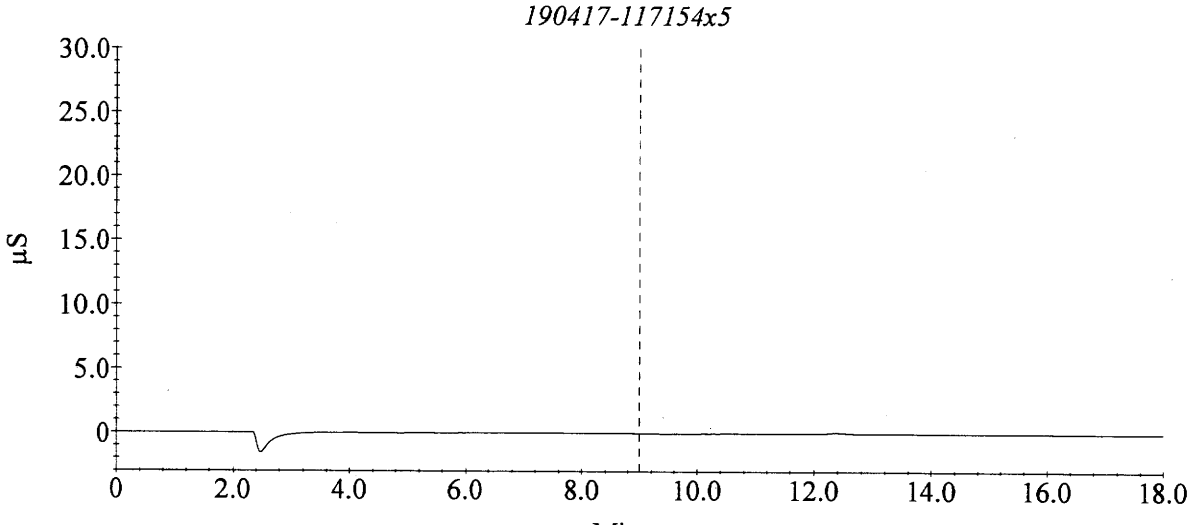
Sample Analysis Report

Sample Name : 190417-117154x5
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_019.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 5:06:49 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height



04/01/19

Current Date : 4/1/2019
Current Time : 07:33:22

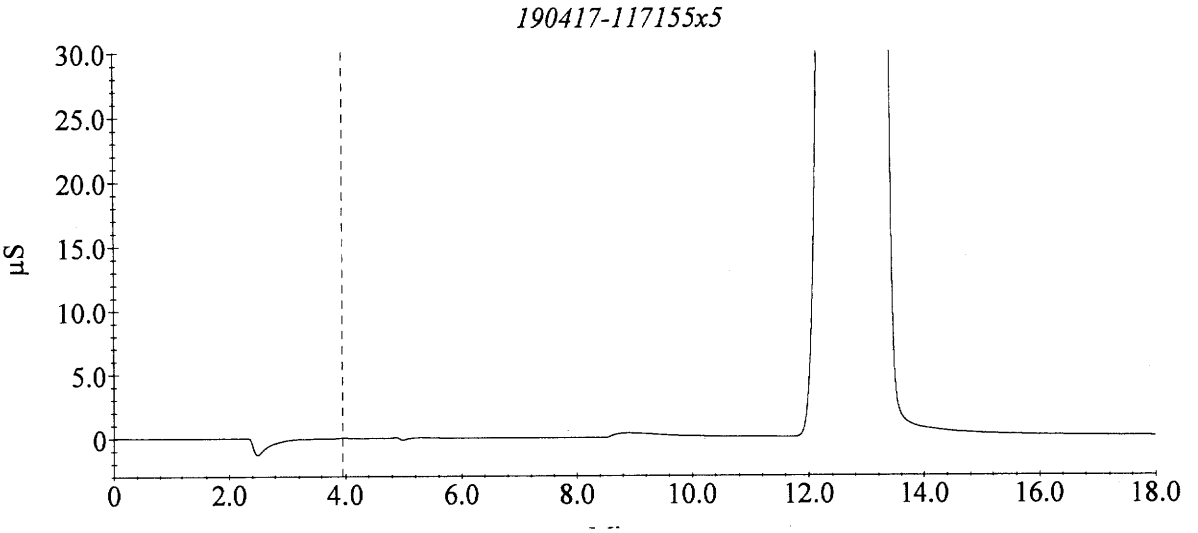
Sample Analysis Report

Sample Name : 190417-117155x5
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_020.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 5:24:55 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height



Current Date : 4/1/2019
Current Time : 07:33:57

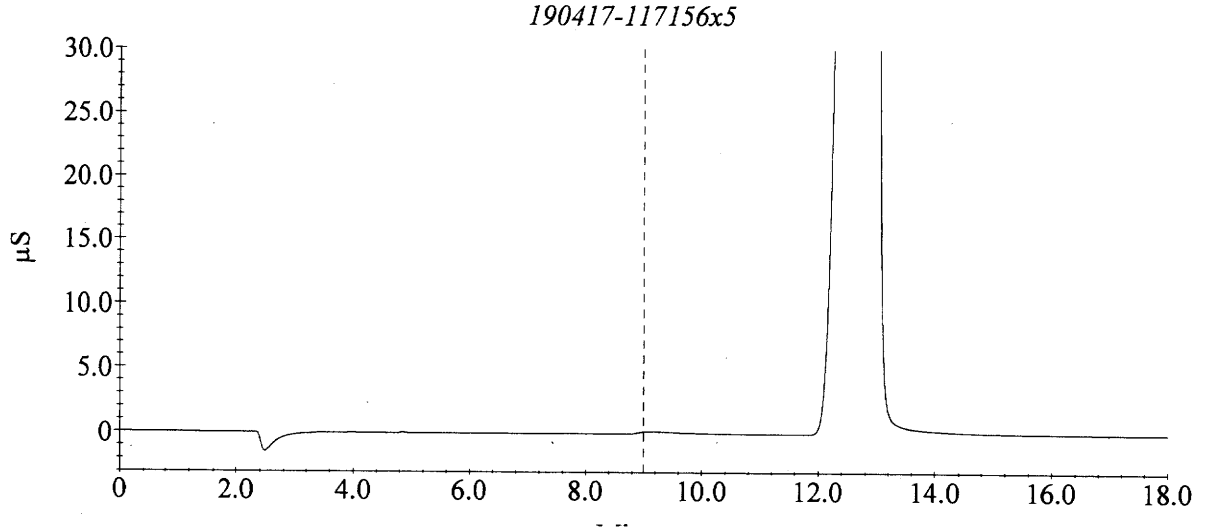
Sample Analysis Report

Sample Name : 190417-117156x5
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_021.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 5:43:01 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height



