DOCKETED	
Docket Number:	07-AFC-09C
Project Title:	Canyon Power Plant - Compliance
TN #:	231810
Document Title:	Canyon Power Plant Annual Compliance Report 2019
Description:	Annual Compliance Report
Filer:	Bertha A Hernandez
Organization:	City of Anaheim
Submitter Role:	Public Agency
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Annual Compliance Report

City of Anaheim
Canyon Power Plant

Anaheim, California

SCAQMD
Facility ID: 153992

CEC Permit Number:
800-2010-001-CMF

Docket Number:
07-AFC-9C

2019
Period Range
January 1, 2019 through December 31, 2019

Review and Certification

I have reviewed both technically and editorially all details, calculations, results conclusions and other appropriate written material contained herein and hereby certify that to the best of my knowledge the material presented is true, accurate and complete.

I certify that the information contained in this report is true, accurate, and complete.

Ronald Hoffard	Generation Plant Manager
Name	Title
R Hoffard	1/30/2020
Signature	Date

Canyon Power Plant
Annual Compliance Report
Table of Contents

List of Attachments

Acronyms and Abbreviations

BHP	Break horse power
Btu	British thermal unit
BACT	Best available control technology
CARB	California Air Resources Board
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO_2	Carbon Dioxide
COA	City of Anaheim
CFR	Code of Federal Regulations
CPP	Canyon Power Plant
CT	Combustion turbine
DAHS	Data acquisition and handling
TDS	Total dissolved solids
DPF	Diesel particulate filter
EPA	Environmental Protection Agency
F.	Fahrenheit
ICE	Internal combustion engine
lbs/hr	pounds per hour
lb/lb-mol	pound per pound mol
MW	mega watts
MMBtu	million British thermal units
mmcf	million cubic feet
NH_3	ammonia
NO	Nitrogen Oxide
NO_x	Oxides of Nitrogen
NO_2	Nitrogen Dioxide
O_2	Oxygen
ppm	parts per million
ppmc	parts per million corrected to 15% O_2
RATA	relative accuracy test audit
ROG	Reactive Organic Compounds
RTU	remote terminal unit
scf	standard cubic feet (standard temperature = 68 degrees F)
SCR	selective catalytic reactor
SCAQMD	South Coast Air Quality Management District
unit	The term unit refers to the boiler/steam turbine
VOC	Volatile Organic Compounds

1.0 Facility Description:

The City of Anaheim's (COA) Canyon Power Plant (CPP) facility is located at 3071 Miraloma Avenue in Anaheim California.

The facility consists of four natural gas fired General Electric, Model LM6000PC Sprint, simple cycle combustion turbine with water injection. The gas turbine was designed with a maximum heat input of 479 MMBtu per hour with a 46 degree Fahrenheit (F.) inlet air temperature. The units are equipped with an inlet air chiller designed to maintain the gas turbine inlet temperature at 46 degrees F. at full load.

Each unit is capable of generating 50.95 megawatts.

Carbon Monoxide (CO) emission from the gas turbine are controlled by utilizing a CO oxidation catalyst located between the gas turbine and the selective catalytic reactor (SCR). The CO oxidation catalyst controls the unit's CO and volatile organic compounds (VOC) emissions. The catalyst is guaranteed to reduce the unit's CO emission rate to a maximum of 4 ppm corrected to 15% O_2 (ppmc) and the VOC to 2 ppmc, both emission rates are based on a one (1) hour averages, dry basis at 15% O_2. The CO catalyst system was designed and supplied by Englehard/BASF.

The NO_x emissions from the gas turbine are controlled by the utilizing two (2) independent systems or techniques in series. The first system utilized on this unit is the water injection system.

Water is injected into the combustor suppressing the flame temperature and reducing the 1-hour average NO_x concentration to approximately 25 ppmc at 15% oxygen prior to entry into the SCR.

The second NO_x control system utilized by the unit is the NH_3/SCR system. After passing through the CO catalyst, the exhaust gases pass through an ammonia injection grid on its way to the SCR. The ammonia (NH_3) used at this facility is in the form a 19% by weight solution of ammonium hydroxide.

The SCR catalyst utilized by the unit for NO_x control was provided by Cormetech. The reaction between the NH_3 and the SCR catalyst reduces the existing NO_x to elemental nitrogen and water, resulting in NO_x concentrations in the exhaust gas at no greater than 2.5 ppmv at 15% O2 on a 1-hour average. The ammonia slip must be maintained below 5 ppm at 15% O2. Each SCR is vented through a dedicated stack, which is 11.8 ft diameter and 86 ft high.

The facility is also equipped with an 1141 BHP diesel emergency internal combustion engine (ICE) (black start engine) will be used to start up the plant in the event of a loss of grid power.

The ICE, is a Caterpillar, Model C-27, rated at 1141 BHP and fired on ultra low sulfur diesel fuel. The ICE, will serve to provide power to the plant during blackout conditions. The engine is certified by the SCAQMD as an EPA Tier 2 engine on 12/31/2010. The engine is required to be permitted, rather than registered, because CPP is a RECLAIM/Title V facility.

The black start engine will be used only in emergency situations where grid power from the COA's 69 kV system is unavailable to start the CTs. The black start engine will provide power to the turbine starter motors and various other necessary pieces of support equipment to get one of the gas turbines started. Once one of the turbines has been started and providing power to the grid, the black start engine will be shut down.

The SCAQMD's rules limit operation of an emergency ICE to 50 hours per year.

The black start engine incorporates a diesel particulate filter (DPF), which is required by LAER. The Caterpillar DPF is designed to control the particulate emissions from diesel engines. The DPF consists of 2 filters, each 15-inches diameter by 15-inches long. The DPF system has been verified by CARB under Executive Order DE-14-006-01 to reduce emissions of diesel particulate matter consistent with a Level 3 device (greater than or equal to 85 percent reduction), when used with ultra low sulfur diesel with 15 ppm or lower sulfur content. As the DPF is CARB verified, a source test is not required. With the DPF, the particulate matter emissions from the engine is reduced from 0.15 g/bhp-hr to 0.0225 g/bhp-hr.

The DPF consists of a catalyzed cordierite ceramic honeycomb with hundreds of parallel channels, is designed to reduce emissions of particulate, carbon monoxide and hydrocarbons. The catalyst on the ceramic walls oxidizes carbon monoxide into carbon dioxide, and hydrocarbons into water and carbon dioxide. The arrangement of the channels is such that the exhaust gases carrying the carbon particles are forced through the fine pores of the walls, which filter out the particles. As the carbon particles are collected on the ceramic walls, the backpressure on the engine will increase. When the temperature of the exhaust is equal to or greater than 300 ºC (572 ºF) for at least 30% of the duty cycle, the catalyst interacts with the collected particulates to burn the particulates into carbon dioxide and water vapor, which will pass through the DPF.

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 1

COMPLIANCE MATRIX

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 2

FACILITY OPERATIONAL STATUS REPORT

Overall Project Status

Canyon Power Plant construction was completed in August 2011. Units 3 and 4 were ready for commercial operation on July 27, 2011. Units 1 and 2 were ready for commercial operation on September 15, 2011. All four gas turbines completed commissioning and were in commercial operation for the entire compliance year 2018.

No changes to the operational status of the facility implemented or planned in 2019 year.

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 3

CEC APPROVED POST CERTIFICATION CHANGES

No California Energy Commission (CEC) approved post certification changes and no Title V revisions to report for CY 2019

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 4

MISSED SUBMITTAL DEADLINES

Canyon Power Plant submitted all required compliance reports on the due dates and no missed submittal deadlines for CY 2019

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 5

PERMIT FILINGS AND PERMITS ISSUED

DURING THE PERIOD

Canyon Power Plant had no permit filings and no permits issued for CY 2019

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 6

PROJECTED COMPLIANCE TESTING

FOR THE NEXT YEAR

Projected Environmental Compliance Testing schedule in CY 2020:

Compliance Test	Frequency	Scheduled Quarter
NH3 Slip Test	Annual	3Q; 4Q
RATA Test	Annual or Semi-Annual	3Q; 4Q
Cooling Tower TDS/PM10	Quarterly	All four Quarters
Cooling Tower Legionella	Quarterly	All four Quarters
Fuel H2S Test	Monthly	January through December
Fuel Flow Accuracy	Annual	2Q
SCR Differential Pressure	Annual	2Q
SCR Inlet Temperature	Annual	2Q
NH3 Flow Meter Calibration	Annual	2Q
Linearity/CGA Test	Quarterly	All four Quarters
Particulate Matter Source Test	Tri-ennual	3Q; 4Q

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 7

ADDITIONS TO ON-SITE COMPLIANCE FILE

GENERAL PLANT
Cooling Tower Legionella test report
Cooling Tower PM10 test reports
Monthly Waste Water reports
Monthly Potable water use reports
Monthly Reclaim water use reports
Monthly natural gas burn records
Monthly natural H_2S gas test reports
Refrigerant monitor calibration report
RECLAIM RTC holdings records

CEC
Quarterly reports
Quarterly 1304 Report
Annual report
Potable water use records

CAISO
Certificate of Compliance

CARB
Greenhouse gas records
Annual refrigerant report
Annual SF6 use report

DIESEL ENGINE
Maintenance Reports
Fuel purchase records
Engine run-time records
HiBack calibration report
Engine tune up report

EIA
Annual/Monthly EIA 923 report
Annual EIA 860 report

EPA
Part 98 Greenhouse Gas reports
Certificate of Representation forms

RECLAIM
Daily submittals
Monthly submittals
Quarterly submittals
SCAQMD QCER Forms
SCAQMD 500-N Forms
SCAQMD 500-SAM Forms
SCAQMD 500-ACC Form
SCAQMD APEP Form
SCAQMD AER Report
SCAQMD Rule 218 Semi-annual reports

SCAQMD
NOV & NTCs issued by the SCAQMD
SCAQMD responses to 500-N forms

UNIT 1:

EPA
Quarterly Acid Rain report
Quarterly Acid Rain report & feedback report
Annual Form 500-ACC

Calibration Records
Fuel flow meter calibration report
Water flow meter calibration report
NH3 flow meter calibration report
SCR DP transducer calibration report
SCR inlet temperature transducer Cal report
SCR outlet temperature transducer Cal report

Calibration gas logs
Linearity test reports
Part 75 RATA test reports
RECLAIM RATA test reports
Rule 218 (CO) RATA test reports
NH3 slip test reports

Tri-ennual compliance testing:
VOC emissions;
PM10 emissions; and
ROG emissions

UNIT 2:

EPA
Quarterly Acid Rain report
Quarterly Acid Rain report & feedback report
Annual Form 500-ACC

Calibration Records
Fuel flow meter calibration report
Water flow meter calibration report
NH3 flow meter calibration report
SCR DP transducer calibration report
SCR inlet temperature transducer Cal report
SCR outlet temperature transducer Cal report

Calibration gas logs
Linearity test reports
Part 75 RATA test reports
RECLAIM RATA test reports
Rule 218 (CO) RATA test reports
NH3 slip test reports

Tri-annual compliance testing:
VOC emissions;
PM10 emissions; and
ROG emissions

UNIT 3:

EPA
Quarterly Acid Rain report
Quarterly Acid Rain report & feedback report
Annual Form 500-ACC

Calibration Records
Fuel flow meter calibration report
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Calibration gas logs
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Part 75 RATA test reports
RECLAIM RATA test reports
Rule 218 (CO) RATA test reports
NH3 slip test reports

Tri-ennual compliance testing:
VOC emissions;
PM10 emissions; and
ROG emissions

UNIT 4:

EPA
Quarterly Acid Rain report
Quarterly Acid Rain report & feedback report
Annual Form 500-ACC

Calibration Records
Fuel flow meter calibration report
Water flow meter calibration report
NH3 flow meter calibration report
SCR DP transducer calibration report
SCR inlet temperature transducer Cal report
SCR outlet temperature transducer Cal report

Calibration gases logs
Linearity test reports
Part 75 RATA test reports
RECLAIM RATA test reports
Rule 218 (CO) RATA test reports
NH3 slip test reports

Tri-ennual compliance testing:
VOC emissions;
PM10 emissions; and
ROG emissions

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 8

UN-PLANNED FACILITY CLOSURE PLAN REVIEW

An "Un-Planned Facility Closure Plan" was drafted and submitted to the California Energy Commission (CEC) in the First Quarter of 2014. At this time, no revisions or changes are required.

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 9

Notice of Violation and Notice to Comply Issued in CY 2019

Notices of Violation
Issued by the SCAQMD in the CY 2019

NONE

Notices to Comply
Issued by the SCAQMD in the CY 2019

NONE

SCAQMD FORM 500-N
Title V – Deviations, Emergencies & Breakdowns
Submitted by Canyon Power Plant

South Coast Air Quality Management District

Form 500-N

Title V - Deviations, Emergencies & Breakdowns

*This written report is in addition to requirements to verbally report certain types of incidents. Verbal reports may be made by calling AQMD at 1-800-288-7664 (1-800-CUT-SMOG) or AQMD enforcement personnel.

Mail To:
SCAQMD
P.O. Box 4941
Diamond Bar, CA 91765-0941

Tel: (909) 396-3385
www.aqmd.gov

Section I - Operator Information

1. Facility Name (Business Name of Operator That Appears On Permit): Canyon Power Plant Unit #2 (D7)

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 153992

3. Address: (where incident occurred)
3071 E. Miraloma Avenue (Street Address)
Anaheim (City) CA (State) 92805 (Zip)

4. Mailing Address: (if different from Item 3)
Street Address
City State Zip

5. Provide the name, title, and phone number of the person to contact for further information:

Name	Title	Phone #
RonaldHoffard	Generation Plant Manager	(714) 765-4536

Section II - Reporting of Breakdowns, Deviations, and Emergencies

1. This written notification is to report a(n):

Type of Incident	Verbal Report Due*	Written Report Due
a. ☐ Emergency under Rule 3002(g)	Within 1 hour of discovery	Within 2 working days from when the emission limit was exceeded.
b. ☐ Breakdown under: ☐ Rule 430 (Non-RECLAIM) ☐ Rule 2004 (RECLAIM) ☐ Rule 218 (Non-RECLAIM) [See Rule 218(f)(3)]	For Rules 430 & 2004 - Within 1 hour of discovery. For Rule 218 – Within 24 hours or next business day for failure/shutdown exceeding 24 hours	For Rules 430 & 2004 - Within 7 calendar days after breakdown is corrected, but no later than 30 days from start of the breakdown, unless a written extension is granted. For Rule 218 - With required semi-annual reports.
c. ☐ Deviation with excess emissions [See Title V Permit, Section K, Condition No. 22B]	Within 72 hours of discovery of the deviation or shorter reporting period if required by an applicable State or Federal Regulation.	Within 14 days of discovery of the deviation.
d. ☒ Other Deviation [See Title V Permit, Section K, Condition Nos. 22D & 23]	None	With required semi-annual monitoring reports.

2. The incident was first discovered by: Greg Strong (Name) on 02/20/2019 (Date) 11:06 (Time) ◉ AM ○ PM

3. The incident was first reported by: Operator # 7 (Name of AQMD Staff Person) on 02/20/2019 (Date) 11:34 (Time) ◉ AM ○ PM

a. ◉ Via Phone

b. ○ In Person

Notification Number (Required): 549239 REVISED

4. When did the incident actually occur? 02/20/2019 (Date) 10:52 (Time) ◉ AM ○ PM

AQMD USE ONLY			
Received By:		Assigned By:	Inspector:
Date/Time Received:		Date/Time Assigned:	Date/Time Received Assignment:
Date Delivered To Team:		Date Reviewed Inspector Report:	Date Inspected Facility:
Team:	Sector:	Breakdown/Deviation Notification No.	Date Completed Report:

Recommended Action: Cancel Notification Grant Relief Issue NOV No.____ Other:____

Final Action: Cancel Notification Grant Relief Issue NOV No.____ Other:____

5. **Has the incident stopped?** a. (●) Yes, on: 02/20/2019 (Date) 11:00 (Time) (●) AM ( ) PM b. ( ) No

6. **What was the total duration of the incident?** 0 (Days) 08 (Hours)

7. **For equipment with an operating cycle, as defined in Rule 430 (b)(3)(A), when was the end of the operating cycle during which the incident occurred?** ______ Date ______ Time ( ) AM (●) PM

8. **Describe the incident and identify each piece of equipment (by permit, application, or device number) affected. Attach photos (when available) of the affected equipment and attach additional pages as necessary.**

During Unit #2 linearity testing the Nox spiked up due to the test gas not purging from the system.

9. **The incident may have resulted in a:**
   a. [X] Violation of Permit Condition(s): A99.1 NOx ppm > 2.5
   b. [ ] Violation of AQMD Rule(s): ______

10. **What was the probable cause of the incident? Attach additional pages as necessary.**

SEE ATTACHMENT SUMMARY

11. **Did the incident result in excess emissions?** ( ) No (●) Yes (Complete the following and attach calculations.)

[ ] VOC ______ lbs [X] NOx 9.300 ~~lbs~~ ppm [ ] SOx ______ lbs [ ] H2S ______ lbs

[ ] CO ______ lbs [ ] PM ______ lbs [ ] Other: ______ lbs ______ pollutant

12. ***For RECLAIM facilities Subject to Rule 2004 (i)(3) ONLY:*** **If excess emissions of NOx and/or SOx were reported in Item 11, do you want these emissions to be counted when determining compliance with your annual allocations?**

a. ( ) Yes, for: [ ] NOx [ ] SOx b. ( ) No, for: [ ] NOx [ ] SOx

If box 12(b) above is checked, include all information specified in Rule 2004(i)(3)(B) and (C), as applicable.

13. **Describe the steps taken to correct the problem (i.e., steps taken to mitigate excess emissions, equipment repairs, etc.) and the preventative measures employed to avoid future incidents. Include photos of the failed equipment if available and attach additional pages as necessary.**

SEE ATTACHMENT SUMMARY

14. **Was the facility operating properly prior to the incident?**
    a. (●) Yes b. ( ) No, because: ______

15. **Did the incident result from operator error, neglect or improper operation or maintenance procedures?**
    a. ( ) Yes b. (●) No, because: ______

16. **Has the facility returned to compliance?**
    a. ( ) No, because: ______
    b. (●) Yes (Attach evidence such as emissions calculations, contemporaneous operating logs or other credible evidence.)

Section III - Certification Statement

I certify under penalty of law that based on information and belief formed after reasonable inquiry, the statements and information in this document and in all attachments and other materials are true, accurate, and complete.

For Title V Facilities ONLY: [X] **I also certify under penalty of law that that I am the responsible official for this facility as defined in AQMD Regulation XXX.**

1. Signature of Responsible Official:	**2. Title of Responsible Official:** GENERATION PLANT MANAGER
3. Print Name: RONALD HOFFARD	**4. Date:** 4/23/19 ~~02/26/2019~~ RKH
5. Phone #: (714) 765-4536	**6. Fax #:**

7. Address of Responsible Official:

3071 E. MIRALOMA AVENUE (Street #) ANAHEIM (City) CA (State) 92805 (Zip)

AQMD 500N - Breakdown Date: 02/20/2019
Identify issue: Specialty Linearity Gas Regulator
Canyon Power Plant: Unit 2/ID# 153992
Notification: 549239

<u>Question 8</u> - Describe the incident and identify each piece of equipment:

Unit 2 startup initiated at 0650 hours with a passing on-line Calibration performed at 0751 hours. Linearity/CGA testing began at 0816 hours, which required three different gas levels (low, mid, and high) to be introduced using calibration standard gases. The first gas, NOx low/CO low was introduced three times followed by O2/CO high linearity gas that resulted in a successful testing. The first of three samples of NOx high linearity gas was introduced at 1036 hours and at 1049 hours staff noticed inconsistent data. As the first NOx high sample gas completed purging, NOx spiked and caused a NOx ppm exceedance.

<u>Question 10</u> – What was the probable cause of the incident?

The gas regulator on the NOx high gas cylinder failed to complete purging and caused the NOx ppm exceedance.

<u>Question 13</u> – Describe the steps taken to correct the problem:

Unit 2 placed in maintenance to check and verify the CEMS analyzers and no issues found. Second, the NOx high cylinder gas regulator was tested and it was determined that the regulator did not function correctly. The gas regulator on the NOx high cylinder bottle was replaced with a new gas regulator and tested. A NOx high gas sample was introduced at 1409 hours and the NOx high gas test was successful.

<u>Question 16</u> – Facility retuned to compliance?

Unit 2 came returned to compliance at 1100 hours on 2/20/2019.

2/20/2019

		Time	2_O2	2_COLOW	2_COHIGH	2_NOXLOW	2_NOXHIGH	2_LOAD	2_GasFlow	**2_NOX_CORR**
			%	ppm	ppm	ppm	ppm	MW	kscfh	ppm
		6:30	20.92 P	0.47 P	0.6 P	0.04 P	0.31 P	-0.02 P	0.3 P	0 P
		6:31	20.93 P	0.46 P	0.59 P	0.04 P	0.36 P	-0.02 P	0.3 P	0 P
		6:32	20.92 P	0.46 P	0.57 P	0.04 P	0.26 P	-0.02 P	0.3 P	0 P
		6:33	20.92 P	0.47 P	0.59 P	0.04 P	0.31 P	-0.02 P	0.3 P	0 P
		6:34	20.93 P	0.5 P	0.62 P	0.04 P	0.32 P	-0.02 P	0.3 P	0 P
		6:35	20.93 P	0.49 P	0.61 P	0.03 P	0.31 P	-0.02 P	0.3 P	0 P
		6:36	20.93 P	0.47 P	0.61 P	0.03 P	0.32 P	-0.02 P	0.3 P	0 P
		6:37	20.92 P	0.44 P	0.6 P	0.04 P	0.35 P	-0.02 P	0.3 P	0 P
		6:38	20.93 P	0.41 P	0.52 P	0.03 P	0.25 P	-0.02 P	0.3 P	0 P
		6:39	20.93 P	0.42 P	0.59 P	0.03 P	0.32 P	-0.02 P	0.3 P	0 P
		6:40	20.93 P	0.47 P	0.6 P	0.03 P	0.36 P	-0.02 P	0.3 P	0 P
		6:41	20.93 P	0.48 P	0.59 P	0.03 P	0.34 P	-0.02 P	0.3 P	0 P
		6:42	20.93 P	0.45 P	0.58 P	0.03 P	0.34 P	-0.02 P	0.3 P	0 P
		6:43	20.93 P	0.46 P	0.6 P	0.03 P	0.31 P	-0.02 P	0.3 P	0 P
		6:44	20.92 P	0.44 P	0.61 P	0.03 P	0.36 P	-0.02 P	0.3 P	0 P
		6:45	20.92 P	0.43 P	0.56 P	0.03 P	0.3 P	-0.01 P	0.3 P	0 P
		6:46	20.93 P	0.41 P	0.58 P	0.03 P	0.27 P	-0.01 P	0.3 P	0 P
		6:47	20.93 P	0.41 P	0.53 P	0.03 P	0.32 P	-0.02 P	0.2 P	0 P
		6:48	20.95 P	0.37 P	0.51 P	0.03 P	0.33 P	-0.02 P	0.3 P	0 P
		6:49	20.59 P	0.31 P	21.54 P	0.03 P	0.3 P	-0.02 P	16.7 P	0 P
Startup	1	6:50	19.07	10.29 I	182	0.14	0.38	-0.02	84.4	0.45
	2	6:51	18.66	7.54	34.79	4.95	5.34	0.2	93.8	14.12
	3	6:52	18.52	5.2	5.15	10.29	14.76	3.53	114.3	36.59
	4	6:53	17.92	4.2	4.18	10.29	16.69	12.59	176.2	33.04
	5	6:54	17.01	3.74	3.78	10.29	14.31	22.64	247.4	21.7
	6	6:55	16.28	3.16	3.25	8.72	8.36	32.31	316.8	10.92
	7	6:56	15.72	2.76	2.85	7.94	7.65	42.83	400.8	9.04
	8	6:57	15.01	2.82	2.89	9.9	11.54	49.8	459.4	11.68
	9	6:58	14.84	3.16	3.26	10.29	20.18	49.72	460.7	19.62
	10	6:59	14.83	3.52	3.58	10.29	23.86	49.81	460.1	23.19
	11	7:00	14.82	3.72	3.77	10.29	21.23	49.52	459.6	20.6
	12	7:01	14.81	3.81	3.87	5.62	6.49	49.93	459.9	6.29
	13	7:02	14.81	3.97	3.98	1.73	1.87	49.48	459.5	1.68
	14	7:03	14.82	4.14	4.16	1.4	1.53	49.68	459.2	1.36
	15	7:04	14.82	4.25	4.22	1.32	1.49	49.75	458.4	1.28
	16	7:05	14.83	4	4	1.22	1.37	49.57	457.3	1.19

		Time	2_O2	2_COLOW	2_COHIGH	2_NOXLOW	2_NOXHIGH	2_LOAD	2_GasFlow	**2_NOX_CORR**
			%	ppm	ppm	ppm	ppm	MW	kscfh	ppm
	17	7:06	14.84	3.32	3.39	1.22	1.4	49.87	456.9	1.19
	18	7:07	14.85	2.58	2.64	1.35	1.52	49.59	456.6	1.32
	19	7:08	14.84	2.12	2.21	1.57	1.72	49.75	457	1.53
	20	7:09	14.84	2.05	2.16	1.76	1.83	49.76	456.2	1.71
	21	7:10	14.84	2.03	2.12	1.85	1.93	49.76	456.9	1.8
	22	7:11	14.84	2	2.11	1.95	2.02	49.62	456.7	1.9
	23	7:12	14.85	1.98	2.06	1.99	2.1	49.63	456.5	1.94
	24	7:13	14.85	1.95	2	2.02	2.13	49.81	456.6	1.97
	25	7:14	14.85	1.95	2.04	2.03	2.1	49.79	456.3	1.98
	26	7:15	14.84	1.99	2.1	1.99	2.08	49.57	456.4	1.94
	27	7:16	14.85	1.98	2.07	1.95	2.05	49.77	455.7	1.9
	28	7:17	14.85	1.99	2.08	1.91	2.05	49.71	456.4	1.86
	29	7:18	14.85	1.98	2.03	1.9	2.01	49.8	456.4	1.85
	30	7:19	14.85	1.95	2.01	1.9	2.02	49.59	456.3	1.85
	31	7:20	14.84	1.96	2.03	1.89	1.91	50.06	456.7	1.84
	32	7:21	14.84	2.14	2.2	1.89	1.95	49.83	456.4	1.84
	33	7:22	14.85	2.41	2.51	1.68	1.78	49.75	456.7	1.64
	34	7:23	14.84	2.54	2.62	1.49	1.58	49.73	455.9	1.45
End	35	7:24	14.84	2.5	2.59	1.45	1.6	49.87	455.6	1.41
		7:25	14.85	2.44	2.51	1.45	1.62	49.69	455.1	1.42
		7:26	14.84	2.43	2.45	1.48	1.61	49.74	455.2	1.44
		7:27	14.84	2.4	2.52	1.5	1.66	49.69	455.4	1.46
		7:28	14.84	2.42	2.5	1.52	1.66	49.84	456	1.48
		7:29	14.85	2.45	2.5	1.55	1.63	50.01	456.1	1.51
		7:30	14.84	2.51	2.58	1.55	1.73	49.7	457	1.51
		7:31	14.84	2.5	2.62	1.57	1.66	49.49	456.5	1.53
		7:32	14.84	2.5	2.6	1.59	1.62	49.79	456.8	1.55
		7:33	14.85	2.5	2.61	1.62	1.78	49.69	457	1.58
		7:34	14.85	2.53	2.61	1.64	1.74	49.74	456.3	1.6
		7:35	14.84	2.54	2.63	1.65	1.72	49.63	457	1.61
		7:36	14.84	2.56	2.62	1.67	1.79	49.41	456.6	1.63
		7:37	14.83	2.53	2.61	1.68	1.76	49.69	456.8	1.63
		7:38	14.83	2.48	2.6	1.7	1.79	49.64	456.9	1.65
		7:39	14.84	2.48	2.58	1.71	1.81	49.83	457	1.66
		7:40	14.83	2.5	2.59	1.73	1.85	49.74	457.3	1.68
		7:41	14.83	2.51	2.62	1.74	1.81	49.82	456.9	1.69
		7:42	14.82	2.49	2.62	1.77	1.87	49.58	457.4	1.72

	Time	2_O2	2_COLOW	2_COHIGH	2_NOXLOW	2_NOXHIGH	2_LOAD	2_GasFlow	**2_NOX_CORR**
		%	ppm	ppm	ppm	ppm	MW	kscfh	ppm
	7:43	14.83	2.5	2.61	1.8	1.91	49.9	457.1	1.75
	7:44	14.83	2.5	2.62	1.81	1.95	49.74	457.2	1.76
	7:45	14.82	2.49	2.62	1.83	1.89	49.62	457.9	1.78
	7:46	14.82	2.5	2.62	1.84	1.95	49.42	457.3	1.79
	7:47	14.82	2.47	2.57	1.85	2.01	49.71	457.6	1.8
	7:48	14.82	2.44	2.52	1.86	1.95	49.45	457.3	1.8
	7:49	14.81	2.46	2.53	1.86	2.01	49.79	457.4	1.8
	7:50	14.82	2.49	2.62	1.86	1.93	49.79	457.4	1.8
On-line Cal	7:51	17.13 C	3.45 C	3.48 C	1.88 C	1.93 C	49.73	457.6	0 C
	7:52	22.42 C	10.29 CI	130.6 C	1.77 C	1.91 C	49.76	458.2	0 C
	7:53	22.43 C	10.29 CI	180.35 C	0.4 C	0.59 C	49.82	458.4	0 C
	7:54	22.43 C	10.29 CI	181.03 C	0.05 C	0.33 C	50.08	458.5	0 C
	7:55	22.43 C	10.29 CI	180.86 C	0.03 C	0.29 C	49.64	458.9	0 C
	7:56	22.43 CZ	10.29 CI	180.85 CZ	0.03 CZ	0.29 CZ	49.56	458.7	0 CZ
	7:57	0 C	10.21 CI	17.75 C	3.34 C	3.31 C	49.73	458.3	0 C
	7:58	-0.02 C	9.16 C	8.97 C	8.7 C	8.27 C	49.75	458.9	0 C
	7:59	-0.02 C	9.2 CZ	9 C	8.9 CS	8.49 C	49.53	458.7	0 CS
	8:00	-0.02 C	9.2 CZ	3.28 C	8.9 CS	20.81 C	49.55	458.2	0 CS
	8:01	-0.02 C	0.01 C	0.09 C	10.29 C	126.4 C	49.85	458.6	0 C
	8:02	-0.02 C	-0.07 C	0 C	10.29 C	180.67 C	49.89	458.6	0 C
	8:03	-0.02 CS	-0.05 CS	0.03 CS	10.29 C	181.52 CS	49.63	457.9	0 CS
	8:04	14.76 C	0.61 C	0.73 C	10.29 C	149.35 C	49.8	458.5	0 C
	8:05	14.78 C	1.52 C	1.66 C	8.19 C	17.56 C	49.78	457.1	0 C
	8:06	14.78 C	2.33 C	2.37 C	4 C	3.97 C	49.92	458	0 C
	8:07	14.77 C	2.5 C	2.62 C	2.9 C	2.95 C	49.96	458.3	0 C
	8:08	14.77 C	2.53 C	2.61 C	2.76 C	2.8 C	49.54	458.5	0 C
End	8:09	14.77 C	2.55 C	2.62 C	2.69 C	2.68 C	49.73	457.7	0 C
	8:10	14.78	2.53	2.61	2.44	2.52	49.93	458.2	2.35
	8:11	14.78	2.49	2.57	2.35	2.44	49.69	458.1	2.27
	8:12	14.77	2.48	2.61	2.29	2.29	49.58	458.7	2.2
	8:13	14.78	2.47	2.55	2.19	2.29	49.86	458.2	2.11
	8:14	14.78	2.51	2.6	2.09	2.23	49.78	458.3	2.01
Lin/CGA	8:15	14.77	2.54	2.62	2.02	2.08	49.77	458.7	1.94
NOx/CO Low	8:16	8.39 C	2.65 C	2.7 C	1.96 C	2.02 C	49.75	457.9	0 C
	8:17	0 C	3.19 C	3.25 C	3.92 C	3.82 C	49.77	457.9	0 C
	8:18	-0.02 C	3.23 C	3.3 C	4.09 C	3.99 C	49.91	457.8	0 C
	8:19	-0.02 C	2.87 C	2.92 C	2.51 C	2.51 C	49.8	457.6	0 C

	Time	2_O2	2_COLOW	2_COHIGH	2_NOXLOW	2_NOXHIGH	2_LOAD	2_GasFlow	**2_NOX_CORR**
		%	ppm	ppm	ppm	ppm	MW	kscfh	ppm
	8:20	-0.02 C	2.42 C	2.51 C	2.49 C	2.57 C	49.66	458.3	0 C
	8:21	-0.01 C	2.42 CZ	2.58 C	2.49 CZ	2.55 C	49.7	458	0 CZ
	8:22	-0.03 C	3.26 C	3.33 C	3.63 C	3.6 C	49.96	458.1	0 C
	8:23	-0.03 C	4.5 C	4.5 C	5.57 C	5.43 C	49.69	458	0 C
	8:24	-0.02 C	5.47 C	5.47 C	5.6 C	5.41 C	49.52	458	0 C
	8:25	-0.02 C	5.59 C	5.57 C	5.61 C	5.49 C	49.86	458.5	0 C
	8:26	-0.03 C	5.59 C	5.89 C	5.61 C	5.42 C	49.71	458.1	0 C
	8:27	-0.03 C	7.14 C	7.04 C	8.66 C	8.28 C	49.93	458.1	0 C
	8:28	-0.03 C	8.4 C	8.23 C	9.23 C	8.8 C	49.7	458.3	0 C
	8:29	-0.03 C	9 C	8.81 C	9.23 C	8.87 C	49.73	458.7	0 C
	8:30	6.01 C	9.02 CS	8.82 C	9.24 CS	8.82 C	49.81	458.5	0 CS
	8:31	14.74 C	3.06 C	3.11 C	8.57 C	8.14 C	49.72	458.2	0 C
	8:32	14.75 C	2.48 C	2.56 C	2.44 C	2.45 C	49.75	458.6	0 C
End	8:33	14.75 C	2.47 C	2.56 C	2.05 C	2.31 C	49.76	458.2	0 C
	8:34	14.75	2.43	2.48	1.94	1.99	49.73	458	1.85
	8:35	14.74	2.37	2.4	1.89	1.99	49.83	457.8	1.81
	8:36	14.75	2.35	2.4	1.87	1.89	49.68	458	1.79
Lin/CGA	8:37	14.75	2.35	2.39	1.87	1.94	49.88	457.8	1.78
NOx/CO L	8:38	4.68 C	2.32 C	2.38 C	1.86 C	1.98 C	49.76	458.1	0 C
	8:39	-0.01 C	2.37 C	2.43 C	2.36 C	2.44 C	50.13	458.1	0 C
	8:40	-0.02 C	2.44 C	2.55 C	2.43 C	2.49 C	49.68	457.5	0 C
	8:41	-0.02 C	2.44 C	2.51 C	2.4 C	2.44 C	49.69	457.4	0 C
	8:42	-0.03 C	2.4 CZ	2.47 C	2.39 CZ	2.43 C	49.73	457.8	0 CZ
	8:43	-0.03 C	2.4 CZ	2.75 C	2.39 CZ	2.53 C	49.91	458.2	0 CZ
	8:44	-0.03 C	3.7 C	3.73 C	4.38 C	4.3 C	49.75	457.9	0 C
	8:45	-0.03 C	4.94 C	4.92 C	5.6 C	5.45 C	49.52	458	0 C
	8:46	-0.03 C	5.54 C	5.49 C	5.62 C	5.45 C	49.32	457.2	0 C
	8:47	-0.03 C	5.57 C	5.57 C	5.61 C	5.47 C	49.92	456.7	0 C
	8:48	-0.04 C	6.44 C	6.32 C	6.44 C	6.23 C	49.6	455.6	0 C
	8:49	-0.04 C	7.7 C	7.57 C	9.12 C	8.75 C	49.83	456	0 C
	8:50	-0.04 C	8.77 C	8.58 C	9.2 C	8.8 C	49.62	455.4	0 C
	8:51	-0.04 C	8.98 CS	8.83 C	9.22 CS	8.84 C	49.51	456	0 CS
	8:52	12.61 C	8.98 CS	6.15 C	9.22 CS	8.83 C	49.55	456	0 CS
	8:53	14.71 C	2.21 C	2.3 C	5.45 C	5.28 C	50.07	457.4	0 C
End	8:54	14.73 C	2.04 C	2.12 C	2.34 C	2.4 C	49.76	456.7	0 C
	8:55	14.72	2.03	2.12	2.2	2.26	49.55	456.9	2.1
	8:56	14.72	2.04	2.1	2.13	2.2	49.64	457.8	2.03

	Time	2_O2	2_COLOW	2_COHIGH	2_NOXLOW	2_NOXHIGH	2_LOAD	2_GasFlow	**2_NOX_CORR**
		%	ppm	ppm	ppm	ppm	MW	kscfh	ppm
	8:57	14.72	2.05	2.11	2.07	2.23	49.64	457.8	1.98
	8:58	14.72	2.04	2.11	2.04	2.12	49.94	457.8	1.95
	8:59	14.7	2.02	2.1	2.01	2.04	49.8	457.7	1.91
Lin/CGA	9:00	14.71	2.03	2.09	1.98	2.07	49.7	458.1	1.89
NOx/CO L	9:01	9.96 C	2.04 C	2.12 C	1.95 C	2.04 C	49.52	454.9	0 C
	9:02	0 C	2.13 C	2.22 C	1.97 C	2.04 C	49.57	455.9	0 C
	9:03	-0.02 C	2.32 C	2.39 C	2.17 C	2.18 C	49.6	455.9	0 C
	9:04	-0.02 C	2.48 C	2.58 C	2.36 C	2.4 C	49.6	455.9	0 C
	9:05	-0.03 C	2.52 C	2.62 C	2.39 C	2.41 C	50	456.8	0 C
	9:06	-0.03 C	2.5 CZ	2.65 C	2.39 CZ	2.45 C	49.82	456.2	0 CZ
	9:07	-0.03 C	3.29 C	3.33 C	3.89 C	3.85 C	49.51	456.4	0 C
	9:08	-0.03 C	4.47 C	4.46 C	5.5 C	5.35 C	49.64	456.6	0 C
	9:09	-0.03 C	5.4 C	5.4 C	5.58 C	5.41 C	49.73	457.1	0 C
	9:10	-0.03 C	5.51 C	5.44 C	5.58 C	5.44 C	49.42	458.1	0 C
	9:11	-0.03 C	5.51 C	5.89 C	5.58 C	5.67 C	49.8	458.4	0 C
	9:12	-0.04 C	7.26 C	7.14 C	8.66 C	8.35 C	49.72	457.9	0 C
	9:13	-0.03 C	8.55 C	8.38 C	9.22 C	8.77 C	49.99	458.2	0 C
	9:14	-0.04 C	8.99 CS	8.87 C	9.24 CS	8.81 C	49.77	458.2	0 CS
	9:15	9.25 C	8.99 CS	7.39 C	9.24 CS	8.86 C	49.7	458.1	0 CS
	9:16	14.67 C	2.13 C	2.25 C	6.97 C	6.74 C	49.68	458	0 C
End	9:17	14.67 C	1.74 C	1.86 C	2.67 C	2.71 C	49.92	457.6	0 C
	9:18	14.68	1.66	1.8	2.54	2.54	49.7	457.3	2.41
	9:19	14.68	1.65	1.74	2.53	2.59	49.74	457.2	2.4
Lin/CGA	9:20	14.7	1.68	1.81	2.49	2.55	49.45	456.8	2.37
COH/O2	9:21	11.31 C	3.12 C	2.93 C	2.38 C	2.41 C	49.66	457.3	0 C
	9:22	6.24 C	10.29 CI	38.76 C	2.18 C	2.29 C	49.64	456.8	0 C
	9:23	6.24 C	10.29 CI	50.32 C	0.34 C	0.56 C	49.82	456.7	0 C
	9:24	6.23 C	10.29 CI	49.83 C	0.07 C	0.31 C	49.48	456.7	0 C
	9:25	6.23 CZ	10.29 CI	49.91 CZ	0.06 C	0.28 C	49.52	456.7	0 CZ
	9:26	13.73 C	10.29 CI	109.48 C	0.05 C	0.32 C	49.77	456.4	0 C
	9:27	13.74 C	10.29 CI	111.04 C	0.04 C	0.37 C	49.73	456.7	0 C
	9:28	13.73 C	10.29 CI	111.32 C	0.04 C	0.35 C	49.83	456.5	0 C
	9:29	13.73 C	10.29 CI	111.32 C	0.03 C	0.32 C	49.75	456.8	0 C
	9:30	22.4 C	10.29 CI	181.76 C	0.03 C	0.33 C	49.66	456.2	0 C
	9:31	22.4 CS	10.29 CI	181.99 CS	0.03 C	0.27 C	49.54	456	0 CS
	9:32	22.4 CS	10.29 CI	181.99 CS	0.02 C	0.32 C	49.9	457.3	0 CS
	9:33	14.72 C	6.28 CI	8.93 C	1.02 C	1.19 C	49.63	456.7	0 C

	Time	2_O2	2_COLOW	2_COHIGH	2_NOXLOW	2_NOXHIGH	2_LOAD	2_GasFlow	**2_NOX_CORR**
		%	ppm	ppm	ppm	ppm	MW	kscfh	ppm
End	9:34	14.71 C	1.77 C	1.9 C	2.09 C	2.2 C	49.48	457.4	0 C
	9:35	14.7	1.81	1.92	2.25	2.38	49.7	457.6	2.14
	9:36	14.69	1.81	1.93	2.15	2.25	49.89	457.5	2.04
Lin/CGA	9:37	14.7	1.79	1.91	2.14	2.3	49.76	457.7	2.04
COH/O2	9:38	13.16 C	2.84 C	2.93 C	2.05 C	2.15 C	49.85	457.4	0 C
	9:39	6.26 C	10.29 CI	36.74 C	2.02 C	2.09 C	49.51	457.4	0 C
	9:40	6.23 C	10.29 CI	50.31 C	0.43 C	0.7 C	49.62	457.8	0 C
	9:41	6.23 C	10.29 CI	50.93 C	0.04 C	0.28 C	49.94	457.1	0 C
	9:42	6.23 CZ	10.29 CI	50.87 CZ	0.03 C	0.31 C	49.85	457.9	0 CZ
	9:43	13.72 C	10.29 CI	102.16 C	0.02 C	0.24 C	49.46	457.1	0 C
	9:44	13.73 C	10.29 CI	111.2 C	0.01 C	0.26 C	49.92	456.9	0 C
	9:45	13.73 C	10.29 CI	111.15 C	0.01 C	0.25 C	49.75	457.3	0 C
	9:46	13.73 C	10.29 CI	111.15 C	0.01 C	0.28 C	49.87	457.1	0 C
	9:47	22.39 C	10.29 CI	179.9 C	0.01 C	0.2 C	49.65	456.8	0 C
	9:48	22.4 C	10.29 CI	180.12 C	0.01 C	0.22 C	49.9	457.3	0 C
	9:49	22.39 CS	10.29 CI	180.45 CS	0.01 C	0.27 C	49.88	457	0 CS
	9:50	14.7 C	9.48 CI	41.59 C	0.36 C	0.62 C	49.97	456.3	0 C
	9:51	14.69 C	2.42 C	2.48 C	1.64 C	1.75 C	49.82	456.9	0 C
End	9:52	14.7 C	2.04 C	2.15 C	2.13 C	2.28 C	49.76	456.6	0 C
	9:53	14.69	1.88	1.99	2.02	2.04	49.68	456.8	1.92
	9:54	14.69	1.77	1.92	2.03	2.14	49.72	456.7	1.93
	9:55	14.68	1.69	1.79	2.07	2.22	49.65	457.2	1.96
	9:56	14.68	1.69	1.78	2.07	2.23	49.59	457.9	1.96
Lin/CGA	9:57	14.68	1.76	1.91	2.07	2.16	49.69	457.9	1.96
COH/O2	9:58	14.67 C	1.75 C	1.87 C	2.03 C	2.06 C	49.72	457.3	0 C
	9:59	8.36 C	7.97 CI	23.34 C	2.01 C	2.11 C	49.88	457.7	0 C
	10:00	6.24 C	10.29 CI	50.07 C	1.05 C	1.28 C	49.62	457.1	0 C
	10:01	6.24 C	10.29 CI	50.62 C	0.04 C	0.25 C	49.72	458.2	0 C
	10:02	6.23 CZ	10.29 CI	50.48 CZ	0.03 C	0.23 C	49.76	457.4	0 CZ
	10:03	6.23 CZ	10.29 CI	50.48 CZ	0.02 C	0.21 C	49.91	458.1	0 CZ
	10:04	13.73 C	10.29 CI	112.35 C	0.01 C	0.2 C	49.79	457.3	0 C
	10:05	13.73 C	10.29 CI	112.53 C	0.01 C	0.25 C	49.62	457.9	0 C
	10:06	13.73 C	10.29 CI	112.53 C	0 C	0.24 C	49.86	457.9	0 C
	10:07	22.39 C	10.29 CI	179.9 C	0 C	0.27 C	49.83	458.2	0 C
	10:08	22.38 C	10.29 CI	180.58 C	0.01 C	0.23 C	49.67	457.7	0 C
	10:09	22.37 CS	10.29 CI	180.88 CS	0.01 C	0.24 C	49.82	458.3	0 CS
	10:10	22.37 CS	9.87 CI	180.88 CS	0.13 C	0.36 C	49.73	458.3	0 CS

	Time	2_O2	2_COLOW	2_COHIGH	2_NOXLOW	2_NOXHIGH	2_LOAD	2_GasFlow	2_NOX_CORR
		%	ppm	ppm	ppm	ppm	MW	kscfh	ppm
	10:11	14.67 C	2.77 C	2.86 C	1.44 C	1.53 C	49.86	457.6	0 C
End	10:12	14.68 C	1.79 C	1.88 C	1.9 C	2.03 C	50.03	457.3	0 C
	10:13	14.68	1.73	1.89	2.05	2.12	49.75	457.4	1.94
	10:14	14.67	1.73	1.88	2.04	2.03	49.67	458.1	1.93
Lin/CGA	10:15	14.67	1.75	1.91	2.05	2.19	49.67	457.7	1.94
NOxH	10:16	14.65 C	1.75 C	1.87 C	2 C	2.06 C	49.84	457.3	0 C
	10:17	0.11 C	4.95 C	4.91 C	1.99 C	2.09 C	49.75	457.5	0 C
	10:18	-0.02 C	0.13 C	0.24 C	10.29 C	31.48 C	49.56	457.6	0 C
	10:19	-0.02 C	-0.02 C	0.06 C	10.29 C	50.03 C	50.22	457.1	0 C
	10:20	5.3 C	0.01 C	0.08 C	10.29 C	50.43 CZ	50.11	457.2	0 CZ
	10:21	14.64 C	0.51 C	0.61 C	10.29 C	45.59 C	49.98	457.1	0 C
	10:22	14.66 C	1.26 C	1.37 C	7.22 C	11.47 C	49.92	456.8	0 C
	10:23	14.5 C	1.81 C	1.91 C	2.79 C	2.82 C	49.77	457.7	0 C
	10:24	0.06 C	1.79 C	1.88 C	5.14 C	2.82 C	49.61	456.8	0 C
	10:25	-0.02 C	1.25 C	1.38 C	10.29 C	119.97 C	49.7	458	0 C
	10:26	-0.02 C	0.51 C	0.63 C	10.29 C	180.91 C	49.61	457.9	0 C
	10:27	4.88 C	0.02 C	0.14 C	10.29 C	181.87 CS	49.81	457.4	0 CS
	10:28	14.47 C	0.33 C	0.45 C	10.29 C	164.62 C	49.96	457.7	0 C
	10:29	14.48 C	0.99 C	1.12 C	9.26 C	39.08 C	49.83	456.7	0 C
	10:30	14.5 C	1.65 C	1.76 C	6.29 C	6.1 C	49.83	457.4	0 C
	10:31	14.51 C	2.07 C	2.15 C	5.24 C	5.11 C	49.53	457.2	0 C
End	10:32	14.52 C	2.26 C	2.34 C	4.91 C	4.68 C	49.7	458.2	0 C
	10:33	14.67	2.14	2.23	4.26	4.18	49.55	458.4	4.03
	10:34	14.67	1.94	2.01	2.56	2.53	49.9	458	2.42
Lin/CGA	10:35	14.66	1.86	1.97	2.39	2.39	49.57	457.4	2.26
NOx H	10:36	8.86 C	1.67 C	1.77 C	2.28 C	2.41 C	49.72	458.3	0 C
	10:37	0 C	1.59 C	1.7 C	6.27 C	7.25 C	49.64	458.1	0 C
	10:38	-0.02 C	1 C	1.11 C	10.29 C	47.57 C	49.67	457.1	0 C
	10:39	-0.02 C	0.31 C	0.43 C	10.29 C	51.61 C	49.81	456.9	0 C
	10:40	-0.02 C	-0.01 C	0.06 C	10.29 C	51.59 CZ	49.81	457.5	0 CZ
	10:41	-0.02 C	0 C	0.09 C	10.29 C	84.41 C	49.55	457.3	0 C
	10:42	-0.02 C	0.01 C	0.15 C	10.29 C	110.07 C	49.8	457.3	0 C
	10:43	-0.02 C	0.02 C	0.13 C	10.29 C	111.02 C	49.95	457.3	0 C
	10:44	-0.02 C	0.01 C	0.14 C	10.29 C	111.02 C	49.86	457.7	0 C
	10:45	-0.03 C	0 C	0.14 C	10.29 C	118.93 C	49.68	456.9	0 C
	10:46	-0.03 C	0.01 C	0.15 C	10.29 C	123.58 C	49.73	457.6	0 C

	Time	2_O2	2_COLOW	2_COHIGH	2_NOXLOW	2_NOXHIGH	2_LOAD	2_GasFlow	**2_NOX_CORR**
		%	ppm	ppm	ppm	ppm	MW	kscfh	ppm
Regulator issue	10:47	-0.03 C	0.01 C	0.13 C	10.29 C	123.77 CS	49.67	457.7	0 CS
	10:48	-0.03 C	0 C	0.13 C	10.29 C	119.32 C	49.81	457.8	0 C
	10:49	-0.02 C	-0.01 C	0.07 C	10.29 C	112.87 C	49.74	457.5	0 C
	10:50	-0.03 C	-0.02 C	0.06 C	10.29 C	112.82 C	49.77	457.9	0 C
End	10:51	-0.03 C	-0.03 C	0.07 C	10.29 C	112.78 C	49.68	457.3	0 C
	10:52	7.9	0.05	0.13	10.29	112.8	49.6	457.3	51.19
	10:53	14.58	0.76	0.91	10.29	82.68	49.99	458.5	77.19
	10:54	14.59	1.77	1.86	5.88	6.87	49.76	459.7	6.54
	10:55	14.59	2.52	2.58	3.61	3.62	49.65	460.2	3.38
	10:56	14.6	2.43	2.5	3.31	3.26	49.97	458.5	3.1
	10:57	14.58	2.39	2.44	3.16	3.13	49.97	459	2.95
	10:58	14.6	2.45	2.54	3.14	3.17	49.91	458.7	2.94
	10:59	14.57	2.47	2.54	3.08	3.06	49.84	459.8	2.87

11.8	ppm Exceedance
2.5	ppm Limit
9.3	ppm Over limit

SCAQMD Reclaim Audit Report(Ver:2.2)

Customer Name:	CITY OF ANAHEIM		Report Start	2/20/2019 0:00	
Unit ID	D7		Report End	2/20/2019 23:59	
Category	CANYON POWER PLANT		Date Generated	Generated: 2/21/2019 07:14	
NOx Avail	445.4	%			
Flow Avail	452.6	%			
Total NOx Mass	58.57	lb			

Date/Time	NOx Valid Quadrants	NOx Calibration/ Maintenance	Average of Valid bias adjusted NOx ppm quadrants	Stack Flow Valid Quadrants	Stack Flow Calibration/ Maintenance	Average of Valid bias adjusted stack flow quadrants	Average of Valid NOx lb/hr quadrants	Missing data Procedure	Daily Total
2/20/2019 0:00	4	0	0	4	0	0	0		
2/20/2019 1:00	4	0	0	4	0	0	0		
2/20/2019 2:00	4	1	0	4	1	0	0		
2/20/2019 3:00	4	1	0	4	1	0	0		
2/20/2019 4:00	4	0	0	4	0	0	0		
2/20/2019 5:00	4	0	0	4	0	0	0		
2/20/2019 6:00	4	0	2.45	4	0	3260	3.81		
2/20/2019 7:00	4	1	2.13	4	1	14402	3.66		
2/20/2019 8:00	4	1	2.07	4	1	14240	3.52		
2/20/2019 9:00	4	1	2.18	4	1	14080	3.67		
2/20/2019 10:00	4	1	8.63	4	1	13598	13.02		
2/20/2019 11:00	2	1	3.74	2	1	13917	5.89	1N LBS/HR	
2/20/2019 12:00	2	1	3.74	2	1	13917	5.89	1N LBS/HR	
2/20/2019 13:00	4	1	1.91	4	1	13996	3.2		
2/20/2019 14:00	4	1	2.2	4	1	13993	3.68		
2/20/2019 15:00	4	1	1.73	4	1	13813	2.87		
2/20/2019 16:00	4	0	1.02	4	0	10060	1.22		
2/20/2019 17:00	4	0	1.35	4	0	10072	1.62		
2/20/2019 18:00	4	0	1.36	4	0	10031	1.62		
2/20/2019 19:00	4	0	1.35	4	0	10002	1.61		
2/20/2019 20:00	4	0	1.35	4	0	9972	1.61		
2/20/2019 21:00	4	0	1.38	4	0	9819	1.61		
2/20/2019 22:00	4	0	0.13	4	0	1162	0.07		
2/20/2019 23:00	4	0	0	4	0	0	0		58.57

8.63 ppm = 13.02 lbs
2.5ppm = x

x=(13.02*2.5)/8.63 = 3.80 lbs

13.02-3.77 = 9.25 lbs excess emissions

Airgas.
an Air Liquide company

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

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number:	E02NI99E15A0093	Reference Number:	48-401148253-1
Cylinder Number:	CC147621	Cylinder Volume:	144.3 CF
Laboratory:	124 - Los Angeles (SAP) - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32018	Valve Outlet:	660
Gas Code:	NO,NOX,BALN	Certification Date:	Mar 21, 2018

Expiration Date: Mar 21, 2026

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

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

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	110.0 PPM	110.2 PPM	G1	+/- 0.9% NIST Traceable	03/14/2018, 03/21/2018
NITRIC OXIDE	110.0 PPM	110.0 PPM	G1	+/- 1.0% NIST Traceable	03/14/2018, 03/21/2018
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	13010425	KAL004033	97.6 PPM NITRIC OXIDE/NITROGEN	+/- 0.8%	May 09, 2019
PRM	12367	APEX1099237	9.82 PPM NITROGEN DIOXIDE/AIR	+/- 2.0%	Jun 02, 2017
GMIS	0224201602	CC500997	5.100 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Feb 24, 2019

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

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801551 NO	FTIR	Mar 01, 2018
Nicolet 6700 AHR0801551 NO2	FTIR	Mar 16, 2018

Triad Data Available Upon Request

In service: 2/20/19 SMD

Approved for Release

South Coast Air Quality Management District

Form 500-N

Title V - Deviations, Emergencies & Breakdowns

*This written report is in addition to requirements to verbally report certain types of incidents. Verbal reports may be made by calling AQMD at 1-800-288-7664 (1-800-CUT-SMOG) or AQMD enforcement personnel.

South Coast AQMD

Mail To:
SCAQMD
P.O. Box 4941
Diamond Bar, CA 91765-0941

Tel: (909) 396-3385
www.aqmd.gov

Section I - Operator Information

1. **Facility Name** (Business Name of Operator That Appears On Permit): CANYON POWER PLANT Unit 2 (D7)

2. **Valid AQMD Facility ID** (Available On Permit Or Invoice Issued By AQMD): 153992

3. **Address:** (where incident occurred)
3071 E. Miraloma Avenue (Street Address)
Anaheim (City) CA (State) 92806 (Zip)

4. **Mailing Address:** (if different from Item 3)
Street Address
City State Zip

5. **Provide the name, title, and phone number of the person to contact for further information:**

Name	Title	Phone #
Ronald Hoffard	Generation Plant Manager	(714) 765-4536

Section II - Reporting of Breakdowns, Deviations, and Emergencies

1. **This written notification is to report a(n):**

Type of Incident	Verbal Report Due*	Written Report Due
a. ☐ Emergency under Rule 3002(g)	Within 1 hour of discovery	Within 2 working days from when the emission limit was exceeded.
b. ☒ Breakdown under: ☐ Rule 430 (Non-RECLAIM) ☒ Rule 2004 (RECLAIM) ☐ Rule 218 (Non-RECLAIM) [See Rule 218(f)(3)]	For Rules 430 & 2004 - Within 1 hour of discovery. For Rule 218 – Within 24 hours or next business day for failure/shutdown exceeding 24 hours	For Rules 430 & 2004 - Within 7 calendar days after breakdown is corrected, but no later than 30 days from start of the breakdown, unless a written extension is granted. For Rule 218 - With required semi-annual reports.
c. ☐ Deviation with excess emissions [See Title V Permit, Section K, Condition No. 22B]	Within 72 hours of discovery of the deviation or shorter reporting period if required by an applicable State or Federal Regulation.	Within 14 days of discovery of the deviation.
d. ☐ Other Deviation [See Title V Permit, Section K, Condition Nos. 22D & 23]	None	With required semi-annual monitoring reports.

2. **The incident was first discovered by:** GREG STRONG (Name) on 04/08/2019 (Date) 09:00 (Time) ◉ AM ○ PM

3. **The incident was first reported by:** OPERATOR #5 (Name of AQMD Staff Person) on 04/08/2019 (Date) 09:17 (Time) ◉ AM ○ PM

a. ◉ Via Phone

b. ○ In Person

Notification Number (Required): 556458

4. **When did the incident actually occur?** 04/07/2019 (Date) 06:15 (Time) ○ AM ◉ PM

AQMD USE ONLY				
	Received By:		Assigned By:	Inspector:
	Date/Time Received:		Date/Time Assigned:	Date/Time Received Assignment:
	Date Delivered To Team:		Date Reviewed Inspector Report:	Date Inspected Facility:
	Team:	Sector:	Breakdown/Deviation Notification No.	Date Completed Report:

Recommended Action: Cancel Notification Grant Relief Issue NOV No.____ Other:____

Final Action: Cancel Notification Grant Relief Issue NOV No.____ Other:____

5. Has the incident stopped? a. (•) Yes, on: 04/07/2019 (Date) 08:05 (Time) ( ) AM (•) PM b. ( ) No

6. What was the total duration of the incident? ______ Days 1.83 Hours

7. For equipment with an operating cycle, as defined in Rule 430 (b)(3)(A), when was the end of the operating cycle during which the incident occurred? ______ Date ______ Time ( ) AM ( ) PM

8. Describe the incident and identify each piece of equipment (by permit, application, or device number) affected. Attach photos (when available) of the affected equipment and attach additional pages as necessary.

See attachment #1

9. The incident may have resulted in a:

a. [X] Violation of Permit Condition(s): D12.1

b. [ ] Violation of AQMD Rule(s):

10. What was the probable cause of the incident? Attach additional pages as necessary.

See attachment #1

11. Did the incident result in excess emissions? (•) No ( ) Yes (Complete the following and attach calculations.)

[ ] VOC ______ lbs [ ] NOx ______ lbs [ ] SOx ______ lbs [ ] H2S ______ lbs

[ ] CO ______ lbs [ ] PM ______ lbs [ ] Other: ______ lbs ______ pollutant

12. *For RECLAIM facilities Subject to Rule 2004 (i)(3) ONLY:* If excess emissions of NOx and/or SOx were reported in Item 11, do you want these emissions to be counted when determining compliance with your annual allocations?

a. (•) Yes, for: [ ] NOx [ ] SOx b. ( ) No, for: [ ] NOx [ ] SOx

If box 12(b) above is checked, include all information specified in Rule 2004(i)(3)(B) and (C), as applicable.

13. Describe the steps taken to correct the problem (i.e., steps taken to mitigate excess emissions, equipment repairs, etc.) and the preventative measures employed to avoid future incidents. Include photos of the failed equipment if available and attach additional pages as necessary.

See attachment #1

14. Was the facility operating properly prior to the incident?

a. (•) Yes b. ( ) No, because:

15. Did the incident result from operator error, neglect or improper operation or maintenance procedures?

a. ( ) Yes b. (•) No, because:

16. Has the facility returned to compliance?

a. ( ) No, because:

b. (•) Yes (Attach evidence such as emissions calculations, contemporaneous operating logs or other credible evidence.)

Section III - Certification Statement

I certify under penalty of law that based on information and belief formed after reasonable inquiry, the statements and information in this document and in all attachments and other materials are true, accurate, and complete.

For Title V Facilities ONLY: [X] I also certify under penalty of law that that I am the responsible official for this facility as defined in AQMD Regulation XXX.

1. Signature of Responsible Official: R Hoffard	2. Title of Responsible Official: INTEGRATED RESOURCES MANAGER
3. Print Name: RONALD HOFFARD	4. Date: 04/12/2019
5. Phone #: (714) 765-4536	6. Fax #:

7. Address of Responsible Official:

3071 E. MIRALOMA AVENUE (Street #) Anaheim (City) CA (State) 92806 (Zip)

ATTACHMENT #1

AQMD 500N Episode Date: 04/07/2019
Identify Issue: CEMS fuel flow failed to register
Canyon Power Plant: Unit 2/ID# 153992
Notification: 556458

Question 8 - Describe the incident and identify each piece of equipment:

Unit 2 dispatched at 1815 hours on April 7, 2019. During the start-up period, Unit 2 experienced an ammonia flow control valve failure to open. The Operator Technician placed the ammonia controls in manual operation and continued operation with emissions in compliance and no further incidents. During troubleshooting for ammonia valve failure to automatically open, it was discovered that there had been a loss of fuel meter data transmission to the Unit 2 control computer. Fuel flow data is the permissive that causes automatic opening of the ammonia flow control valve. The fuel flow meter is a device listed in the SCAQMD Permit to Operate, which was subsequently reported to SCAQMD as a breakdown.

Question 10 – What was the probable cause of the incident?

Staff identified a broken wire inside the fuel meter signal-converter, which prevented transmission of fuel flow data to Unit 2 controls and the CEMS (see pic #2).

Question 13 – Describe the steps taken to correct the problem:

The broken wire and connection in fuel flow transmitter (FT-6246) Signal-Converter was repaired and the unit fuel flow transmitter was successfully tested on April 8, 2019.

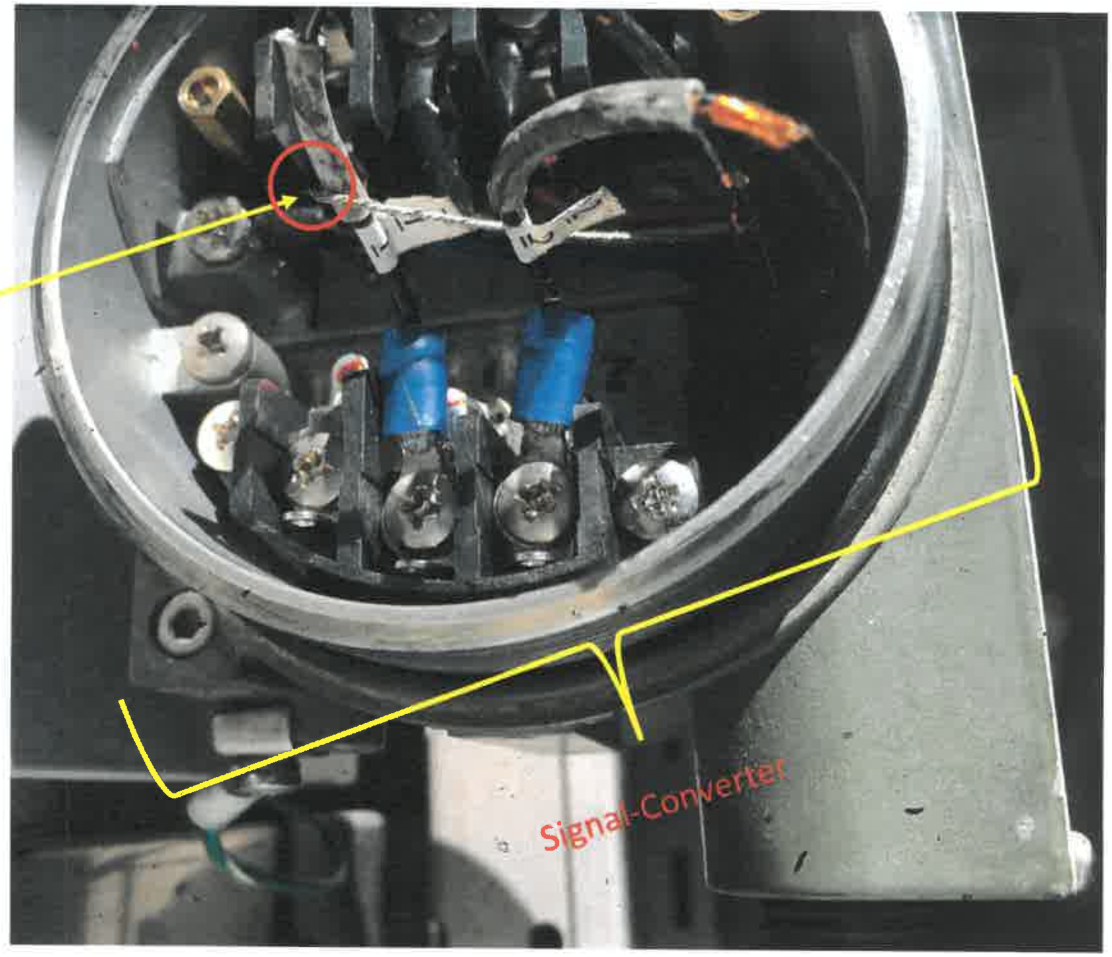
Question 16 – Facility retuned to compliance?

Unit 2 was shutdown on April 7, 2019 at 2005 hours. The troubleshooting and repairs to Unit 2 occurred on April 8, 2019 and the unit successfully tested at 1035 hours. The test results showed the CEMS registering the correct fuel flow.

ATTACHMENT #2

Canyon Power Plant
ID#153992
4/7/19

Shielding wire broken



South Coast Air Quality Management District

Form 500-N

Title V - Deviations, Emergencies & Breakdowns

*This written report is in addition to requirements to verbally report certain types of incidents. Verbal reports may be made by calling AQMD at 1-800-288-7664 (1-800-CUT-SMOG) or AQMD enforcement personnel.

Mail To:
SCAQMD
P.O. Box 4941
Diamond Bar, CA 91765-0941
Tel: (909) 396-3385
www.aqmd.gov

Section I - Operator Information

1. **Facility Name** (Business Name of Operator That Appears On Permit): CANYON POWER PLANT

2. **Valid AQMD Facility ID** (Available On Permit Or Invoice Issued By AQMD): 153992

3. **Address:** (where incident occurred)
3071 E. Miraloma Avenue — Street Address
Anaheim — City; CA — State; 92806 — Zip

4. **Mailing Address:** (if different from Item 3)
Street Address
City, State, Zip

5. **Provide the name, title, and phone number of the person to contact for further information:**

Name	Title	Phone #
Ronald Hoffard	Generation Plant Manager	(714) 765-4536

Section II - Reporting of Breakdowns, Deviations, and Emergencies

1. **This written notification is to report a(n):**

Type of Incident	Verbal Report Due*	Written Report Due
a. ☐ Emergency under Rule 3002(g)	Within 1 hour of discovery	Within 2 working days from when the emission limit was exceeded.
b. ☐ Breakdown under: ☐ Rule 430 (Non-RECLAIM) ☐ Rule 2004 (RECLAIM) ☐ Rule 218 (Non-RECLAIM) [See Rule 218(f)(3)]	For Rules 430 & 2004 - Within 1 hour of discovery. For Rule 218 – Within 24 hours or next business day for failure/shutdown exceeding 24 hours	For Rules 430 & 2004 - Within 7 calendar days after breakdown is corrected, but no later than 30 days from start of the breakdown, unless a written extension is granted. For Rule 218 - With required semi-annual reports.
c. ☐ Deviation with excess emissions [See Title V Permit, Section K, Condition No. 22B]	Within 72 hours of discovery of the deviation or shorter reporting period if required by an applicable State or Federal Regulation.	Within 14 days of discovery of the deviation.
d. ☒ Other Deviation [See Title V Permit, Section K, Condition Nos. 22D & 23]	None	With required semi-annual monitoring reports.

2. **The incident was first discovered by:** Greg Strong (Name) on 09/07/2019 (Date) 06:25 (Time) ○ AM ◉ PM

3. **The incident was first reported by:** Voicemail left at 1800-CUT-SMOG (Name of AQMD Staff Person) on 09/07/2019 (Date) 06:52 (Time) ○ AM ◉ PM

a. ◉ Via Phone

b. ○ In Person

Notification Number (Required): 578653

4. **When did the incident actually occur?** 09/07/2019 (Date) 06:25 (Time) ○ AM ◉ PM

AQMD USE ONLY			
Received By:		Assigned By:	Inspector:
Date/Time Received:		Date/Time Assigned:	Date/Time Received Assignment:
Date Delivered To Team:		Date Reviewed Inspector Report:	Date Inspected Facility:
Team:	Sector:	Breakdown/Deviation Notification No.	Date Completed Report:
Recommended Action:	Cancel Notification	Grant Relief	Issue NOV No. ______ Other: ______
Final Action:	Cancel Notification	Grant Relief	Issue NOV No. ______ Other: ______

5. Has the incident stopped? a. (●) Yes, on: 09/07/2019 (Date) 06:25 (Time) ( ) AM (●) PM b. ( ) No

6. What was the total duration of the incident? ______ Days ______ Hours

7. For equipment with an operating cycle, as defined in Rule 430 (b)(3)(A), when was the end of the operating cycle during which the incident occurred? ______ Date ______ Time ( ) AM ( ) PM

8. Describe the incident and identify each piece of equipment (by permit, application, or device number) affected. Attach photos (when available) of the affected equipment and attach additional pages as necessary.

SEE SUMMARY ATTACHED

9. The incident may have resulted in a:

a. ☐ Violation of Permit Condition(s):

b. ☒ Violation of AQMD Rule(s): Rule 2012(c)(3)(C)

10. What was the probable cause of the incident? Attach additional pages as necessary.

SEE SUMMARY ATTACHED

11. Did the incident result in excess emissions? (●) No ( ) Yes (Complete the following and attach calculations.)

☐ VOC ______ lbs ☐ NOx ______ lbs ☐ SOx ______ lbs ☐ H2S ______ lbs

☐ CO ______ lbs ☐ PM ______ lbs ☐ Other: ______ lbs ______ pollutant

12. *For RECLAIM facilities Subject to Rule 2004 (i)(3) ONLY:* If excess emissions of NOx and/or SOx were reported in Item 11, do you want these emissions to be counted when determining compliance with your annual allocations?

a. (●) Yes, for: ☐ NOx ☐ SOx b. ( ) No, for: ☐ NOx ☐ SOx

If box 12(b) above is checked, include all information specified in Rule 2004(i)(3)(B) and (C), as applicable.

13. Describe the steps taken to correct the problem (i.e., steps taken to mitigate excess emissions, equipment repairs, etc.) and the preventative measures employed to avoid future incidents. Include photos of the failed equipment if available and attach additional pages as necessary.

SEE SUMMARY ATTACHED

14. Was the facility operating properly prior to the incident?

a. (●) Yes b. ( ) No, because:

15. Did the incident result from operator error, neglect or improper operation or maintenance procedures?

a. ( ) Yes b. (●) No, because: proper back-up continuously

16. Has the facility returned to compliance?

a. ( ) No, because:

b. (●) Yes (Attach evidence such as emissions calculations, contemporaneous operating logs or other credible evidence.)

Section III - Certification Statement

I certify under penalty of law that based on information and belief formed after reasonable inquiry, the statements and information in this document and in all attachments and other materials are true, accurate, and complete.

For Title V Facilities ONLY: ☒ I also certify under penalty of law that that I am the responsible official for this facility as defined in AQMD Regulation XXX.

1. Signature of Responsible Official: R Hoffard	2. Title of Responsible Official: GENERATION PLANT MANAGER
3. Print Name: RONALD HOFFARD	4. Date: 9/18/19
5. Phone #: (714) 765-4536	6. Fax #:

7. Address of Responsible Official:

3071 E. MIRALOMA AVE (Street #) ANAHEIM (City) CA (State) 92806 (Zip)

SCAQMD Form 500-N Deviation Date: 09/07/2019
Identify issue: DAHS Computer server failed
Canyon Power Plant: Unit 1-4/ID# 153992
Notification: 578653

Question 8 *- Describe the incident and identify each piece of equipment:*

On September 7, 2019 Greg Strong, Canyon Technician, was called to operate Canyon's turbine at approximately 1400 hrs. An on-line passing Calibration was performed at approximately 1500 hrs for all four units. At 1825 hrs, Greg heard beeping sounds coming from the DAHS computer followed by a computer lock up and terminal failure. The technician attempted to reboot the DAHS computer to no avail. The four units were immediately shut down and placed in forced outage for the duration of the DAHS loss.

All analyzers in the CEMS shack that monitor each of the turbines were in working condition and were not affected by the DAHS computer crashing.

On Monday, September 9, 2019, the DAHS software vendor CEMTEK KVB-Enertec was contacted to assist with repairing or replacing Canyon's DAHS computer. A new computer arrived on Tuesday, September 10, 2019, however, the old computer was unable to operate and the vendor could not access the data to reconfigure the new computer. In-house testing was performed but the old computer was not able to reboot. The old computer was delivered to an outside company for recovery of the data from the drives.

Question 10 *– What was the probable cause of the incident?*

The probable cause was due to a cache controller RAID malfunction.

Question 13 *– Describe the steps taken to correct the problem:*

The software vendor KVB-Enertec was contacted to assist with the repairing or replacing of the DAHS computer. A new computer was received on Tuesday, September 10, 2019 and installed. The old computer was delivered to a facility to recover data from internal drives since the computer was not operable with the RAID 5 cache malfunction. The new computer was successfully reconfigured with the recovered data.

Question 16 *– Facility retuned to compliance.*

The DAHS computer returned to compliance on Friday, September 13, 2019 at 1130 hrs. All daily RTUs were submitted to SCAQMD. The four units operated on September 14, 2019 without issue.

South Coast Air Quality Management District

Form 500-N

Title V - Deviations, Emergencies & Breakdowns

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Mail To:
SCAQMD
P.O. Box 4941
Diamond Bar, CA 91765-0941
Tel: (909) 396-3385
www.aqmd.gov

Section I - Operator Information

1. **Facility Name** (Business Name of Operator That Appears On Permit): CANYON POWER PLANT Unit 4 (D19)

2. **Valid AQMD Facility ID** (Available On Permit Or Invoice Issued By AQMD): 153992

3. **Address:** (where incident occurred)
3071 E. Miraloma Avenue — Street Address
Anaheim — City; CA — State; 92806 — Zip

4. **Mailing Address:** (if different from Item 3)
Street Address
City; State; Zip

5. **Provide the name, title, and phone number of the person to contact for further information:**

Name	Title	Phone #
Ronald Hoffard	Generation Plant Manager	(714) 765-4536

Section II - Reporting of Breakdowns, Deviations, and Emergencies

1. **This written notification is to report a(n):**

Type of Incident	Verbal Report Due*	Written Report Due
a. ☐ Emergency under Rule 3002(g)	Within 1 hour of discovery	Within 2 working days from when the emission limit was exceeded.
b. ☒ Breakdown under: ☐ Rule 430 (Non-RECLAIM) ☒ Rule 2004 (RECLAIM) ☐ Rule 218 (Non-RECLAIM) [See Rule 218(f)(3)]	For Rules 430 & 2004 - Within 1 hour of discovery. For Rule 218 – Within 24 hours or next business day for failure/shutdown exceeding 24 hours	For Rules 430 & 2004 - Within 7 calendar days after breakdown is corrected, but no later than 30 days from start of the breakdown, unless a written extension is granted. For Rule 218 - With required semi-annual reports.
c. ☐ Deviation with excess emissions [See Title V Permit, Section K, Condition No. 22B]	Within 72 hours of discovery of the deviation or shorter reporting period if required by an applicable State or Federal Regulation.	Within 14 days of discovery of the deviation.
d. ☐ Other Deviation [See Title V Permit, Section K, Condition Nos. 22D & 23]	None	With required semi-annual monitoring reports.

2. **The incident was first discovered by:** Jeffrey Hacker (Name) **on** 10/16/2019 (Date) 04:55 (Time) ○ AM ◉ PM

3. **The incident was first reported by:** Voicemail left at 1800-CUT-SMOG (Op#8) (Name of AQMD Staff Person) **on** 10/16/2019 (Date) 05:19 (Time) ○ AM ◉ PM
   a. ◉ Via Phone
   b. ○ In Person

Notification Number (Required): 583951

4. **When did the incident actually occur?** 10/16/2019 (Date) 04:55 (Time) ○ AM ◉ PM

AQMD USE ONLY			
Received By:		Assigned By:	Inspector:
Date/Time Received:		Date/Time Assigned:	Date/Time Received Assignment:
Date Delivered To Team:		Date Reviewed Inspector Report:	Date Inspected Facility:
Team:	Sector:	Breakdown/Deviation Notification No.	Date Completed Report:

Recommended Action: Cancel Notification Grant Relief Issue NOV No.____ Other:____
Final Action: Cancel Notification Grant Relief Issue NOV No.____ Other:____

5. Has the incident stopped? a. ◉ Yes, on: 10/16/2019 (Date) 05:00 (Time) ○ AM ◉ PM b. ○ No

6. What was the total duration of the incident? ______ Days 06 ~~Hours~~ MIN

7. For equipment with an operating cycle, as defined in Rule 430 (b)(3)(A), when was the end of the operating cycle during which the incident occurred? ______ Date ______ Time ○ AM ○ PM

8. Describe the incident and identify each piece of equipment (by permit, application, or device number) affected. Attach photos (when available) of the affected equipment and attach additional pages as necessary.