04/01/19

Current Date : 4/1/2019
Current Time : 07:34:17

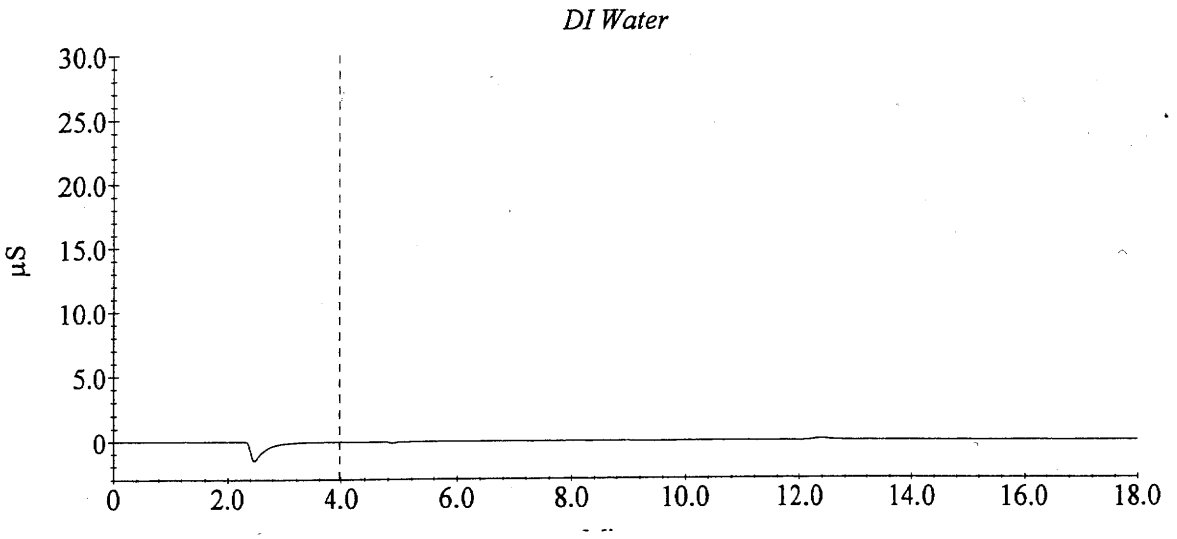
Sample Analysis Report

Sample Name : DI Water
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_022.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 6:01:06 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height



Current Date : 4/1/2019
Current Time : 07:34:36

Sample Analysis Report

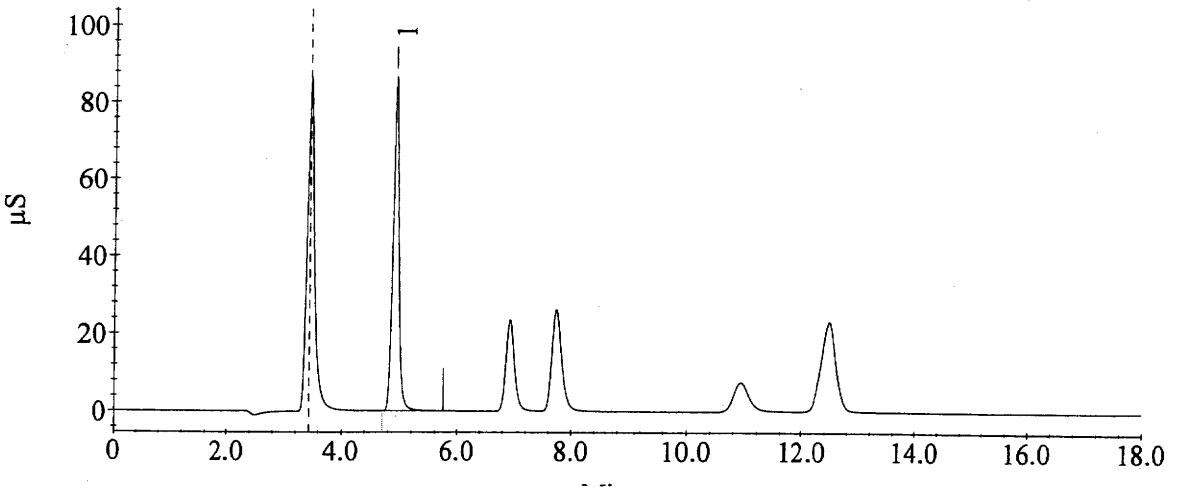
Sample Name : CCV 25.0ug/ml SS1100x4
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_023.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 6:19:12 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height
1	Chloride	4.92	24.102	6427776	867767

CCV 25.0ug/ml SS1100x4



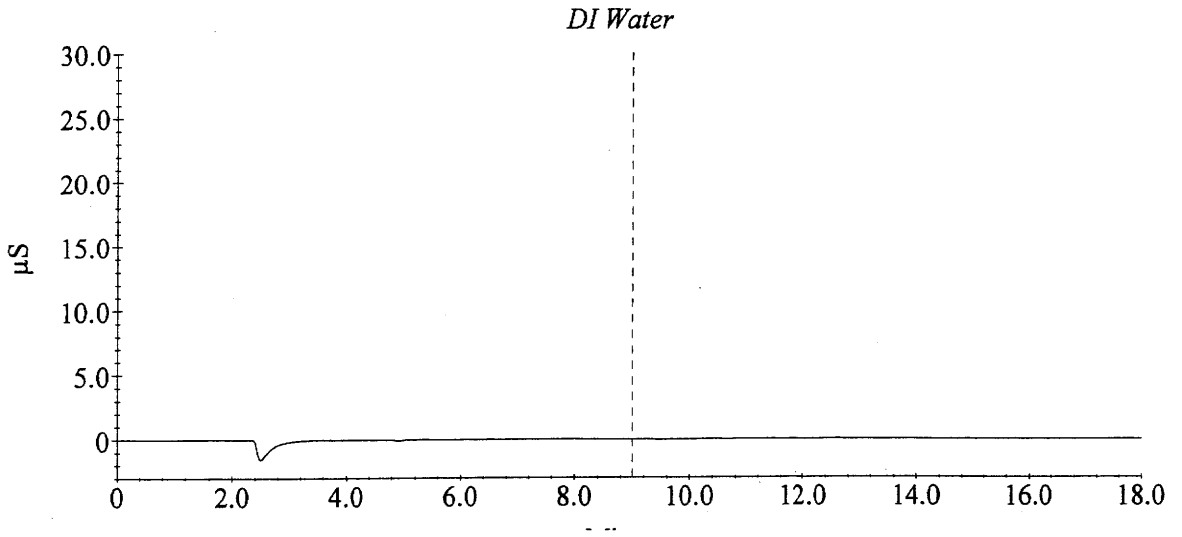
Sample Analysis Report

Sample Name : DI Water
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_024.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 3/29/2019 6:37:18 PM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height