See attached summary

9. The incident may have resulted in a:

a. ☒ Violation of Permit Condition(s): A99.1 NOx ppm > 2.5

b. ☐ Violation of AQMD Rule(s): ______

10. What was the probable cause of the incident? Attach additional pages as necessary.

See attached summary

11. Did the incident result in excess emissions? ○ No ◉ Yes (Complete the following and attach calculations.)

☐ VOC ______ lbs ☒ NOx 1.170 lbs ☐ SOx ______ lbs ☐ H2S ______ lbs

☐ CO ______ lbs ☐ PM ______ lbs ☐ Other: ______ lbs ______ pollutant

12. *For RECLAIM facilities Subject to Rule 2004 (i)(3) ONLY:* If excess emissions of NOx and/or SOx were reported in Item 11, do you want these emissions to be counted when determining compliance with your annual allocations?

a. ◉ Yes, for: ☐ NOx ☐ SOx b. ○ No, for: ☐ NOx ☐ SOx

If box 12(b) above is checked, include all information specified in Rule 2004(i)(3)(B) and (C), as applicable.

13. Describe the steps taken to correct the problem (i.e., steps taken to mitigate excess emissions, equipment repairs, etc.) and the preventative measures employed to avoid future incidents. Include photos of the failed equipment if available and attach additional pages as necessary.

See attached summary

14. Was the facility operating properly prior to the incident?

a. ◉ Yes b. ○ No, because: ______

15. Did the incident result from operator error, neglect or improper operation or maintenance procedures?

a. ○ Yes b. ◉ No, because: Quarterly maintenance is performed to stack sample cooler

16. Has the facility returned to compliance?

a. ○ No, because: ______

b. ◉ Yes (Attach evidence such as emissions calculations, contemporaneous operating logs or other credible evidence.)

Section III - Certification Statement

I certify under penalty of law that based on information and belief formed after reasonable inquiry, the statements and information in this document and in all attachments and other materials are true, accurate, and complete.

For Title V Facilities ONLY: ☒ I also certify under penalty of law that that I am the responsible official for this facility as defined in AQMD Regulation XXX.

1. Signature of Responsible Official: R Hoffard	2. Title of Responsible Official: GENERATION PLANT MANAGER
3. Print Name: RONALD HOFFARD	4. Date: 10/21/19
5. Phone #: (714) 765-4536	6. Fax #:

7. Address of Responsible Official:

3071 E. Miraloma Ave. (Street #) Anaheim (City) CA (State) 92806 (Zip)

AQMD 500N Episode Date: 10/16/19
Identify issue: Unit 4 Stack NOx Sample Cooler tubing disconnected
Canyon Power Plant: Unit 1/ID# 153992
Notification: 583951

Question 8 - Describe the incident and identify each piece of equipment:

Unit 4 initiated operation on 10/16/19 at 1053 am (DAHS time) to conduct RATA source testing. Unit 4 operated within the required NOx, CO and ROG permit limits until minute 1654 when the NOx ppm spiked from 2.17ppm to 20.31 in two seconds. The operators received a Unit 4 stack sample flow alarm at 1657 and proceeded to Unit 4 CEMS shack to verify the issue. The operator found that one of four sample cooler impingers had disconnected from the sample cooler. The tubing was immediately connected to the impinger and the unit returned to compliance by minute 1700 with a NOx ppm of 2.53ppm. Unit 4 continued in compliance until the unit was shut-down at 2103 hours (see attached minute data).

Question 10 – What was the probable cause of the incident?

An analyzer sample cooler tube attached to the impinger became disconnected.

Question 13 – Describe the steps taken to correct the problem:

New tubing connectors and impingers were installed, in addition, a backing plate will be installed to secure and prevent tubing from disconnecting.

Question 16 – Facility retuned to compliance?

Unit 4 returned to compliance on 10/16/19 at 1700 hours.

CANYON POWER PLANT
ID # 153992
U4

DAHS MINUTE DATA

Time	4_NOXPPM		4_NOX_CORR		4_LOAD		4_GasFlow		4_NH3_Flow		4_H2O_FLOW		4_NOxC_1H
	ppm	status	ppm	status	MW	status	kscfh	status	#/hr	status	k#/hr	status	ppm/hr
15:44	2.69		2.45		50.19		461.4		79.26		24.6		2.29
15:45	2.79		2.54		50.19		461.1		81.39		24.6		2.29
15:46	2.8		2.55		50.17		461.8		82.57		24.8		2.29
15:47	2.68		2.44		50.26		461.5		82.42		24.8		2.29
15:48	2.43		2.21		50.09		462.1		81.55		24.9		2.29
15:49	2.29		2.09		50.28		461.8		80.92		24.7		2.29
15:50	2.33		2.12		50.35		461.3		80.91		24.6		2.29
15:51	2.51		2.29		50.22		461.5		80.86		24.7		2.29
15:52	2.62		2.39		50.09		461.3		81.35		24.7		2.29
15:53	2.61		2.38		50.33		461.4		81.42		24.6		2.29
15:54	2.54		2.32		50.06		460.9		81.21		24.6		2.29
15:55	2.5		2.28		50.11		460.6		80.9		24.6		2.29
15:56	2.51		2.29		50.08		460.9		80.88		24.6		2.29
15:57	2.55		2.33		50.06		460.8		80.89		24.6		2.29
15:58	2.56		2.34		50.16		460.9		80.97		24.6		2.29
15:59	2.55		2.33		50.1		460.9		80.98		24.6		2.29
16:00	2.55		2.33		50.24		460		80.99		24.6		2.78
16:01	2.56		2.33		50.08		460.9		81.03		24.6		2.78
16:02	2.57		2.35		50.04		460.5		80.98		24.6		2.78
16:03	2.58		2.35		50.31		461.4		81.05		24.7		2.78
16:04	2.59		2.36		50.21		461.5		81.03		24.7		2.78
16:05	2.6		2.37		50.23		460.6		81.15		24.6		2.78
16:06	2.62		2.39		49.96		461.6		81.14		24.7		2.78
16:07	2.61		2.38		50.04		460.8		81.38		24.6		2.78
16:08	2.58		2.35		50.13		461.2		81.47		24.6		2.78
16:09	2.57		2.34		50.01		461.5		81.46		24.6		2.78
16:10	2.55		2.33		50.1		461.3		81.42		24.6		2.78
16:11	2.53		2.31		50.21		461		81.41		24.6		2.78
16:12	2.53		2.31		50.27		461.1		81.35		24.6		2.78
16:13	2.53		2.31		50.19		461.1		81.4		24.6		2.78
16:14	2.5		2.28		50.23		460.9		81.45		24.6		2.78
16:15	2.5		2.28		50.17		460.7		81.39		24.6		2.78
16:16	2.49		2.27		50.21		461.1		81.44		24.6		2.78
16:17	2.5		2.28		50.2		460.8		81.38		24.6		2.78
16:18	2.51		2.29		50.17		461.3		81.42		24.6		2.78
16:19	2.51		2.29		50.24		461.1		81.33		24.6		2.78
16:20	2.51		2.29		50.09		461.3		81.45		24.6		2.78
16:21	2.5		2.28		50.24		461.8		81.38		24.7		2.78
16:22	2.51		2.29		50.23		461.7		81.38		24.7		2.78
16:23	2.52		2.29		50.08		462.1		81.42		24.7		2.78
16:24	2.54		2.31		50.09		461.7		81.28		24.7		2.78
16:25	2.58		2.33		50.03		462.4		81.67		24.7		2.78
16:26	2.63		2.37		50.17		462.4		81.58		25		2.78
16:27	2.65		2.39		50.18		462.8		81.98		24.6		2.78
16:28	2.57		2.33		50.05		462.1		81.91		24.6		2.78

CANYON POWER PLANT
ID # 153992
U4

Time	4_NOXPPM ppm	status	4_NOX_CORR ppm	status	4_LOAD MW	status	4_GasFlow kscfh	status	4_NH3_Flow #/hr	status	4_H2O_FLOW k#/hr	status	4_NOxC_1H ppm/hr
16:29	2.6		2.35		50.14		463		82.04		24.7		2.78
16:30	2.71		2.45		50.2		462.2		82.2		24.6		2.78
16:31	2.69		2.43		50.19		462.9		82.51		24.6		2.78
16:32	2.7		2.44		50.27		462.3		82.63		24.6		2.78
16:33	2.7		2.45		50.23		461.7		83.3		24.6		2.78
16:34	2.65		2.4		50.32		462.1		84.1		24.6		2.78
16:35	2.53		2.3		50.2		462.1		83.99		24.7		2.78
16:36	2.39		2.17		50.13		462.4		84.05		24.7		2.78
16:37	2.29		2.09		50.2		462.1		81.13		24.7		2.78
16:38	2.3		2.09		50.27		462.1		81.1		24.6		2.78
16:39	2.42		2.2		50.27		462.2		81.12		24.7		2.78
16:40	2.54		2.31		50.19		462		81.04		24.8		2.78
16:41	2.53		2.3		50.24		461.9		81.07		24.8		2.78
16:42	2.49		2.26		50.08		462.9		81.02		24.9		2.78
16:43	2.46		2.24		50.04		462.2		81.07		24.7		2.78
16:44	2.44		2.22		50.17		461.9		81.08		24.8		2.78
16:45	2.47		2.25		50.23		461.9		81.1		24.7		2.78
16:46	2.48		2.26		50.19		462.4		80.98		24.7		2.78
16:47	2.45		2.23		50.34		462.3		81.08		24.8		2.78
16:48	2.44		2.22		50.19		462.3		81.02		24.8		2.78
16:49	2.44		2.23		50.26		462		81.02		24.7		2.78
16:50	2.43		2.22		50.16		462		80.99		24.8		2.78
16:51	2.41		2.19		50.32		462.5		80.96		24.8		2.78
16:52	2.4		2.19		50.07		462.7		81.07		24.8		2.78
16:53	2.41		2.19		50.22		462.6		80.96		24.8		2.78
16:54	2.45		2.17		50.2		463		80.81		24.8		2.78
16:55	11.32		9.65		50.25		462.4		80.68		24.8		2.78
16:56	22.75		20.31		50.06		462.9		80.5		24.9		2.78
16:57	5.96		5.38		50.22		462.9		80.37		24.7		2.78
16:58	2.82		2.55		50.2		463		80.49		24.7		2.78
16:59	2.85		2.58	2.78	50.17		462		81.09		25		2.78
17:00	2.8		2.53		50.1		464.6		84.2		25.3		2.15
17:01	1.98		1.79		50.15		462.2		84.32		24.6		2.15
17:02	2.4		2.17		50.05		462.8		84.38		24.6		2.15
17:03	2.44		2.21		50.23		462.2		84.61		24.7		2.15
17:04	2.41		2.18		50.25		463.2		84.79		24.7		2.15
17:05	2.37		2.15		50.03		462.8		84.79		24.8		2.15
17:06	2.3		2.09		50.05		462.7		84.79		24.8		2.15
17:07	2.24		2.03		50.26		462.8		84.28		24.8		2.15
17:08	2.21		2.01		50.21		462.7		84.17		24.7		2.15
17:09	2.23		2.03		50.26		462.5		84.12		24.8		2.15
17:10	2.25		2.05		50.08		462.2		84.18		24.6		2.15
17:11	2.25		2.05		50.13		462.6		84.24		24.7		2.15
17:12	2.25		2.05		50.32		462.5		84.17		24.8		2.15
17:13	2.23		2.03		50.13		462.2		84.26		24.8		2.15

The stack sample cooler one of the tubes to the impinger disconnected

The tubing connected to impinger NOx ppm returned to compliance

CANYON POWER PLANT
ID # 153992
U4

15-MIN DATA

Date / Time	Valid NOx ppm minutes	Valid Stack flow minutes	Average of Valid Range adjusted NOx ppm minutes	NOx ppm bias factor	Bias adjusted NOx ppm	Average of Valid stack flow minutes (kscf/hr)	Stack flow bias factor	Bias Adjusted stack flow (kscf/hr)	NOx (lb/hr)	Average of O2 %	Average of Fuel flow (kscf/hr)	Average of HHV (BTU/SCF)	Average of FD (SCF/MMBTU)
10/16/2019 15:15	15	15	2.49	1	2.49	13648	1	13648	4.06	14.42	462.7	1050	8710
10/16/2019 15:30	15	15	2.53	1	2.53	13622	1	13622	4.12	14.42	461.8	1050	8710
10/16/2019 15:45	15	15	2.55	1	2.55	13628	1	13628	4.15	14.43	461.3	1050	8710
10/16/2019 16:00	15	15	2.56	1	2.56	13619	1	13619	4.17	14.43	461	1050	8710
10/16/2019 16:15	15	15	2.54	1	2.54	13601	1	13601	4.13	14.41	461.8	1050	8710
10/16/2019 16:30	15	15	2.52	1	2.52	13592	1	13592	4.09	14.4	462.2	1050	8710
10/16/2019 16:45	15	15	5.25	1	5.25	13517	1	13517	8.48	14.36	452.5	1050	8710
10/16/2019 17:00	15	15	2.3	1	2.3	13606	1	13606	3.74	14.4	462.7	1050	8710
10/16/2019 17:15	15	15	2.35	1	2.35	13628	1	13628	3.83	14.42	462	1050	8710
10/16/2019 17:30	15	15	2.41	1	2.41	13622	1	13622	3.92	14.42	461.8	1050	8710
10/16/2019 17:45	15	15	2.4	1	2.4	13619	1	13619	3.91	14.42	461.7	1050	8710
10/16/2019 18:00	15	15	2.37	1	2.37	13643	1	13643	3.86	14.43	461.8	1050	8710
10/16/2019 18:15	15	15	2.47	1	2.47	13646	1	13646	4.03	14.43	461.9	1050	8710
10/16/2019 18:30	15	15	2.47	1	2.47	13661	1	13661	4.03	14.44	461.7	1050	8710
10/16/2019 18:45	15	15	2.55	1	2.55	13610	1	13610	4.15	14.41	462.1	1050	8710
10/16/2019 19:00	15	15	2.42	1	2.42	13568	1	13568	3.92	14.39	462.1	1050	8710
10/16/2019 19:15	15	15	2.48	1	2.48	13568	1	13568	4.02	14.39	462.1	1050	8710
10/16/2019 19:30	9	9	2.45	1	2.45	13583	1	13583	3.98	14.4	461.9	1050	8710
10/16/2019 19:45	3	3	2.68	1	2.68	13610	1	13610	4.36	14.41	462.1	1050	8710
10/16/2019 20:00	15	15	1.78	1	1.78	13614	1	13614	2.9	14.45	459.4	1050	8710
10/16/2019 20:15	15	15	1.65	1	1.65	13602	1	13602	2.68	14.45	459	1050	8710
10/16/2019 20:30	15	15	1.81	1	1.81	13626	1	13626	2.95	14.46	459.1	1050	8710
10/16/2019 20:45	15	15	1.68	1	1.68	12355	1	12355	2.48	15.27	363.9	1050	8710
10/16/2019 21:00	15	15	0.27	1	0.27	5556	1	5556	0.18	20.04	25	1050	8710
10/16/2019 21:15	15	15	0	1	0	0	1	0	0	20.88	0	1050	8710
10/16/2019 21:30	15	15	0	1	0	0	1	0	0	20.89	0	1050	8710
10/16/2019 21:45	15	15	0	1	0	0	1	0	0	20.9	0	1050	8710
10/16/2019 22:00	15	15	0	1	0	0	1	0	0	20.91	0	1050	8710
10/16/2019 22:15	15	15	0	1	0	0	1	0	0	20.91	0	1050	8710
10/16/2019 22:30	15	15	0	1	0	0	1	0	0	20.91	0	1050	8710
10/16/2019 22:45	15	15	0	1	0	0	1	0	0	20.91	0	1050	8710
10/16/2019 23:00	15	15	0	1	0	0	1	0	0	20.91	0	1050	8710
10/16/2019 23:15	15	15	0	1	0	0	1	0	0	20.9	0	1050	8710
10/16/2019 23:30	15	15	0	1	0	0	1	0	0	20.91	0	1050	8710
10/16/2019 23:45	15	15	0	1	0	0	1	0	0	20.91	0	1050	8710

NOx ppm	NOx lbs/hr
2.56	4.17
2.54	4.13
2.52	4.09
5.25	8.48
3.22	5.22

3.22 ppm = 5.22 lbs
2.5 ppm = x

x=(5.22*2.5)/3.22 = 4.05 lbs

5.22-4.05 = 1.17 lbs excess em

CANYON POWER PLANT
ID# 153992
U4

HOURLY DATA

SCAQMD Reclaim Audit Report(Ver:2.2)

Customer Name:	CITY OF ANAHEIM		Report Start	10/16/2019 0:00
Unit ID	D19		Report End	10/16/2019 23:59
Category	CANYON POWER PLANT		Date Generated	Generated: 10/17/2019 11:31
NOx Avail	437.8	%		
Flow Avail	438.9	%		
Total NOx Mass	43.72	lb		

Date/Time	NOx Valid Quadrants	NOx Calibration/ Maintenance	Average of Valid bias adjusted NOx ppm quadrants	Stack Flow Valid Quadrants	Stack Flow Calibration/ Maintenance	Average of Valid bias adjusted stack flow	Average of Valid NOx lb/hr quadrants	Missing data Procedure	Daily Total
10/16/2019 0:00	4	0	0	4	0	0	0		
10/16/2019 1:00	4	0	0	4	0	0	0		
10/16/2019 2:00	4	1	0	4	1	0	0		
10/16/2019 3:00	4	0	0	4	0	0	0		
10/16/2019 4:00	4	0	0	4	0	0	0		
10/16/2019 5:00	4	0	0	4	0	0	0		
10/16/2019 6:00	3	1	0	3	1	0	0		
10/16/2019 7:00	4	0	0	4	0	0	0		
10/16/2019 8:00	4	0	0	4	0	0	0		
10/16/2019 9:00	4	0	0	4	0	0	0		
10/16/2019 10:00	4	0	1.65	4	0	2890	2.28		
10/16/2019 11:00	4	1	3.16	4	1	13826	5.23		
10/16/2019 12:00	4	0	2.45	4	0	13661	4		
10/16/2019 13:00	4	0	2.52	4	0	13646	4.11		
10/16/2019 14:00	4	0	2.48	4	0	13637	4.05		
10/16/2019 15:00	4	0	2.51	4	0	13635	4.09		
10/16/2019 16:00	4	0	3.22	4	0	13582	5.22		
10/16/2019 17:00	4	0	2.37	4	0	13619	3.85		
10/16/2019 18:00	4	0	2.47	4	0	13640	4.02		
10/16/2019 19:00	4	1	2.51	4	1	13582	4.07		
10/16/2019 20:00	4	0	1.73	4	0	13299	2.75		
10/16/2019 21:00	4	0	0.07	4	0	1389	0.05		
10/16/2019 22:00	4	0	0	4	0	0	0		
10/16/2019 23:00	4	0	0	4	0	0	0		43.72

3.22 ppm = 5.22 lbs
2.5 ppm = x

x=(5.22*2.5)/3.22 = 4.05 lbs

5.22-4.05 = 1.17 lbs excess emissions

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 10

CONDITION HAZ-1

List of Hazardous Materials contained at the facility:

- **Aqua Ammonia 19%**
- **Batteries**
- **Bromine**
- **Calibration gases for the CEMS**
- **CO_2**
- **Diesel Fuel**
- **Fire suppression chemicals**
- **Florescent light bulbs**
- **Freon for the chiller systems R-123**
- **Gas Turbine oil**
- **Gas compressor oil**
- **Reagents for the water treatment system**
- **SF6 in switch gear**
- **Anti-scalent RL 9007**
- **Sodium Hydroxide**
- **ChemTreat BL124**
- **Microbiocide ChemTreat CL2156**
- **Closed System Buffer Formula 6150**
- **ChemTreat CL6855**
- **12.5% Sodium Hypochlorite Solution**
- **RL 1125**
- **Simple Green**
- **ChemTreat CL41**
- **ChemTreat CL6855**
- **Formula 2530LT**
- **Conntect 5000**
- **Powerback Concentrate with Anti-Foam Agent**

Location Information					Chemical Identification					Fire Code Hazard Class Information		
1a*	201	202	203	204	205	206	207*	208	209	210a	210b	215
CERSID	ChemicalLocation	CLConfidential	MapNumber	GridNumber	ChemicalName	TradeSecret	CommonName	EHS	CASNumber	PFCodeHazardClass	SFCodeHazardClass	LargestContainer
10445230	RO WATER TREATMENT	N	1	E-1, F-1		N	ANTISCALENT RL 9007	N				350
10445230	AMMONIA STORAGE TANK		1	D-3		N	AQUA AMMONIA (19%)	N		5	31	10000
10445230	BENEATH BACK-UP GENERATOR	N	1	D-4		N	DIESEL FUEL	N		2		500
10445230	IN TURBINE ENGINES and DRUM STORAGE AREA	N	1	B5, F3-6		N	MOBIL JET OIL II	N		3		150
10445230	ELECTRIC GENERATORS AND DRUM STORAGE AREA	N	1	B5, F3-6		N	MOBIL DTE LIGHT OIL	N		4		500
10445230	HYDRAULIC STARTERS AND DRUM STORAGE AREA	N	1	B5, F3-6			MOBIL DTE 25 OIL	N		4		55
10445230	NATURAL GAS COMPRESSORS AND DRUM STORAGE AREA	N	1	B5, F1-G1		N	MOBIL PEGASUS 805 OIL	N		4		55
10445230	IN TRANSFORMERS	N	1	G 3-6,			MINERAL OIL	N		4		5680
10445230	RO WATER TREATMENT	Y	1	D2	SODIUM HYDROXIDE		CAUSTIC SODA 50%	N		5		330
10445230	NEAR COOLING TOWER AND IN DRUM STORAGE AREA	N	1	D-2		N	BIOCIDE (CHEMTREAT CL41)	N				330
10445230	NEAR COOLING TOWER AND IN DRUM STORAGE AREA		1	B5, E2		N	SODIUM HYPOCHLORITE SOLUTION	N		5		330
10445230	WAREHOUSE AND NEAR EXHAUST TOWERS	N				N	CALIBRATION GAS	N				150
10445230	DRUM STORAGE AREA		1	B5	PROPANE		PROPANE	N	74-98-6	8		290
10445230	SUBSTATION BUILDING	N	1	D7, E7	SULFUR HEXAFLUORIDE	N	SF6	N	2551-62-4			2400
10445230	IN FIRE FIGHTING EQUIPMENT - VARIOUS AREAS	N	1	C5, D4, F1, G1	CARBON DIOXIDE	N	CO2	N	124-38-9			437
10445230	Chiller Enclosure		1	E-2	Freon R-123	N	Freon	N	306-83-2			920
10445230	WATER TREATMENT	N	1	E-1		N	MICROBIOCIDE CL206 CHEMTREAT	N				120
10445230	WATER TREATMENT	N				N	ChemTreat BL 124	N		5		320
10445230	WATER TREATMENT	N				N	ChemTreat CL 2156	N		5		320
10445230	WATER TREATMENT	N				N	ChemTreat CL6855	N		5		320
10445230	DRUM STORAGE AREA					N	Simple Green	N				55

Print Cancel

California Environmental Protection Agency
Air Resources Board
Phone: 1 (916) 324-2517
Email: reftrackinfo@arb.ca.gov

File Report for "Canyon Power Plant"

Year of Filing: 2018 **Submitted Date: 02/21/2019**

Company Profile

Company Name : **City of Anaheim** Federal tax ID : ********970**

Contact Person Details

Person Name : **Mr. Ronald Hoffard (Generation Manager)**

Phone : **Contact: 7147654536**

Email : **rhoffard@anaheim.net**

Mailing Address Information

3071 East Miraloma Ave.
Anaheim, 92806
CA

Billing Address Information

3071 East Miraloma Ave.
Anaheim, 92806
Anaheim

Facility Profile

Facility Name : **Canyon Power Plant** Federal tax ID : ********970**

Contact Person Details

Person Name : **Mr. Ronald Hoffard (Generation Manager)**

Phone : **Contact: 7147654536**

Email : **rhoffard@anaheim.net**

Mailing Address Information

3071 East Miraloma Ave.
Anaheim, 92806
CA

Billing Address Information

3071 East Miraloma Ave.
Anaheim, 92806
Anaheim

Refrigeration System Listing

Number	System ID	Full Charge (lbs)	Refrigerant Type	Installation Date	Temperature Class	Equipment Type	Manufacturer	Operational Status	Model	Model Year	Serial Number	Location	Floor Plan (Y/N)
1	CH-100	5200.00	R-123	05/12/2011	Medium	Chiller	Trane	Normal Operation	CDHF3000	2011	L10A00350	North side of facility, in dedicated chiller enclosure.	Y
2	CH-200	5200.00	R-123	05/12/2011	Medium	Chiller	Trane	Normal Operation	CDHF3000	2011	L10B00882	North side of facility in dedicated chiller enclosure.	Y

Leak detection System

Number	ALD ID	Refrigeration System ID	Installation Date	ALD Type	Detection Limit	Alarm Set Point	Concentration Monitor Type	Manufacturer	Number of Sensors	Sensor Type	Sensor Manufacturer	Location of Sensors/Inlets
1	301-IRF A	CH-100CH-200	05/12/2011	Concentration Monitor (Direct System)	10.00	100	0	Honeywell	2	Infra red	Vulcain/honeywell	1 foot above floor

Refrigeration System Inspection and Servicing

Number	Service Date	System ID	Leaks Detected?	Date Leak Detected	Date Leak Repaired	Number of Days	Refrigerant Added (lbs)	Cause of Leak	Service Provided	Date of Initial VT	Date of Follow-up VT	Purpose of Added Refrigerant	Technician Name	Certificate #	Certificate Type
1	01/22/2018	CH-200	No			0	0.00								
2	01/24/2018	CH-200	No			0	0.00								
3	01/26/2018	CH-200	No			0	0.00								
4	01/29/2018	CH-200	No			0	0.00								
5	01/29/2018	CH-200	No			0	0.00								
6	01/29/2018	CH-100	No			0	0.00								
7	01/30/2018	CH-200	No			0	0.00								
8	01/31/2018	CH-200	No			0	0.00								
9	07/18/2018	CH-100	No			0	0.00								
10	07/31/2018	CH-200	No			0	0.00								
11	08/02/2018	CH-200	No			0	0.00								
12	11/27/2018	CH-200	No			0	0.00								

Leak Detection System Inspection and Servicing

Number	Service Date	ALD ID	Service Type	Description of Service
1	09/10/2018	301-IRF A	Calibration	Performed calibration test on Ref. monitor and calibrated both sensors

Refrigerant Purchase Information

Type	Total Purchased (lbs.)	Total Charged (lbs.)	Total Recovered (lbs.)	Total Stored (lbs.)	Total Shipped (lbs.)
R-123	0.00	0.00	0.00	0.00	0.00

Comment

Submitted By: Ronald Hoffard

California Environmental Protection Agency
Air Resources Board
Phone: (916) 324-2517
Email: reftrackinfo@arb.ca.gov

Online Payment Receipt

Invoice No:	**115527**	**Dated:**	**2019-02-21**
Invoice For Year:	**2018**		
Payment Amount:	**$370.00**		
ARB Reference Code:	**RMP**		
Transaction Time:	**02/21/2019 03:12:43 PM**		
Payment Transaction Id:	**210219E3C-BED05555-8EF4-4E53-A66C-40E7876DA65F**		
Payment Result:	**APPROVAL**		
Payment Approval Code:	**021645**		

California Environmental Protection Agency
Air Resources Board
Phone: (916) 324-2517
Email: rmp@arb.ca.gov
URL: www.arb.ca.gov/rmp/rmp.htm

Invoice Detail

Invoice No: 115527 **Invoice For Year:** 2018 **ARB REFERENCE CODE:** RMP **Dated:** 02/21/2019

City of Anaheim				
#	Facility Name	Amount Due($)	Exemption	Total ($)
1	Canyon Power Plant (CIT003-001)	370.00	0	370.00
TOTAL CHARGES				370.00

Please return a copy on the invoice with your payment to the address below.
"Checks should be made payable to the California Air Resources Board.
If required for your company records, the CARB Federal Tax ID is 68-0288069. A $10 service fee may apply for returned checks."

Air Resources Board

Attn: Accounting

P.O. Box 1436

1001 I St., Floor 20

Sacramento, CA 95812-1436

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 11

CONDITION HAZ-8

In the annual compliance report, the project owner shall include the following statements:

"All current project employee and appropriate contractor background investigations have been performed and that updated certification statements have been appended to the operations security plan".

> All current project employee and appropriate contractor background investigations have been performed and that updated certification statements have been appended to the operations security plan.

"The operations security plan includes all current hazardous materials transport vendor certifications for security plans and employee background investigations".

> The operations security plan includes all current hazardous materials transport vendor certifications for security plans and employee background investigations.

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 12

SOIL & WATER USE REPORT-7

Monthly Water Reading Reports

Company: City of Anaheim/Canyon Power Plant
Plant Location: 3071 E. Miraloma Ave.
City/State/Zip: Anaheim, CA 92806

Period Start: 1/1/2019
Period End: 12/31/2019

Recycle Water Usage

Annual Total Gallons	Annual Total Acre Feet	Monthly Average Gallons	Monthly Average Acre Feet	Monthly Minimum Gallons	Monthly Minimum Acre Feet	Monthly Maximum Gallons	Monthly Maximum Acre Feet	Average Gallons Per Day
19,563,004	60.04	1,630,250	5.00	1,003,135	3.08	2,457,344	7.54	53,895

Company: City of Anaheim/Canyon Power Plant
Plant Location: 3071 E. Miraloma Ave.
City/State/Zip: Anaheim, CA 92806

Period Start: 1/1/2018
Period End: 12/31/2018

Potable Water Usage

Annual Total Gallons	Annual Total Acre Feet	Monthly Average Gallons	Monthly Average Acre Feet	Monthly Minimum Gallons	Monthly Minimum Acre Feet	Monthly Maximum Gallons	Monthly Maximum Acre Feet	Average Gallons Per Day
106,201	0.33	4,425	0.01	0.00	0.00	13,600	0.04	146

Annual Data

	Recycle Water		Portable Water	
	Annual Total Acre Feet	Annual Total Gallons	Annual Total Acre Feet	Annual Total Gallons
2017	73.21	23,854,364	0.41	134,469
2018	73.09	23,817,912	6.99	2,277,132
2019	60.04	19,563,004	0.33	106,201
Average	68.78	22,411,760	2.58	839,267
Min	60.04	19,563,004	0.33	106,201
Max	73.21	23,854,364	6.99	2,277,132

Company:	**City of Anaheim**	**Period Start:**	1/1/2019
Plant Location:	**3071 E. Miraloma Ave.**	**Period End:**	12/31/2019
City/State/Zip:	**Anaheim, CA 92806**		

Recycled Water Usage

Date	Start Cubic-ft	End Cubic-ft	Total Cubic-ft	Month gal	Daily gal	Month Acre-ft
1/1/2019	17,633,900.00	17,768,000	134,100.00	1,003,135.05	32,359.20	3.08
2/1/2019	17,768,000.00	18,096,500	328,500.00	2,457,344.25	87,762.29	7.54
3/1/2019	18,096,500.00	18,256,800	160,300.00	1,199,124.15	38,681.42	3.68
4/1/2019	18,256,800.00	18,496,700	239,900.00	1,794,571.95	59,819.07	5.51
5/1/2019	18,496,700.00	18,631,100	134,400.00	1,005,379.20	32,431.59	3.09
6/1/2019	18,631,100.00	18,851,600	220,500.00	1,649,450.25	54,981.68	5.06
7/1/2019	18,851,600.00	19,127,500	275,900.00	2,063,869.95	66,576.45	6.33
8/1/2019	19,127,500.00	19,422,000	294,500.00	2,203,007.25	71,064.75	6.76
9/1/2019	19,422,000.00	19,697,900	275,900.00	2,063,869.95	68,795.67	6.33
10/1/2019	19,697,900.00	19,887,600	189,700.00	1,419,050.85	45,775.83	4.35
11/1/2019	19,887,600.00	20,044,500	156,900.00	1,173,690.45	39,123.02	3.60
12/1/2019	20,044,500.00	20,249,100	204,600.00	1,530,510.30	49,371.30	4.70
		Annual Total:	2,615,200.00	19,563,003.60		60.04
		Average:	217,933.33	1,630,250.30	53,895.19	5.00
		Monthly Minimum:	134,100.00	1,003,135.05		3.08
		Monthly Maximum:	328,500.00	2,457,344.25		7.54

Company:	**City of Anaheim**		**Period Start:**	1/1/2019
Plant Location:	**3071 E. Miraloma Ave.**		**Period End:**	12/31/2019
City/State/Zip:	**Anaheim, CA 92806**			

Potable Water Usage

HCF-1

Date	Start Cubic-ft	End Cubic-ft	Total Cubic-ft	Month gal	Daily gal	Month Acre-ft
1/1/2019	828,400.00	828,500	100.00	748.05	24.13	0.00
2/1/2019	828,500.00	828,500	0.00	0.00	0.00	0.00
3/1/2019	828,500.00	828,500	0.00	0.00	0.00	0.00
4/1/2019	828,500.00	828,500	0.00	0.00	0.00	0.00
5/1/2019	828,500.00	828,500	0.00	0.00	0.00	0.00
6/1/2019	828,500.00	828,500	0.00	0.00	0.00	0.00
7/1/2019	828,500.00	828,500	0.00	0.00	0.00	0.00
8/1/2019	828,500.00	828,500	0.00	0.00	0.00	0.00
9/1/2019	828,500.00	828,500	0.00	0.00	0.00	0.00
10/1/2019	828,500.00	828,600	100.00	748.05	24.13	0.00
11/1/2019	828,600.00	828,600	0.00	0.00	0.00	0.00
12/1/2019	828,600.00	828,600	0.00	0.00	0.00	0.00
		Annual Total:	200.00	1,496.10		0.00
		Average:	16.67	124.68	4.02	0.00
		Monthly Minimum:	0.00	0.00		0.00
		Monthly Maximum:	100.00	748.05		0.00

HCF-2

Date	Start Cubic-ft	End Cubic-ft	Total Cubic-ft	Month gal	Daily gal	Month Acre-ft
1/1/2019	211,862.00	211,865.00	3.00	22.44	0.72	0.00
2/1/2019	211,865.00	213,250.00	1,385.00	10,360.49	370.02	0.03
3/1/2019	213,250.00	214,093.00	843.00	6,306.06	203.42	0.02
4/1/2019	214,093.00	215,436.00	1,343.00	10,046.31	334.88	0.03
5/1/2019	215,436.00	217,045.00	1,609.00	12,036.12	388.26	0.04
6/1/2019	217,045.00	218,312.00	1,267.00	9,477.79	315.93	0.03
7/1/2019	218,312.00	219,116.00	804.00	6,014.32	194.01	0.02
8/1/2019	219,116.00	220,349.00	1,233.00	9,223.46	297.53	0.03
9/1/2019	220,349.00	221,967.00	1,618.00	12,103.45	403.45	0.04
10/1/2019	221,967.00	223,785.00	1,818.00	13,599.55	438.70	0.04
11/1/2019	223,785.00	225,321.00	1,536.00	11,490.05	383.00	0.04
12/1/2019	225,321.00	225,859.00	538.00	4,024.51	129.82	0.01
		Annual Total:	13,997.00	104,704.56		0.32
		Average:	1,166.42	8,725.38	288.31	0.03
		Monthly Minimum:	3.00	22.44		0.00
		Monthly Maximum:	1,818.00	13,599.55		0.04

Summary for both meters

	Total Cubic-ft	Month gal	Daily gal	Month Acre-ft
Annual Total:	14,197.00	106,200.66		0.33
Average:	591.54	4425.03	146.17	0.01
Monthly Minimum:	0.00	0.00		0.00
Monthly Maximum:	1,818.00	13,599.55		0.04

OCWD/Anaheim Distribution & Sale of GWRS Water Supplied

TO **Anaheim Public Utilities Dept.**	CUSTOMER ID: **20250**	METER ID: **21024735**	
Attn: Al Shaikh	RATE: **$552 / AF**	UNIT: **GALLONS**	
201 S. Anaheim Blvd. Suite #601	ACCOUNT: **1001.41500**	MULTIPLIER: **X1000**	
Anaheim, CA 92805	AGMT NO: **6075**	FISCAL YEAR: **2018-2019**	
		READ DATE: **2/28/2019**	

LOCATION:	CANYON POWER PLANT (CPP)					
MONTH:	**JULY 2018**	**AUGUST 2018**	**SEPT 2018**	**OCT 2018**	**NOV 2018**	**DEC 2018**
(1) Beginning Read	136,971	141,149	145,803	145,803	147,896	150,051
(2) Ending Read	141,149	145,803	145,803	147,896	150,051	151,312
Total Units (Gallons x1000)	4,178,000	4,654,000	0	2,093,000	2,155,000	1,261,000
Total Acre Feet	12.82	14.29	0.00	6.42	6.63	3.90
AMOUNT DUE:	**$7,076.64**	**$7,888.08**	**$0.00**	**$3,543.84**	**$3,659.76**	**$2,152.80**

LOCATION:	CANYON POWER PLANT (CPP)					
MONTH:	**JAN 2019**	**FEB 2019**	**MAR 2019**	**APR 2019**	**MAY 2019**	**JUNE 2019**
(1) Beginning Read	151,312	152,312	154,774	156,113	157,901	159,043
(2) Ending Read	152,312	154,774	156,113	157,901	159,043	160,867
Total Units (Gallons x1000)	1,000,000	2,462,000	1,339,000	1,788,000	1,142,000	1,824,000
Total Acre Feet	3.07	7.56	4.11	5.49	3.51	5.60
AMOUNT DUE:	**$1,694.64**	**$4,173.12**	**$2,268.72**	**$3,030.48**	**$1,937.52**	**$3,091.20**

OCWD/Anaheim Distribution & Sale of GWRS Water Supplied

TO	**Anaheim Public Utilities Dept.**	CUSTOMER ID:	**20250**	METER ID:	**21024735**
	Attn: Al Shaikh	RATE:	**$602 / AF**	UNIT:	**GALLONS**
	201 S. Anaheim Blvd. Suite #601	ACCOUNT:	**1001.41500**	MULTIPLIER:	**X1000**
	Anaheim, CA 92805	AGMT NO:	**6075**	FISCAL YEAR:	**2019-2020**
				READ DATE:	**12/31/2019**

LOCATION:	**CANYON POWER PLANT (CPP)**					
MONTH:	**JULY 2019**	**AUGUST 2019**	**SEPT 2019**	**OCT 2019**	**NOV 2019**	**DEC 2019**
(1) Beginning Read	160,867	162,779	164,926	166,194	168,196	169,901
(2) Ending Read	162,779	164,926	166,194	168,196	169,901	172,311
Total Units (Gallons x1000)	1,912,000	2,147,000	1,268,000	2,002,000	1,705,000	2,410,000
Total Acre Feet	5.87	6.59	3.89	6.15	5.23	7.40
AMOUNT DUE:	**$3,533.74**	**$3,967.18**	**$2,341.78**	**$3,702.30**	**$3,148.46**	**$4,448.78**

LOCATION:	**CANYON POWER PLANT (CPP)**					
MONTH:	**JAN 2020**	**FEB 2020**	**MAR 2020**	**APR 2020**	**MAY 2020**	**JUNE 2020**
(1) Beginning Read						
(2) Ending Read						
Total Units (Gallons x1000)						
Total Acre Feet						
AMOUNT DUE:						

Wastewater Flow Meter Calibration Report

Flowtrace
A Division of The Conservtech Group

5875 Rickenbacker Road
Commerce, CA 90040
323-867-9044
fax: 323-867-9045

January 14, 2019

Ms. Mila Kleinbergs
Source Control Program
Orange County Sanitation Districts
10844 Ellis Avenue
Fountain Valley, CA 92708

Subject: Effluent Flow Meter Hydraulic Calibration Report

Facility: City of Anaheim
Canyon Power Plant
3071 E. Miraloma Ave.
Anaheim, CA 92806
I.W. Permit No. 1-600296

Dear Ms. Kleinbergs,

Enclosed is our report on the effluent flow meter hydraulic calibration completed at the subject facility on January 10, 2019. The calibration was conducted in accordance with requirements of the Orange County Sanitation District, and the meter was determined to be operating within ± 5% accuracy limits for the entire range tested.

If you have any questions regarding this calibration report, please contact me directly, or Bertha A. Hernandez, Environmental Services Specialist.

Sincerely,

Robert J. MacDonald, P.E., CPP
President & Principal Engineer

enclosures

cc: Bertha A Hernandez, Environmental Services Specialist

WASTEWATER FLOW METER
HYDRAULIC CALIBRATION

PREPARED BY

Flowtrace
A Division of The Conservtech Group

FOR

City of Anaheim
Canyon Power Plant
3071 E. Miraloma Ave.
Anaheim, CA 92806

I.W. Permit No. 1-600296

January 10, 2019

The Conservtech Group / Flowtrace Division | 5875 Rickenbacker Road | Commerce | California | 90040
phone: 323-867-9044 | fax: 323-867-9045

EFFLUENT FLOW METER CALIBRATION REPORT

Company Name: City of Anaheim Permit No.: 1-600296

Discharge Address: 3071 E. Miraloma Ave. Anaheim, CA 92806

Mailing Address: 201 S. Anaheim Blvd. Suite 1101 Anaheim, CA 92805

Meter Location *[Use Meter Location Form (page 3) to identify location]*

☐ a ☐ b ☐ c ☐ d ☒ Other: (Attach sketch)

Effluent Meter Description

Open Channel

A. Flume:
- ☐ Parshall Flume
- ☐ Palmer-Bowlus Flume
- ☐ Trapezoidal
- ☐ Other, Specify: ______

B. Weir.
- ☐ V-notch
- ☐ Rectangular
- ☐ Trapezoidal
- ☐ Other, Specify: ______

C. Other

Description: ______

In-line
- ☒ Magnetic
- ☐ Propeller
- ☐ Ultrasonic
- ☐ Other, Specify: ______

Effluent Meter Description

Primary Element

Size: 4"

Manufacturer: Badger

Meter Series 2000

Secondary Element

Manufacturer: N/A

Recorder's 100% span = N/A GPM

Totalizer Units: = 1 Gallons per Count

Sampling Signal Contact Closure Frequency: 1 closure per N/A gallons discharged.

Current Facility Wastewater Discharge Rate to Sewer Determined by Calibration Engineer

Average 200 GPM

Peak 300 GPM

EFFLUENT FLOW METER CALIBRATION REPORT

5. Calibration Results

Type of Calibration: [X] Hydraulic [ ] Instrument

Calibration System		Existing Meter				Error (%)	
Flow Rate GPM	Total Discharge Gallons	Primary Element's Head	Flow Rate, GPM Indicator	Flow Rate, GPM Recorder	Total Discharge Gallons	Recorder	Totalizer
287.8	970	--	289.76	--	978	--	0.8%
250.3	813	--	251.11	--	816	--	0.4%
203.4	732	--	206.07	--	741	--	1.2%
153.3	501	--	152.73	--	499	--	-0.4%
110.8	388	--	109.82	--	393	--	1.3%

A copy of all data collected and of any calculations performed must be attached to this form.

6. Method of Calibration Results *(attach additional sheets if necessary)*

Hydraulic: (For in line flow meters describe calibration/simulator system)

Various flow rates were achieved using 150' of 2.5" fire hose from a local hydrant to the test meter. A 2" Halliburton turbine was used to measure the water flow. At each rate tested, the meter totalizer was timed using an electronic stopwatch for a number of counts. The accumulated volume was then compared to the actual volume to determine the totalizer accuracy.

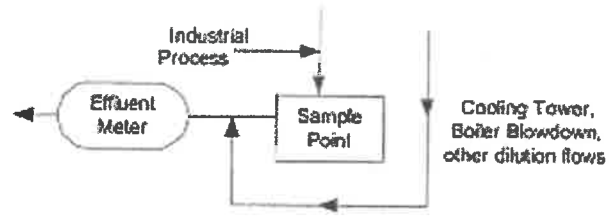
Instrument:

7. Corrective Measures *(describe condition of flow meter prior to calibration and state if any adjustments were made):*

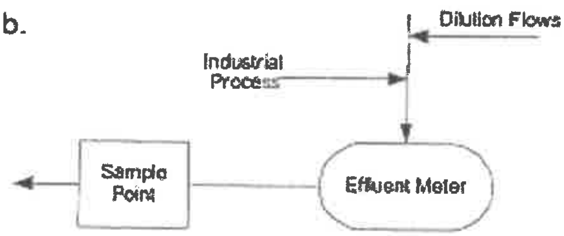
No corrective measures were required.

EFFLUENT FLOW METER LOCATION FORM

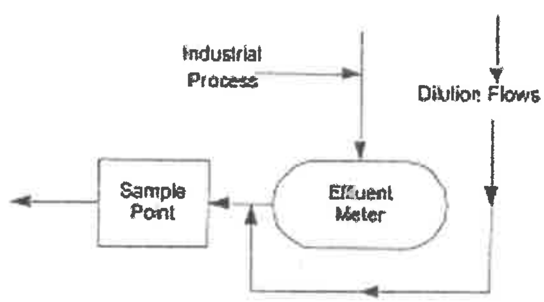
☐ a.



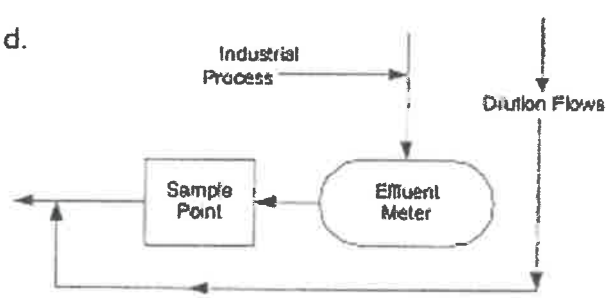
☐ b.



☐ c.



☐ d.

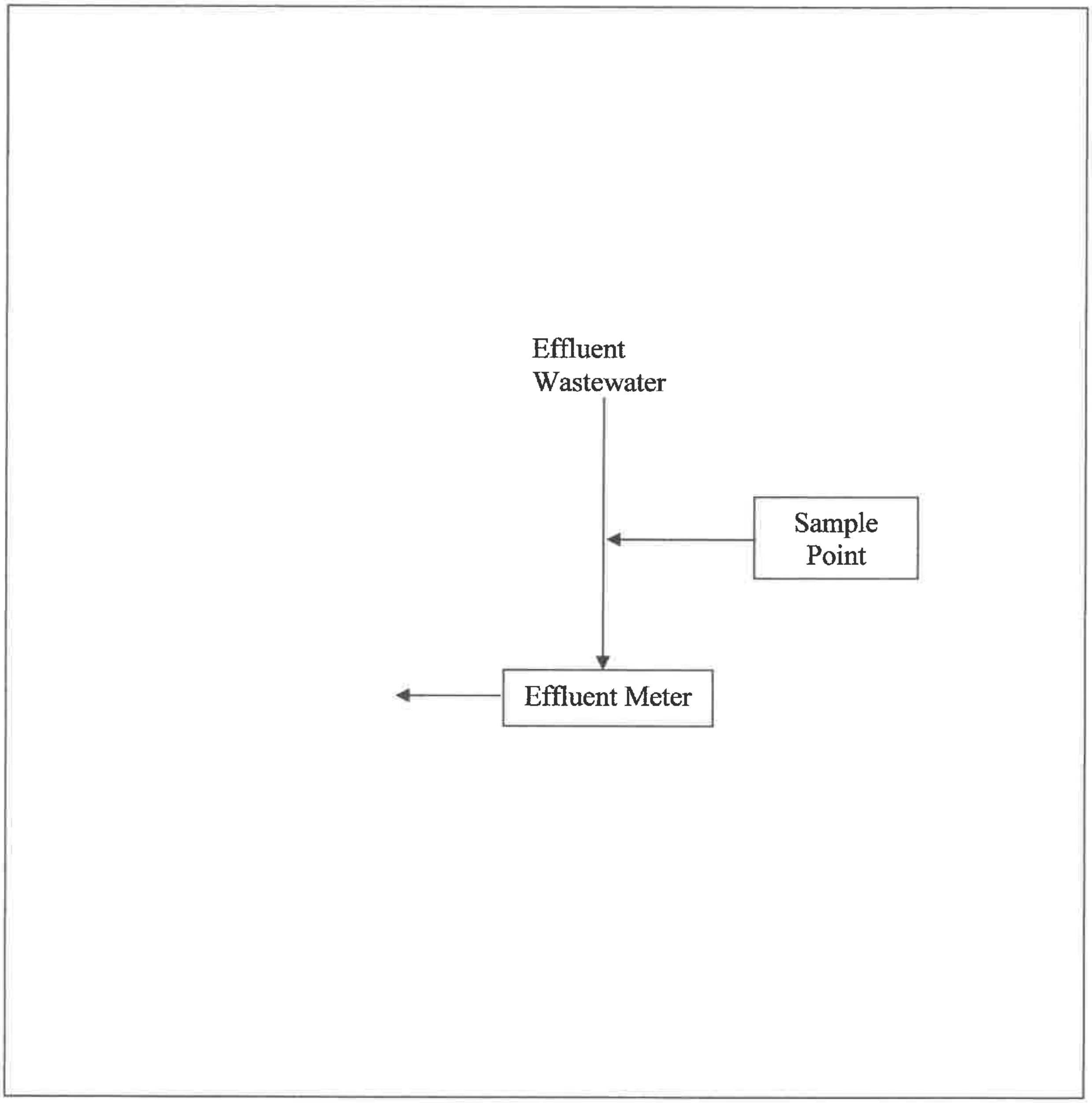


☒ Other

Please provide a schematic of the location of the effluent flow meter

Attachment:

Effluent Flow Meter Location



EFFLUENT FLOW METER MAINTENANCE RECORDS

Company Name: City of Anaheim Permit No.: 1-600296

Discharge Address: 3071 E. Miraloma Ave., Anaheim, CA 92806

Mailing Address: 201 S. Anaheim Blvd., Suite 1101, Anaheim, CA 92805

Name of Responsible Person : Bertha A Hernandez Telephone No. 714-765-4536

Recorder's 100% span = N/A GPM Totalizer: 1 Gallons per Count

Type of Flow Meter: 4" Badger Meter Series 2000

Recorder Chart Change Frequency: ☐ Daily ☐ Weekly ☐ Monthly *(not applicable)*

REGULAR CLEANING MAINTENANCE				
Primary Element Cleaned	Level Measuring Equipment Cleaned	Other (describe)	Date	By
N/A	N/A	Hydraulic Calibration by Flowtrace Division of The Conservtech Group	02/11/15	Yip / Paz
N/A	N/A	Hydraulic Calibration by Flowtrace Division of The Conservtech Group	02/11/16	Yip / Paz
N/A	N/A	Hydraulic Calibration by Flowtrace Division of The Conservtech Group	02/09/17	Yip / Paz
N/A	N/A	Hydraulic Calibration by Flowtrace Division of The Conservtech Group	01/10/18	Yip / Vitug
N/A	N/A	Hydraulic Calibration by Flowtrace Division of The Conservtech Group	01/10/19	Paz / Gomez

CERTIFICATION OF CALIBRATION CHECK

(Certification of Test Results by a California Registered Professional Engineer)

I hereby certify that I am knowledgeable in the field of wastewater flow measurement and that I have supervised the calibration of the flow monitoring system as described on the previous page, and also have reviewed and approved all details of the method of calibration. I consider the calibration method and procedures used to be technically sound, and assume professional responsibility for the validity and accuracy of the results reported.

(Signature)

REGISTERED PROFESSIONAL ENGINEER
ROBERT J. MACDONALD
M 29874
Exp. 6/30/20
MECHANICAL
STATE OF CALIFORNIA

Robert J. MacDonald, P.E.
(Full Name – Please Print or Type)

M29874 Expires 6/30/20	**Mechanical**	1/14/19
(California Professional Engineering Certification No.)	(Engineering Discipline)	(Date)

CERTIFICATION OF TEST RESULTS BY
AN ADMINISTRATIVE OFFICIAL OF THE COMPANY

City of Anaheim	**1-600296**
(Company Name)	(Permit No.)

I hereby certify that the flow monitoring system certified as properly calibrated above is so arranged and operated, so as to accurately measure and record the industrial wastewater flow to the sewer system.

(Signature)

RONALD HOFFARD
(Full Name – Please Print or Type)

GENERATION PLANT MANAGER	1/25/19
(Administrative Position in Company)	(Date)

Appendix:

Calculations Sheet
Field Calibration Data
Calibration Certificate

Wastewater Flowmeter Calibration

COMPANY:
City of Anaheim - Canyon Power Plant
DISCHARGE ADDRESS:
3071 E. Miraloma Ave. Anaheim, CA 92806
MAILING ADDRESS:
201 S. Anaheim Blvd. Ste 601, Anaheim, CA 92805
CONTACT: Bertha A Hernandez
TELEPHONE: 714-765-7481
I.W.: 1-600296
Client-Job #: F14M828

DATE: 01/10/19
INSTRUMENTATION
HYDRAULIC X
CALIBRATION ENGINEER(S):
PAZ / GOMEZ
TEST EQUIPMENT:
2" Turbine Meter

ELEMENT: 4" Pipe
INSTRUMENT: 4" Badger Meter M2000
EQUATION: n/a
K FACTOR: n/a
RANGE (dist.): n/a FT
RANGE (GPM): n/a GPM
TOTALIZER (start): 72712915
TOTALIZER (end): 72719388
REC. (100%) GPM: -- **
AVE. RATE: 200 **PK Q:** 300
SAMPLER: n/a **TOTALIZER (X):** 1

COLUMN ID	A		B		C	D	-	E	=	F	G	H		I			
CALCULATION										D - E		G x **			(F - C) / C	(H - A) / A	(I - A) / A
	TEST SYSTEM					TOTALIZER (x1000)					CHART		INDICATOR		PERCENT ERROR		
HEAD (ft.)	Q (gpm)	x	Time	=	V (gal)	end	-	start	=	V (gal)	%	Q (gpm)	HEAD (ft.)	Q (gpm)	Totalizer	Chart	Indicator
--	287.8	x	3.37	=	970	15150	-	14172	=	978	--	--	--	289.76	0.8%	--	0.7%
--	250.3	x	3.25	=	813	16402	-	15586	=	816	--	--	--	251.11	0.4%	--	0.3%
--	203.4	x	3.60	=	732	17591	-	16850	=	741	--	--	--	206.07	1.2%	--	1.3%
--	153.3	x	3.27	=	501	18499	-	18000	=	499	--	--	--	152.73	-0.4%	--	-0.4%
--	110.8		3.50	=	388	19321	-	18928	=	393	--	--	--	109.82	1.3%	--	-0.9%

Recorder:		Totalizer:		
MAX =	-- GPM	Finish:	72719388	Client: City of Anaheim - Canyon Power Plant
AVG =	200	Start:	72712915	Date: 1/10/19 IW#: 1-600296
PK =	300	Diff:	6,473	Element: 4" Pipe
Sampler:		MULT:	1	Instrument: 4" Badger Meter M2000
Contact Closure =	N/A gallons/pulse	Total:	6,473 gallons	Recorder : --

Calibrated Flows and Data									Meter		Recorder			Totalizer	
Turbine		Manometer - inches					Duration	Total	W.C.	Flow	Reading		Error	Total	Error
cycles	gpm	+	-	Δ	w.c.	gpm	min	gal	in.	gpm	%	gpm	%	gal	%
	287.8						3.37	970		289.76				978	0.8
	250.3						3.25	813		251.11				816	0.4
	203.4						3.60	732		206.07				741	1.2
	153.3						3.27	501		152.13				499	-0.4
	110.8						3.50	388		109.82				393	1.3

Calibration Type

___ Instrumentation
X Hydraulic

Hydraulic Meter Used:

___ Turbine Meter, 1", Haliburton, Threaded
___ Turbine Meter, 1.5", XO Technologies, 150# Flange
X Turbine Meter, 2", Haliburton, flanged
___ Turbine Meter, 4", XO Technologies, 150# Flange
___ Turbine Meter, 4", Haliburton, flanged
___ Other: ___

K: 4.86

Notes:

1. 15150 − 14172 = 978 @ 3:22
2. 16402 − 15586 = 816 @ 3:15
3. 17591 − 16850 = 741 @ 3:36
4. 18499 − 18000 @ 3:16
5. 19321 − 18928 = 393 @ 3:30

DICK MUNNS COMPANY
LIQUID & GAS FLOW CALIBRATION

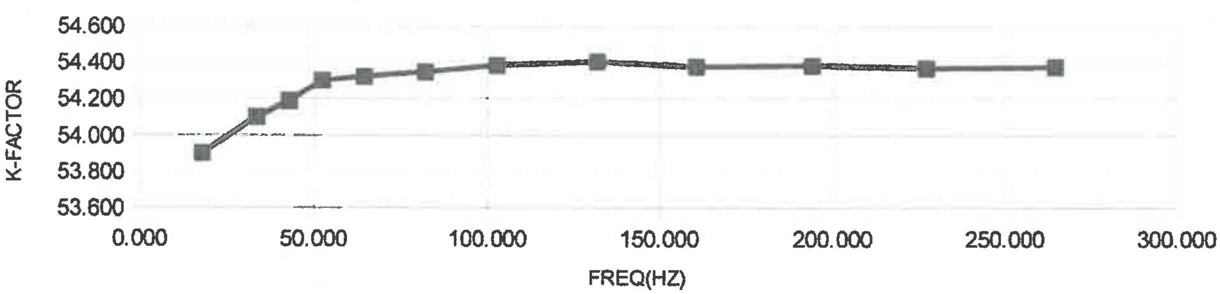
ISO 17025 IAS ACCREDITED CL-122

CERTIFICATE OF CALIBRATION

CUSTOMER:	**CONSERVTECH,** COMMERCE, CA	**CALIBRATION DATE:**	07/20/17
VSR NUMBER:	9075	**CALIBRATION DUE:**	07/20/18
INST. MANUFACTURER:	HALLIBURTON	**PROCEDURE:**	NAVAIR17-20MG-01
INST. DESCRIPTION:	TURBINE METER	**CALIBRATION FLUID:**	H20 @ 70F
MODEL NUMBER:	458.99101 (2")	**ARRIVAL CONDITIONS:**	WITHIN MFG. SPEC.
SERIAL NUMBER:	2BF3677	**RETURNED CONDITIONS:**	WITHIN MFG. SPEC.
RATED UNCERTAINTY:	+/- .5% R.D.	**AMBIENT CONDITIONS:**	763mmHGA 48%RH 68°F
UNCERTAINTY GIVEN:	TOTAL measurement uncertainty +/- .151% RD K=2	**CERTIFICATE FILE #:**	420148.2017

NOTES: ** CALIBRATED WITH DMC. SENSOR COIL **

TEST POINT NUMBER	INDICATED UUT FREQ(HZ)	DM.STD. ACTUAL GPM	ACTUAL K-FACTOR PUL/GAL.
1	18.006	20.044	53.898
2	33.579	37.241	54.099
3	42.935	47.541	54.187
4	52.375	57.875	54.299
5	64.475	71.215	54.321
6	82.011	90.545	54.345
7	102.912	113.545	54.382
8	131.972	145.552	54.402
9	160.632	177.252	54.374
10	194.098	214.152	54.382
11	227.135	250.662	54.369
12	264.758	292.152	54.374



STANDARDS USED:

A710 (SERAFIN VOLUME PROVER 0-100GPM) +/- .022% BY VOLUME CMC +/-.2% RD FLOW TRACE# 1446135470,1453296155	DUE	01/16/18
A350 (PLATFORM SCALE & TANK: 10,000LBS/ 50-2800GPM) +/- .07LBS +/- BY MASS TRACE# 1446135470,1453296155	DUE	12/09/17
A14 (VOLUME PROVER 5-50GPM)+/- .02% BY VOLUME CMC +/- .151% RD FLOW TRACE# 1446135470,1453296155	DUE	12/07/17

All instruments used in the performance of the shown calibration have traceability to the National Institute of Standards and Technology (NIST). The uncertainty ratio between the calibration standards (DM.STD.) used and the unit under test (UUT) is a minimum of 4:1, unless otherwise noted. Calibration has been performed per the shown procedure number, in accordance with ISO 10012:2003, ISO 17025:2005, ANSI/NCSL-Z-540.3, and/or MIL-STD-45662A. Test methods: API2530-92 & ASME MFC-3M-1989.

Dick Munns Company • 11133 Winners Circle • Los Alamitos, CA 90720
Phone (714) 827-1215 • Fax (714) 827-0823

Date: 7/20/17 Approved By: Calibration Technician:

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 13

SOIL & WATER REPORTS-8

OCSD Wastewater Quality Semi-Annual Monitoring Reports

TX Result Report

P 1
04/18/2019 16:15
Serial No. A7PY011022705
TC: 27558

Addressee	Start Time	Time	Prints	Result	Note
OCSD	04-18 16:08	00:06:47	008/008	OK	

Note TMR:Timer TX, POL:Polling, ORG:Original Size Setting, FME:Frame Erase TX, DPG:Page Separation TX, MIX:Mixed Original TX, CALL:Manual TX, CSRC:CSRC, FWD:Forward, PC:PC-FAX, BND:Double-Sided Binding Direction, SP:Special Original, FCODE:F-code, RTX:Re-TX, RLY:Relay, MBX:Confidential, BUL:Bulletin, SIP:SIP Fax, IPADR:IP Address Fax, I-FAX:Internet Fax

Result OK: Communication OK, S-OK: Stop Communication, PW-OFF: Power Switch OFF, TEL: RX from TEL, NG: Other Error, Cont: Continue, No Ans: No Answer, Refuse: Receipt Refused, Busy: Busy, M-Full:Memory Full, LOVR:Receiving length Over, POVR:Receiving page Over, FIL:File Error, DC:Decode Error, MDN:MDN Response Error, DSN:DSN Response Error, PRINT:Compulsory Memory Document Print, DEL:Compulsory Memory Document Delete, SEND:Compulsory Memory Document Send.

CITY OF ANAHEIM
PULIC UTILITIES DEPARTMENT
Environmental Services
Letter of Transmittal

To:	Ms. Mila Kleinbergs Orange County Sanitation District Resource Protection Division 10844 Ellis Avenue Fountain Valley, CA 92708-7018	Date:	04/28/2019
		Project	Canyon Power Plant 3071 E. Miraloma Ave. Anaheim, CA 92806
		Subject:	Semi-Annual Self-Monitoring

We are sending you:

Copy of Original	Description
1	Completed Semi-Annual Form OCSD Self-Monitoring Form for City of Anaheim Canyon Power Plant (Permit No. 1-600296).

These are transmitted:

1	As requested		For your action		For your files
	For approval		For your review		For your information

Via: [ ] US Mail [X] FAX # 8 of pgs. (714) 593-7799 [ ] Hand Delivery

Remarks: Please contact me at (714) 765-7481 or bhernandez@anaheim.net if you have any questions regarding this submittal.

By: Bertha A Hernandez, Environmental Services Specialist

City of Anaheim Public Utilities Department
Environmental Services Division
200 S. Anaheim Boulevard, Suite 1101
Anaheim, CA 92807

CITY OF ANAHEIM
PULIC UTILITIES DEPARTMENT
Environmental Services
Letter of Transmittal

To:	Ms. Mila Kleinbergs Orange County Sanitation District Resource Protection Division 10844 Ellis Avenue Fountain Valley, CA 92708-7018	Date:	04/28/2019
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Remarks:

Please contact me at (714) 765-7481 or bhernandez@anaheim.net if you have any questions regarding this submittal.

By: Bertha A Hernandez, Environmental Services Specialist

ORANGE COUNTY SANITATION DISTRICT
SELF-MONITORING FORM

March 14, 2019

Ronald Hoffard, GENERATION PLANT MANAGER
City of Anaheim, Canyon Power Plant
3071 E Miraloma Ave.
Anaheim, CA 92806

Subject: **REMINDER TO CONDUCT SELF-MONITORING**
Permit No. 1-600296 (previously listed as)

Please be reminded that Self-Monitoring must be conducted between **April 01, 2019 -- April 16, 2019** in accordance with your company's permit requirements. Self-Monitoring must be conducted during a production day in accordance with the guidelines detailed in your company's permit.

It is your responsibility to comply with the requirements set forth in your company's permit. Failure to comply with all the directives, conditions, and requirements of the permit may result in enforcement action against your company.

If your company's permit shows a self-monitoring requirement for total toxic organics (TTOs) and your company has received a waiver from this self-monitoring, you are now required to submit a signed TTOs SMR form to us to comply with the TTO waiver requirements of the U.S. Environmental Protection Agency. Please indicate in the "Sample Comments" that you have received a TTOs self-monitoring waiver from us.

For permittees that have monthly as well as quarterly and/or semi-annual self-monitoring requirements, the forms may list more than the SMR constituents required for the monthly self-monitoring. We ask that you adhere to your permit's self-monitoring requirements and sample only for the constituent(s) required on a monthly basis, except when the quarterly and semi-annual self-monitoring are also required in the same month, in which case all constituents listed on the form must be analyzed for as specified in your permit.

Finally, for those who are required to submit meter readings, a list of the meter readings submitted within the last year is attached to the SMR form for your reference and comparison to current readings.

Thank you for your patience and cooperation. If you have any questions, please contact Mila Kleinbergs at 714-593-7408.

Mila Kleinbergs
Senior Engineer

ORANGE COUNTY SANITATION DISTRICT
SELF-MONITORING FORM

SMR No.: S-121862
SMR Type: Standard
City of Anaheim, Canyon Power Plant
General Pretreatment Regulations For Existing And New Sources Of Pollution
Permit No. 1-600296 (previously)

Sampling Dates: **04/01/2019 to 04/16/2019** Submit By Date: **04/30/2019**
Sample Start Date: 04/08/2019 Sample End Date: 04/09/2019
Sample Start Time: 0930 AM Sample End Time: 1000 AM
Sampling Point Location: Sampling Structure located in the center of the site
Contact Person: RONALD HOFFARD Contact Phone: (714) 765-4536
Contact Email: RHOFFARD@ANAHEIM.NET

☐ **No Discharge**

Water Meter Readings: *(If this is a batch discharge, enter volume only)*

Location	Meter Type	Meter ID	Stop Reading	Start Reading	Volume	Units	Digits	Int
Center of site adjacent to the final clarifier/vault	Effluent Flow Meter	EM-1-600296	763625O6	76322767	39739	G	9	

Composite

Sample Results: *(If constituent is not detected or is less than detection limit, enter as reported in the lab results.)*

Constituent	Result	Units	EPA Method
BOD T	ND	mg/L	SM 5210B
TSS	ND	mg/L	SM 2540 D

Sample Comments:

To Submit Data - Fax: (714) 593-7799 or
Mail: Orange County Sanitation District, Resource Protection Division, 10844 Ellis Avenue, Fountain Valley, CA, 92708-7018

Questions: Contact Melissa Soriano at 714-593-7448 PB

ORANGE COUNTY SANITATION DISTRICT
SELF-MONITORING FORM

SMR No.: S-121862
SMR Type: Standard
City of Anaheim, Canyon Power Plant
General Pretreatment Regulations For Existing And New Sources Of Pollution
Permit No. 1-600296 (previously)

This form must be completely filled out and Laboratory Analysis Report and Chain of Custody must be attached.

Please check if composite sample was obtained using an automatic sampling device: ( ) Yes ( ) No

In accordance with 40 CFR 403.12, the results presented herein must be verified and signed under penalty of perjury by: (i) a responsible corporate officer; (ii) general partner or proprietor; or (iii) a representative who has responsibility for the overall operation of the permitted facility, who has been authorized by the corporate officer, general partner or proprietor to sign such reports, and such authorization has been made in writing and submitted to the District.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.[40 C.F.R. § 403.6(a)(2)(ii) (2005)]

R Hoffard GENERATION PLANT MANAGER 4/12/19

Signature (Ronald Hoffard) **Title (GENERATION PLANT MANAGER)** **Date**

RONALD HOFFARD

Print Name

To Submit Data - Fax: (714) 593-7799 or
Mail: Orange County Sanitation District, Resource Protection Division, 10844 Ellis Avenue, Fountain Valley, CA, 92708-7018

Questions: Contact Melissa Soriano at 714-593-7448 PB

ORANGE COUNTY SANITATION DISTRICT
SELF-MONITORING FORM

SMR No.: S-121862
SMR Type: Standard
City of Anaheim, Canyon Power Plant
General Pretreatment Regulations For Existing And New Sources Of Pollution
Permit No. 1-600296 (previously)

Sample Location: Compliance

Meter Type	Equipment Name	Event ID	Start - End Date	Reading End	Reading Start	Vol	
EFFLUENT	EM-1-600296	121861	10/1/2018 - 10/2/2018	68740935 Gallon	68688798 Gallon	49556	GPD
EFFLUENT	EM-1-600296	121860	4/2/2018 - 4/3/2018	61898932 Gallon	61824052 Gallon	74880	GPD

To Submit Data - Fax: (714) 593-7799 or
Mail: Orange County Sanitation District, Resource Protection Division, 10844 Ellis Avenue, Fountain Valley, CA, 92708-7018

Questions: Contact Melissa Soriano at 714-593-7448 PB

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
3337 MICHELSON DRIVE, SUITE CN 750
IRVINE, CA 92612
(714) 730-6239 • FAX (714) 730-6462
www.truesdail.com

REPORT

Client:	**City of Anaheim - Canyon Water Power Plant** 3071 E Miraloma Ave Anaheim, CA 92806	Work Order No.:	19D0146
		Printed:	04/18/2019
Attention:	Bertha Hernandez		
Project Name:	Canyon Power Plant Semi-Annually Wastewater		
Project Number:	Canyon Power Plant		
P.O. Number:	MA-106-491110 (exp 8/31/18)		

CASE NARRATIVE

Date & Time Installed: 04/08/2019; 09:30 AM
Date & Time Removed: 04/09/2019; 10:00 AM

Flow Start Number: 76322767 GAL
Flow Stop Number: 76362506 GAL
Total Flow, GPD: 39739

SAMPLE RECEIPT SUMMARY

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
1-600296 Composite	19D0146-01	Wastewater	Composite	04/09/2019 10:00	04/09/2019 15:05

DEFINITIONS

Symbol	Definition
C	GGA recovery was less than the method acceptance limit.
DF	Dilution Factor
MDL	Method Detection Limit
ND	Not Detected
RL	Reporting Limit

Respectfully yours,

Shelly Brady

Shelly Brady
Customer Service Manager

TRUESDAIL LABORATORIES, INC.

Client: City of Anaheim - Canyon Water Powe

Project Name: Canyon Power Plant Semi-Annually Wastewater
Project Number: Canyon Power Plant
Printed: 04/18/2019

1-600296 Composite
19D0146-01 (Wastewater)

Analyte	Result	RL	Units	DF	Batch	Analyzed	Analyst	Method	Notes
				ALS Truesdail					
Wet Chemistry									
Total Dissolved Solids	**86.0**	12.5	mg/L	1	1904389	04/17/2019 17:33	ADD	SM 2540 C	
Total Suspended Solids	ND	2.50	mg/L	1	1904278	04/11/2019 12:00	KKL	SM 2540 D	
General Chemistry									
Biochemical Oxygen Demand	ND	2.00	mg/L	1	1904306	04/15/2019 16:45	SMC	SM 5210B - 5 Day	C

CHAIN OF CUSTODY

19D0146

TRUESDAIL LABORATORIES, INC.
3337 Michelson Drive, Suite CN750, Irvine, CA 92612
(714) 730-6239 - FAX (714) 730-6462

X DATE: 4/8 - 4/9/19 TURNAROUND TIME: Normal TAT PAGE: 1 OF 1

COMPANY: City of Anaheim, Canyon Power Plant
CONTACT: Victor Carnaggio/Ronald Hoffard
PHONE: (714) 765-4260/**4536** FAX: (714) 666-2410
ADDRESS: 3071 E. Miraloma Ave.
Anaheim, CA 92806
Bill/Ship To: Southern California Public Power Authority
SAMPLES (SIGNATURE): Leo Brady

METHODS

SAMPLE I.D.	DATE	TIME	DESCRIPTION	TDS	TSS	BOD	NUMBER OF CONTAINERS	COMMENTS
								PO# Ronald Hoffard Semi-Annually
52-2-758	4-9-19	10:00	COMP	X	X	X	3	PH = 8.31 Temp = 22.3°C

Chain of Custody Signature Record

	Signature	Company/ Agency	Date/ Time
1. Relinquished Signature	[signature]	TLI	4-9-19 / 1505
2. Received Signature	[signature]	TLI	4/9/19 15:05
3. Relinquished Signature			
4. Received Signature			
5. Relinquished Signature			
Received Signature			

LABORATORY SAMPLE LOG-IN
(Enter following line items on invoice):

TOTAL NUMBER OF CONTAINERS 3

SAMPLE CONDITIONS:

RECEIVED
Cool [X] Warm [ ]
3.0°C

Yes [ ] No [ ]

SPECIAL REQUIREMENTS: Samples put on wet ice

TX Result Report

P 1
10/17/2019 15:47
Serial No. A7PY011022705
TC: 38339

Addressee	Start Time	Time	Prints	Result	Note
OCSD	10-17 15:40	00:06:48	008/008	OK	

Note TMR:Timer TX, POL:Polling, ORG:Original Size Setting, FME:Frame Erase TX, DPG:Page Separation TX, MIX:Mixed Original TX, CALL:Manual TX, CSRC:CSRC, FWD:Forward, PC:PC-FAX, BND:Double-Sided Binding Direction, SP:Special Original, FCODE:F-Code, RTX:Re-TX, RLY:Relay, MBX:Confidential, BUL:Bulletin, SIP:SIP Fax, IPADR:IP Address Fax, I-FAX:Internet Fax

Result OK: Communication OK, S-OK: Stop Communication, PW-OFF: Power Switch OFF, TEL: RX from TEL, NG: Other Error, Cont: Continue, No Ans: No Answer, Refuse: Receipt Refused, Busy: Busy, M-Full:Memory Full, LOVR:Receiving length Over, POVR:Receiving page Over, FIL:File Error, DC:Decode Error, MDN:MDN Response Error, DSN:DSN Response Error, PRINT:Compulsory Memory Document Print, DEL:Compulsory Memory Document Delete, SEND:Compulsory Memory Document Send.

CITY OF ANAHEIM
PULIC UTILITIES DEPARTMENT
Environmental Services
Letter of Transmittal

To:	Ms. Mila Kleinbergs Orange County Sanitation District Resource Protection Division 10844 Ellis Avenue Fountain Valley, CA 92708-7018	Date:	10/17/2019
		Project	Canyon Power Plant 3071 E. Miraloma Ave. Anaheim, CA 92806
		Subject:	Semi-Annual Self-Monitoring

We are sending you:

Copy of Original	Description
1	Completed Semi-Annual Form OCSD Self-Monitoring Form for City of Anaheim Canyon Power Plant (Permit No. 1-600296).

These are transmitted:

- 1 As requested
- For approval
- For your action
- For your review
- For your files
- For your information

Via: US Mail X FAX # 8 of pgs. (714) 593-7799 Hand Delivery

Remarks: BAH

Please contact me at (714) 765-7481 or bhernandez@anaheim.net if you have any questions regarding this submittal.

By: Bertha A Hernandez, Environmental Services Specialist

CITY OF ANAHEIM
PULIC UTILITIES DEPARTMENT
Environmental Services
Letter of Transmittal

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Remarks: BAH

Please contact me at (714) 765-7481 or bhernandez@anaheim.net if you have any questions regarding this submittal.

By: Bertha A Hernandez, Environmental Services Specialist

IM PB

ORANGE COUNTY SANITATION DISTRICT
SELF-MONITORING FORM

September 15, 2019

Ronald Hoffard, GENERATION PLANT MANAGER
City of Anaheim, Canyon Power Plant
3071 E Miraloma Ave.
Anaheim, CA 92806

Subject: **REMINDER TO CONDUCT SELF-MONITORING**
Permit No. 1-600296 (previously listed as 1-600296)

Please be reminded that Self-Monitoring must be conducted between **October 01, 2019 -- October 16, 2019** in accordance with your company's permit requirements. Self-Monitoring must be conducted during a production day in accordance with the guidelines detailed in your company's permit.

It is your responsibility to comply with the requirements set forth in your company's permit. Failure to comply with all the directives, conditions, and requirements of the permit may result in enforcement action against your company.

If your company's permit shows a self-monitoring requirement for total toxic organics (TTOs) and your company has received a waiver from this self-monitoring, you are now required to submit a signed TTOs SMR form to us to comply with the TTO waiver requirements of the U.S. Environmental Protection Agency. Please indicate in the "Sample Comments" that you have received a TTOs self-monitoring waiver from us.

For permittees that have monthly as well as quarterly and/or semi-annual self-monitoring requirements, the forms may list more than the SMR constituents required for the monthly self-monitoring. We ask that you adhere to your permit's self-monitoring requirements and sample only for the constituent(s) required on a monthly basis, except when the quarterly and semi-annual self-monitoring are also required in the same month, in which case all constituents listed on the form must be analyzed for as specified in your permit.

Finally, for those who are required to submit meter readings, a list of the meter readings submitted within the last year is attached to the SMR form for your reference and comparison to current readings.

Thank you for your patience and cooperation. If you have any questions, please contact Mila Kleinbergs at 714-593-7408.

Mila Kleinbergs
Senior Engineer

IM PB

ORANGE COUNTY SANITATION DISTRICT
SELF-MONITORING FORM

SMR No.: S-145451
SMR Type: Standard
City of Anaheim, Canyon Power Plant
General Pretreatment Regulations For Existing And New Sources Of Pollution

Permit No. 1-600296 (previously 1-600296)

Sampling Dates: **10/01/2019 to 10/16/2019**
Submit By Date: **10/31/2019**
Sample Start Date: 10/07/2019
Sample End Date: 10/08/2019
Sample Start Time: 12:30 pm
Sample End Time: 12:30 pm
Sampling Point Location: Sampling Structure located in the center of the site

Contact Person: RONALD HOFFARD
Contact Phone: (714) 765-4536
Contact Email: RHOFFARD@ANAHEIM.NET

☐ **No Discharge**

Water Meter Readings: *(If this is a batch discharge, enter volume only)*

Location	Meter Type	Meter ID	Stop Reading	Start Reading	Volume	Units	Digits	Int
Center of site adjacent to the final clarifier/vault	Effluent Flow Meter	EM-1-600296	82189068	82165784	23284	G	9	

Composite

Sample Results: *(If constituent is not detected or is less than detection limit, enter as reported in the lab results.)*

Constituent	Result	Units	EPA Method
BOD T	6.76	mg/L	SM-5210B
TSS	ND	mg/L	SM-2540D

Sample Comments:

To Submit Data - Fax: (714) 593-7799 or
Mail: Orange County Sanitation District, Resource Protection Division, 10844 Ellis Avenue, Fountain Valley, CA, 92708-7018

Questions: Contact Isabel Melendez at 714-593-7313

RH Ronald Hoffard, please initial each page and submit all pages

IM PB

ORANGE COUNTY SANITATION DISTRICT
SELF-MONITORING FORM

SMR No.: S-145451
SMR Type: Standard
City of Anaheim, Canyon Power Plant
General Pretreatment Regulations For Existing And New Sources Of Pollution

Permit No. 1-600296 (previously 1-600296)

This form must be completely filled out and Laboratory Analysis Report and Chain of Custody must be attached.