04/01/19

Sample Analysis Report

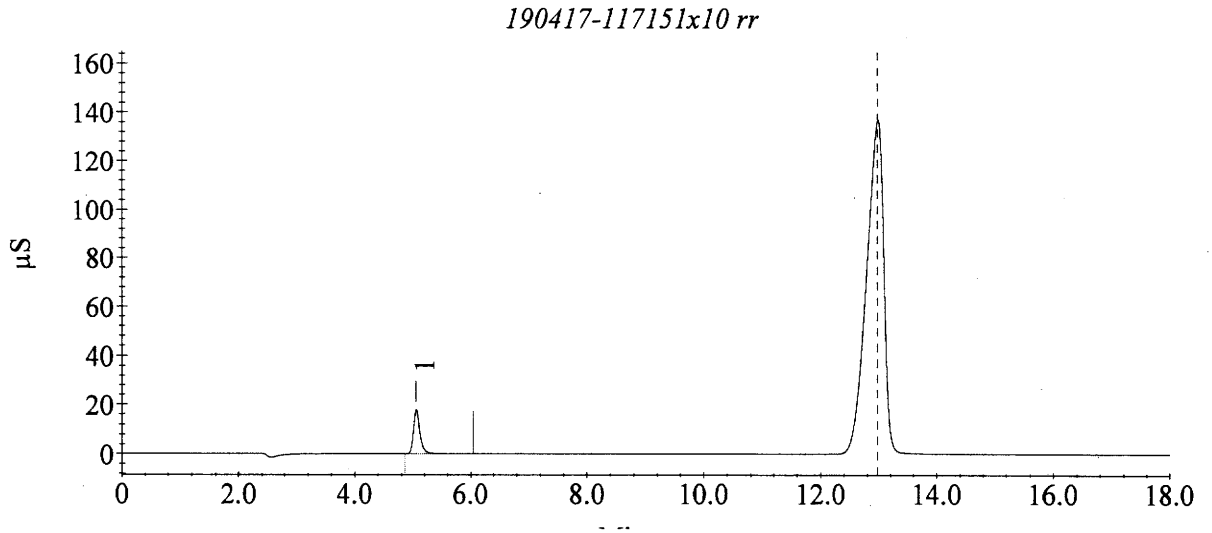
Sample Name : 190417-117151x10 rr
Data File Name : C:\PEAKNET\DATA\2019\032919ANIONS\A_025.DXD

Method File Name : c:\peaknet\method\2018\anions100318.met
Date Time Collected : 4/1/2019 8:24:02 AM
System Operator : JZ/JD

Peak Information : All Peaks

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height
~~1~~	~~Chloride~~	~~5.05~~	~~57.509~~	~~1428333~~	~~175860~~

Data not reported
Sample re-ran for confirmation



04/01/19

e	Sample	Sample Type	Method
	DI Water	Sample	anions100318.met
	CCV 25.0ug/ml SS1100x4	Sample	anions100318.met
	SS 25.0ug/ml SS1047x4	Sample	anions100318.met
	Method Blank	Sample	anions100318.met
	LCS 12.5ug/ml SS1100x8	Sample	anions100318.met
	LCSD 12.5ug/ml SS1100x8	Sample	anions100318.met
	MS 12.5 ug/ml 190417-117148x10	Sample	anions100318.met
	MSD 12.5 ug/ml 190417-117148x1	Sample	anions100318.met
	190417-117148x10	Sample	anions100318.met
	190417-117148x10 dup	Sample	anions100318.met
	190417-117149x10	Sample	anions100318.met
	DI Water	Sample	anions100318.met
	CCV 25.0ug/ml SS1100x4	Sample	anions100318.met
	190417-117150x10	Sample	anions100318.met
	190417-117150x10 dup	Sample	anions100318.met
	190417-117151x10	Sample	anions100318.met
	190417-117152x10	Sample	anions100318.met
	190417-117153x10	Sample	anions100318.met
	190417-117154x5	Sample	anions100318.met
	190417-117155x5	Sample	anions100318.met
	190417-117156x5	Sample	anions100318.met
	DI Water	Sample	anions100318.met
	CCV 25.0ug/ml SS1100x4	Sample	anions100318.met
	DI Water	Sample	anions100318.met
	190417-117151x10 m	Sample	anions100318.met
	DI Water	Sample	anions100318.met
	End	Sample	c:\peaknet\method\2017\anionstop.met

301 of 694

Line	Data File	Dilution
1	c:\peaknet\data\2019\032919anions\a_001.dxd	1
2	c:\peaknet\data\2019\032919anions\a_002.dxd	1
3	c:\peaknet\data\2019\032919anions\a_003.dxd	1
4	c:\peaknet\data\2019\032919anions\a_004.dxd	1
5	c:\peaknet\data\2019\032919anions\a_005.dxd	1
6	c:\peaknet\data\2019\032919anions\a_006.dxd	1
7	c:\peaknet\data\2019\032919anions\a_007.dxd	1
8	c:\peaknet\data\2019\032919anions\a_008.dxd	1
9	c:\peaknet\data\2019\032919anions\a_009.dxd	10
10	c:\peaknet\data\2019\032919anions\a_010.dxd	10
11	c:\peaknet\data\2019\032919anions\a_011.dxd	10
12	c:\peaknet\data\2019\032919anions\a_012.dxd	1
13	c:\peaknet\data\2019\032919anions\a_013.dxd	1
14	c:\peaknet\data\2019\032919anions\a_014.dxd	10
15	c:\peaknet\data\2019\032919anions\a_015.dxd	10
16	c:\peaknet\data\2019\032919anions\a_016.dxd	10
17	c:\peaknet\data\2019\032919anions\a_017.dxd	10
18	c:\peaknet\data\2019\032919anions\a_018.dxd	10
19	c:\peaknet\data\2019\032919anions\a_019.dxd	5
20	c:\peaknet\data\2019\032919anions\a_020.dxd	5
21	c:\peaknet\data\2019\032919anions\a_021.dxd	5
22	c:\peaknet\data\2019\032919anions\a_022.dxd	1
23	c:\peaknet\data\2019\032919anions\a_023.dxd	1
24	c:\peaknet\data\2019\032919anions\a_024.dxd	1
25	c:\peaknet\data\2019\032919anions\a_025.dxd	10
26	c:\peaknet\data\2019\032919anions\a_026.dxd	1
27	a	1

Default Method Path: C:\PEAKNET\METHOD\2018
Default Data Path: C:\PEAKNET\DATA\2018\102318ANIONS
Comment:

Appendix B.2
Particulate Laboratory Data

MONTROSE

PARTICULATE
EPA METHOD 5

Project # 002AS-541589
Client/Location Desert View
Sample Location Unit 2
Test # 1-PM-U2

Acetone Blank mg/ml 0.023

Sample Date 3/20/19
Data Analysis Date 3/26/19
Analyst Initials MS

Item	Number	Final Weight (g)	Tare Weight (g)	Gain Weight (mg)	Blank Correction (mg)	Aliquot Correction (ml/ml)	Net Gain (mg/Sample)
1. Glass Fiber Filter	83-3564	0.3536	0.3525	1.1	–	–	1.1
2. Probe and Nozzle Wash (Acetone)	4134	29.6481	29.6478	0.3	2.1	90.8/90.8	0.0
Acetone Blank	4135	29.4810	29.4768	4.2	–	183.1/183.1	

MS 3/27/19

Total Particulate = 1.1 mg

Method of Sample Prep/Notes

MONTROSE

PARTICULATE
EPA METHOD 5

Project # 002AS-541589
Client/Location Desert View
Sample Location Unit 2
Test # 2-PM-U2

Acetone Blank mg/ml 0.023

Sample Date 3/20/19
Data Analysis Date 3/26/19
Analyst Initials HS

Item	Number	Final Weight (g)	Tare Weight (g)	Gain Weight (mg)	Blank Correction (mg)	Aliquot Correction (ml/ml)	Net Gain (mg/Sample)
1. Glass Fiber Filter	83-3586	0.3509	0.3499	1.0	—	—	1.0
2. Probe and Nozzle Wash (Acetone)	4136	29.5620	29.5613	0.7	2.0	85.6/85.6	0.0

HS 3/27/19

Total Particulate = 1.0 mg

Method of Sample Prep/Notes

MONTROSE

PARTICULATE
EPA METHOD 5

Project # 002AS-541589
Client/Location Desert View
Sample Location Unit 2
Test # 3-PM-U2

Acetone Blank mg/ml 0.023

Sample Date 3/20/19
Data Analysis Date 3/26/19
Analyst Initials HS

Item	Number	Final Weight (g)	Tare Weight (g)	Gain Weight (mg)	Blank Correction (mg)	Aliquot Correction (ml/ml)	Net Gain (mg/Sample)
1. Glass Fiber Filter	83-3585	0.3493	0.3487	6.0	–	–	6.0
2. Probe and Nozzle Wash (Acetone)	4137	29.3149	29.3140	0.9	2.1	93.3 / 93.3	0.0

HS 3/27/19

Total Particulate = 6.0 mg

Method of Sample Prep/Notes

MONTROSE

PARTICULATE
EPA METHOD 5

Project # 002AS-541589
Client/Location Desert View
Sample Location Unit 1
Test # 1-PM-U1

Acetone Blank mg/ml 0.023

Sample Date 3/22/19
Data Analysis Date 3/26/19
Analyst Initials HS

Item	Number	Final Weight (g)	Tare Weight (g)	Gain Weight (mg)	Blank Correction (mg)	Aliquot Correction (ml/ml)	Net Gain (mg/Sample)
1. Glass Fiber Filter	83-3583	0.3568	0.3516	5.2	–	–	5.2
2. Probe and Nozzle Wash (Acetone)	4138	29.4713	29.4706	0.7	2.4	104.3 / 104.3	0 0

HS 3/27/19

Total Particulate = 5.2 mg

Method of Sample Prep/Notes

MONTROSE

PARTICULATE
EPA METHOD 5

Project # 002AS-541589
Client/Location Desert View
Sample Location Unit 1
Test # 2-PM-U1

Acetone Blank mg/ml 0.023

Sample Date 3/22/19
Data Analysis Date 3/26/19
Analyst Initials HS

Item	Number	Final Weight (g)	Tare Weight (g)	Gain Weight (mg)	Blank Correction (mg)	Aliquot Correction (ml/ml)	Net Gain (mg/Sample)
1. Glass Fiber Filter	83-3584	0.3564	0.3491	7.3	—	—	7.3
2. Probe and Nozzle Wash (Acetone)	4139	29.5033	29.5013	2.0	1.9	83.7 / 83.7	0.1

HS 3/27/19

Total Particulate = 7.4 mg

Method of Sample Prep/Notes

MONTROSE

PARTICULATE
EPA METHOD 5

Project # 002AS-541589
Client/Location Desert View
Sample Location Unit 1
Test # 3-PM-U1

Acetone Blank mg/ml 0.023

Sample Date 3/22/19
Data Analysis Date 3/26/19
Analyst Initials HS

Item	Number	Final Weight (g)	Tare Weight (g)	Gain Weight (mg)	Blank Correction (mg)	Aliquot Correction (ml/ml)	Net Gain (mg/Sample)
1. Glass Fiber Filter	83-3527 ~~3584~~ *	0.3371	0.3324	4.7	—	—	4.7
2. Probe and Nozzle Wash (Acetone)	4140	29.4660	29.4638	2.2	2.4	105.5 / 105.5	0.0
			HS 3/27/19				

Total Particulate = 4.7 mg

Method of Sample Prep/Notes
* HS 3/25/19

Appendix B.3
SO_x Laboratory Data

MONTROSE

SULFATE TITRATION

Project #
Client/Location Desert View Power
Sample Location Unit 1
Titrant Used 0.01 N $BaCl_2$

Sample Date 3/19/19
Analysis Date 3/19/19
Analyst Initials

Test Number	Sample Description	Total Vol (ml) (TV)	V_{recon}	V_{evap}	Aliquot Vol (ml) (Va)	Titrant Volume (ml) (Vt)	X-Blank Vol (ml)	Comments	mg/Sample
Blank (V_b): 20 mL 3% H_2O_2 + 80 mL IPA					20 ml	0.07 / 0.08	0.08		
Blank (V_b): 20 mL DI H_2O + 80 mL IPA					20 ml	0.08 / 0.07	0.08	subtracted from sol N = (0.02*Va)/Vt	
Standardization: 15 ml DI H_2O + 5 ml 0.0200 N H_2SO_4 + 80 mL IPA					5 ml	10.42 / 10.41	10.34	N= 0.0096712	
Audit Sample: 5 ml 1000 ppm SO_4 + 15 DI H_2O + 80 mL IPA 5 mg dbl					5 ml	10.38 / 10.39	10.31	95.72 % recovery	4.86/5.0 mg
1-SOx	Iry Cadl	510			20 ml	1.50 / 1.51	1.43		
2-SOx	Iry Cadl	460			20 ml	1.23 / 1.25	1.16		
3-SOx	Iry Cadl	471			20 ml	1.49 / 1.48	1.41		
4-SOx	Iry Cadl	483			20 ml	2.31 / 2.35	2.25		
5-SOx	Iry Cadl	434			20 ml	2.33 / 2.36	2.27		
6-SOx	Iry Cadl	448			20 ml	2.36 / 2.39	2.30		
					mg $H_2SO_4 \cdot 2H_2O$ = (Vt-Vbl) (N) (67) (TV/V_{evap}) (V_{recon}/Va)				