Please check if composite sample was obtained using an automatic sampling device: (X) Yes ( ) No

In accordance with 40 CFR 403.12, the results presented herein must be verified and signed under penalty of perjury by: (i) a responsible corporate officer; (ii) general partner or proprietor; or (iii) a representative who has responsibility for the overall operation of the permitted facility, who has been authorized by the corporate officer, general partner or proprietor to sign such reports, and such authorization has been made in writing and submitted to the District.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.[40 C.F.R. § 403.6(a)(2)(ii) (2005)]

R Hoff | GENERATION PLANT MANAGER | 10/17/19
Signature (Ronald Hoffard) | **Title (GENERATION PLANT MANAGER)** | **Date**

RONALD HOFFARD
Print Name

To Submit Data - Fax: (714) 593-7799 or
Mail: Orange County Sanitation District, Resource Protection Division, 10844 Ellis Avenue, Fountain Valley, CA, 92708-7018

Questions: Contact Isabel Melendez at 714-593-7313

RH Ronald Hoffard, please initial each page and submit all pages

IM PB

ORANGE COUNTY SANITATION DISTRICT
SELF-MONITORING FORM

SMR No.: S-145451
SMR Type: Standard
City of Anaheim, Canyon Power Plant
General Pretreatment Regulations For Existing And New Sources Of Pollution

Permit No. 1-600296 (previously 1-600296)

Sample Location: Compliance

Meter Type	Equipment Name	Event ID	Start - End Date	Reading End	Reading Start	Vol	
EFFLUENT	EM-1-600296	145450	4/8/2019 - 4/9/2019	76362506 Gallon	76322767 Gallon	38928	GPD
EFFLUENT	EM-1-600296	121861	10/1/2018 - 10/2/2018	68740935 Gallon	68688798 Gallon	49556	GPD

To Submit Data - Fax: (714) 593-7799 or
Mail: Orange County Sanitation District, Resource Protection Division, 10844 Ellis Avenue, Fountain Valley, CA, 92708-7018

Questions: Contact Isabel Melendez at 714-593-7313

Ronald Hoffard, please initial each page and submit all pages

ALS - Truesdail Laboratories
3337 Michelson Drive, Suite CN750
Irvine, CA 92612
T +1 714 730 6239

TRUESDAIL LABORATORIES, INC.

Report

Client:	City of Anaheim - Canyon Water Power Plant 3071 E Miraloma Ave Anaheim, CA 92806	Work Order No.:	19J0112
		Printed:	10/17/2019
Attention:	Bertha Hernandez		
Project Name:	Canyon Power Plant Semi-Annually Wastewater		
Project Number:	Canyon Power Plant		
P.O. Number:	MA-106-491110 (exp 8/31/18)		

CASE NARRATIVE

Date & Time Installed: 10/7/19; 12:30 PM
Date & Time Removed: 10/8/19; 12:30 PM

Flow Start Number: 82165784 GAL
Flow Stop Number: 82189068 GAL
Total Flow, GPD: 23284

SAMPLE RECEIPT SUMMARY

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
1-600296 Composite	19J0112-01	Wastewater	Composite	10/08/2019 12:30	10/08/2019 15:44

DEFINITIONS

Symbol	Definition
C	Blank unseeded oxygen depletion exceeded the method acceptance limit of 0.2 mg/L.
DF	Dilution Factor
MDL	Method Detection Limit
ND	Not Detected
RL	Reporting Limit

Respectfully yours,

Joseph Bryan Harding For Shelly Brady
Customer Service Manager

Truesdail Laboratories, Inc.

Client: City of Anaheim - Canyon Water Power Pl

Project Name: Canyon Power Plant Semi-Annually Wastewater
Project Number: Canyon Power Plant Printed: 10/17/2019

1-600296 Composite

19J0112-01 (Wastewater)

Analyte	Result	RL	Units	DF	Batch	Analyzed	Analyst	Method	Notes
				ALS Truesdail					
Wet Chemistry									
Total Dissolved Solids	**128**	25.0	mg/L	1	1910324	10/16/2019 16:13	VHD	SM 2540 C	
Total Suspended Solids	ND	2.63	mg/L	1	1910323	10/16/2019 00:00	SMC	SM 2540 D	
General Chemistry									
Biochemical Oxygen Demand	**6.76**	2.00	mg/L	1	1910216	10/14/2019 12:45	SMC	SM 5210B - 5 Day	C

TRUESDAIL LABORATORIES, INC.
3337 Michelson Drive, Suite CN750, Irvine, CA 92612
(714) 730-6239 - FAX (714) 730-6462

CHAIN oF cUSTODY

19J0112

[X] TURNAROUND TIME Normal TAT

DATE: 10/7-10/8/19 PAGE: 1 OF 1

COMPANY City of Anaheim, Canyon Power Plant
CONTACT Victor Carnaggio/Ronald Hoffard
PHONE (714) 765-4260/**4536** FAX (714) 666-2410
ADDRESS 3071 E. Miraloma Ave.
Anaheim, CA 92806
Bill/Ship To: Southern California Public Power Authority
SAMPLES (SIGNATURE) Leo BRADY

METHODS

SAMPLE I.D.	DATE	TIME	DESCRIPTION	TDS	TSS	BOD	NUMBER OF CONTAINERS	COMMENTS
52-2-758	10-8-19	12:30	COMP	X	X	X	3	PO# Ronald Hoffard Semi-Annually pH = 8.73 Temp = 78.3 F

Chain of Custody Signature Record

	Signature	Company/ Agency	Date/ Time
1.	Relinquished Signature	TLI 10-8-19	1544
2.	Received Signature	AE	10-13-18 1544
3.	Relinquished Signature	Company/ Agency	Date/ Time
4.	Received Signature	Company/ Agency	Date/ Time
5.	Relinquished Signature	Company/ Agency	Date/ Time
6.	Received Signature	Company/ Agency	Date/ Time

LABORATORY SAMPLE LOG-IN
(Enter following line items on invoice):

TOTAL NUMBER OF CONTAINERS 3

SAMPLE CONDITIONS:

RECEIVED

Cool [X] 3.0 Warm [ ]

Yes [ ] No [ ]

SPECIAL REQUIREMENTS:

OC Sanitation District
No Violations or Corrective Actions to report for CY 2019

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 14

VIS-4

VIS-4: Surface Treatment of Project Structures and Buildings

Condition of Certification VIS-4 requires a status report of the surface treatment maintenance for the structures and buildings in the Annual Compliance Report. The report shall specify the following:

1. **The condition of surfaces of all structures and buildings at the end of the reporting year 2018:**
    a. Butler Building (Administrative and Warehouse)
    b. Main Electrical Enclosure (MEE)
    c. Balance of Plan (BOPEE)
    d. Substation Building
    e. Chiller
    f. RO Skid (open wall with roof sheet metal covering)
        i. The exterior building material is fabricated sheet metal. The colors and finishes do not create excessive glare and consistent with local policies and ordinances. All structure and buildings visual inspection showed no trouble items and all are in good working order.

    g. Gas Turbines (4 identical units)

2. **Maintenance activities that occurred in CY 2019:**
    a. May Planned Outage
        i. Semi-annual maintenance performed
    b. December Planned Outage
        i. Semi-annual maintenance performed

3. **Schedule maintenance activities for CY 2020:**
    a. May 2019 Planned Outage
        i. Semi-annual maintenance
    b. December 2019 Planned Outage
        i. Semi-annual maintenance

Status report regarding condition of Structures and Buildings

The photographs below shows the surface treatment of project structures and buildings. All buildings comply with condition VIS-4.

Warehouse Building (1/28/20)

Administrative Building (1/28/20)

Main Electrical Enclosure Building (1/28/20)

Substation Building (1/28/20)

Chiller Building (1/28/20)

RO Skid Structure (1/28/20)

Balance of Plant Building (1/28/20)

LM 6000 Turbines (1/28/20)

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 15

LANDSCAPE SCREENING

VIS-5: Landscape Screening

Condition of Certification VIS-5 requires a status report in the Annual Compliance Report regarding landscape maintenance activities. At the Canyon Power Plant the landscape maintenance activities were performed according to the contract and consistent with policies and requirements of the City of Anaheim plan and zoning ordinance.

The contracted company performed the following landscape maintenance activities:

Contracted Landscape Services – Landscape West Mgmt. Service, Inc. (Period: Jan 1, through December 31, 2019)

Activity Type	Frequency
Weed Control Landscape areas Hardscape areas Gravel areas	2x/wk. 1x/Mo
Fertilization Shrubs Ground cover Trees	As needed
Pest Control Rodents	As needed
Irrigation Maintenance Inspect all Sprinklers/Systems	2x/wk.
Trees Canopy Trees	As needed
Maintenance/Clean-Up Ground Cover and Shrubs Trash & Litter at Landscape area Trash & Litter at enclosed gravel areas Monthly Inspection	2x/wk.

The photographs below taken by staff on 1/28/20 of the landscape maintenance demonstrating compliance pursuant VIS-5 condition:

Landscaping - Exterior Plants


Miraloma Avenue, south wall


Miraloma Avenue, south wall

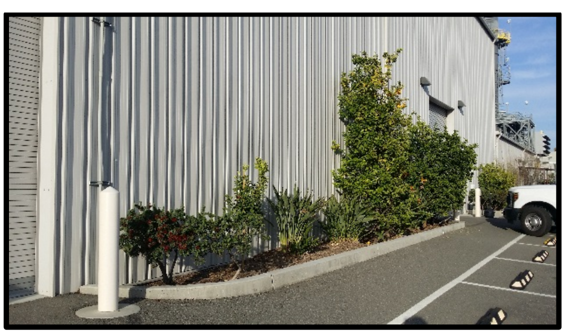

Miraloma Avenue, south wall


East-wall ivy

Landscaping - Interior Plant


Administration Building


Administration and Warehouse Building


Warehouse Building

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 16

AQ-9
NH_3 SLIP TESTING

TEST REPORT FOR
AMMONIA SLIP TEST
AT CANYON POWER PLANT UNIT 1
FACILITY ID: 153992, DEVICE ID: D1

Prepared For:

Canyon Power Plant
3071 E. Mira Loma Avenue
Anaheim, California 92806

For Submittal To:

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

Prepared By:

Montrose Air Quality Services, LLC
1631 E. St. Andrew Pl.
Santa Ana, California 92705
(714) 282-8240

Sean Donovan

Test Date:	**July 23, 2019**
Production Date:	**August 22, 2019**
Report Number:	**W002AS-543377-RT-221**

STACK TESTING ACCREDITATION COUNCIL

ACCREDITED
TO ASTM D7036 ONLY
CERT #3925.01

MONTROSE
AIR QUALITY SERVICES

CONFIDENTIALITY STATEMENT

Except as otherwise required by law or regulation, this information contained in this communication is intended exclusively for the individual or entity to which it is addressed. This communication may contain information that is proprietary, privileged or confidential or otherwise legally exempt from disclosure. If you are not the named addressee, you are not authorized to read, print, retain, copy, or disseminate this message or any part of it.

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: 8/21/2019

Name: Sean Donovan 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.

Signature: ____________ Date: 8/21/2019

Name: Mike Chowsanitphon Title: Reporting Manager

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION AND SUMMARY

Montrose Air Quality Services, LLC (MAQS), was contracted the Canyon Power Plant to perform an ammonia slip test at Unit 1 as required by the facility Permit (Facility ID 153992) Condition Number D29.2. This report documents the results of the ammonia slip tests performed on July 23, 2019. The test was performed by Sean Donovan, Henry Lee, and Robert Howard. Sean Donovan was the on-site qualified individual for MAQS. Bertha Hernandez coordinated the test for Canyon Power Plant.

The test consisted of duplicate ammonia tests performed at 50 MW. The test program followed the procedures described in the initial compliance test protocol (MAQS document R038842). The results of the test are summarized in Table 1-1. The table shows that the ammonia slip from this unit was less than the permitted limit of 5 ppm corrected to 15% O_2.

TABLE 1-1
AMMONIA SLIP TEST RESULTS SUMMARY

Parameter	Units	Result(1)	Limit
NH_3	ppm	1.9	--
NH_3	ppmc	1.7	5

(1) Maximum of duplicate runs, as required by SCAQMD Method 207.1

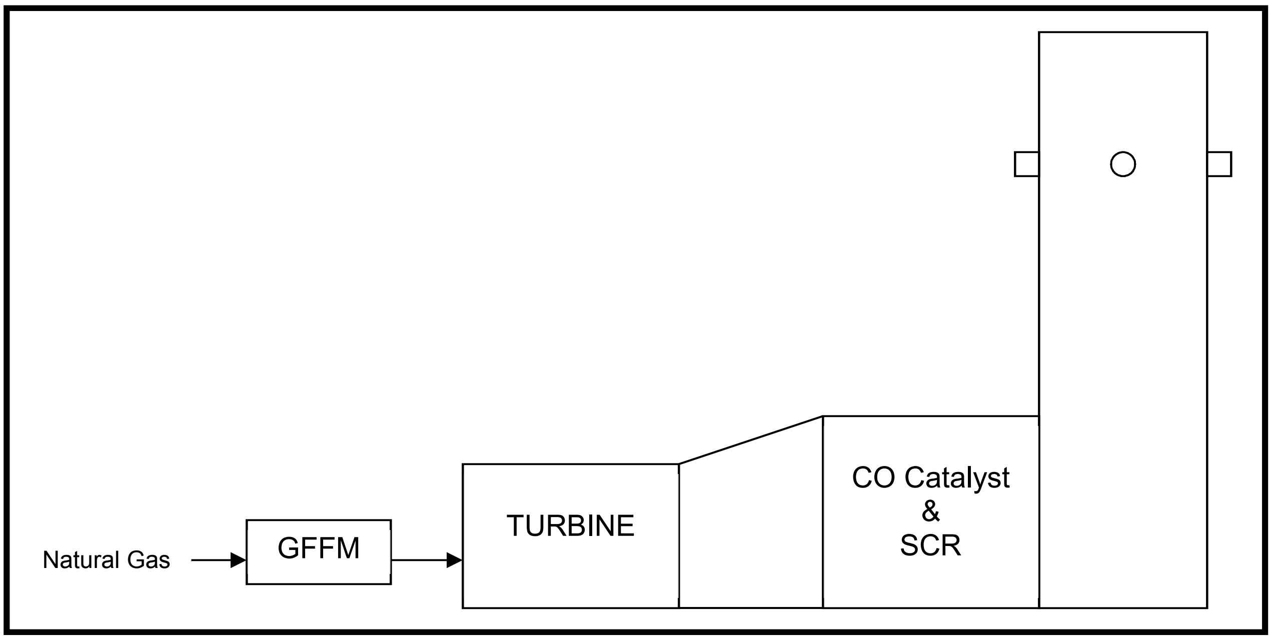
Section 2 of this document provides a brief description of the unit, test conditions, sample location, and CEMS. Details of the test procedures are provided in Section 3. Section 4 provides the results of each individual test. All raw data, calculations, quality assurance data, unit operating conditions, and CEMS data are provided in the appendices.

2.0 UNIT AND CEMS DESCRIPTION

2.1 UNIT DESCRIPTION

The City of Anaheim Canyon Power Plant is located at 3071 E. Mira Loma Avenue, Anaheim, California 92806. The facility consists of four identical generating units. Each unit consists of a natural gas fired, GE Model LM6000PC Sprint simple cycle, gas turbine. The units are natural gas fired with a rated heat input of 479 MMBtu per hour at 46 degrees Fahrenheit, with water injection. The units are equipped with a CO catalyst and Selective Catalytic Reduction (SCR) system for NO_x control. Figure 2-1 presents a block diagram of the unit.

FIGURE 2-1
UNIT BLOCK DIAGRAM



Stack Inside Diameter:	11 feet, 8 inches
Distance from Upstream Disturbance:	23 feet, 4 inches (2.0 Diameters)
Distance from Stack Exit:	16 feet, 6 inches (1.4 Diameters)

2.2 TEST CONDITIONS

The tests were performed with the unit operating at an average load of 50 MW. Tests were performed while the unit was firing natural gas and operating under normal conditions. Unit operation was established by the Canyon Power Plant operators.

2.3 SAMPLE LOCATION

The measurements were made from sample ports located on the exhaust stack. There are four sample ports equally spaced at this location. The stack inside diameter at the sample plane is 11 feet, 8 inches. The sample ports are located 23 feet, 4 inches (2.0 diameters) downstream of the nearest flow disturbance and 16 feet, 6 inches (1.4 diameters) from the stack exit.

3.0 TEST DESCRIPTION

Flue gas samples were collected non-isokinetically using a SCAQMD Method 207.1 sample train. The samples were collected using a 12-point traverse at the exhaust stack location. Each test was performed over a 60 minute interval. The sample gas was drawn through a glass probe, Teflon sample line, two impingers each containing 100 ml of 0.1N H_2SO_4, an empty impinger, an impinger containing silica gel, and a dry gas meter. The optional nozzle and filter were not used since the source is natural gas fired. The contents of the sample line and the first three impingers were recovered and analyzed by SCAQMD Method 207.1 for ammonia concentration by Ion Specific Electrode analysis.

Stack O_2 and NO_x concentrations and stack volumetric flow rate data were recorded from the Continuous Emission Monitoring System (CEMS) which is installed on the unit. These data were used to correct the ammonia concentration to 15% O_2.

4.0 TEST RESULTS AND OVERVIEW

4.1 TEST RESULTS

The results of the test are summarized in Table 4-1. The results show that the ammonia slip was 1.7 ppm @ 15% O_2 which is less than the permitted limit of 5 ppm @ 15% O_2.

TABLE 4-1
AMMONIA SLIP TEST RESULTS
CANYON POWER PLANT UNIT 1
JULY 23, 2019

Parameter	Units	Run 1	Run 2	Average	Maximum(1)	Limit
Test		1-NH_3-U1	2-NH_3-U1			--
Date		7/23/2019	7/23/2019			--
Time		0700/0806	0834/0940			--
O_2(2)	%	14.43	14.41	14.42	--	--
Stack Flow(2)	dscfm @ T_{ref}	227,992	227,992	227,992	--	--
NO_x(2)	ppmc	2.4	2.3	2.3	--	2.5
NH_3	ppm	1.9	1.8	1.9	1.9	--
NH_3	ppmc	1.7	1.7	1.7	1.7	5
NH_3	lb/hr	1.2	1.1	1.1	1.2	--
NH_3	lb/MMBtu	0.002	0.002	0.002	0.002	--
NH_3	lb/MMSCF	2.5	2.4	2.4	2.5	--

(1) Maximum of duplicate test runs, as required by SCAQMD Method 207.1
(2) From facility CEMS

MONTROSE AIR QUALITY SERVICES

APPENDIX A
RAW DATA

Appendix A.1
Sample Data Sheets

MONTROSE SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: SCPPA - Canyon
LOCATION: Unit 1
DATE: 7/23/19
RUN NO: i-NH3-U1
OPERATOR: RH/HL
METER BOX NO: 19-WCS
METER ΔH@: 1.745
METER Yd: 1.011
STACK AREA, FT²: 106.90
TRAVERSE POINTS, MIN/POINT: 5/12
ΔH= N/A X ΔP:
Probe Condition, pre/post test: ✓/✓
Silica Gel Expanded, Y/N: N
Filter Condition after Test: N/A
Check Weight: 499.9 / 500.0

AMBIENT TEMPERATURE: ~70
BAROMETRIC PRESSURE: 29.65
ASSUMED MOISTURE: ~12%
PITOT TUBE COEFF, Cp: N/A
PROBE ID NO/MATERIAL: glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: N/A
NOZZLE DIAMETER: N/A
FILTER NO/TYPE: N/A
PRE-TEST LEAK RATE: : 0.005 CFM@ 15 in. Hg.
POST-TEST LEAK RATE: : 0.005 CFM@ 14 in. Hg.
PITOT LEAK CHECK - PRE: ✓ POST: ✓
CHAIN OF CUSTODY: SAMPLE CUSTODIAN SD
SAMPLER RH
SAMPLE CUSTODIAN SD

Imp. #	Contents	Post-Test	- Pre-Test	= Difference
1	H_2SO_4	922.7	723.0	
2	H_2SO_4	777.4	772.1	
3	MT	653.4	652.8	
4	SG	919.9	909.2	
LR			100mL	
Total:				

Point	Time	Meter Volume, ft³	ΔP in. H_2O	ΔH in. H_2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O_2 %	P. static in. H_2O
3	0700	631.700	N/A	1.5	N/A	N/A	N/A	58	73	72	3		N/A
2	0705	635.135		1.5				56	74	72	3		
1	0710	638.575		1.5				54	75	72	3		
PC	0715	641.856		–				–	–	–	–		
3	0717	641.856		1.5				58	77	74	3		
2	0722	645.260		1.5				56	79	75	3		
1	0727	648.825		1.5				55	80	76	3		
PC	0732	652.031		–				–	–	–	–		
3	0734	652.034		1.5				57	79	76	3		
2	0739	655.495		1.5				55	80	77	3		
1	0744	658.950		1.5				56	80	77	3		
PC	0749	662.334		–				–	–	–	–		
3	0751	662.339		1.5				58	80	78	3		
2	0756	665.730		1.5				56	79	78	3		
1	0801	669.125		1.5				53	81	80	3		
PC	~~0806~~ *	672.486		–				–	–	–	–		
Average:													

Comments: * 0806 RH 7-23-19

Date of last revision 2/14/2017 Page 1 of 1 Master Document Storage\Forms\Datasheets\Field Datasheets

DS834049

MONTROSE

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: SCPPA - Canyon
LOCATION: Unit 1
DATE: 7/23/19
RUN NO: 2-NH3-U1
OPERATOR: RH/HL
METER BOX NO: 19-WCS
METER ΔH@: 1.745
METER Yd: 1.011
STACK AREA, FT²: 106.90
TRAVERSE POINTS, MIN/POINT: 5/12
ΔH= N/A X ΔP:
Probe Condition, pre/post test: ✓/✓
Silica Gel Expanded, Y/N: N
Filter Condition after Test: N/A
Check Weight: 499.9 / 1500.0

AMBIENT TEMPERATURE: ~75°
BAROMETRIC PRESSURE: 29.65
ASSUMED MOISTURE: 12%
PITOT TUBE COEFF, Cp: N/A
PROBE ID NO/MATERIAL: glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: N/A
NOZZLE DIAMETER: N/A
FILTER NO/TYPE: N/A
PRE-TEST LEAK RATE: : 0.000 CFM@ 15 in. Hg.
POST-TEST LEAK RATE: 0.005 CFM@ 15 in. Hg.
PITOT LEAK CHECK - PRE: ✓ POST: ✓
CHAIN OF CUSTODY: SAMPLE CUSTODIAN SD
SAMPLER RH
SAMPLE CUSTODIAN SD

Imp. #	Contents	Post-Test	- Pre-Test	= Difference
1	H_2SO_4	969.5	768.4	
2	H_2SO_4	~~738.5~~ *	751.6	
3	MT	682.2	680.7	
4	SG	938.9	929.3	
UR	H_2O		100	
Total:				

Point	Time	Meter Volume, ft³	ΔP in. H_2O	ΔH in. H_2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O_2 %	P. static in. H_2O
3	0834	673.600	N/A	1.[illegible]	N/A	N/A	N/A	58	82	81	3		
2	0839	676.815		1.5				56	81	80	3		
1	0844	680.115		1.5				53	81	80	3		
FC	0849	683.562		—				—	—	—	—		
3	0851	683.562		1.5				58	82	80	3		
2	0856	687.045		1.[illegible]				54	84	83	3		
1	0901	690.360		1.5				54	85	84	3		
FC	0906	693.678		—				—	—	—	—		
3	0908	693.678		1.5				57	86	82	3		
2	0913	697.095		1.5				55	88	84	3		
1	0918	700.450		1.5				56	90	86	3		
FC	0923	703.122		—				—	—	—	—		
3	0925	703.122		1.5				58	90	88	3		
2	0930	707.140		1.5				55	90	88	3		
1	0935	710.505		1.5				53	91	88	3		
END	0940	713.716		—				—	—	—	—		
Average:													

Comments: * 754.9 SD 7/23/19

W002AS-543377-RT-221

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Appendix A.2
Laboratory Data

MONTROSE
AIR QUALITY SERVICES

AMMONIA BY ION SELECTIVE ELECTRODE ANALYSIS

Project #: 002AS-543377 **District Method:** SCAQMD 207.1 **Sample Date:** 7/23/2019

Client/Location: SCPPA - Canyon Power Plant **Calibration Date:** 7/29/2019 **Analysis Date:** 7/29/2019

Sample Location: Unit 1 **Calibration Curve:** y = -56.2679x + 86.8429 **Analyst's Initials:** KC

Test #'s: 1, 2 NH_3 **R^2:** 1.0000

Sample	Electrode Potential (mV)	TV (ml)	Conc. µg NH_3 – N / ml	Cavg (µg NH_3 – N / ml)	µg NH_3 / sample	Comments/ Temp/pH
Standard Check: 28 µg NH_3/ml	2.1	—	28.469	28.469	—	**Percent Recovery:** T=22°C 102% recovery
Repeat 28 µg NH_3/ml	2.1	—	28.469	—	—	T=22°C
1 - NH_3	69.7	640.2	1.969	1.969	1532.149	T=22°C pH<2
Repeat 1 - NH_3	69.7	—	1.969	—	—	T=22°C
2 - NH_3	75.9	755.0	1.541	1.563	1434.087	T=22°C pH<2
Repeat 2 - NH_3	75.2	—	1.584	—	—	T 22°C
Spike 2-NH_3	10.1	—	20.752	20.794	—	T=22°C
Repeat Spike 2-NH_3	10.0	—	20.835	—	—	T=22°C
28 µg NH_3/ml	2.4	—	28.133	28.189	—	T=22°C 101% recovery
Repeat 28 µg NH_3/ml	2.3	—	28.245	—	—	T=22°C
0.1N H_2SO_4 Reagent blank	178.0	—	0.027	0.027	—	T=22°C
Repeat 0.1N H_2SO_4 Reagent blank	178.5	—	0.027	—	—	T 22°C
Field blank	171.0	—	0.036	0.036	—	T 22°C
Repeat Field blank	171.4	—	0.035	—	—	T=22°C
DI H_2O blank	176.3	—	0.029	0.029	—	T=22°C
Repeat DI H_2O blank	176.8	—	0.029	—	—	T=22°C
28 µg NH_3/ml	2.3	—	28.245	28.245	—	T=22°C 101% recovery
Repeat 28 µg NH_3/ml	2.3	—	28.245	—	—	T=22°C

Notes:

Total volume of samples and standards used: 100ml

Volume of pH adjusting ISA used in ml: 2ml

Absorbing solution: 0.1N H_2SO_4

Calculations: Conc. (µg NH_3 – N / ml) = $10^{(P-B)/M}$

P = electrode potential, B = y-intercept and M = slope

Cavg = average result of duplicate analyses (µg NH_3 – N / ml) = (C1+C2)/2

µg NH_3 / sample = Cavg* 17.03/ 14.01 * TV

mg / sample = µg /sample ÷ 1000

ppm NH_3 = mg NH_3/sample x 1/Vmstd x 1/454000 x SV/17 x 10^6

AMMONIA BY ION SELECTIVE ELECTRODE ANALYSIS CALCULATION

Project Number:	002AS-543377
Client/ Location:	SCPPA-Canyon Power Plant
Sample Location:	Unit 1
District Method:	SCAQMD 207.1
Sample Date:	7/23/2019
Analysis Date:	7/29/2019
Analyst's Initials:	KC
Calibration Curve Slope	-58.2679
Y-intercept	86.8429
R^2	1.0000

probe 9

Sample	P mV	Conc. µg NH_3 /ml as N	C avg as N	TV (ml)	C avg as NH_3	µg NH_3/ sample
28 ug NH_3 / ml as N	2.1	28.469				
Repeat 28 ug NH_3/ml as N	2.1	28.469	28.469	NA	34.605	NA
1-NH3	69.7	1.969				
Repeat 2- NH3	69.7	1.969	1.969	640.2	2.393	1532.149
2-NH_3	75.9	1.541				
Repeat 2- NH_3	75.2	1.584	1.563	755	1.899	1434.087
spike 2-NH_3	10.1	20.752				
Repeat 2-NH3 spike	10.0	20.835	20.794	NA	25.276	NA
28 NH_3/ml as N	2.4	28.133				
Repeat 28 ug NH_3/ml as N	2.3	28.245	28.189	NA	34.285	NA
Reagent Blank	178.0	0.027				
Repeat Reagent Blank	178.5	0.027	0.027	NA	0.033	NA
Field Blank	171.0	0.036				
Repeat Field Blank	171.4	0.035	0.036	NA	0.043	NA
DI H2O Blank	176.3	0.029				
Repeat DI H2O Blank	176.8	0.029	0.029	NA	0.035	NA
28 NH_3/ml as N	2.3	28.245				
Repeat 28 ug NH_3/ml as N	2.3	28.245	28.245	NA	34.333	NA

Notes:

Measured Concentration of Ammonia (C) in µg NH_3 / ml as N

$C=10^{(P-B)/M}$

P = electrode potential (mV), M=slope and B=intercept

Average Measured Ammonia Concentration (Cavg) = (C1 + C2)/2

where C1, C2 results from duplicate analyses (µg NH_3 /ml as N)

Cavg (µg NH_3/ml as NH_3) = Cavg (µg NH_3/ ml as N) * 17.03/ 14.01

µg NH_3 / sample = Cavg (µg NH_3/ml as NH_3) * TV

Used 100 ml of samples and standards with 2 ml ISA and constant stirring rate.

All solutions turned blue and remained blue with ISA unless otherwise indicated.

Sample PH and Temperatures can be found on the laboratory datasheet.

Maximum samples (including blanks) between 28 ug/ml check standard is 5 samples analyzed in duplicate.

AMMONIA BY ION SELECTIVE ELECTRODE ANALYSIS QUALITY CONTROL

Project Number: 002AS-543377
Client/ Location: SCPPA-Canyon Power Plant
Sample Location: Unit 1
District Method: SCAQMD 207.1
Sample Date: 7/23/2019
Analysis Date: 7/29/2019
Analyst's Initials: KC

Sample	% recovery	RPD %	RPA %
28 ug NH3 / ml as N epeat 28 ug NH3/ml as	NA	0.00	1.674
1-NH3 Repeat 2- NH3	NA	0.00	NA
2-NH3 Repeat 2- NH3	NA	-2.77	NA
spike 2-NH3 Repeat 2-NH3 spike	100.16	-0.40	NA
28 NH3/ml as N epeat 28 ug NH3/ml as	NA	-0.40	0.674
Reagent Blank Repeat Reagent Blank	NA	1.98	NA
Field Blank Repeat Field Blank	NA	1.58	NA
DI H2O Blank Repeat DI H2O Blank	NA	1.98	NA
28 NH3/ml as N epeat 28 ug NH3/ml as	NA	0.00	0.873

Notes:

spike: 100 ml sample + 2 ml (1000 μg NH_3 / ml as **N**)

Matrix Spike Percent Recovery (%R)

%R = (C spike*0.104 - Csample*0.102)/2 *100

Cspike = average result of matrix spike (μg NH_3/ ml as N)

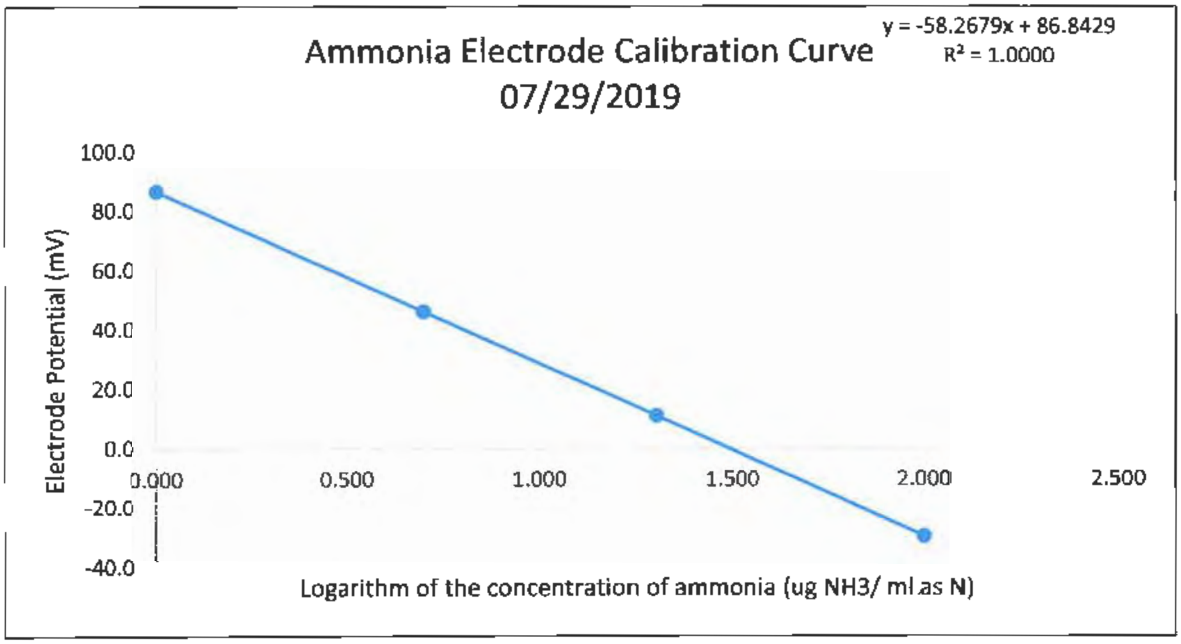
Relative Percent Difference (RPD) = (C1-C2)/ Cavg *100 (must be 5% or less)

Relative Percent Accuracy (RPA) (must be 10% or less)

RPA = (Cavg-theoretical value of standard)/ theoretical value of standard * 100

AMMONIA ELECTRODE CALIBRATION CURVE

NH_3 concentration (μg NH_3 / ml as N)	log NH_3 concentration	Electrode potential (mV)	Sample Temperature (C)	Room Temperature (C)
1	0.000	86.8	22.1	22
5	0.699	46.2	22	22
20	1.301	11.0	22.7	22
100	2.000	-29.7	22.8	22



probe	9
slope	-58.2679
y-intercept	86.8429

Concentration (μg NH_3 / ml as N)	Value LR line	Difference	% Difference
1	1.0017	0.0017	0.1698
5	4.9833	-0.0167	-0.3338
20	20.0274	0.0274	0.1368
100	100.0279	0.0279	0.0279

Calculation:

Regression Line: P=M*log(μg of NH_3/ ml as N)+B

Measured Concentration of Ammonia (C) in μg / ml NH_3 as N: $C=10^{(P-B)/M}$

where P = electrode potential, M= slope (must be -57±3) and B= intercept

All standards were prepared in 0.04N H_2SO_4 and allowed to equilibrate to room temperature.

Appendix A.3
QA/QC Data

SEMI-ANNUAL DRY GAS METER/ORIFICE CALIBRATION

Orifice Method - Triplicate Runs/Four Calibration Points
English Meter Box Units, English K' Factor
Filename: M:\Santa Ana\Equipment\Test Equipment\Calibrations\Dry Gas Meters\19-wcs\2019\[semi annual cal 19wcs 2-1-19.xlsx]WCS
File Modified From: APEX 522 Series Meter box Calibration
Revised: 4/8/2005

	c-5000	
ID #:	19-wcs	
Date:	2/1/2019	
Bar. Pressure:	29.98	(in. Hg)
Performed By:	R. Howard	
Meter Serial #:		

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)
0.13	26.00	704.500	709.690	5.190	55.0	56.0	55.0	57.0	33	0.1553	15.0	56.0	56.0	56.0
0.13	26.00	709.690	714.877	5.187	55.0	57.0	56.0	58.0	33	0.1553	15.0	56.0	56.0	56.0
0.13	26.00	714.877	720.063	5.186	56.0	58.0	57.0	58.0	33	0.1553	15.0	56.0	56.0	56.0
0.61	12.00	746.000	751.275	5.275	60.0	58.0	60.0	59.0	48	0.3465	14.0	58.0	58.0	58.0
0.61	12.00	751.275	756.551	5.276	60.0	59.0	61.0	59.0	48	0.3465	14.0	58.0	58.0	58.0
0.61	12.00	756.551	761.825	5.274	61.0	59.0	61.0	59.0	48	0.3465	14.0	56.0	58.0	58.0
1.90	7.00	762.200	767.505	5.305	62.0	59.0	65.0	60.0	63	0.5888	12.0	57.0	57.0	57.0
1.90	7.00	767.505	772.827	5.322	65.0	60.0	65.0	60.0	63	0.5888	12.0	57.0	57.0	57.0
1.90	7.00	[illegible]	778.139	5.312	65.0	60.0	65.0	61.0	63	0.5888	12.0	57.0	57.0	57.0
3.50	5.00	729.500	734.696	5.196	60.0	57.0	62.0	58.0	73	0.8202	11.5	56.0	56.0	56.0
3.50	5.00	734.696	739.891	5.195	62.0	58.0	64.0	58.0	73	0.8202	11.5	56.0	56.0	56.0
3.50	5.00	739.891	745.091	5.200	64.0	58.0	65.0	58.0	73	0.8202	11.5	56.0	56.0	56.0

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?
5.323	150.8	5.329	150.9	5.200		1.001	1.783	Pass			
5.313	150.5	5.329	150.9	5.200		1.003	1.779	Pass			
5.304	150.2	5.329	150.9	5.200		1.005	1.778	Pass			
					Average	1.003	1.780		Pass	Pass	Pass
5.381	152.4	5.477	155.1	5.365		1.018	1.681	Pass			
5.376	152.3	5.477	155.1	5.365		1.019	1.679	Pass			
5.372	152.1	5.477	155.1	5.365		1.020	1.679	Pass			
					Average	1.019	1.680		Pass	Pass	Pass
5.405	153.1	5.434	153.9	5.313		1.005	1.806	Pass			
5.412	153.3	5.434	153.9	5.313		1.004	1.804	Pass			
5.399	152.9	5.434	153.9	5.313		1.007	1.802	Pass			
					Average	1.005	1.804		Pass	Pass	Pass
5.337	151.2	5.412	153.3	5.281		1.014	1.718	Pass			
5.324	150.8	5.412	153.3	5.281		1.017	1.716	Pass			
5.321	150.7	5.412	153.3	5.281		1.017	1.716	Pass			
					Average	1.016	1.717		Pass	Pass	Pass

Average Yd:	1.011	dH@:	1.746
		Q @ dH = 1:	0.568

SIGNED: Signature on File

Date: 2/1/2019

semi annual cal 19wcs 2-1-19.xlsx WCS
7/22/2019
11:17 AM

MONTROSE
AIR QUALITY SERVICES

DIGITAL TEMPERATURE READOUT CALIBRATION

Digital Temperature Readout ID: 19-WCS
Readout Description: Control Box
Date: 7/2/2019
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)	19-WCS	350	350	350	350	358	358	358	358	8.0	1.0%	Pass
T2 (Boiling H_2O)	19-WCS	210	210	210	210	212	212	212	212	2.0	0.3%	Pass
T1 (Ice/Water)	19-WCS	36	36	36	36	32	32	32	32	4.0	0.8%	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	657	657	657	657	650	650	650	650	7.0	0.6%	Pass
T3 (~370 F)	S/N 106970	369	369	369	369	370	370	370	370	1.0	0.1%	Pass
T2 (~212 F)	S/N 106970	210	210	210	210	212	212	212	212	2.0	0.3%	Pass
T1 (~32 F)	S/N 106970	29	29	29	29	32	32	32	32	3.0	0.6%	Pass

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

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: SCPPA - Canyon
LOCATION: Unit 1
DATE: 7/23/19
RUN NO: FB-NH3
OPERATOR: RH
METER BOX NO: 19-WCS
METER ΔH@: 1.745
METER Yd: 1.011
STACK AREA, FT²: 106.90
TRAVERSE POINTS, MIN/POINT: —
ΔH= — X ΔP:
Probe Condition, pre/post test: ✓/✓
Silica Gel Expanded, Y/N: N
Filter Condition after Test: N/A
Check Weight: 499.9 / 500.0

AMBIENT TEMPERATURE: ~70°
BAROMETRIC PRESSURE: 29.65
ASSUMED MOISTURE: 12%
PITOT TUBE COEFF, Cp: N/A
PROBE ID NO/MATERIAL: glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: N/A
NOZZLE DIAMETER: N/A
FILTER NO/TYPE: N/A
PRE-TEST LEAK RATE: : <0.005 CFM@ 12 in. Hg.
POST-TEST LEAK RATE: : <0.004 CFM@ 13 in. Hg.
PITOT LEAK CHECK - PRE: N/A POST: N/A
CHAIN OF CUSTODY: SAMPLE CUSTODIAN SD
SAMPLER RH
SAMPLE CUSTODIAN SD

Imp. #	Contents	Post-Test	- Pre-Test	= Difference
1	H_2SO_4	853.0	751.6	
2	H_2SO_4	778.0	777.7	
3	MT	683.9	683.9	
4	SG	906.9	906.9	
UR	H_2O		100	
Total:				

FIELD BLANK

Point	Time	Meter Volume, ft³	ΔP in. H_2O	ΔH in. H_2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O_2 %	P. static in. H_2O
Average:													

Comments:

CHAIN OF CUSTODY

CLIENT: SCPPA - Canyon Power Plant   PROJECT #: W002AS-543377   TEST DATE(S): 7/23/2019

LOCATION: U1   SAMPLER(S): RH/HL

SAMPLE LOCATION: Stack   PROJECT MANAGER: SD

TEST METHOD(S): SCAQMD 207.1   DATE DUE: 7/30/2019

OUTSIDE LAB REQUIRED?: No   COMPLIANCE TEST?: Yes

DATE	TIME	TEST #	SAMPLE DESCRIPTION	CONTAINERS	SAMPLER	COMMENTS
7/23/2019	0700/0806	1-NH3-U1	Probe, Line, Impingers	1	RH/HL	
7/23/2019	0834/0940	2-NH3-U1	Probe, Line, Impingers	1	RH/HL	
7/23/2019		Reagent Blank	0.1 N H_2SO_4	1	SD	
7/23/2019		Reagent Blank	DI H2O	1	SD	
7/23/2019		Field Blank	Probe, Line, Impingers	1	RH/HL	

RELEASED BY	DATE/TIME	RECEIVED BY	DATE/TIME
Robert Howard / Lab	7-25-19 / 1440	[illegible]	7/26/19 8:00

ANALYSIS REQUIRED: NH_3 by SCAQMD 207.1 (ISE)

MONTROSE   Date of Last Revision 9/1/2017   Chain of Custody - DS834001 - Excel
Master Document Storage\Forms\Datasheets\Lab Forms

APPENDIX B
FACILITY CEMS DATA

Average Values Report
Generated: 7/23/2019 09:17

Company: City Of Anaheim
Plant: 3071 Miraloma Ave.,
City/St: Anaheim, CA, 92806
Source: unit1

Period Start: 7/23/2019 07:01
Period End: 7/23/2019 08:06
Validation Type: 1/1 min
Averaging Period: 1 min
Type: Block Avg

Period Start:	Average 1_O2 %	Average 1_NOXPPM ppm	Average 1_NOX_CORR ppm	Average 1_NOX_LBHR #/hr	Average 1_NOX_LBMM #/MBTU	Average 1_GasFlow kscfh	Average 1_LOAD MW	Average 1_STACKFLW kscfm	Average 1_COPPM ppm	Average 1_CO_CORR ppm	Average 1_CO_LBHR #/hr
07/23/2019 07:01	14.44	2.64	2.41	4.44	0.009	470.1	49.70	231.8	3.10	2.83	3.16
07/23/2019 07:02	14.45	2.60	2.38	4.44	0.009	470.3	49.75	232.3	3.02	2.76	3.06
07/23/2019 07:03	14.43	2.54	2.32	4.45	0.009	471.3	49.81	232.1	2.99	2.73	3.02
07/23/2019 07:04	14.43	2.55	2.33	4.46	0.009	471.4	49.80	232.1	3.00	2.74	3.02
07/23/2019 07:05	14.44	2.59	2.37	4.45	0.009	471.3	49.81	232.4	2.96	2.70	3.02
07/23/2019 07:06	14.42	2.58	2.35	4.46	0.009	472.2	49.88	232.1	2.90	2.64	2.93
07/23/2019 07:07	14.44	2.59	2.37	4.44	0.009	469.5	49.66	231.5	2.89	2.64	2.91
07/23/2019 07:08	14.44	2.59	2.37	4.45	0.009	471.0	49.78	232.3	3.07	2.80	3.12
07/23/2019 07:09	14.44	2.57	2.35	4.44	0.009	470.2	49.72	231.9	3.33	3.04	3.36
07/23/2019 07:10	14.44	2.55	2.33	4.45	0.009	470.7	49.77	232.1	3.28	3.00	3.31
07/23/2019 07:11	14.43	2.55	2.33	4.45	0.009	471.1	49.82	232.0	3.05	2.78	3.07
07/23/2019 07:12	14.44	2.59	2.37	4.45	0.009	470.5	49.82	232.0	3.02	2.76	3.06
07/23/2019 07:13	14.43	2.61	2.38	4.46	0.009	471.7	49.84	232.3	3.30	3.01	3.37
07/23/2019 07:14	14.42	2.60	2.37	4.46	0.009	471.9	49.87	232.0	3.43	3.12	3.47
07/23/2019 07:15	14.42	2.62	2.39	4.46	0.009	472.0	49.87	232.0	3.30	3.00	3.32
07/23/2019 07:16	14.42	2.64	2.40	4.46	0.009	471.8	49.87	231.9	3.18	2.90	3.22
07/23/2019 07:17	14.42	2.66	2.42	4.46	0.009	471.4	49.82	231.8	3.19	2.90	3.22
07/23/2019 07:18	14.43	2.65	2.42	4.45	0.009	470.8	49.76	231.8	3.17	2.89	3.21
07/23/2019 07:19	14.45	2.62	2.40	4.44	0.009	469.9	49.68	232.1	3.14	2.87	3.16
07/23/2019 07:20	14.44	2.57	2.35	4.44	0.009	470.3	49.73	231.9	3.06	2.79	3.11
07/23/2019 07:21	14.45	2.51	2.30	3.94	0.008	469.1	49.67	231.7	3.10	2.84	3.15
07/23/2019 07:22	14.45	2.50	2.29	3.95	0.008	470.3	49.75	232.3	3.30	3.02	3.36
07/23/2019 07:23	14.45	2.49	2.28	3.95	0.008	470.3	49.76	232.3	3.34	3.06	3.41
07/23/2019 07:24	14.44	2.50	2.28	3.94	0.008	469.0	49.70	231.3	3.16	2.89	3.20
07/23/2019 07:25	14.46	2.50	2.29	3.93	0.008	468.2	49.65	231.6	3.13	2.87	3.15
07/23/2019 07:26	14.45	2.47	2.26	3.94	0.008	468.8	49.70	231.5	3.24	2.96	3.25
07/23/2019 07:27	14.45	2.46	2.25	3.94	0.008	469.2	49.76	231.8	3.36	3.07	3.40
07/23/2019 07:28	14.43	2.47	2.25	3.95	0.008	469.8	49.81	231.3	3.31	3.02	3.35
07/23/2019 07:29	14.44	2.52	2.30	3.94	0.008	469.2	49.77	231.4	3.13	2.86	3.15
07/23/2019 07:30	14.44	2.56	2.34	4.44	0.009	470.0	49.81	231.8	3.07	2.80	3.11
07/23/2019 07:31	14.43	2.55	2.33	4.45	0.009	470.6	49.90	231.7	3.08	2.81	3.11
07/23/2019 07:32	14.42	2.58	2.35	4.45	0.009	470.8	49.87	231.4	2.94	2.68	2.97
07/23/2019 07:33	14.43	2.63	2.40	4.45	0.009	471.2	49.93	232.0	2.84	2.59	2.87
07/23/2019 07:34	14.43	2.65	2.42	4.44	0.009	469.9	49.79	231.4	2.79	2.54	2.81
07/23/2019 07:35	14.44	2.64	2.41	4.45	0.009	470.6	49.89	232.1	2.75	2.51	2.77
07/23/2019 07:36	14.42	2.64	2.40	4.45	0.009	470.4	49.89	231.2	2.75	2.50	2.77
07/23/2019 07:37	14.42	2.66	2.42	4.44	0.009	470.0	49.82	231.1	2.82	2.57	2.86
07/23/2019 07:38	14.45	2.69	2.46	4.42	0.009	468.2	49.68	231.2	2.78	2.54	2.80
07/23/2019 07:39	14.44	2.63	2.40	4.43	0.009	468.6	49.79	231.1	2.84	2.59	2.85
07/23/2019 07:40	14.45	2.60	2.38	4.42	0.009	467.8	49.67	231.1	3.25	2.97	3.29
07/23/2019 07:41	14.45	2.58	2.36	4.44	0.009	469.8	49.85	232.0	3.47	3.17	3.50
07/23/2019 07:42	14.42	2.55	2.32	4.44	0.009	470.3	49.88	231.2	3.42	3.11	3.46
07/23/2019 07:43	14.42	2.60	2.37	4.45	0.009	470.7	49.92	231.4	3.08	2.80	3.11
07/23/2019 07:44	14.42	2.66	2.42	4.45	0.009	470.9	49.90	231.5	3.00	2.73	3.02
07/23/2019 07:45	14.42	2.67	2.43	4.45	0.009	471.0	49.93	231.6	2.89	2.63	2.92
07/23/2019 07:46	14.41	2.68	2.44	4.45	0.009	470.7	49.90	231.0	2.75	2.50	2.77
07/23/2019 07:47	14.42	2.70	2.46	4.44	0.009	469.7	49.80	230.9	2.69	2.45	2.71
07/23/2019 07:48	14.44	2.69	2.46	4.43	0.009	468.5	49.72	231.0	2.70	2.47	2.71
07/23/2019 07:49	14.43	2.64	2.41	4.44	0.009	470.1	49.87	231.5	2.72	2.48	2.76

Period Start:	Average 1_O2 %	Average 1_NOXPPM ppm	Average 1_NOX_CORR ppm	Average 1_NOX_LBHR #/hr	Average 1_NOX_LBMM #/MBTU	Average 1_GasFlow kscfh	Average 1_LOAD MW	Average 1_STACKFLW kscfm	Average 1_COPPM ppm	Average 1_CO_CORR ppm	Average 1_CO_LBHR #/hr
07/23/2019 07:50	14.42	2.63	2.39	4.45	0.009	470.4	49.87	231.2	2.76	2.51	2.77
07/23/2019 07:51	14.42	2.69	2.45	4.44	0.009	470.3	49.89	231.2	2.77	2.52	2.81
07/23/2019 07:52	14.41	2.69	2.45	4.45	0.009	470.9	49.87	231.1	2.92	2.65	2.97
07/23/2019 07:53	14.42	2.53	2.30	3.95	0.008	470.3	49.85	231.2	3.10	2.82	3.11
07/23/2019 07:54	14.42	2.45	2.23	3.95	0.008	470.1	49.78	231.1	3.16	2.88	3.21
07/23/2019 07:55	14.44	2.47	2.26	3.93	0.008	468.3	49.68	230.9	3.08	2.81	3.10
07/23/2019 07:56	14.43	2.44	2.23	3.95	0.008	470.5	49.85	231.7	3.23	2.95	3.26
07/23/2019 07:57	14.40	2.43	2.21	3.95	0.008	470.7	49.88	230.7	3.49	3.17	3.51
07/23/2019 07:58	14.42	2.49	2.27	3.95	0.008	470.1	49.84	231.1	3.68	3.35	3.70
07/23/2019 07:59	14.42	2.53	2.30	3.95	0.008	470.1	49.85	231.1	3.51	3.20	3.55
07/23/2019 08:00	14.41	2.52	2.29	3.95	0.008	470.3	49.87	230.8	3.29	2.99	3.31
07/23/2019 08:01	14.42	2.53	2.30	3.95	0.008	470.1	49.83	231.1	3.10	2.82	3.11
07/23/2019 08:02	14.42	2.53	2.30	3.94	0.008	469.1	49.78	230.6	3.09	2.81	3.10
07/23/2019 08:03	14.43	2.51	2.29	3.93	0.008	468.0	49.71	230.4	3.31	3.02	3.34
07/23/2019 08:04	14.44	2.46	2.25	3.94	0.008	468.6	49.75	231.1	3.77	3.44	3.79
07/23/2019 08:05	14.44	2.41	2.20	3.94	0.008	469.1	49.79	231.4	4.11	3.75	4.14
07/23/2019 08:06	14.42	2.41	2.19	3.96	0.008	470.9	49.91	231.5	4.07	3.71	4.10
Daily Average*	**14.43**	**2.57**	**2.35**	**4.27**	**0.009**	**470.2**	**49.81**	**231.5**	**3.13**	**2.85**	**3.16**
Maximum*	**14.46**	**2.70**	**2.46**	**4.46**	**0.009**	**472.2**	**49.93**	**232.4**	**4.11**	**3.75**	**4.14**
	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019
	7:25	7:47	7:48	7:17	7:52	7:06	7:45	7:05	8:05	8:05	8:05
Minimum*	**14.40**	**2.41**	**2.19**	**3.93**	**0.008**	**467.8**	**49.65**	**230.4**	**2.69**	**2.45**	**2.71**
	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019
	7:57	8:06	8:06	8:03	8:06	7:40	7:25	8:03	7:47	7:47	7:48

* Does not include Invalid Averaging Periods ("N/A")

Average Values Report
Generated: 7/23/2019 10:52

Company: City Of Anaheim
Plant: 3071 Miraloma Ave.,
City/St: Anaheim, CA, 92806
Source: unit1

Period Start: 7/23/2019 08:35
Period End: 7/23/2019 09:40
Validation Type: 1/1 min
Averaging Period: 1 min
Type: Block Avg

Period Start:	Average 1_O2 %	Average 1_NOXPPM ppm	Average 1_NOX_CORR ppm	Average 1_NOX_LBHR #/hr	Average 1_NOX_LBMM #/MBTU	Average 1_GasFlow kscfh	Average 1_LOAD MW	Average 1_STACKFLW kscfm	Average 1_COPPM ppm	Average 1_CO_CORR ppm	Average 1_CO_LBHR #/hr
07/23/2019 08:35	14.40	2.50	2.27	3.97	0.008	472.6	49.89	231.6	3.24	2.94	3.27
07/23/2019 08:36	14.42	2.54	2.31	4.45	0.009	471.1	49.73	231.6	3.05	2.78	3.07
07/23/2019 08:37	14.44	2.51	2.29	3.95	0.008	470.3	49.68	231.9	3.08	2.81	3.11
07/23/2019 08:38	14.43	2.45	2.23	3.95	0.008	470.2	49.70	231.5	3.26	2.97	3.31
07/23/2019 08:39	14.43	2.40	2.19	3.95	0.008	470.0	49.66	231.4	3.46	3.16	3.50
07/23/2019 08:40	14.43	2.40	2.19	3.96	0.008	471.2	49.82	232.0	3.52	3.21	3.56
07/23/2019 08:41	14.40	2.41	2.19	3.97	0.008	472.4	49.91	231.5	3.43	3.11	3.47
07/23/2019 08:42	14.40	2.46	2.23	3.96	0.008	471.9	49.83	231.3	3.31	3.00	3.32
07/23/2019 08:43	14.41	2.50	2.27	3.96	0.008	471.7	49.82	231.5	3.28	2.98	3.32
07/23/2019 08:44	14.41	2.49	2.26	3.96	0.008	471.9	49.88	231.6	3.38	3.07	3.42
07/23/2019 08:45	14.39	2.48	2.25	3.96	0.008	471.9	49.82	230.9	3.59	3.25	3.62
07/23/2019 08:46	14.42	2.50	2.28	3.96	0.008	471.2	49.73	231.7	3.57	3.25	3.61
07/23/2019 08:47	14.42	2.49	2.27	3.95	0.008	470.3	49.70	231.2	3.40	3.10	3.41
07/23/2019 08:48	14.43	2.45	2.23	3.96	0.008	471.4	49.79	232.1	3.44	3.14	3.47
07/23/2019 08:49	14.40	2.43	2.21	3.97	0.008	472.2	49.84	231.4	3.59	3.26	3.62
07/23/2019 08:50	14.43	2.45	2.23	3.95	0.008	470.0	49.66	231.4	3.58	3.26	3.60
07/23/2019 08:51	14.43	2.44	2.23	3.95	0.008	470.5	49.73	231.7	3.58	3.26	3.61
07/23/2019 08:52	14.43	2.39	2.18	3.95	0.008	470.1	49.65	231.5	3.76	3.43	3.80
07/23/2019 08:53	14.43	2.35	2.14	3.96	0.008	471.4	49.76	232.1	3.88	3.54	3.91
07/23/2019 08:54	14.43	2.35	2.14	3.95	0.008	470.1	49.68	231.5	3.68	3.36	3.70
07/23/2019 08:55	14.44	2.36	2.16	3.95	0.008	470.8	49.72	232.2	3.57	3.26	3.61
07/23/2019 08:56	14.42	2.35	2.14	3.97	0.008	472.4	49.88	232.2	3.63	3.31	3.67
07/23/2019 08:57	14.40	2.35	2.13	3.97	0.008	472.5	49.84	231.6	3.61	3.28	3.67
07/23/2019 08:58	14.42	2.48	2.26	3.96	0.008	471.1	49.78	231.6	3.41	3.10	3.46
07/23/2019 08:59	14.42	2.59	2.36	4.46	0.009	471.5	49.78	231.8	3.57	3.25	3.61
07/23/2019 09:00	14.42	2.61	2.38	4.46	0.009	471.8	49.81	231.9	3.88	3.53	3.91
07/23/2019 09:01	14.41	2.61	2.37	4.46	0.009	472.5	49.85	231.9	4.01	3.65	4.07
07/23/2019 09:02	14.41	2.64	2.40	4.46	0.009	471.9	49.80	231.6	3.94	3.58	3.96
07/23/2019 09:03	14.42	2.64	2.40	4.45	0.009	471.3	49.73	231.7	3.79	3.45	3.81
07/23/2019 09:04	14.42	2.61	2.38	4.46	0.009	471.4	49.75	231.8	3.66	3.33	3.71
07/23/2019 09:05	14.42	2.58	2.35	4.46	0.009	472.5	49.84	232.3	3.58	3.26	3.62
07/23/2019 09:06	14.39	2.59	2.35	4.47	0.009	472.7	49.89	231.3	3.55	3.22	3.57
07/23/2019 09:07	14.40	2.65	2.41	4.46	0.009	472.1	49.82	231.4	3.67	3.33	3.72
07/23/2019 09:08	14.41	2.69	2.45	4.46	0.009	471.6	49.82	231.5	3.91	3.55	3.96
07/23/2019 09:09	14.42	2.69	2.45	4.45	0.009	471.3	49.77	231.7	4.01	3.65	4.06
07/23/2019 09:10	14.42	2.68	2.44	4.46	0.009	471.7	49.77	231.9	3.90	3.55	3.96
07/23/2019 09:11	14.42	2.67	2.43	4.44	0.009	470.1	49.68	231.1	3.64	3.31	3.65
07/23/2019 09:12	14.43	2.65	2.42	4.44	0.009	469.6	49.69	231.2	3.71	3.38	3.75
07/23/2019 09:13	14.42	2.61	2.38	4.46	0.009	471.5	49.76	231.8	4.22	3.84	4.26
07/23/2019 09:14	14.42	2.58	2.35	4.45	0.009	470.5	49.68	231.3	4.44	4.04	4.50
07/23/2019 09:15	14.43	2.57	2.34	4.44	0.009	470.3	49.67	231.6	4.07	3.71	4.10
07/23/2019 09:16	14.43	2.56	2.33	4.44	0.009	470.3	49.69	231.6	3.64	3.32	3.65
07/23/2019 09:17	14.43	2.55	2.33	4.45	0.009	470.6	49.71	231.7	3.50	3.19	3.56
07/23/2019 09:18	14.42	2.55	2.32	4.46	0.009	471.7	49.83	231.9	3.40	3.10	3.42
07/23/2019 09:19	14.41	2.59	2.35	4.46	0.009	472.5	49.88	231.9	3.43	3.12	3.47
07/23/2019 09:20	14.42	2.66	2.42	4.46	0.009	471.9	49.84	232.0	3.35	3.05	3.37
07/23/2019 09:21	14.41	2.70	2.45	4.46	0.009	471.9	49.85	231.6	3.17	2.88	3.22
07/23/2019 09:22	14.41	2.70	2.45	4.46	0.009	471.9	49.84	231.6	3.11	2.83	3.12
07/23/2019 09:23	14.40	2.69	2.44	4.46	0.009	472.2	49.90	231.4	3.15	2.86	3.17

Period Start:	Average 1_O2 %	Average 1_NOXPPM ppm	Average 1_NOX_CORR ppm	Average 1_NOX_LBHR #/hr	Average 1_NOX_LBMM #/MBTU	Average 1_GasFlow kscfh	Average 1_LOAD MW	Average 1_STACKFLW kscfm	Average 1_COPPM ppm	Average 1_CO_CORR ppm	Average 1_CO_LBHR #/hr
07/23/2019 09:24	14.40	2.70	2.45	4.46	0.009	471.9	49.85	231.3	3.22	2.92	3.27
07/23/2019 09:25	14.41	2.73	2.48	4.46	0.009	471.5	49.85	231.5	3.31	3.01	3.37
07/23/2019 09:26	14.40	2.72	2.47	4.46	0.009	472.1	49.91	231.4	3.41	3.10	3.42
07/23/2019 09:27	14.40	2.71	2.46	4.45	0.009	470.9	49.75	230.8	3.60	3.27	3.61
07/23/2019 09:28	14.42	2.71	2.47	4.45	0.009	470.8	49.76	231.4	3.67	3.34	3.71
07/23/2019 09:29	14.41	2.67	2.43	4.45	0.009	470.8	49.76	231.1	3.55	3.23	3.56
07/23/2019 09:30	14.41	2.66	2.42	4.45	0.009	470.6	49.75	231.0	3.31	3.01	3.36
07/23/2019 09:31	14.41	2.68	2.44	4.46	0.009	471.7	49.87	231.5	3.39	3.08	3.42
07/23/2019 09:32	14.39	2.69	2.44	4.46	0.009	472.5	49.90	231.2	3.46	3.14	3.47
07/23/2019 09:33	14.39	2.74	2.48	4.46	0.009	471.8	49.87	230.9	3.40	3.08	3.42
07/23/2019 09:34	14.39	2.78	2.52	4.47	0.009	472.7	49.91	231.3	3.20	2.90	3.23
07/23/2019 09:35	14.40	2.67	2.42	4.45	0.009	470.9	49.68	230.8	3.10	2.81	3.11
07/23/2019 09:36	14.42	2.47	2.25	3.95	0.008	469.8	49.65	231.0	3.17	2.89	3.21
07/23/2019 09:37	14.41	2.30	2.09	3.95	0.008	470.0	49.68	230.7	3.33	3.03	3.36
07/23/2019 09:38	14.42	2.27	2.07	3.96	0.008	471.2	49.79	231.7	3.39	3.09	3.41
07/23/2019 09:39	14.39	2.36	2.14	3.96	0.008	471.1	49.77	230.6	3.35	3.04	3.36
07/23/2019 09:40	14.41	2.47	2.25	3.95	0.008	470.6	49.76	231.0	3.29	2.99	3.31
Daily Average*	**14.41**	**2.55**	**2.32**	**4.24**	**0.009**	**471.3**	**49.78**	**231.5**	**3.53**	**3.21**	**3.56**
Maximum*	**14.44**	**2.78**	**2.52**	**4.47**	**0.009**	**472.7**	**49.91**	**232.3**	**4.44**	**4.04**	**4.50**
	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019
	8:55	9:34	9:34	9:34	9:35	9:34	9:34	9:05	9:14	9:14	9:14
Minimum*	**14.39**	**2.27**	**2.07**	**3.95**	**0.008**	**469.6**	**49.65**	**230.6**	**3.05**	**2.78**	**3.07**
	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019	07/23/2019
	9:39	9:38	9:38	9:40	9:40	9:12	9:36	9:39	8:36	8:36	8:36

* Does not include Invalid Averaging Periods ("N/A")

APPENDIX C
CALCULATIONS

Appendix C.1
General Emissions Calculations

GENERAL EMISSION CALCULATIONS

I. Stack Gas Velocity

A. Stack gas molecular weight, lb/lb-mole

$$MW_{dry} = 0.44 * \%CO_2 + 0.32 * \%O_2 + 0.28 * \%N_2$$

$$MW_{wet} = MW_{dry} * (1 - B_{wo}) + 18 * B_{wo}$$

B. Absolute stack pressure, iwg

$$Ps = Pbar + \frac{Psg}{13.6}$$

C. Stack gas velocity, ft/sec

$$V_s = 2.9 * C_p * \sqrt{\Delta P} * \sqrt{T_s} * \sqrt{\frac{29.92 * 28.95}{P_s * MW_{wet}}}$$

II. Moisture

A. Sample gas volume, dscf

$$V_{mstd} = 0.03342 * V_m * (P_{bar} + \frac{\Delta H}{13.6}) * \frac{T_{ref}}{T_m} * Y_d$$

B. Water vapor volume, scf

$$V_{wstd} = 0.0472 * V_{lc} * \frac{T_{ref}}{528\ ^{o}R}$$

C. Moisture content, dimensionless

$$B_{wo} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})}$$

III. Stack gas volumetric flow rate

A. Actual stack gas volumetric flow rate, wacfm

$$Q = V_s * A_s * 60$$

B. Standard stack gas flow rate, dscfm

$$Q_{sd} = Q * (1 - B_{wo}) * \frac{T_{ref}}{T_s} * \frac{P_s}{29.92}$$

IV. Gaseous Mass Emission Rates, lb/hr

$$M = \frac{ppm * MW_i * Q_{sd} * 60}{SV * 10^6}$$

V. Emission Rates, lb/MMBtu

$$\frac{lb}{MMBtu} = \frac{ppm * MW_i * F}{SV * 10^6} * \frac{20.9}{20.9 - \%O_2}$$

VI. Percent Isokinetic

$$I = \frac{17.32 \text{ x } T_s (V_m std)}{(1\text{-}Bwo)\ 0 \text{ x } Vs \text{ x } Ps \text{ x } Dn2} \text{ x } \frac{520°R}{T_{ref}}$$

VII. Particulate emissions

(a) Grain loading, gr/dscf
$C = 0.01543\ (M_n/V_{m\ std})$

(b) Grain loading at 12% CO_2, gr/dscf
$C_{12\%}\ CO_2 = C\ (12/\%\ CO_2)$

(c) Mass emissions, lb/hr
M = C x Qsd x (60 min/hr)/(7000 gr/lb)

(d) Particulate emission factor

$$lb/10^6\ Btu = Cx\ \frac{1\ lb}{7000\ gr} \text{ x F x } \frac{20.9}{20.9 - \%\ O_2}$$

MONTROSE AIR QUALITY SERVICES

Nomenclature:

A_s	= stack area, ft^2
B_{wo}	= flue gas moisture content, dimensionless
$C_{12\%CO2}$	= particulate grain loading, gr/dscf corrected to 12% CO_2
C	= particulate grain loading, gr/dscf
C_p	= pitot calibration factor, dimensionless
Dn	= nozzle diameter, in.
F	= fuel F-Factor, dscf/MMBtu @ 0% O_2
H	= orifice differential pressure, iwg
I	= % isokinetics
M_n	= mass of collected particulate, mg
M_i	= mass emission rate of specie i, lb/hr
MW	= molecular weight of flue gas, lb/lb-mole
M_{wi}	= molecular weight of specie i:
	SO_2: 64
	NO_x: 46
	CO: 28
	HC: 16
0	= sample time, min.
ΔP	= average velocity head, iwg = $(\sqrt{\Delta P})^2$
P_{bar}	= barometric pressure, inches Hg
P_s	= stack absolute pressure, inches Hg
P_{sg}	= stack static pressure, iwb
Q	= wet stack flow rate at actual conditions, wacfm
Q_{sd}	= dry standard stack flow rate, dscfm
SV	= specific molar volume of an ideal gas at standard conditions, ft^3/lb-mole
T_m	= meter temperature, °R
T_{ref}	= reference temperature, °R
T_s	= stack temperature, °R
V_s	= stack gas velocity, ft/sec
V_{lc}	= volume of liquid collected in impingers, ml
V_m	= uncorrected dry meter volume, dcf
V_{mstd}	= dry meter volume at standard conditions, dscf
V_{wstd}	= volume of water vapor at standard conditions, scf
Y_d	= meter calibration coefficient

Appendix C.2
Spreadsheet Summaries

SCAQMD 207.1 EXAMPLE CALCULATION
TEST NUMBER: 1-NH3-U1

Identifier	Description	Units	Equation	Value
A	Reference Temperature	F	--	60
B	Reference Temperature	R	A + 460	520
C	Meter Calibration Factor (Yd)	--	--	1.011
D	Barometric Pressure	" Hg	--	29.65
E	Meter Volume	acf	--	40.786
F	Meter Temperature	F	--	76.9
G	Meter Temperature	R	F + 460	536.9
H	Delta H	" H_2O	--	1.5
I	Meter Volume (standard)	dscf	0.03342 * E * (D + H/13.6) * B/G * C	39.721
J	Liquid Collected	grams	--	116.3
K	Water vapor volume	scf	0.0472 * J * B/528	5.406
L	Moisture Content	--	K/(K + I)	0.120
M	Gas Constant	ft-lbf/lb-mole-R	--	1545.33
N	Specific Molar Volume	SCF/lb-mole	385.3 * B / 528	379.5
O	F-Factor	dscf/MMBtu	--	8,710
P	HHV	Btu/SCF	--	1,050
Q	Mass Conversion Factor	lb/ug	--	2.2046E-09
R	O_2 Correction Factor	--	--	15
S	Stack Flow Rate @ 68 F	dscfm	--	231,500
T	Stack Flow Rate @ Tref	dscfm	S * B/528	227,992
U	Mass NH_3	ug	--	1,532
V	Mass NH_3	lb	U * Q	3.38E-06
W	MW of NH_3	lb/lb-mole	--	17.03
X	NH_3	ppm	$(V * N * 10^6)/(I * W)$	1.9
Y	Flue Gas O_2	%	--	14.43
Z	NH_3	ppmc	X * (20.9 - R)/(20.9 - Y)	1.7
AA	NH_3	lb/hr	$X * T * W * 60/(N * 10^6)$	1.2
AB	NH_3	lb/MMBtu	$(X * W * O)/(385.3 * 10^6) * 20.9/(20.9 - Y)$	0.002
AC	NH_3	lb/MMSCF	AB * P	2.5

Note:

(1) Some values may be slightly different from those shown on the run sheets due to round off errors. This page is intended to show the calculation methodology only.

SCAQMD METHOD 207.1
DATA WORKSHEET AND SUMMARY

Facility	Canyon		Parameter		NH_3
Unit	U1		Fuel		Natural gas
Sample Location	Stack		Data By		SD
Test Number	1-NH3-U1	2-NH3-U1	Average	Maximum	Limit
Reference Temperature (°F)	60	60			
Test Date	7/23/2019	7/23/2019			
Test Method	SCAQMD 207 1	SCAQMD 207.1			
Sample Train	19-WCS	19-WCS			
Meter Calibration Factor	1.011	1.011			
Stack Area (ft^2)	106.90	106.90			
Sample Time (Minutes)	60	60			
Barometric Pressure ("Hg)	29.65	29.65			
Start/Stop Time	0700/0806	0834/0940			
Meter Volume (acf)	40.786	40.216			
Meter Temperature (°F)	76.9	84.8			
Meter Pressure (iwg)	1.5	1.5			
Liquid Volume (ml)	116.3	115.5			
Stack O_2 (%)	14.43	14.41	14.42	(from facility CEMS)	
Unit Load (MW)	50	50	49.8		
Standard Sample Volume (SCF)	39.721	38.598			
Moisture Fraction	0.120	0.122			
Stack Flow Rate (dscfm, 68 °F)	231,500	231,500	231,500	(from facility CEMS)	
Stack Flow Rate (@ Tref)	227,992	227,992	227,992		
Gas Constant (ft-lbf/lb-mole-R)	1545.33	1545.33			
Molecular Weight NH_3 (lb/lb-mole)	17.03	17.03			
Specific Molar Volume (ft^3/lb-mole)	379.5	379.5			
F-Factor (dscf/MMBtu)	8,710	8,710			
HHV(Btu/SCF)	1,050	1,050			
Mass Conversion (lb/ug)	2.2046E-09	2.2046E-09			
O_2 Correction Factor (%)	15	15			
Mass NH_3 (ug)	1,532	1,434			
Mass NH_3 (lb)	3.38E-06	3.16E-06			
NH_3 (ppmv, flue gas)	1.9	1.8	1.9	1.9	
NH_3 (ppmv @ O_2 Correction Factor)	1.7	1.7	1.7	1.7	5
NH_3 (lb/hr)	1.2	1.1	1.1	1.2	
NH_3 (lb/MMBtu)	0.002	0.002	0.002	0.002	
NH_3 (lb/MMSCF)	2.5	2.4	2.4	2.5	

Note: SCAQMD Method 207.1 requires the higher of the duplicate runs be reported as the test result.

APPENDIX D
QUALITY ASSURANCE

Appendix D.1
Quality Assurance Program Summary

QUALITY ASSURANCE PROGRAM SUMMARY

As part of Montrose Air Quality Services, LLC (MAQS) ASTM D7036-04 certification, MAQS is committed to providing emission related data which is complete, precise, accurate, representative, and comparable. MAQS quality assurance program and procedures are designed to ensure that the data meet or exceed the requirements of each test method for each of these items. The quality assurance program consists of the following items:

- Assignment of an Internal QA Officer
- Development and use of an internal QA Manual
- Personnel training
- Equipment maintenance and calibration
- Knowledge of current test methods
- Chain-of-custody
- QA reviews of test programs

Assignment of an Internal QA Officer: MAQS has assigned an internal QA Officer who is responsible for administering all aspects of the QA program.

Internal Quality Assurance Manual: MAQS has prepared a QA Manual according to the requirements of ASTM D7036-04 and guidelines issued by EPA. The manual documents and formalizes all of MAQS QA efforts. The manual is revised upon periodic review and as MAQS adds capabilities. The QA manual provides details on the items provided in this summary.

Personnel Testing and Training: Personnel testing and training is essential to the production of high quality test results. MAQS training programs include:

- A requirement for all technical personnel to read and understand the test methods performed
- A requirement for all technical personnel to read and understand the MAQS QA manual
- In-house testing and training
- Quality Assurance meetings
- Third party testing where available
- Maintenance of training records.

Equipment Maintenance and Calibration: All laboratory and field equipment used as a part of MAQS emission measurement programs is maintained according to manufacturer's recommendations. A summary of the major equipment maintenance schedules is summarized in Table 1. In addition to routine maintenance, calibrations are performed on all sampling equipment according to the procedures outlined in the applicable test method. The calibration intervals and techniques for major equipment components is summarized in Table 2. The calibration technique may vary to meet regulatory agency requirements.

Knowledge of Current Test Methods: MAQS maintains current copies of EPA, ARB, and SCAQMD Source Test Manuals and Rules and Regulations.

Chain-of-Custody: MAQS maintains chain-of-custody documentation on all data sheets and samples. Samples are stored in a locked area accessible only to MAQS source test personnel. Data sheets are kept in the custody of the originator, program manager, or in locked storage until return to MAQS office. Electronic field data is duplicated for backup on secure storage media. The original data sheets are used for report preparation and any additions are initialed and dated.

QA Reviews: Periodic field, laboratory, and report reviews are performed by the in-house QA coordinator. Periodically, test plans are reviewed to ensure proper test methods are selected and reports are reviewed to ensure that the methods were followed and any deviations from the methods are justified and documented.

ASTM D7036-04 Required Information

Uncertainty Statement

Montrose is qualified to conduct this test program and has established a quality management system that led to accreditation with ASTM Standard D7036-04 (Standard Practice for Competence of Air Emission Testing Bodies). Montrose participates in annual functional assessments for conformance with D7036-04 which are conducted by the American Association for Laboratory Accreditation (A2LA). All testing performed by Montrose is supervised on site by at least one Qualified Individual (QI) as defined in D7036-04 Section 8.3.2. Data quality objectives for estimating measurement uncertainty within the documented limits in the test methods are met by using approved test protocols for each project as defined in D7036-04 Sections 7.2.1 and 12.10. Additional quality assurance information is presented in the report appendices.

Performance Data

Performance data are available for review.

Qualified Personnel

A qualified individual (QI), defined by performance on a third party or internal test on the test methods, will be present on each test event.

Plant Entry and Safety Requirements

Plant Entry

All test personnel are required to check in with the guard at the entrance gate or other designated area. Specific details are provided by the facility and project manager.

Safety Requirements

All personnel shall have the following personal protective equipment (PPE) and wear them where designated:

- Hard Hat
- Safety Glasses
- Steel Toe Boots
- Hearing Protection
- Gloves
- High Temperature Gloves (if required)

The following safety measures will be followed:

- Good housekeeping
- SDS for all on-site hazardous materials
- Confine selves to necessary areas (stack platform, mobile laboratory, CEMS data acquisition system, control room, administrative areas)
- Knowledge of evacuation procedures

Each facility will provide plant specific safety training.