Method of Sample Prep/Analysis Notes

MONTROSE

SULFATE TITRATION

Project #
Client/Location: Desert View Power
Sample Location: Unit 1
Titrant Used: 0.01 N $BaCl_2$

Sample Date: 3/20/19
Analysis Date: 3/20/19
Analyst Initials:

Test Number	Sample Description	Total Vol (ml) (TV)	V_{recon}	V_{evap}	Aliquot Vol (ml) (Va)	Titrant Volume (ml) (Vt)	X-Blank Vol (ml)	Comments	mg/Sample
set up 3/19/19	Blank (V_b): 20 mL 3% H_2O_2 + 80 mL IPA				20 l	0.07 / 0.08	0.08		
	Blank (V_b): 20 mL DI H_2O + 80 mL IPA				20 l	0.08 / 0.07	0.08	subtract from sample	
	Standardization: 15 ml DI H_2O + 5 ml 0.0200 N H_2SO_4 + 80 mL IPA				5 l	10.42 / 10.41	10.34	N = (0.02*Va)/Vt N= 0.0096712	
	Audit Sample: 5 ml 1000 ppm SO_4 + 15 DI H_2O + 80 mL IPA				5 l	10.38 / 10.39	10.31	95.72 % recovery 4.86/5.0 mg	
1-SOx	Inj Cadet	515			20 l	4.38 / 4.34	4.28		
2-SOx	Inj Cadet	448			20 l	2.05 / 2.03	1.96		
3-SOx	Inj Cadet	537			20 l	2.47 / 2.50	2.41		
4-SOx	Inj Cadet	485			20 l	3.50 / 3.55	3.46		
5-SOx	Inj Cadet	475			20 l	1.74 / 1.74	1.66		
6-SOx	Inj Cadet	455			20 l	2.45 / 2.44	2.37		
7-SOx	Inj Cadet	433			20 l	2.95 / 2.92	2.86		
8-SOx	Inj Cadet	479			20 l	2.88 / 2.90	2.82		
9-SOx	Inj Cadet	487			20 l	1.65 / 1.64	1.57		
10-SOx	Inj Cadet	446			20 l	1.32 / 1.34	1.25		
					mg $H_2SO_4 \cdot 2H_2O$ = (Vt-Vbl) (N) (67) (TV/V_{evap}) (V_{recon}/Va)				

Method of Sample Prep/Analysis Notes

DS1580127

Date of last revision 2/14/2017

Master Document Storage\Forms\Datasheets\Lab Forms

MONTROSE

SULFATE TITRATION

Project #
Client/Location DVP
Sample Location Unit 2
Titrant Used 0.01 N $BaCl_2$

Sample Date 3/21/19
Analysis Date 3/21/19
Analyst Initials

Test Number	Sample Description	Total Vol (ml) (TV)	V_{recon}	V_{evap}	Aliquot Vol (ml) (Va)	Titrant Volume (ml) (Vt)	X-Blank Vol (ml)	Comments	mg/Sample
Blank (V_b): 20 mL 3% H_2O_2 + 80 mL IPA						0.08 0.08	0.08		
Blank (V_b): 20 mL DI H_2O + 80 mL IPA						0.07 0.08	0.08	use w/std N = (0.02*Va)/Vt	
Standardization: 15 ml DI H_2O + 5 ml 0.0200 N H_2SO_4 + 80 mL IPA					5ml	10.32 10.30	10.23	N= 0.0097752	
Audit Sample: 5 ml 1000 ppm SO_4 + 15 DI H_2O + 80 mL IPA					5ml	10.28 10.28	10.20	95.8 4.79/5.0 % recovery	
1-SOx	Inj Cakl	477			20ml	3.69 3.72	3.63		
2-SOx	Inj Cakl	477			20ml	3.64 3.62	3.55		
3-SOx	Inj Cakl	508			20ml	3.25 3.28	3.19		
4-SOx	Inj Cakl	462			20ml	2.74 2.71	2.65		
5-SOx	Inj Cakl	472			20ml	3.79 3.82	3.73		
6-SOx	Inj Cakl	443			20ml	2.80 2.82	2.73		
7-SOx	Inj Cakl	438			20ml	3.65 3.68	3.59		
8-SOx	Inj Cakl	449			20ml	2.98 2.95	2.89		
9-SOx	Inj Cakl	451			20ml	2.30 2.31	2.23		
10-SOx	Inj Cakl	458			20ml	2.25 2.26	2.14		
					mg $H_2SO_4 \cdot 2H_2O$ = (Vt-Vbl) (N) (67) (TV/V_{evap}) (V_{recon}/Va)				

Method of Sample Prep/Analysis Notes

Appendix B.4
Hydrocarbon Laboratory Report

AtmAA Inc.
23917 Craftsman Rd., Calabasas, CA 91302 • (818) 223-3277 • FAX (818) 223-8250

environmental consultants
laboratory services
atmaa.com

April 3, 2019

LTR/080/19

Dave Wonderly
Montrose Air Quality Services, LLC
1631 E. Saint Andrew Place
Santa Ana, CA 92705

Re: Desert View Power

Dear Dave:

Please find enclosed the laboratory analysis report, quality assurance summary, and the original chain of custody form for four M25.3 SUMMA canister and water impinger samples received on March 25, 2019.

The SUMMA canisters were analyzed for methane and TGNMO by Method 25.3 including O2 and CO2. The water impingers were analyzed for TOC.

Sincerely,

AtmAA, Inc.

Michael S. Porter
Senior Analyst

AtmAA Inc.
23917 Craftsman Rd., Calabasas, CA 91302 • (818) 223-3277 • FAX (818) 223-8250
environmental consultants
laboratory services
atmaa.com

LABORATORY ANALYSIS REPORT

Organic Carbon Analysis in Water Impinger and Methane & TGNMO Analysis in SUMMA Canister Samples from Impinger/Canister Train Sample Collection

Report Date: April 3, 2019
Client: Montrose Air Quality Services
Project No.: 002AS2-541589
Source Location : Desert View Power
Source ID: Unit 1 / Unit 2

Date Received: March 25, 2019
Date Analyzed: March 25, - 27, 2019

Methane, ethane and total gaseous non-methane organics were measured by flame ionization detection/total combustion analysis (FID/TCA). Organic carbon in water vial samples were measured by Dohrman total organic carbon analyzer, water FID/TCA.