TABLE 1
EQUIPMENT MAINTENANCE SCHEDULE

Equipment	Acceptance Limits	Frequency of Service	Methods of Service
Pumps	1. Absence of leaks 2. Ability to draw manufacturers required vacuum and flow	As recommended by manufacturer	1. Visual inspection 2. Clean 3. Replace parts 4. Leak check
Flow Meters	1. Free mechanical movement	As recommended by manufacturer	1. Visual inspection 2. Clean 3. Calibrate
Sampling Instruments	1. Absence of malfunction 2. Proper response to zero span gas	As recommended by manufacturer	As recommended by manufacturer
Integrated Sampling Tanks	1. Absence of leaks	Depends on nature of use	1. Steam clean 2. Leak check
Mobil Van Sampling System	1. Absence of leaks	Depends on nature of use	1. Chang filters 2. Change gas dryer 3. Leak check 4. Check for system contamination
Sampling lines	1. Sample degradation less than 2%	After each test series	1. Blow dry, inert gas through line until dry

TABLE 2
MAJOR SAMPLING EQUIPMENT CALIBRATION REQUIREMENTS

Sampling Equipment	Calibration Frequency	Calibration Procedure	Acceptable Calibration Criteria
Continuous Analyzers	Before and After Each Test Day	3-point calibration error test	< 2% of analyzer range
Continuous Analyzers	Before and After Each Test Run	2-point sample system bias check	< 5% of analyzer range
Continuous Analyzers	After Each Test Run	2-point analyzer drift determination	< 3% of analyzer range
CEMS System	Beginning of Each Day	leak check	< 1 in. Hg decrease in 5 min. at > 20 in. Hg
Continuous Analyzers	Semi-Annually	3-point linearity	< 1% of analyzer range
NO_x Analyzer	Daily	NO_2 -> NO converter efficiency	> 90%
Differential Pressure Gauges (except for manometers)	Semi-Annually	Correction factor based on 5-point comparison to standard	+/- 5%
Differential Pressure Gauges (except for manometers)	Bi-Monthly	3-point comparison to standard, no correction factor	+/- 5%
Barometer	Semi-Annually	Adjusted to mercury-in-glass or National Weather Service Station	+/- 0.1 inches Hg
Dry Gas Meter	Semi-Annually	Calibration check at 4 flow rates using a NIST traceable standard	+/- 2%
Dry Gas Meter	Bi-Monthly	Calibration check at 2 flow rates using a NIST traceable standard	+/- 2% of semi-annual factor
Dry Gas Meter Orifice	Annually	4-point calibration for $\Delta H@$	--
Temperature Sensors	Semi-Annually	3-point calibration vs. NIST traceable standard	+/- 1.5%

Note: Calibration requirements will be used that meet applicable regulatory agency requirements.

Appendix D.2
SCAQMD and STAC Certifications

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

October 30, 2018

Mr. John Peterson
Montrose Air Quality Services, LLC
1631 E. Saint Andrew Place
Santa Ana, CA 92705

Subject: LAP Approval Notice
Reference # 96LA1220

Dear Mr. Peterson:

We have reviewed your renewal letter under the South Coast Air Quality Management District's Laboratory Approval Program (SCAQMD LAP). We are pleased to inform you that your firm is approved for the period beginning October 30, 2018, and ending September 30, 2019 for the following methods, subject to the requirements in the LAP Conditions For Approval Agreement and conditions listed in the attachment to this letter:

SCAQMD Methods 1-4
SCAQMD Methods 5.1, 5.2, 5.3, 6.1
SCAQMD Methods 10.1 and 100.1
SCAQMD Methods 25.1 and 25.3 (Sampling)
USEPA CTM-030 and ASTM D6522-00
SCAQMD Rule 1121/ 1146.2 Protocol
SCAQMD Rule 1420/1420.1/1420.2 – (Lead) Source and Ambient Sampling

Your LAP approval to perform nitrogen oxide emissions compliance testing for SCAQMD Rule 1121/ 1146.2 Protocols includes satellite facilities located at:

McKenna Boiler
1510 North Spring Street
Los Angeles, CA 90012

Noritz America Corp.
11160 Grace Avenue
Fountain Valley, CA 92708

Ajax Boiler, Inc.
2701 S. Harbor Blvd.
Santa Ana, CA 92704

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

Sincerely,

D. Sarkar

Dipankar Sarkar
Program Supervisor
Source Test Engineering

DS:GK/gk

Attachment

181030 LapRenewalRev.doc

STAC STACK TESTING ACCREDITATION COUNCIL

American Association for Laboratory Accreditation

Accredited Air Emission Testing Body

A2LA has accredited

MONTROSE AIR QUALITY SERVICES

In recognition of the successful completion of the joint A2LA and Stack Testing Accreditation Council (STAC) evaluation process, this laboratory is accredited to perform testing activities in compliance with ASTM D7036:2004 - Standard Practice for Competence of Air Emission Testing Bodies.

Presented this 5th day of March 2018.

AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION
CORPORATE SEAL 1978 DISTRICT OF COLUMBIA
A2LA

President and CEO
For the Accreditation Council
Certificate Number 3925.01
Valid to February 29, 2020

This accreditation program is not included under the A2LA ILAC Mutual Recognition Arrangement.

MONTROSE AIR QUALITY SERVICES

Appendix D.3
Individual QI Certificate

CERTIFICATE OF COMPLETION

Sean Donovan

This document certifies that this individual has passed a comprehensive examination and is now a Qualified Individual (QI) as defined in Section 8.3 of ASTM D7036-04 for the following method(s):

SCAQMD Method 207.1

Certificate Number: 002-2016-06

Tate Strickler, Accreditation Director

DATE OF ISSUE: 11/30/16

DATE OF EXPIRATION: 11/30/21

MONTROSE ENVIRONMENTAL

APPENDIX E
APPLICABLE PERMIT SECTIONS

FACILITY PERMIT TO OPERATE
CANYON POWER PLANT

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 1: POWER GENERATION					
GAS TURBINE, NO. 1, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000PC SPRINT, SIMPLE CYCLE, 479 MMBTU/HR AT 46 DEG F, WITH INLET CHILLING, WITH WATER INJECTION WITH A/N: 555828 GENERATOR, 50.95 MW	D1	C3	NOX: MAJOR SOURCE**	**CO**: 4 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1) -BACT, 12-6-2002*]; **CO**: 2000 PPMV NATURAL GAS (5) **[RULE 407, 4-2-1982]**; **NOX**: 2.5 PPMV NATURAL GAS (4) **[RULE 2005, 6-3-2011]**; **NOX**: 25 PPMV NATURAL GAS (8) **[40CFR 60 Subpart KKKK, 7-6-2006]**; **PM10**: 0.01 GRAINS/SCF NATURAL GAS (5A) **[RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; **PM10**: 0.1 GRAINS/SCF NATURAL GAS (5) **[RULE 409, 8-7-1981]**; **PM10**: 1.67 LBS/HR NATURAL GAS (5C) **[RULE 1303(b)(2)-Offset, 5-10-1996;** *RULE 1303(b)(2) -Offset, 12-6-2002*]; **PM10**: 11 LBS/HR NATURAL GAS (5B) **[RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; **SO2**: (9) **[40CFR 72 - Acid Rain Provisions, 11-24-1997]**; **SOX**: 0.06 LBS/MMBTU NATURAL GAS (8) **[40CFR 60 Subpart KKKK, 7-6-2006]**; **VOC**: 2 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002*]	A63.1, A99.1, A99.2, A99.3, A195.1, A195.2, A195.3, A327.1, B61.1, D12.1, D29.2, D29.3, D82.1, D82.2, E193.1, H23.1, I298.1, K40.1

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

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

FACILITY PERMIT TO OPERATE
CANYON POWER PLANT

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 1: POWER GENERATION					
CO OXIDATION CATALYST, NO. 1, BASF, 110 CUBIC FEET OF TOTAL CATALYST VOLUME A/N: 476654	C3	D1 C4			
SELECTIVE CATALYTIC REDUCTION, NO. 1, CORMETECH CMHT-21, 1012 CU.FT.; WIDTH: 2 FT 6 IN; HEIGHT: 25 FT 9 IN; LENGTH: 18 FT WITH A/N: 476654 AMMONIA INJECTION	C4	C3 S6		**NH3**: 5 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1) -BACT, 12-6-2002*]	A195.4, D12.2, D12.3, D12.4, E179.1, E179.2, E193.1
STACK, TURBINE NO. 1, HEIGHT: 86 FT ; DIAMETER: 11 FT 8 IN A/N: 555828	S6	C4			

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

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

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

[Devices subject to this condition : C4, C10, C16, C22]

D12.5 The operator shall install and maintain a(n) non-resettable elapsed time meter to accurately indicate the elapsed operating time of the engine.

[**RULE 1110.2, 2-1-2008;** RULE 1110.2, 9-7-2012; **RULE 1303(b)(2)-Offset, 5-10-1996;** RULE 1303(b)(2)-Offset, 12-6-2002; RULE 1401, 9-10-2010; RULE 1470, 5-4-2012; **RULE 2012, 5-6-2005; 40CFR 60 Subpart IIII, 1-30-2013**]

[Devices subject to this condition : D25]

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

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
NH3 emissions	District method 207.1 and 5.3 or EPA method 17	1 hour	Outlet of the SCR serving this equipment

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

The test(s) shall be conducted at least quarterly during the first twelve months of operation and at least annually thereafter. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test.

If the turbine is not in operation during one calendar year, then no testing is required during that calendar year.

The NOx concentration, as determined by the CEMS, shall be simultaneously recorded during the ammonia slip test. If the CEMS is inoperable, a test shall be conducted to determine the NOx emissions using District Method 100.1 measured over a 60 minute averaging time period.

The test shall be conducted and the results submitted to the District within 60 days after the test date.

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration limit.

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

[Devices subject to this condition : D1, D7, D13, D19]

D29.3 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Sampling Time	Test Location
SOX emissions	AQMD Laboratory Method 307-91	Not Applicable	Fuel sample
VOC emissions	District Method 25.3	1 hour	Outlet of the SCR serving this equipment
PM emissions	District method 5.1	4 hours	Outlet of the SCR serving this equipment

THIS IS THE LAST PAGE OF THIS DOCUMENT

If you have any questions, please contact one of the following individuals by email or phone.

Name: Mr. Sean Donovan
Title: Client Project Manager
Region: West
E-Mail: SDonovan@montrose-env.com
Phone: (714) 279-6777

Name: Mr. Matt McCune
Title: Regional Vice President
Region: West
E-Mail: MMccune@montrose-env.com
Phone: (714) 279-6777

TEST REPORT FOR AMMONIA SLIP TEST AT CANYON POWER PLANT UNIT 2 FACILITY ID: 153992, DEVICE ID: D7

Prepared For:

Canyon Power Plant
3071 E. Mira Loma Avenue
Anaheim, California 92806

For Submittal To:

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

Prepared By:

Montrose Air Quality Services, LLC
1631 E. St. Andrew Pl.
Santa Ana, California 92705
(714) 282-8240

Sean Donovan

Test Date:	**July 25, 2019**
Production Date:	**August 22, 2019**
Report Number:	**W002AS-543378-RT-222**

STACK TESTING ACCREDITATION COUNCIL

ACCREDITED TO ASTM D7036 ONLY CERT #3925.01

CONFIDENTIALITY STATEMENT

Except as otherwise required by law or regulation, this information contained in this communication is intended exclusively for the individual or entity to which it is addressed. This communication may contain information that is proprietary, privileged or confidential or otherwise legally exempt from disclosure. If you are not the named addressee, you are not authorized to read, print, retain, copy, or disseminate this message or any part of it.

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: 8/22/2019

Name: Sean Donovan 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.

Signature: ______________ Date: 8/22/2019

Name: Michael Chowsanitphon Title: Reporting Manager

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION AND SUMMARY

Montrose Air Quality Services, LLC (MAQS) was contracted by the Canyon Power Plant to perform an ammonia slip test at Unit 2 as required by the facility Permit (Facility ID 153992) Condition Number D29.2. This report documents the results of the ammonia slip tests performed on July 25, 2019. The test was performed by Sean Donovan, Henry Lee, and Robert Howard. Sean Donovan was the on-site qualified individual for MAQS. Bertha Hernandez coordinated the test for Canyon Power Plant.

The test consisted of duplicate ammonia tests performed at 50 MW. The test program followed the procedures described in the initial compliance test protocol (MAQS document R038842). The results of the test are summarized in Table 1-1. The table shows that the ammonia slip from this unit was less than the permitted limit of 5 ppm corrected to 15% O_2.

TABLE 1-1
AMMONIA SLIP TEST RESULTS SUMMARY
CANYON POWER PLANT UNIT 2
JULY 25, 2019

Parameter	Units	Result(1)	Limit
NH_3	ppm	2.1	--
NH_3	ppmc	2.0	5

(1) Maximum of duplicate runs, as required by SCAQMD Method 207.1

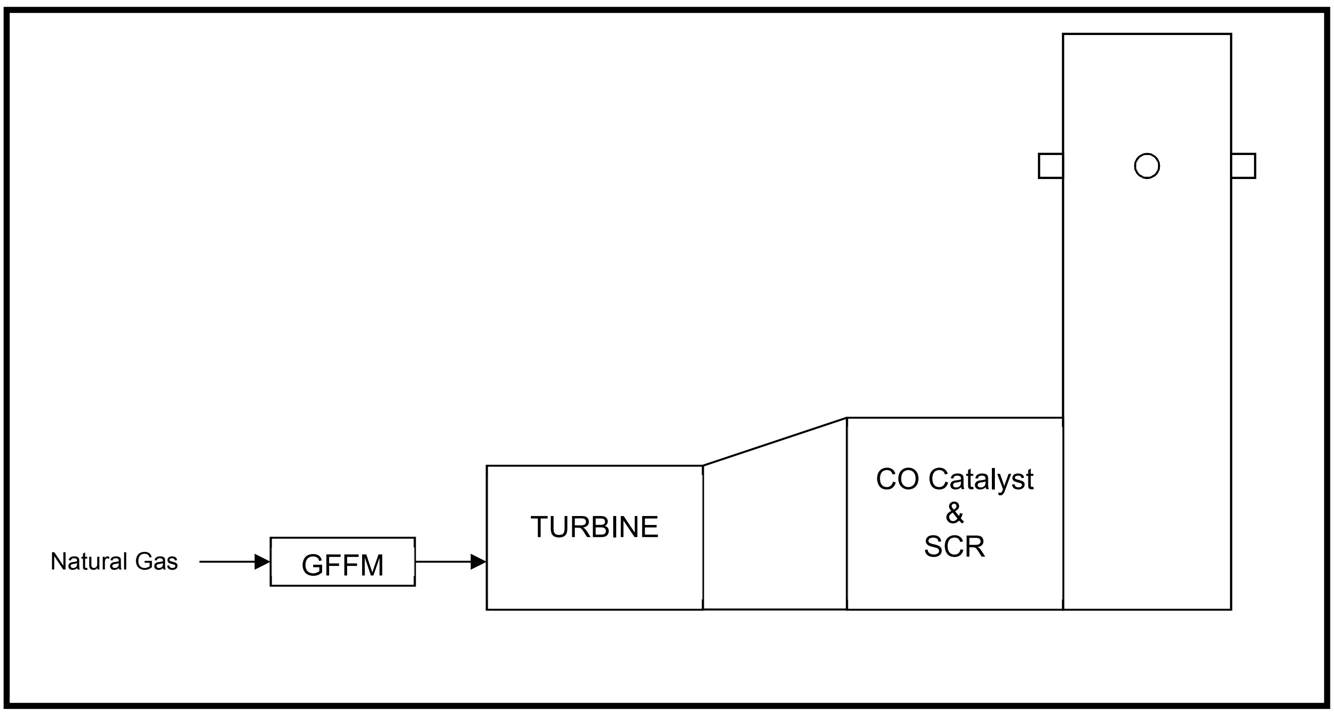
Section 2 of this document provides a brief description of the unit, test conditions, sample location, and CEMS. Details of the test procedures are provided in Section 3. Section 4 provides the results of each individual test. All raw data, calculations, quality assurance data, unit operating conditions, and CEMS data are provided in the appendices.

2.0 UNIT AND CEMS DESCRIPTION

2.1 UNIT DESCRIPTION

The City of Anaheim Canyon Power Plant is located at 3071 E. Mira Loma Avenue, Anaheim, California 92806. The facility consists of four identical generating units. Each unit consists of a natural gas fired, GE Model LM6000PC Sprint simple cycle, gas turbine. The units are natural gas fired with a rated heat input of 479 MMBtu per hour at 46 degrees Fahrenheit, with water injection. The units are equipped with a CO catalyst and Selective Catalytic Reduction (SCR) system for NO_x control. Figure 2-1 presents a block diagram of the unit.

FIGURE 2-1
UNIT BLOCK DIAGRAM
CANYON POWER PLANT



Stack Inside Diameter:	11 feet, 8 inches
Distance from Upstream Disturbance:	23 feet, 4 inches (2.0 Diameters)
Distance from Stack Exit:	16 feet, 6 inches (1.4 Diameters)

2.2 TEST CONDITIONS

The tests were performed with the unit operating at an average load of 50 MW. Tests were performed while the unit was firing natural gas and operating under normal conditions. Unit operation was established by the Canyon Power Plant operators.

2.3 SAMPLE LOCATION

The measurements were made from sample ports located on the exhaust stack. There are four sample ports equally spaced at this location. The stack inside diameter at the sample plane is 11 feet, 8 inches. The sample ports are located 23 feet, 4 inches (2.0 diameters) downstream of the nearest flow disturbance and 16 feet, 6 inches (1.4 diameters) from the stack exit.

3.0 TEST DESCRIPTION

Flue gas samples were collected non-isokinetically using a SCAQMD Method 207.1 sample train. The samples were collected using a 12-point traverse at the exhaust stack location. Each test was performed over a 60 minute interval. The sample gas was drawn through a glass probe, Teflon sample line, two impingers each containing 100 ml of 0.1N H_2SO_4, an empty impinger, an impinger containing silica gel, and a dry gas meter. The optional nozzle and filter were not used since the source is natural gas fired. The contents of the sample line and the first three impingers were recovered and analyzed by SCAQMD Method 207.1 for ammonia concentration by Ion Specific Electrode analysis.

Stack O_2 and NO_x concentrations and stack volumetric flow rate data were recorded from the Continuous Emission Monitoring System (CEMS) which is installed on the unit. These data were used to correct the ammonia concentration to 15% O_2.

4.0 TEST RESULTS AND OVERVIEW

4.1 TEST RESULTS

The results of the test are summarized in Table 4-1. The results show that the ammonia slip was 2.0 ppm @ 15% O_2 which is less than the permitted limit of 5 ppm @ 15% O_2.

TABLE 4-1
AMMONIA SLIP TEST RESULTS
CANYON POWER PLANT UNIT 2
JULY 25, 2019

Parameter	Units	Run 1	Run 2	Average	Maximum(1)	Limit
Test		1-NH_3-U2	2-NH_3-U2			--
Date		7/25/2019	7/25/2019			--
Time		0746/0852	1140/1246			--
O_2(2)	%	14.66	14.63	14.65	--	--
Stack Flow(2)	dscfm @ T_{ref}	231,538	232,227	231,883	--	--
NO_x(2)	ppmc	2.3	2.4	2.3	--	2.5
NH_3	ppm	2.1	1.8	2.0	2.1	--
NH_3	ppmc	2.0	1.7	1.9	2.0	5
NH_3	lb/hr	1.3	1.1	1.2	1.3	--
NH_3	lb/MMBtu	0.003	0.002	0.003	0.003	--
NH_3	lb/MMSCF	2.8	2.5	2.7	2.8	--

(1) Maximum of duplicate test runs, as required by SCAQMD Method 207.1
(2) From facility CEMS

APPENDIX A
RAW DATA

Appendix A.1
Sample Data Sheets

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: SCPPA - Canyon
LOCATION: Unit 2
DATE: 7/25/19
RUN NO: 1-NH_3-U2
OPERATOR: QH/HL
METER BOX NO: 19-WCS
METER ΔH@: 1.745
METER Yd: 1.011
STACK AREA, FT^2: 106.90
TRAVERSE POINTS, MIN/POINT: 5/12
ΔH= — X ΔP:
Probe Condition, pre/post test: ✓/✓
Silica Gel Expanded, Y/N: N
Filter Condition after Test: —
Check Weight: 499.9 / 500.0

AMBIENT TEMPERATURE: ~80
BAROMETRIC PRESSURE: 29.66
ASSUMED MOISTURE: 12%
PITOT TUBE COEFF, Cp: N/A
PROBE ID NO/MATERIAL: glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: N/A
NOZZLE DIAMETER: N/A
FILTER NO/TYPE: N/A
PRE-TEST LEAK RATE: : <0.005 CFM@ 14 in. Hg.
POST-TEST LEAK RATE: : <0.005 CFM@ 14 in. Hg.
PITOT LEAK CHECK - PRE: ✓ POST: ✓
CHAIN OF CUSTODY: SAMPLE CUSTODIAN SD
SAMPLER RH
SAMPLE CUSTODIAN SD

Imp. #	Contents	Post-Test	- Pre-Test = Difference
1	H_2SO_4	944.0	729.6
2	H_2SO_4	751.1	747.6
3	MT	656.2	653.4
4	SG	931.8	919.9
LR	H_2O		100 ml
Total:			

Point	Time	Meter Volume, ft^3	ΔP in. H_2O	ΔH in. H_2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O_2 %	P. static in. H_2O
3	0746	890.000	N/A	2.0	N/A	N/A	N/A	58	72	71	5		N/A
2	0751	894.125		2.0				49	71	71	5		
1	0756	898.065		2.0				47	72	71	5		
PC	0801	901.975		—				—	—	—	—		
3	0803	901.975		2.0				52	72	71	5		
2	0808	905.870		2.0				48	73	71	5		
1	0813	909.790		2.0				48	73	71	5		
PC	0818	913.652		—				—	—	—	—		
3	0820	913.682		2.0				55	72	71	5		
2	0825	917.620		2.0				48	71	71	5		
1	0830	921.535		2.0				48	76	72	5		
PC	0835	925.444		—				—	—	—	—		
3	0837	925.444		2.0				52	77	73	5		
2	0842	929.850		2.0				49	78	74	5		
1	0847	933.256		2.0				49	79	74	5		
END	0852	937.104		—				—	—	—	—		
Average:													

Comments:

DS834049

MONTROSE
AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: SCPPA - Canyon
LOCATION: Unit 2
DATE: 7/25/19
RUN NO: 2-NH3-02
OPERATOR: RH/HL
METER BOX NO: 19-WCS
METER ΔH@: 1.745
METER Yd: 1.011
STACK AREA, FT^2: 106.90
TRAVERSE POINTS, MIN/POINT: 3/12
ΔH= — X ΔP:
Probe Condition, pre/post test: ✓/✓
Silica Gel Expanded, Y/N: N
Filter Condition after Test: N/A
Check Weight: 499.9/500.0

AMBIENT TEMPERATURE: 80
BAROMETRIC PRESSURE: 29.66
ASSUMED MOISTURE: 12%
PITOT TUBE COEFF, Cp: N/A
PROBE ID NO/MATERIAL: glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: N/A
NOZZLE DIAMETER: N/A
FILTER NO/TYPE: N/A
PRE-TEST LEAK RATE: : ≤0.005 CFM@ 11 in. Hg.
POST-TEST LEAK RATE: : ≤0.005 CFM@ 13 in. Hg.
PITOT LEAK CHECK - PRE: N/A POST: N/A
CHAIN OF CUSTODY: SAMPLE CUSTODIAN SD
SAMPLER RH
SAMPLE CUSTODIAN SD

Imp. #	Contents	Post-Test	Pre-Test	Difference
1	H_2SO_4	926.2	741.2	
2	H_2SO_4	774.6	755.2	
3	MT	667.3	656.2	
4	SG	862.5	843.2	
CR	H_2O			100 mL
Total:				

Point	Time	Meter Volume, ft^3	ΔP in. H_2O	ΔH in. H_2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O_2 %	P. static in. H_2O
3	1140	30.700	N/A	2.0	N/A	N/A	N/A	58	83	82	0		
2	1145	34.710		2.0				54	84	83	4		
1	1150	38.665		2.0				51	85	83	4		
PC	1155	42.644		—				—	—	—	—		
3	1157	42.644		2.0				57	84	82	4		
2	1202	46.665		2.0				64	84	82	4		
1	1207	50.680		2.0				53	85	82	4		
PC	1212	54.535		—				—	—	—	—		
3	1214	54.535		2.0				57	86	82	4		
2	1219	58.475		2.0				55	88	83	4		
1	1224	62.580		2.0				56	88	86	4		
PC	1229	66.485		—				—	—	—	—		
3	1231	66.485		2.0				58	87	85	4		
2	1236	70.570		2.0				53	91	87	4		
1	1241	74.385		2.0				56	92	89	4		
END	1246	78.404		—				—	—	—	—		
Average:													

Comments:

DS834049

Appendix A.2
Laboratory Data

MONTROSE

AMMONIA BY ION SELECTIVE ELECTRODE ANALYSIS

Project #: 002AS-543377 District Method: SCAQMD 207.1 Sample Date: 7/25/2019

Client/Location: SCPPA - Canyon Power Plant Calibration Date: 7/29/2019 Analysis Date: 7/29/2019

Sample Location: Unit 2 Calibration Curve: y=-58.2679x+86.8429 Analyst's Initials: KC

Test #s: 1, 2 - NH3 R^2: 1.0000

Sample	Electrode Potential (mV)	TV (ml)	Conc. µg NH_3 – N / ml	Cavg (µg NH_3 – N / ml)	µg NH_3 / sample	Comments/ Temp/pH
Standard Check: 28 µg NH_3/ml	2.4	—	28.133	28.189	—	Percent Recovery: T=22°C 101% recovery
Repeat 28 µg NH_3/ml	2.3	—	28.245	—	—	T=22°C
1 - NH3	63.8	665.3	2.486	2.452	1982.867	T=22°C pH<2
Repeat 1- NH3	64.5	—	2.418	—	—	T=22°C
2 - NH3	65.1	598.3	2.361	2.347	1707.196	T=22°C pH<2
Repeat 2 - NH3	65.4	—	2.333	—	—	T=22°C
Spike 2-NH3	8.6	—	22.020	21.933	—	T=22°C
Repeat Spike 2-NH3	8.8	—	21.846	—	—	T=22°C 101% recovery
28 µg NH3/ml	2.3	—	28.245	28.300	—	T=22°C
Repeat 28 µg NH3/ml	2.2	—	28.356	—	—	T=22°C
0.1N H2SO4 Reagent blank	178.0	—	0.027	0.027	—	T=22°C
Repeat 0.1N H2SO4 Reagent blank	178.5	—	0.027	—	—	T=22°C
Field blank	171.0	—	0.036	0.036	—	T=22°C
Repeat Field blank	171.4	—	0.035	—	—	T=22°C
DI H2O blank	176.3	—	0.029	0.029	—	T=22°C
Repeat DI H2O blank	176.8	—	0.029	—	—	T=22°C
28 µg NH3/ml	2.3	—	28.245	28.245	—	T=22°C 101% recovery
Repeat 28 µg NH3/ml	2.3	—	28.245	—	—	T=22°C

Notes: Total volume of samples and standards used: 100ml

Volume of pH adjusting ISA used in ml: 2ml

Absorbing solution: 0.1N H2SO4

Calculations: Conc. (µg NH_3 – N / ml) = $10^{(P-B)/M}$

P = electrode potential, B = y-intercept and M = slope

Cavg = average result of duplicate analyses (µg NH_3 – N / ml) = (C1+C2)/2

µg NH_3 / sample = Cavg* 17.03/ 14.01 * TV

mg / sample = µg /sample ÷ 1000

ppm NH_3 = mg NH_3/sample x 1/Vmstd x 1/454000 x SV/17 x 10^6

AMMONIA BY ION SELECTIVE ELECTRODE ANALYSIS CALCULATION

Project Number:	002AS-543377
Client/ Location:	SCPPA-Canyon Power Plant
Sample Location:	Unit 2
District Method:	SCAQMD 207.1
Sample Date:	7/25/2019
Analysis Date:	7/29/2019
Analyst's Initials:	KC
Calibration Curve Slope	-58.2679
Y-intercept	86.8429
R^2	1.0000

probe 9

Sample	P mV	Conc. µg NH_3 /ml as N	C avg as N	TV (ml)	C avg as NH_3	µg NH_3/ sample
28 ug NH_3 / ml as N	2.4	28.133				
Repeat 28 ug NH_3/ml as N	2.3	28.245	28.189	NA	34.265	NA
1-NH3	63.8	2.486				
Repeat 2- NH3	64.5	2.418	2.452	665.3	2.980	1982.869
2-NH_3	65.1	2.361				
Repeat 2- NH_3	65.4	2.333	2.347	598.3	2.853	1707.196
spike 2-NH_3	8.6	22.020				
Repeat 2-NH3 spike	8.8	21.846	21.933	NA	26.661	NA
28 NH_3/ml as N	2.3	28.245				
Repeat 28 ug NH_3/ml as N	2.2	28.356	28.300	NA	34.401	NA
Reagent Blank	178.0	0.027				
Repeat Reagent Blank	178.5	0.027	0.027	NA	0.033	NA
Field Blank	171.0	0.036				
Repeat Field Blank	171.4	0.035	0.036	NA	0.043	NA
DI H2O Blank	176.3	0.029				
Repeat DI H2O Blank	176.8	0.029	0.029	NA	0.035	NA
28 NH_3/ml as N	2.3	28.245				
Repeat 28 ug NH_3/ml as N	2.3	28.245	28.245	NA	34.333	NA

Notes:

Measured Concentration of Ammonia (C) in µg NH_3 / ml as N

$C=10^{(P-B)/M}$

P = electrode potential (mV), M=slope and B=intercept

Average Measured Ammonia Concentration (Cavg) = (C1 + C2)/2

where C1, C2 results from duplicate analyses (µg NH_3 /ml as N)

Cavg (µg NH_3/ml as NH_3) = Cavg (µg NH_3/ ml as N) * 17.03/ 14.01

µg NH_3 / sample = Cavg (µg NH_3/ml as NH_3) * TV

Used 100 ml of samples and standards with 2 ml ISA and constant stirring rate.

All solutions turned blue and remained blue with ISA unless otherwise indicated.

Sample PH and Temperatures can be found on the laboratory datasheet.

Maximum samples (including blanks) between 28 ug/ml check standard is 5 samples analyzed in duplicate.

AMMONIA BY ION SELECTIVE ELECTRODE ANALYSIS QUALITY CONTROL

Project Number:	002AS-543377
Client/ Location:	SCPPA-Canyon Power Plant
Sample Location:	Unit 2
District Method:	SCAQMD 207.1
Sample Date:	7/25/2019
Analysis Date:	7/29/2019
Analyst's Initials:	KC

Sample	% recovery	RPD %	RPA %
28 ug NH3 / ml as N epeat 28 ug NH3/ml as	NA	-0.40	0.674
1-NH3 Repeat 2- NH3	NA	2.77	NA
2-NH3 Repeat 2- NH3	NA	1.19	NA
spike 2-NH3 Repeat 2-NH3 spike	102.08	0.79	NA
28 NH3/ml as N epeat 28 ug NH3/ml as	NA	-0.40	1.073
Reagent Blank Repeat Reagent Blank	NA	1.98	NA
Field Blank Repeat Field Blank	NA	1.58	NA
DI H2O Blank Repeat DI H2O Blank	NA	1.98	NA
28 NH3/ml as N epeat 28 ug NH3/ml as	NA	0.00	0.873

Notes:

spike: 100 ml sample + 2 ml (1000 μg NH_3 / ml as N)

Matrix Spike Percent Recovery (%R)

%R = (C spike*0.104 - Csample*0.102)/2 *100

Cspike = average result of matrix spike (μg NH_3/ ml as N)

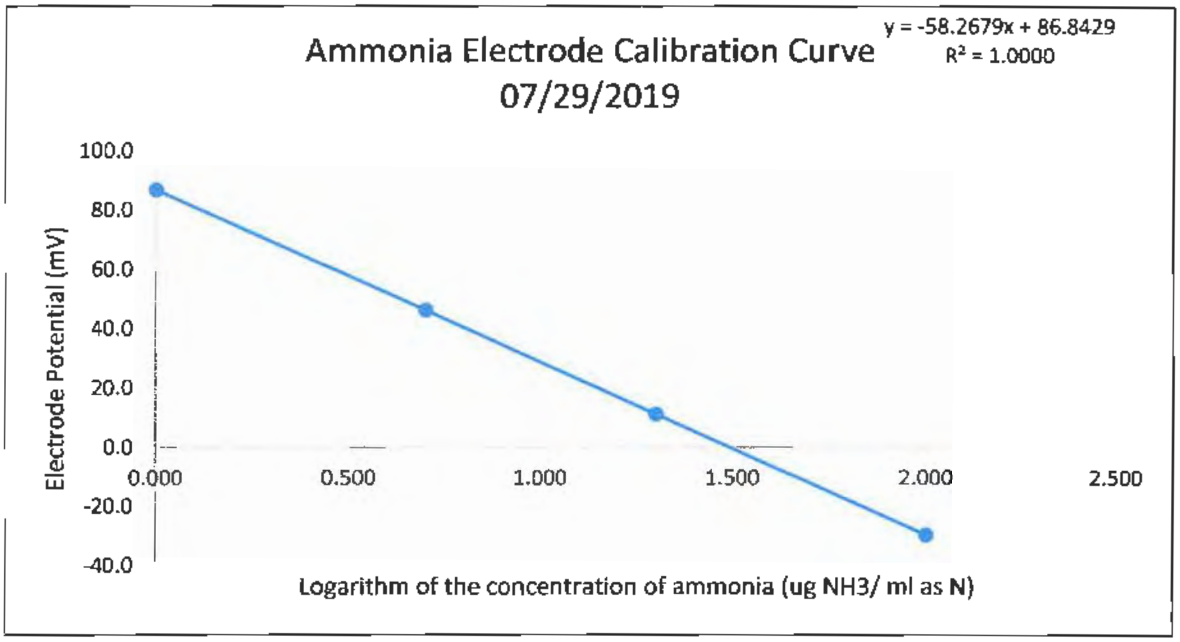
Relative Percent Difference (RPD) = (C1-C2)/ Cavg *100 (must be 5% or less)

Relative Percent Accuracy (RPA) (must be 10% or less)

RPA = (Cavg-theoretical value of standard)/ theoretical value of standard * 100

AMMONIA ELECTRODE CALIBRATION CURVE

NH_3 concentration ($\mu g\ NH_3$ / ml as N)	log NH_3 concentration	Electrode potential (mV)	Sample Temperature (C)	Room Temperature (C)
1	0.000	86.8	22.1	22
5	0.699	46.2	22	22
20	1.301	11.0	22.7	22
100	2.000	-29.7	22.8	22



probe	9
slope	-58.2679
y-intercept	86.8429

Concentration ($\mu g\ NH_3$ / ml as N)	Value LR line	Difference	% Difference
1	1.0017	0.0017	0.1698
5	4.9833	-0.0167	-0.3338
20	20.0274	0.0274	0.1368
100	100.0279	0.0279	0.0279

Calculation:

Regression Line: P=M*log(μg of NH_3/ ml as N)+B

Measured Concentration of Ammonia (C) in μg / ml NH_3 as N: $C=10^{(P-B)/M}$

where P = electrode potential, M= slope (must be -57±3) and B= intercept

All standards were prepared in 0.04N H_2SO_4 and allowed to equilibrate to room temperature.