Lab No.	ID	Canister Methane	Canister Ethane	Canister TGNMO	Impinger Carbon	Impinger Volume	Canister Oxygen	Canister Carbon Dioxide	P_1	P2
	Unit 1		(concentration, ppmv)			(ml)	(%v)	(%v)		
10859-7	1A-VOC-U1 (156)	<1	<1	1.63	---	---	9.16	10.2	526	825
	Impinger M35	---	---	---	0.64	1.52	---	---	--	--
10859-8	1B-VOC-U1 (159)	<1	<1	1.09	---	---	9.34	10.2	581	826
	Impinger M36	---	---	---	10.3	1.90	---	---	--	--
	Unit 2									
10859-9	1A-VOC-U2 (272)	<1	<1	1.11	---	---	7.74	11.9	550	824
	Impinger M37	---	---	---	0.60	3.10	---	---	--	--
10859-10	1B-VOC-U2 (296)	<1	<1	1.07	---	---	7.76	11.9	579	822
	Impinger M38	---	---	---	0.59	2.51	---	---	--	--

TGNMO is total gaseous non-methane organics (excluding ethane), reported as ppmvC.
Ethane is reported as ppmvC.
** Note - Impinger sample results are not field blank corrected. The field blank (impinger M39) contained 0.73 ug carbon, corresponding to 0.33 ppm carbon for a 4.54 liter sample.*
P_1 and P_2 are initial and final pressures measured in mm Hg.

Michael S. Porter
Senior Analyst

QUALITY ASSURANCE SUMMARY
(Repeat Analysis)

Source Location : Desert View Power
Date Received: March 25, 2019
Date Analyzed: March 25, - 27, 2019

Components	Sample ID	Repeat Analysis Run #1	Repeat Analysis Run #2	Mean Conc.	% Diff. From Mean
		(Concentration in ppmv)			
Methane	1A-VOC-U1 (156)	<1	<1	---	---
	1B-VOC-U1 (159)	<1	<1	---	---
	1A-VOC-U2 (272)	<1	<1	---	---
	1B-VOC-U2 (296)	<1	<1	---	---
Ethane	1A-VOC-U1 (156)	<1	<1	---	---
	1B-VOC-U1 (159)	<1	<1	---	---
	1A-VOC-U2 (272)	<1	<1	---	---
	1B-VOC-U2 (296)	<1	<1	---	---
TGNMO	1A-VOC-U1 (156)	1.60	1.65	1.63	1.5
	1B-VOC-U1 (159)	1.08	1.10	1.09	1.3
	1A-VOC-U2 (272)	1.11	1.12	1.11	0.83
	1B-VOC-U2 (296)	1.06	1.07	1.07	0.34
		(Concentration in %v)			
Oxygen	1A-VOC-U1 (156)	9.28	9.05	9.16	1.28
Carbon Dioxide	1A-VOC-U1 (156)	10.2	10.3	10.2	0.48

		Repeat Analysis Run #1	Repeat Analysis Run #2	Repeat Analysis Run #3	Mean Conc.	% Diff. From Mean
		(Concentration in ppmv)				
Impinger TOC	Impinger M35	0.64	0.62	0.66	0.64	3.1
	Impinger M36	10.2	10.4	10.2	10.3	0.45
	Impinger M37	0.68	0.47	0.66	0.60	9.4
	Impinger M38	0.60	0.56	0.60	0.59	2.3

A set of 4 SUMMA canister/impinger samples, laboratory number 10859-(7 - 10), were analyzed for methane, ethane, total gaseous non-methane organics (TGNMO), TOC, O2, and CO2. Agreement between repeat analysis is a measure of precision and is shown in the column "% Difference from Mean". The average % Difference from Mean for 10 repeat measurements from the sample set of 4 SUMMA canister/impinger samples is 2.1%.

Date: April 3, 2019

AtmAA, Inc.

Laboratory Analysis Data Package

Client:	Montrose Air Quality Services.
Project:	Desert View Power
Project No.:	002AS2-541589
Sample Location:	Unit 1 & 2 / Stack Breaching
Date Received:	March 25, 2019
Date Analyzed:	March 25, - 27, 2019
Lab No.:	10859 - (7 - 10)
	M25.3

Presheet

CLIENT : Montrose

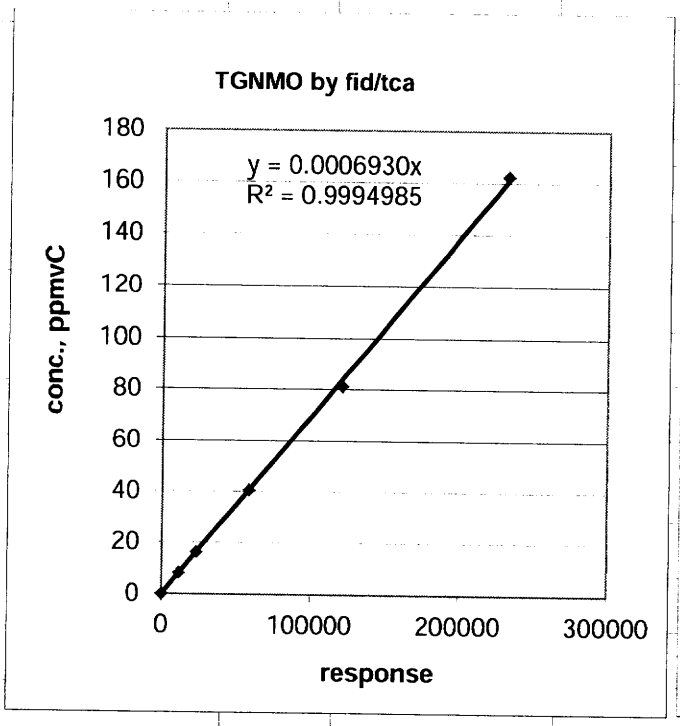
DATE: 3/25/19

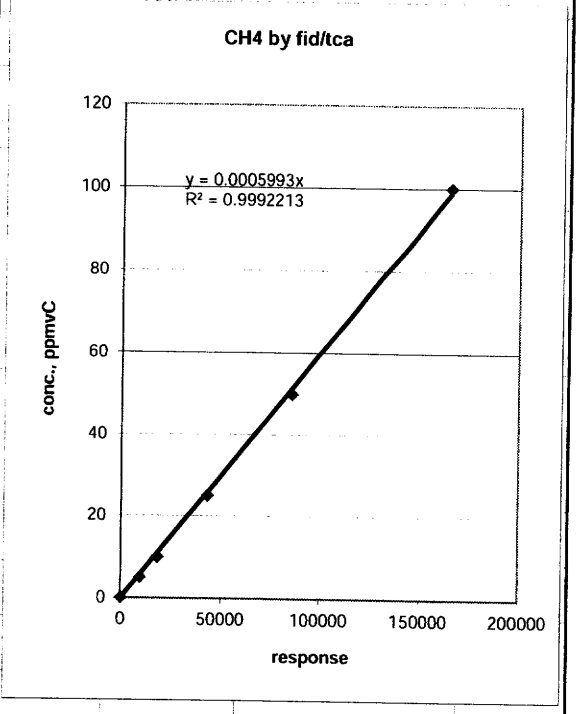
LAB #	SAMPLE ID	CAN/TANK	Trap	P1	P2
10859-7	U1	156	M35	526	825
-8	1	159	M36	581	826
-9	U2	272	M37	550	824
-10	1	296	M38	579	822
-11	bk				

P atm = 740

Samples Pressurized with: N_2

1/16/19		n2 bkg			1010						
	chart				avg bkg	b1		b2			
ALM033827			20x			10x		4x		2x	
co	163735	101	10936	5.05	19661	10.1	44163	25.3	85945	50.5	
ch4	164987	100	9627	5.00	18331	10.0	43155	25.0	85827	50.0	
co2	663904	394	41870	19.7	76655	39.4	203002	98.5	344516	197	
tgnmo	233175	162.3	12515	8.12	24293	16.2	59484	40.6	122071	81.2	
c2	134638	80.9	7127	4.05	14793	8.09	35206	20.2	70342	40.5	
FF9241		low prax	2x								
co											
ch4		4.01		2.01							
co2											
tgnmo		3.00		1.50							
c2		4.00		2.00							
tgnmo	0	ch4									
0	0	0	0								
11505	8.115	9627	5								
23283	16.23	18331	10								
58474	40.575	43155	25								
121061	81.15	85827	50								
232165	162.3	164987	100								





	A	B	C	D	E	F	G	H	I	J
1			Date:	3/26/2019						
2		co2 %		3.62						
3		area co2	bkg	1363	1387					
4							bkg avg	1375		
5			Client:	Montrose						
6				Direct TGNMO						
7										CO2 bkg
8				N2 bkg	959	959				3.62
9						avg	959			1375
10				tgnmo	rf	ch4	rf			
11				162.3		100				from
12		alm033827		232363	0.000699	165900	0.000602			CO2 bkg
13				234018		166480				
14							ch4	% co2	co2 bkg	tgnmo
15	dil	p1	p2	lab#	ch4	tgnmo	ppm			ppm
16	1.8	526	825	10859-7	275	2183	0.47	3.61	1371	1.60
17	1.8	526	825	10859-7	273	2208	0.46	3.61	1371	1.65
18	2.0	581	826	10859-8	225	1909	0.38	3.60	1367	1.08
19	2.0	581	826	10859-8	253	1923	0.43	3.60	1367	1.10
20	2.2	550	824	10859-9	157	1855	0.31	3.62	1375	1.11
21	2.2	550	824	10859-9	177	1863	0.35	3.62	1375	1.12
22	2.4	579	822	10859-10	0	1779	0.00	3.51	1333	1.06
23	2.4	579	822	10859-10	0	1782	0.00	3.51	1333	1.07

following are calculation formulas using sample 10859-7 as an example:

FOR 25.3 CANISTER

CO	=	E31*E33*C33/B33*A33
CH4	=	G12*E16*C16/B16*A16
TGNMO	=	E12*(F16-I16)*C16/B16*A16
Ethane	=	F29*G33*C33/B33*A33
CO2 bkg	=	J9*H16/J8

low level recovery

	date	3/26/2019	3/26/2019
	time	8:58:59	14:16:09
	3-point		
	rf tgnmo	0.0006930	
area	n2 bkg	959	959
area	FF9241/2	3126	3143
area	net	2167	2184
ppmv	conc	1.50	1.51
ppmv	theo	1.50	1.50
recovery	%R	100	101
	ethane		
area	net	2890	2838
ppmv	conc	2.00	1.97
ppmv	theo	2.00	2.00
recovery	%R	100	98

Date: March 26, 2019

AtmAA, Inc.

Laboratory Analysis Data Package

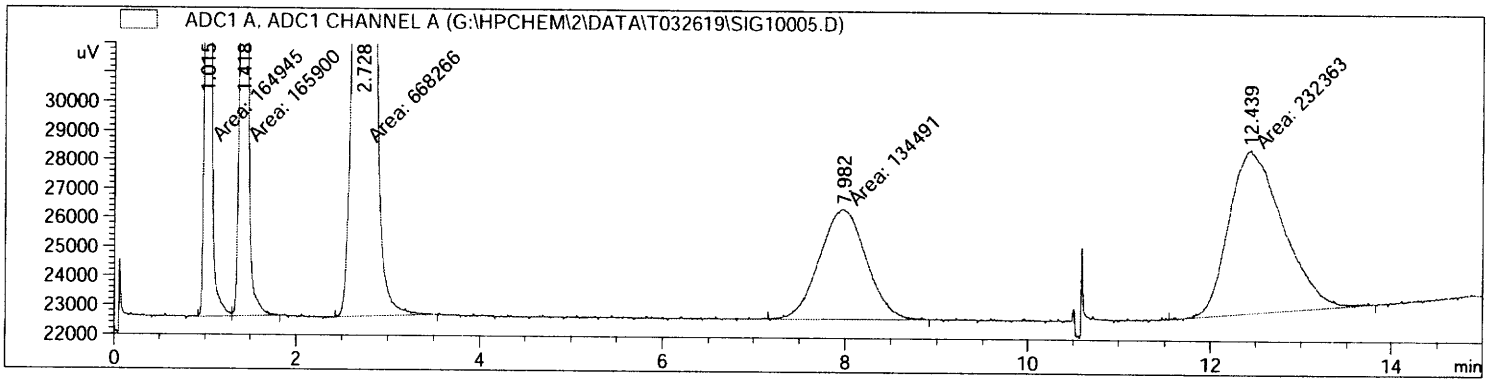
Client: Montrose Air Quality Services
Site: Desert View Power
Project No.: 002AS - 541589
Sample Location: Unit 1 & 2 / Stack Breaching

CANISTER ANALYSIS
CHROMATOGRAMS:
M25.3

ata File G:\HPCHEM\2\DATA\T032619\SIG10005.D
ample Name: std

==========

Acq. Operator :
Acq. Instrument : TCA #1 Location : Vial 1
Injection Date : 3/26/2019 9:42:09 AM
Inj Volume : Manually
Acq. Method : G:\4\METHODS\TCA2L.M
Last changed : 3/26/2019 9:23:01 AM
(modified after loading)
Analysis Method : G:\HPCHEM\4\METHODS\TCA2L.M
Last changed : 4/1/2019 2:17:37 PM
(modified after loading)
Method Info : TCA2



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Area Percent Report

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Sorted By : Signal
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: ADC1 A, ADC1 CHANNEL A

Peak #	RetTime [min]	Type	Width [min]	Area [uV*s]	Height [uV]	Area %
1	1.015	MF	0.0588	1.64945e5	4.67655e4	12.07533
2	1.418	FM	0.0796	1.65900e5	3.47558e4	12.14523
3	2.728	MM	0.1843	6.68266e5	6.04329e4	48.92267
4	7.982	MM	0.5947	1.34491e5	3769.13794	9.84588
5	12.439	MM	0.6886	2.32363e5	5624.25439	17.01088
Totals :				1.36596e6	1.51348e5	

==========

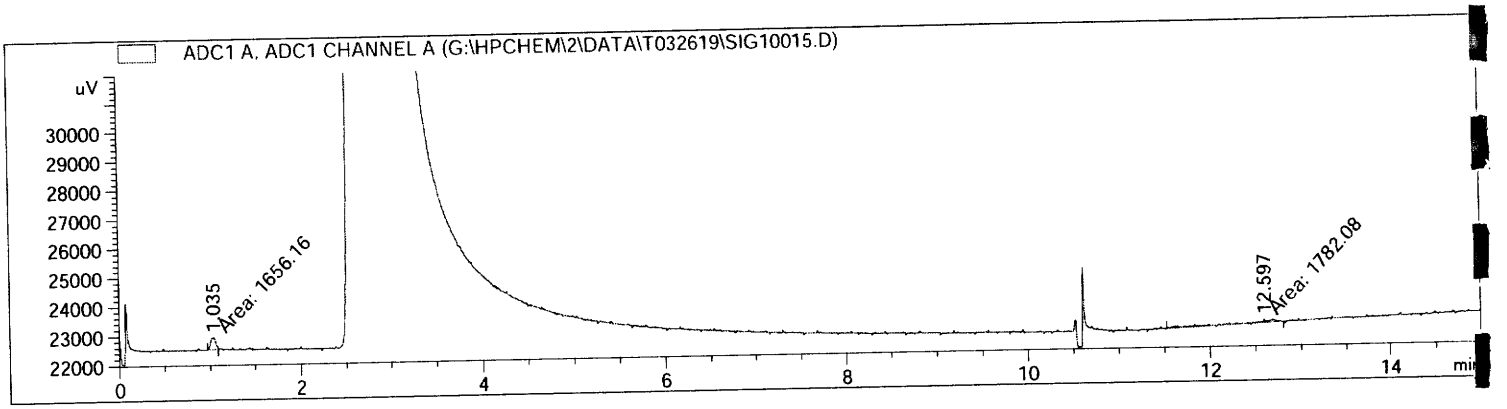
*** End of Report ***

Data File G:\HPCHEM\2\DATA\T032619\SIG10015.D
Sample Name: 10809-10

==========

Acq. Operator :
Acq. Instrument : TCA #1 Location : Vial 1
Injection Date : 3/26/2019 12:59:42 PM
Inj Volume : Manually

Acq. Method : G:\4\METHODS\TCA2L.M
Last changed : 3/26/2019 9:23:01 AM
(modified after loading)
Analysis Method : G:\HPCHEM\4\METHODS\TCA2L.M
Last changed : 4/2/2019 11:25:59 AM
(modified after loading)
Method Info : TCA2



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Area Percent Report

==========

Sorted By : Signal
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: ADC1 A, ADC1 CHANNEL A

Peak #	RetTime [min]	Type	Width [min]	Area [uV*s]	Height [uV]	Area %
1	1.035	MM	0.0692	1656.16406	399.10236	48.16890
2	12.597	MM	0.2937	1782.07959	101.14198	51.83110
Totals :				3438.24365	500.24434	

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*** End of Report ***

		date	3/25/2019				
		client	Montrose	PERMS			
					rf		AVG
			ch4	39.39	0.000474	0.000475	0.000474
			co2	40.14	0.000328	0.000326	0.000327
			o2	21.9	#DIV/0!	#DIV/0!	#DIV/0!
			n2	78.1	#DIV/0!	#DIV/0!	#DIV/0!
		STD	ch4	co2	o2	n2	
			83032	122463			
		lab no.	83000	123274			
	1.00	10859-7		19867			
	1.00	10859-7		20060			
	1.00	10859-8		22013			
	1.00	10859-9		24381			
	1.00	10859-10		25749			
	1.00						
	1.00						
	1.00						
	1.00						
	1.00						
	1.00						
	1.00						
	1.00						
	1.00						
	1.00						
	1.00						
				uncorr to			
				p2/p1	%	Dil	
sample vol	total vol		ch4	conc.			
				co2	conc	factor	
20	36	10859-7	0.000	6.49	3.61	1.80	
20	36	10859-7	0.000	6.55	3.64	1.80	
20	40	10859-8	0.000	7.19	3.60	2.00	
20	44	10859-9	0.000	7.97	3.62	2.20	
20	48	10859-10	0.000	8.41	3.51	2.40	

			date	3/25/2019				
			client	Montrose	PERMS			
				avg area		rf		AVG
				ch4	39.39	0.000474	0.000475	0.000474
				co2	40.14	0.000328	0.000326	0.000327
				o2	21.9	0.001324	0.00131	0.001317
				n2	78.1	#DIV/0!	#DIV/0!	#DIV/0!
			STD	ch4	co2	o2	n2	
				83032	122463	16545		
				83000	123274	16716		
p1	p2		lab no.					
526	825	1.57	10859-7	0	19867	4944		
526	825	1.57	10859-7	0	20060	4830		
581	826	1.42	10859-8	0	22013	5484		
550	824	1.50	10859-9	0	24381	4396		
579	822	1.42	10859-10	0	25749	4648		
		######	0	0	0			
		######	0	0	0			
		######	0	0	0			
		######	0	0	0			
		######	0	0	0			
		######	0					
		######						
		1.00						
		1.00						
		1.00						
		1.00			corr to	see		
					p2/p1	Ar/O2		
						sheet		
					conc.			
				ch4	co2	o2	n2	
			10859-7	0.000	10.18	10.21	#DIV/0!	
			10859-7	0.000	10.28	9.98	#DIV/0!	
			10859-8	0.000	10.22	10.27	#DIV/0!	
			10859-9	0.000	11.93	8.67	#DIV/0!	
			10859-10	0.000	11.94	8.69	#DIV/0!	