Appendix A.3
QA/QC Data

SEMI-ANNUAL DRY GAS METER/ORIFICE CALIBRATION

Orifice Method - Triplicate Runs/Four Calibration Points
English Meter Box Units, English K' Factor
Filename: M:\Santa Ana\Equipment\Test Equipment\Calibrations\Dry Gas Meters\19-wcs\2019\[semi annual cal 19wcs 2-1-19.xlsx]WCS
File Modified From: APEX 522 Series Meter box Calibration
Revised: 4/8/2005

	c-5000	
ID #:	19-wcs	
Date:	2/1/2019	
Bar. Pressure:	29.98	(in. Hg)
Performed By:	R. Howard	
Meter Serial #:		

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)	(deg F)	(number)	(see above)	(in Hg)	(deg F)	(deg F)	(deg F)
0.13	26.00	704.500	709.690	5.190	55.0	58.0	55.0	57.0	33	0.1553	15.0	56.0	56.0	56.0
0.13	26.00	709.690	714.877	5.187	55.0	57.0	56.0	58.0	33	0.1553	15.0	56.0	56.0	56.0
0.13	26.00	714.877	720.063	5.186	56.0	58.0	57.0	58.0	33	0.1553	15.0	56.0	56.0	56.0
0.61	12.00	746.000	751.275	5.275	60.0	58.0	60.0	59.0	48	0.3465	14.0	58.0	58.0	58.0
0.61	12.00	751.275	756.551	5.276	60.0	59.0	61.0	59.0	48	0.3465	14.0	58.0	58.0	58.0
0.61	12.00	756.551	761.825	5.274	61.0	59.0	61.0	59.0	48	0.3465	14.0	58.0	58.0	58.0
1.90	7.00	762.200	767.505	5.305	62.0	59.0	65.0	60.0	63	0.5888	12.0	57.0	57.0	57.0
1.90	7.00	767.505	772.827	5.322	65.0	60.0	65.0	60.0	63	0.5888	12.0	57.0	57.0	57.0
1.90	7.00	772.827	778.139	5.312	65.0	60.0	65.0	61.0	63	0.5888	12.0	57.0	57.0	57.0
3.50	5.00	729.500	734.696	5.196	60.0	57.0	62.0	58.0	73	0.8202	11.5	56.0	56.0	56.0
3.50	5.00	734.696	739.891	5.195	62.0	58.0	64.0	58.0	73	0.8202	11.5	56.0	56.0	56.0
3.50	5.00	739.891	745.091	5.200	64.0	58.0	65.0	58.0	73	0.8202	11.5	56.0	56.0	56.0

DRY GAS METER		ORIFICE				DRY GAS METER CALIBRATION FACTOR	ORIFICE CALIBRATION FACTOR	Individual Run	Individual Orifice	Orifice Average	Orifice Average
VOLUME CORRECTED	VOLUME CORRECTED	VOLUME CORRECTED	VOLUME CORRECTED	VOLUME NOMINAL		Y	dH@				
Vm(std)	Vm(std)	Vcr(std)	Vcr(std)	Vcr		Value	Value	0.95 < Y	Ymax - Ymin	0.98 < Y/Yd	dH@ - dH@ av
(cu ft)	(liters)	(cu ft)	(liters)	(cu ft)		(number)	(in H2O,	< 1.05?	< 0.010?	< 1.02?	< 0.155?
5.323	150.8	5.329	150.9	5.200		1.001	1.783	Pass			
5.313	150.5	5.328	150.9	5.200		1.003	1.779	Pass			
5.304	150.2	5.329	150.9	5.200		1.005	1.778	Pass			
					Average	1.003	1.780		Pass	Pass	Pass
5.381	152.4	5.477	155.1	5.365		1.018	1.681	Pass			
5.376	152.3	5.477	155.1	5.365		1.019	1.679	Pass			
5.372	152.1	5.477	155.1	5.365		1.020	1.679	Pass			
					Average	1.019	1.680		Pass	Pass	Pass
5.405	153.1	5.434	153.9	5.313		1.005	1.806	Pass			
5.412	153.3	5.434	153.9	5.313		1.004	1.804	Pass			
5.399	152.9	5.434	153.9	5.313		1.007	1.802	Pass			
					Average	1.005	1.804		Pass	Pass	Pass
5.337	151.2	5.412	153.3	5.281		1.014	1.718	Pass			
5.324	150.8	5.412	153.3	5.281		1.017	1.716	Pass			
5.321	150.7	5.412	153.3	5.281		1.017	1.716	Pass			
					Average	1.016	1.717		Pass	Pass	Pass

Average Yd:	1.011	dH@:	1.745
		Q @ dH = 1:	0.568

SIGNED: Signature on File   Date: 2/1/2019

semi annual cal 19wcs 2-1-19.xlsx WCS
7/22/2019
11:17 AM

MONTROSE AIR QUALITY SERVICES

DIGITAL TEMPERATURE READOUT CALIBRATION

Digital Temperature Readout ID: 19-WCS
Readout Description: Control Box
Date: 7/2/2019
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)	19-WCS	350	350	350	350	358	358	358	358	8.0	1.0%	Pass
T2 (Boiling H_2O)	19-WCS	210	210	210	210	212	212	212	212	2.0	0.3%	Pass
T1 (Ice/Water)	19-WCS	36	36	36	36	32	32	32	32	4.0	0.8%	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	657	657	657	657	650	650	650	650	7.0	0.6%	Pass
T3 (~370 F)	S/N 106970	369	369	369	369	370	370	370	370	1.0	0.1%	Pass
T2 (~212 F)	S/N 106970	210	210	210	210	212	212	212	212	2.0	0.3%	Pass
T1 (~32 F)	S/N 106970	29	29	29	29	32	32	32	32	3.0	0.6%	Pass

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

MONTROSE

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: SCPPA - Canyon
LOCATION: Unit 1
DATE: 7/23/19
RUN NO: FB-NH3
OPERATOR: RH
METER BOX NO: 19-WCS
METER ΔH@: 1.745
METER Yd: 1.011
STACK AREA, FT²: 106.90
TRAVERSE POINTS, MIN/POINT: —
ΔH= — X ΔP:
Probe Condition, pre/post test: ✓/✓
Silica Gel Expanded, Y/N: N
Filter Condition after Test: N/A
Check Weight: 499.9 / 500.0

AMBIENT TEMPERATURE: ~70°
BAROMETRIC PRESSURE: 29.65
ASSUMED MOISTURE: 12%
PITOT TUBE COEFF, Cp: N/A
PROBE ID NO/MATERIAL: glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: N/A
NOZZLE DIAMETER: N/A
FILTER NO/TYPE: N/A
PRE-TEST LEAK RATE: : <0.005 CFM@ 12 in. Hg.
POST-TEST LEAK RATE: : <0.004 CFM@ 13 in. Hg.
PITOT LEAK CHECK - PRE: N/A POST: N/A
CHAIN OF CUSTODY: SAMPLE CUSTODIAN SD
SAMPLER RH
SAMPLE CUSTODIAN SD

Imp. #	Contents	Post-Test	Pre-Test	= Difference
1	H_2SO_4	853.0	751.6	
2	H_2SO_4	778.0	777.7	
3	MT	683.9	683.9	
4	SG	906.9	906.9	
CR	H_2O		106	
Total:				

Point	Time	Meter Volume, ft³	ΔP in. H_2O	ΔH in. H_2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O_2 %	P. static in. H_2O
Average:													

FIELD BLANK

Comments:

CHAIN OF CUSTODY

CLIENT: SCPPA - Canyon Power Plant   PROJECT #: W002AS-543377   TEST DATE(S): 7/25/2019

LOCATION: U2   SAMPLER(S): RH/HL

SAMPLE LOCATION: Stack   PROJECT MANAGER: SD

TEST METHOD(S): SCAQMD 207.1   DATE DUE: 8/1/2019

OUTSIDE LAB REQUIRED?: No   COMPLIANCE TEST?: Yes

DATE	TIME	TEST #	SAMPLE DESCRIPTION	CONTAINERS	SAMPLER	COMMENTS
7/25/2019	0746/0852	1-NH3-U2	Probe, Line, Impingers	1	RH/HL	
7/25/2019	1140/1246	2-NH3-U2	Probe, Line, Impingers	1	RH/HL	

RELEASED BY	DATE/TIME	RECEIVED BY	DATE/TIME
Robert Howard / 11.43	7-25-19 / 1440	[illegible]	7/26/19 8:00 am

ANALYSIS REQUIRED: NH_3 by SCAQMD 207.1 (ISE)

APPENDIX B
FACILITY CEMS DATA

1-NH_3-U2

Average Values Report
Generated: 7/25/2019 09:12

Company: City Of Anaheim
Plant: 3071 Miraloma Ave.,
City/St: Anaheim, CA, 92806
Source: unit2

Period Start: 7/25/2019 07:47
Period End: 7/25/2019 08:52
Validation Type: 1/1 min
Averaging Period: 1 min
Type: Block Avg

Period Start:	Average 2_O2 %	Average 2_NOXPPM ppm	Average 2_NOX_CORR ppm	Average 2_NOX_LBHR #/hr	Average 2_NOX_LBMM #/MBTU	Average 2_GasFlow kscfh	Average 2_LOAD MW	Average 2_STACKFLW kscfm	Average 2_COPPM ppm	Average 2_CO_CORR ppm	Average 2_CO_LBHR #/hr
07/25/2019 07:47	14.64	2.50	2.36	4.37	0.009	462.5	49.70	235.4	3.65	3.44	3.74
07/25/2019 07:48	14.65	2.50	2.36	4.36	0.009	461.7	49.96	235.3	3.71	3.50	3.83
07/25/2019 07:49	14.64	2.48	2.34	4.37	0.009	462.6	49.82	235.4	3.71	3.50	3.79
07/25/2019 07:50	14.65	2.47	2.33	4.37	0.009	462.1	49.95	235.5	3.66	3.46	3.78
07/25/2019 07:51	14.65	2.47	2.33	4.36	0.009	461.4	49.50	235.2	3.67	3.46	3.78
07/25/2019 07:52	14.65	2.48	2.34	4.36	0.009	461.2	50.00	235.1	3.67	3.46	3.78
07/25/2019 07:53	14.65	2.49	2.35	4.36	0.009	461.4	49.70	235.2	3.79	3.58	3.88
07/25/2019 07:54	14.65	2.51	2.37	4.36	0.009	461.7	49.88	235.3	4.00	3.78	4.12
07/25/2019 07:55	14.65	2.54	2.40	4.36	0.009	461.1	49.90	235.0	4.13	3.90	4.21
07/25/2019 07:56	14.65	2.67	2.52	4.36	0.009	461.4	49.72	235.2	4.00	3.78	4.12
07/25/2019 07:57	14.66	2.85	2.69	4.85	0.010	461.9	49.79	235.8	3.66	3.46	3.78
07/25/2019 07:58	14.64	2.91	2.74	4.84	0.010	461.2	49.86	234.7	3.38	3.19	3.44
07/25/2019 07:59	14.66	3.59	3.39	6.30	0.013	461.3	49.79	235.5	3.26	3.08	3.34
07/25/2019 08:00	14.64	4.10	3.86	6.79	0.014	461.6	49.73	234.9	3.36	3.17	3.44
07/25/2019 08:01	14.66	3.04	2.87	5.33	0.011	461.6	49.81	235.7	3.47	3.28	3.59
07/25/2019 08:02	14.65	1.28	1.21	1.94	0.004	461.5	49.74	235.2	3.63	3.43	3.73
07/25/2019 08:03	14.66	1.18	1.12	1.94	0.004	460.8	49.89	235.2	3.78	3.57	3.87
07/25/2019 08:04	14.66	1.58	1.49	2.90	0.006	460.8	49.68	235.2	3.85	3.64	3.97
07/25/2019 08:05	14.65	2.48	2.34	4.36	0.009	461.3	49.77	235.1	3.83	3.62	3.92
07/25/2019 08:06	14.66	2.58	2.44	4.36	0.009	461.4	49.83	235.6	3.84	3.63	3.92
07/25/2019 08:07	14.66	2.57	2.43	4.35	0.009	460.4	49.95	235.0	3.92	3.71	4.01
07/25/2019 08:08	14.66	2.51	2.37	4.35	0.009	460.8	49.78	235.2	3.98	3.76	4.06
07/25/2019 08:09	14.65	2.38	2.25	3.88	0.008	461.6	49.65	235.3	4.07	3.84	4.17
07/25/2019 08:10	14.65	2.25	2.12	3.87	0.008	461.1	49.91	235.0	4.08	3.85	4.16
07/25/2019 08:11	14.66	2.24	2.12	3.88	0.008	461.3	49.81	235.5	3.92	3.71	4.02
07/25/2019 08:12	14.67	2.23	2.11	3.87	0.008	460.9	49.55	235.7	3.85	3.65	3.97
07/25/2019 08:13	14.65	2.24	2.11	3.87	0.008	460.7	49.83	234.8	4.02	3.79	4.11
07/25/2019 08:14	14.65	2.25	2.12	3.87	0.008	460.3	49.67	234.6	4.05	3.82	4.16
07/25/2019 08:15	14.65	2.27	2.14	3.86	0.008	459.1	49.74	234.0	3.98	3.76	4.05
07/25/2019 08:16	14.66	2.31	2.18	3.86	0.008	459.0	49.71	234.4	3.93	3.72	4.00
07/25/2019 08:17	14.66	2.35	2.22	3.85	0.008	458.9	49.66	234.3	3.91	3.70	4.00
07/25/2019 08:18	14.67	2.36	2.23	3.86	0.008	459.0	49.98	234.7	3.74	3.54	3.81
07/25/2019 08:19	14.66	2.38	2.25	3.85	0.008	458.4	49.58	234.0	3.53	3.34	3.61
07/25/2019 08:20	14.67	2.40	2.27	3.85	0.008	458.8	49.68	234.6	3.53	3.34	3.61
07/25/2019 08:21	14.67	2.39	2.26	3.86	0.008	459.1	49.73	234.8	3.55	3.36	3.62
07/25/2019 08:22	14.66	2.37	2.24	3.86	0.008	459.2	49.74	234.5	3.56	3.37	3.66
07/25/2019 08:23	14.66	2.33	2.20	3.86	0.008	459.6	49.70	234.6	3.49	3.30	3.57
07/25/2019 08:24	14.65	2.31	2.18	3.86	0.008	459.4	49.77	234.2	3.47	3.28	3.52
07/25/2019 08:25	14.66	2.31	2.18	3.86	0.008	459.8	49.81	234.7	3.47	3.28	3.57
07/25/2019 08:26	14.66	2.30	2.17	3.86	0.008	459.9	49.80	234.8	3.46	3.27	3.53
07/25/2019 08:27	14.66	2.29	2.17	3.86	0.008	459.7	49.64	234.7	3.42	3.23	3.52
07/25/2019 08:28	14.65	2.28	2.15	3.86	0.008	459.6	49.77	234.3	3.39	3.20	3.47
07/25/2019 08:29	14.66	2.29	2.17	3.86	0.008	459.8	49.76	234.7	3.53	3.34	3.62
07/25/2019 08:30	14.65	2.30	2.17	3.86	0.008	459.9	49.96	234.4	3.59	3.39	3.67
07/25/2019 08:31	14.65	2.30	2.17	3.86	0.008	460.0	49.67	234.5	3.47	3.28	3.53
07/25/2019 08:32	14.65	2.30	2.17	3.86	0.008	459.9	49.86	234.4	3.32	3.13	3.38
07/25/2019 08:33	14.67	2.29	2.17	3.86	0.008	459.9	49.59	235.2	3.32	3.14	3.43
07/25/2019 08:34	14.67	2.28	2.16	3.87	0.008	460.2	49.89	235.3	3.32	3.14	3.43
07/25/2019 08:35	14.66	2.27	2.15	3.86	0.008	460.1	49.74	234.9	3.31	3.13	3.38

1-NH3-U2

Period Start:	Average 2_O2 %	Average 2_NOXPPM ppm	Average 2_NOX_CORR ppm	Average 2_NOX_LBHR #/hr	Average 2_NOX_LBMM #/MBTU	Average 2_GasFlow kscfh	Average 2_LOAD MW	Average 2_STACKFLW kscfm	Average 2_COPPM ppm	Average 2_CO_CORR ppm	Average 2_CO_LBHR #/hr
07/25/2019 08:36	14.66	2.25	2.13	3.87	0.008	460.7	50.11	235.2	3.34	3.16	3.43
07/25/2019 08:37	14.66	2.24	2.12	3.87	0.008	460.6	49.66	235.1	3.39	3.21	3.48
07/25/2019 08:38	14.65	2.24	2.11	3.87	0.008	460.8	49.76	234.9	3.39	3.20	3.48
07/25/2019 08:39	14.67	2.25	2.13	3.87	0.008	460.9	49.49	235.7	3.37	3.19	3.48
07/25/2019 08:40	14.67	2.25	2.13	3.87	0.008	460.5	49.78	235.5	3.37	3.19	3.48
07/25/2019 08:41	14.67	2.28	2.16	3.87	0.008	460.7	49.72	235.6	3.39	3.21	3.48
07/25/2019 08:42	14.66	2.36	2.23	3.87	0.008	460.3	49.42	235.0	3.43	3.24	3.53
07/25/2019 08:43	14.67	2.43	2.30	3.87	0.008	460.8	49.79	235.6	3.42	3.24	3.53
07/25/2019 08:44	14.66	2.44	2.31	4.36	0.009	461.1	49.65	235.4	3.44	3.25	3.53
07/25/2019 08:45	14.65	2.44	2.30	3.87	0.008	460.9	49.78	234.9	3.47	3.28	3.53
07/25/2019 08:46	14.66	2.46	2.33	4.35	0.009	460.6	49.64	235.1	3.50	3.31	3.58
07/25/2019 08:47	14.67	2.44	2.31	4.35	0.009	460.8	49.76	235.6	3.48	3.30	3.58
07/25/2019 08:48	14.67	2.42	2.29	3.87	0.008	461.0	49.82	235.8	3.45	3.27	3.53
07/25/2019 08:49	14.67	2.41	2.28	3.87	0.008	461.0	49.78	235.8	3.47	3.29	3.58
07/25/2019 08:50	14.67	2.42	2.29	3.87	0.008	460.8	49.80	235.6	3.52	3.33	3.63
07/25/2019 08:51	14.67	2.43	2.30	3.87	0.008	460.8	49.71	235.6	3.70	3.50	3.82
07/25/2019 08:52	14.66	2.43	2.30	3.88	0.008	461.8	49.76	235.8	3.89	3.68	4.02
Daily Average*	**14.66**	**2.40**	**2.27**	**4.05**	**0.008**	**460.6**	**49.76**	**235.1**	**3.63**	**3.43**	**3.72**
Maximum*	**14.67**	**4.10**	**3.86**	**6.79**	**0.014**	**462.6**	**50.11**	**235.8**	**4.13**	**3.90**	**4.21**
	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019
	8:51	8:00	8:00	8:00	8:00	7:49	8:36	8:52	7:55	7:55	7:55
Minimum*	**14.64**	**1.18**	**1.12**	**1.94**	**0.004**	**458.4**	**49.42**	**234.0**	**3.26**	**3.08**	**3.34**
	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019
	8:00	8:03	8:03	8:03	8:03	8:19	8:42	8:19	7:59	7:59	7:59

* Does not include Invalid Averaging Periods ("N/A")

Average Values Report
Generated: 7/25/2019 13:11

2-NH3-'U2

Company: City Of Anaheim
Plant: 3071 Miraloma Ave.,
City/St: Anaheim, CA, 92806
Source: unit2

Period Start: 7/25/2019 11:41
Period End: 7/25/2019 12:46
Validation Type: 1/1 min
Averaging Period: 1 min
Type: Block Avg

Period Start:	Average 2_O2 %	Average 2_NOXPPM ppm	Average 2_NOX_CORR ppm	Average 2_NOX_LBHR #/hr	Average 2_NOX_LBMM #/MBTU	Average 2_GasFlow kscfh	Average 2_LOAD MW	Average 2_STACKFLW kscfm	Average 2 COPPM ppm	Average 2_CO_CORR ppm	Average 2 CO LBHR #/hr
07/25/2019 11:41	14.64	2.20	2.07	3.88	0.008	462.5	49.88	235.4	[illegible]	3.57	3.88
07/25/2019 11:42	14.63	2.18	2.05	3.89	0.008	462.9	49.63	235.2	3.71	3.49	3.79
07/25/2019 11:43	14.64	2.18	2.05	3.89	0.008	462.8	49.81	235.5	[illegible]	3.41	3.74
07/25/2019 11:44	14.64	2.22	2.09	3.89	0.008	463.2	49.65	235.7	3.56	3.37	3.70
07/25/2019 11:45	14.64	2.30	2.17	3.89	0.008	462.9	49.93	235.5	3.64	3.43	3.74
07/25/2019 11:46	14.64	2.32	2.19	3.88	0.008	462.4	49.60	235.3	[illegible]	3.68	3.98
07/25/2019 11:47	14.65	2.33	2.20	3.88	0.008	462.3	49.45	235.6	[illegible]	3.89	4.22
07/25/2019 11:48	14.65	2.33	2.20	3.89	0.008	462.8	49.65	235.9	[illegible]	4.01	4.37
07/25/2019 11:49	14.64	2.33	2.20	3.89	0.008	463.1	49.63	235.7	4.10	3.86	4.23
07/25/2019 11:50	14.65	2.36	2.23	3.89	0.008	462.9	49.71	235.9	3.78	3.57	3.89
07/25/2019 11:51	14.64	2.45	2.31	4.38	0.009	463.2	49.93	235.7	[illegible]	3.17	3.45
07/25/2019 11:52	14.64	2.50	2.36	4.38	0.009	463.1	49.73	235.7	[illegible]	2.97	3.26
07/25/2019 11:53	14.65	2.51	2.37	4.38	0.009	463.3	49.79	236.2	3.38	2.91	3.16
07/25/2019 11:54	14.65	2.50	2.36	4.37	0.009	462.5	49.69	235.7	[illegible]	2.91	3.16
07/25/2019 11:55	14.64	2.50	2.36	4.37	0.009	462.6	49.68	235.4	3.10	2.92	3.21
07/25/2019 11:56	14.64	2.50	2.36	4.37	0.009	462.3	50.00	235.3	[illegible]	2.95	3.20
07/25/2019 11:57	14.65	2.50	2.36	4.37	0.009	462.7	49.96	235.8	[illegible]	3.03	3.30
07/25/2019 11:58	14.65	2.48	2.34	4.37	0.009	462.9	49.93	235.9	[illegible]	3.08	3.35
07/25/2019 11:59	14.64	2.48	2.34	4.37	0.009	462.6	49.63	235.4	[illegible]	3.03	3.30
07/25/2019 12:00	14.64	2.50	2.36	4.37	0.009	462.2	49.91	235.2	[illegible]	3.00	3.25
07/25/2019 12:01	14.64	2.50	2.36	4.37	0.009	462.9	49.84	235.5	[illegible]	3.07	3.35
07/25/2019 12:02	14.64	2.49	2.35	4.37	0.009	462.1	49.61	235.2	[illegible]	3.10	3.40
07/25/2019 12:03	14.64	2.50	2.36	4.37	0.009	462.3	49.83	235.3	[illegible]	3.16	3.45
07/25/2019 12:04	14.64	2.52	2.38	4.37	0.009	462.8	49.57	235.5	[illegible]	3.39	3.69
07/25/2019 12:05	14.64	2.50	2.36	4.37	0.009	462.8	49.85	235.5	[illegible]	3.52	3.84
07/25/2019 12:06	14.64	2.49	2.35	4.37	0.009	462.9	49.73	235.5	[illegible]	3.52	3.84
07/25/2019 12:07	14.64	2.47	2.33	4.38	0.009	463.7	50.01	236.0	[illegible]	3.52	3.85
07/25/2019 12:08	14.63	2.46	2.31	4.38	0.009	464.0	49.77	235.8	3.94	3.71	4.04
07/25/2019 12:09	14.62	2.47	2.32	4.39	0.009	464.5	49.79	235.6	[illegible]	3.62	3.95
07/25/2019 12:10	14.63	2.49	2.34	4.38	0.009	463.8	49.76	235.7	[illegible]	3.33	3.65
07/25/2019 12:11	14.63	2.55	2.40	4.38	0.009	463.5	49.69	235.5	[illegible]	3.07	3.36
07/25/2019 12:12	14.63	2.58	2.43	4.38	0.009	464.0	49.70	235.8	[illegible]	2.98	3.26
07/25/2019 12:13	14.64	2.60	2.45	4.39	0.009	464.2	49.90	236.2	3.08	2.90	3.17
07/25/2019 12:14	14.64	2.62	2.47	4.39	0.009	464.2	49.64	236.2	[illegible]	2.83	3.07
07/25/2019 12:15	14.64	2.60	2.45	4.38	0.009	463.9	49.91	236.1	[illegible]	2.82	3.07
07/25/2019 12:16	14.64	2.60	2.45	4.38	0.009	464.0	49.78	236.1	[illegible]	2.85	3.12
07/25/2019 12:17	14.64	2.60	2.45	4.39	0.009	464.2	49.68	236.2	3.07	2.89	3.17
07/25/2019 12:18	14.63	2.57	2.42	4.39	0.009	464.9	49.64	236.2	[illegible]	2.92	3.17
07/25/2019 12:19	14.64	2.55	2.40	4.39	0.009	464.4	49.86	236.3	[illegible]	2.97	3.27
07/25/2019 12:20	14.63	2.55	2.40	4.39	0.009	464.9	49.98	236.2	3.16	2.97	3.27
07/25/2019 12:21	14.64	2.54	2.39	4.40	0.009	465.3	49.91	236.8	[illegible]	2.97	3.27
07/25/2019 12:22	14.63	2.54	2.39	4.39	0.009	464.7	49.72	236.1	[illegible]	2.90	3.17
07/25/2019 12:23	14.62	2.56	2.41	4.39	0.009	464.1	49.68	235.4	3.38	2.89	3.17
07/25/2019 12:24	14.62	2.61	2.45	4.39	0.009	464.3	49.80	235.5	[illegible]	3.11	3.41
07/25/2019 12:25	14.63	2.71	2.55	4.39	0.009	464.8	49.74	236.1	[illegible]	3.28	3.61
07/25/2019 12:26	14.63	2.84	2.67	4.88	0.010	464.9	49.74	236.2	[illegible]	3.10	3.37
07/25/2019 12:27	14.63	2.82	2.65	4.88	0.010	464.7	49.86	236.1	2.32	2.75	3.02
07/25/2019 12:28	14.63	2.78	2.62	4.88	0.010	465.1	49.98	236.3	[illegible]	2.63	2.88
07/25/2019 12:29	14.62	2.80	2.63	4.88	0.010	465.1	49.83	236.0	[illegible]	2.66	2.93

Period Start:	Average 2_O2 %	Average 2_NOXPPM ppm	Average 2_NOX_CORR ppm	Average 2_NOX_LBHR #/hr	Average 2_NOX_LBMM #/MBTU	Average 2_GasFlow kscfh	Average 2_LOAD MW	Average 2_STACKFLW kscfm	Average 2_COPPM ppm	Average 2_CO_CORR ppm	Average 2_CO_LBHR #/hr
07/25/2019 12:30	14.63	2.76	2.60	4.89	0.010	465.3	49.87	236.4	2.84	2.67	2.93
07/25/2019 12:31	14.61	2.82	2.65	4.88	0.010	464.6	49.95	235.3	2.85	2.67	2.93
07/25/2019 12:32	14.62	2.82	2.65	4.87	0.010	464.2	49.90	235.5	2.90	2.72	2.97
07/25/2019 12:33	14.63	2.82	2.65	4.89	0.010	465.2	49.73	236.4	2.98	2.80	3.08
07/25/2019 12:34	14.62	2.83	2.66	4.88	0.010	464.6	49.71	235.7	3.05	2.87	3.12
07/25/2019 12:35	14.63	2.77	2.61	4.88	0.010	464.4	49.63	235.9	3.03	2.85	3.12
07/25/2019 12:36	14.62	2.86	2.69	4.88	0.010	465.1	49.76	236.0	3.06	2.87	3.13
07/25/2019 12:37	14.63	2.87	2.70	4.87	0.010	463.8	49.87	235.7	3.03	2.85	3.12
07/25/2019 12:38	14.63	2.78	2.62	4.88	0.010	464.3	49.87	235.9	3.05	2.87	3.12
07/25/2019 12:39	14.63	2.83	2.66	4.88	0.010	464.6	49.67	236.0	3.15	2.96	3.22
07/25/2019 12:40	14.63	2.81	2.64	4.88	0.010	464.5	49.91	236.0	3.41	3.21	3.51
07/25/2019 12:41	14.63	2.78	2.62	4.88	0.010	465.1	49.69	236.3	3.34	3.14	3.47
07/25/2019 12:42	14.63	2.82	2.65	4.88	0.010	464.9	49.93	236.2	3.13	2.95	3.22
07/25/2019 12:43	14.63	2.66	2.50	4.39	0.009	464.7	49.88	236.1	3.00	2.82	3.07
07/25/2019 12:44	14.62	2.40	2.25	3.91	0.008	465.2	49.71	236.0	3.30	3.10	3.42
07/25/2019 12:45	14.62	2.07	1.94	3.42	0.007	464.9	49.73	235.8	3.52	3.31	3.61
07/25/2019 12:46	14.62	1.95	1.83	3.42	0.007	465.3	49.84	236.1	3.51	3.30	3.62
Daily Average*	**14.63**	**2.55**	**2.40**	**4.40**	**0.009**	**463.8**	**49.78**	**235.8**	**3.31**	**3.12**	**3.40**
Maximum*	**14.65**	**2.87**	**2.70**	**4.89**	**0.010**	**465.3**	**50.01**	**236.8**	**4.25**	**4.01**	**4.37**
	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019
	11:58	12:37	12:37	12:33	12:42	12:46	12:07	12:21	11:48	11:48	11:48
Minimum*	**14.61**	**1.95**	**1.83**	**3.42**	**0.007**	**462.1**	**49.45**	**235.2**	**2.79**	**2.63**	**2.88**
	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019	07/25/2019
	12:31	12:46	12:46	12:46	12:46	12:02	11:47	12:02	12:28	12:28	12:28

* Does not include Invalid Averaging Periods ("N/A")

APPENDIX C
CALCULATIONS

Appendix C.1
General Emissions Calculations

GENERAL EMISSION CALCULATIONS

I. Stack Gas Velocity

A. Stack gas molecular weight, lb/lb-mole

$$MW_{dry} = 0.44 * \%CO_2 + 0.32 * \%O_2 + 0.28 * \%N_2$$

$$MW_{wet} = MW_{dry} * (1 - B_{wo}) + 18 * B_{wo}$$

B. Absolute stack pressure, iwg

$$Ps = Pbar + \frac{Psg}{13.6}$$

C. Stack gas velocity, ft/sec

$$V_s = 2.9 * C_p * \sqrt{\Delta P} * \sqrt{T_s} * \sqrt{\frac{29.92 * 28.95}{P_s * MW_{wet}}}$$

II. Moisture

A. Sample gas volume, dscf

$$V_{mstd} = 0.03342 * V_m * (P_{bar} + \frac{\Delta H}{13.6}) * \frac{T_{ref}}{T_m} * Y_d$$

B. Water vapor volume, scf

$$V_{wstd} = 0.0472 * V_{lc} * \frac{T_{ref}}{528\ ^{o}R}$$

C. Moisture content, dimensionless

$$B_{wo} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})}$$

III. Stack gas volumetric flow rate

A. Actual stack gas volumetric flow rate, wacfm

$$Q = V_s * A_s * 60$$

B. Standard stack gas flow rate, dscfm

$$Q_{sd} = Q * (1 - B_{wo}) * \frac{T_{ref}}{T_s} * \frac{P_s}{29.92}$$

IV. Gaseous Mass Emission Rates, lb/hr

$$M = \frac{ppm * MW_i * Q_{sd} * 60}{SV * 10^6}$$

V. Emission Rates, lb/MMBtu

$$\frac{lb}{MMBtu} = \frac{ppm * MW_i * F}{SV * 10^6} * \frac{20.9}{20.9 - \%O_2}$$

VI. Percent Isokinetic

$$I = \frac{17.32 \text{ x } T_s \ (V_m std)}{(1\text{-}Bwo) \ 0 \text{ x } Vs \text{ x } Ps \text{ x } Dn2} \text{ x } \frac{520°R}{T_{ref}}$$

VII. Particulate emissions

(a) Grain loading, gr/dscf
$C = 0.01543 \ (M_n/V_{m\ std})$

(b) Grain loading at 12% CO_2, gr/dscf
$C_{12\%} \ CO_2 = C \ (12/\% \ CO_2)$

(c) Mass emissions, lb/hr
M = C x Qsd x (60 min/hr)/(7000 gr/lb)

(d) Particulate emission factor

$$lb/10^6 \ Btu = Cx \ \frac{1 \ lb}{7000 \ gr} \text{ x F x } \frac{20.9}{20.9 - \% \ O_2}$$

Nomenclature:

A_s	= stack area, ft^2
B_{wo}	= flue gas moisture content, dimensionless
$C_{12\%CO2}$	= particulate grain loading, gr/dscf corrected to 12% CO_2
C	= particulate grain loading, gr/dscf
C_p	= pitot calibration factor, dimensionless
Dn	= nozzle diameter, in.
F	= fuel F-Factor, dscf/MMBtu @ 0% O_2
H	= orifice differential pressure, iwg
I	= % isokinetics
M_n	= mass of collected particulate, mg
M_i	= mass emission rate of specie i, lb/hr
MW	= molecular weight of flue gas, lb/lb-mole
M_{wi}	= molecular weight of specie i:
	SO_2: 64
	NO_x: 46
	CO: 28
	HC: 16
0	= sample time, min.
ΔP	= average velocity head, iwg = $(\sqrt{\Delta P})^2$
P_{bar}	= barometric pressure, inches Hg
P_s	= stack absolute pressure, inches Hg
P_{sg}	= stack static pressure, iwb
Q	= wet stack flow rate at actual conditions, wacfm
Q_{sd}	= dry standard stack flow rate, dscfm
SV	= specific molar volume of an ideal gas at standard conditions, ft^3/lb-mole
T_m	= meter temperature, °R
T_{ref}	= reference temperature, °R
T_s	= stack temperature, °R
V_s	= stack gas velocity, ft/sec
V_{lc}	= volume of liquid collected in impingers, ml
V_m	= uncorrected dry meter volume, dcf
V_{mstd}	= dry meter volume at standard conditions, dscf
V_{wstd}	= volume of water vapor at standard conditions, scf
Y_d	= meter calibration coefficient

Appendix C.2
Spreadsheet Summaries

SCAQMD 207.1 EXAMPLE CALCULATION
TEST NUMBER: 1-NH3-U2

Identifier	Description	Units	Equation	Value
A	Reference Temperature	F	--	60
B	Reference Temperature	R	A + 460	520
C	Meter Calibration Factor (Yd)	--	--	1.011
D	Barometric Pressure	" Hg	--	29.66
E	Meter Volume	acf	--	47.104
F	Meter Temperature	F	--	72.9
G	Meter Temperature	R	F + 460	532.9
H	Delta H	" H_2O	--	2.0
I	Meter Volume (standard)	dscf	0.03342 * E * (D + H/13.6) * B/G * C	46.291
J	Liquid Collected	grams	--	135.9
K	Water vapor volume	scf	0.0472 * J * B/528	6.317
L	Moisture Content	--	K/(K + I)	0.120
M	Gas Constant	ft-lbf/lb-mole-R	--	1545.33
N	Specific Molar Volume	SCF/lb-mole	385.3 * B / 528	379.5
O	F-Factor	dscf/MMBtu	--	8,710
P	HHV	Btu/SCF	--	1,050
Q	Mass Conversion Factor	lb/ug	--	2.2046E-09
R	O_2 Correction Factor	--	--	15
S	Stack Flow Rate @ 68 F	dscfm	--	235,100
T	Stack Flow Rate @ Tref	dscfm	S * B/528	231,538
U	Mass NH_3	ug	--	1,983
V	Mass NH_3	lb	U * Q	4.37E-06
W	MW of NH_3	lb/lb-mole	--	17.03
X	NH_3	ppm	(V * N *10^6)/(I * W)	2.1
Y	Flue Gas O_2	%	--	14.66
Z	NH_3	ppmc	X * (20.9 - R)/(20.9 - Y)	2.0
AA	NH_3	lb/hr	X * T * W * 60/(N * 10^6)	1.3
AB	NH_3	lb/MMBtu	(X * W * O)/(385.3 * 10^6) * 20.9/(20.9 - Y)	0.003
AC	NH_3	lb/MMSCF	AB * P	2.8

Note:

(1) Some values may be slightly different from those shown on the run sheets due to round off errors. This page is intended to show the calculation methodology only.

SCAQMD METHOD 207.1
DATA WORKSHEET AND SUMMARY

Facility	**Canyon**		Parameter		**NH_3**
Unit	**U2**		Fuel		**Natural gas**
Sample Location	**Stack**		Data By		**SD**
Test Number	1-NH3-U2	2-NH3-U2	Average	Maximum	Limit
Reference Temperature (°F)	60	60			
Test Date	7/25/2019	7/25/2019			
Test Method	SCAQMD 207.1	SCAQMD 207.1			
Sample Train	19-WCS	19-WCS			
Meter Calibration Factor	1.011	1.011			
Stack Area (ft^2)	106.90	106.90			
Sample Time (Minutes)	60	60			
Barometric Pressure ("Hg)	29.66	29.66			
Start/Stop Time	0746/0852	1140/1246			
Meter Volume (acf)	47.104	47.704			
Meter Temperature (°F)	72.9	85.1			
Meter Pressure (iwg)	2.0	2.0			
Liquid Volume (ml)	135.9	134.8			
Stack O_2 (%)	14.66	14.63	14.65	(from facility CEMS)	
Unit Load (MW)	50	50	49.8		
Standard Sample Volume (SCF)	46.291	45.831			
Moisture Fraction	0.120	0.120			
Stack Flow Rate (dscfm, 68 °F)	235,100	235,800	235,450	(from facility CEMS)	
Stack Flow Rate (@ Tref)	231,538	232,227	231,883		
Gas Constant (ft-lbf/lb-mole-R)	1545.33	1545.33			
Molecular Weight NH_3 (lb/lb-mole)	17.03	17.03			
Specific Molar Volume (ft^3/lb-mole)	379.5	379.5			
F-Factor (dscf/MMBtu)	8,710	8,710			
HHV(Btu/SCF)	1,050	1,050			
Mass Conversion (lb/ug)	2.2046E-09	2.2046E-09			
O_2 Correction Factor (%)	15	15			
Mass NH_3 (ug)	1,983	1,707			
Mass NH_3 (lb)	4.37E-06	3.76E-06			
NH_3 (ppmv, flue gas)	2.1	1.8	2.0	2.1	
NH_3 (ppmv @ O_2 Correction Factor)	2.0	1.7	1.9	2.0	5
NH_3 (lb/hr)	1.3	1.1	1.2	1.3	
NH_3 (lb/MMBtu)	0.003	0.002	0.003	0.003	
NH_3 (lb/MMSCF)	2.8	2.5	2.7	2.8	

Note: SCAQMD Method 207.1 requires the higher of the duplicate runs be reported as the test result.

APPENDIX D
QUALITY ASSURANCE

Appendix D.1
Quality Assurance Program Summary

QUALITY ASSURANCE PROGRAM SUMMARY

As part of Montrose Air Quality Services, LLC (MAQS) ASTM D7036-04 certification, MAQS is committed to providing emission related data which is complete, precise, accurate, representative, and comparable. MAQS quality assurance program and procedures are designed to ensure that the data meet or exceed the requirements of each test method for each of these items. The quality assurance program consists of the following items:

- Assignment of an Internal QA Officer
- Development and use of an internal QA Manual
- Personnel training
- Equipment maintenance and calibration
- Knowledge of current test methods
- Chain-of-custody
- QA reviews of test programs

Assignment of an Internal QA Officer: MAQS has assigned an internal QA Officer who is responsible for administering all aspects of the QA program.

Internal Quality Assurance Manual: MAQS has prepared a QA Manual according to the requirements of ASTM D7036-04 and guidelines issued by EPA. The manual documents and formalizes all of MAQS QA efforts. The manual is revised upon periodic review and as MAQS adds capabilities. The QA manual provides details on the items provided in this summary.

Personnel Testing and Training: Personnel testing and training is essential to the production of high quality test results. MAQS training programs include:

- A requirement for all technical personnel to read and understand the test methods performed
- A requirement for all technical personnel to read and understand the MAQS QA manual
- In-house testing and training
- Quality Assurance meetings
- Third party testing where available
- Maintenance of training records.

Equipment Maintenance and Calibration: All laboratory and field equipment used as a part of MAQS emission measurement programs is maintained according to manufacturer's recommendations. A summary of the major equipment maintenance schedules is summarized in Table 1. In addition to routine maintenance, calibrations are performed on all sampling equipment according to the procedures outlined in the applicable test method. The calibration intervals and techniques for major equipment components is summarized in Table 2. The calibration technique may vary to meet regulatory agency requirements.

Knowledge of Current Test Methods: MAQS maintains current copies of EPA, ARB, and SCAQMD Source Test Manuals and Rules and Regulations.

Chain-of-Custody: MAQS maintains chain-of-custody documentation on all data sheets and samples. Samples are stored in a locked area accessible only to MAQS source test personnel. Data sheets are kept in the custody of the originator, program manager, or in locked storage until return to MAQS office. Electronic field data is duplicated for backup on secure storage media. The original data sheets are used for report preparation and any additions are initialed and dated.

QA Reviews: Periodic field, laboratory, and report reviews are performed by the in-house QA coordinator. Periodically, test plans are reviewed to ensure proper test methods are selected and reports are reviewed to ensure that the methods were followed and any deviations from the methods are justified and documented.

ASTM D7036-04 Required Information

Uncertainty Statement

Montrose is qualified to conduct this test program and has established a quality management system that led to accreditation with ASTM Standard D7036-04 (Standard Practice for Competence of Air Emission Testing Bodies). Montrose participates in annual functional assessments for conformance with D7036-04 which are conducted by the American Association for Laboratory Accreditation (A2LA). All testing performed by Montrose is supervised on site by at least one Qualified Individual (QI) as defined in D7036-04 Section 8.3.2. Data quality objectives for estimating measurement uncertainty within the documented limits in the test methods are met by using approved test protocols for each project as defined in D7036-04 Sections 7.2.1 and 12.10. Additional quality assurance information is presented in the report appendices.

Performance Data

Performance data are available for review.

Qualified Personnel

A qualified individual (QI), defined by performance on a third party or internal test on the test methods, will be present on each test event.

Plant Entry and Safety Requirements

Plant Entry

All test personnel are required to check in with the guard at the entrance gate or other designated area. Specific details are provided by the facility and project manager.

Safety Requirements

All personnel shall have the following personal protective equipment (PPE) and wear them where designated:

- Hard Hat
- Safety Glasses
- Steel Toe Boots
- Hearing Protection
- Gloves
- High Temperature Gloves (if required)

The following safety measures will be followed:

- Good housekeeping
- SDS for all on-site hazardous materials
- Confine selves to necessary areas (stack platform, mobile laboratory, CEMS data acquisition system, control room, administrative areas)
- Knowledge of evacuation procedures

Each facility will provide plant specific safety training.

TABLE 1
EQUIPMENT MAINTENANCE SCHEDULE

Equipment	Acceptance Limits	Frequency of Service	Methods of Service
Pumps	1. Absence of leaks 2. Ability to draw manufacturers required vacuum and flow	As recommended by manufacturer	1. Visual inspection 2. Clean 3. Replace parts 4. Leak check
Flow Meters	1. Free mechanical movement	As recommended by manufacturer	1. Visual inspection 2. Clean 3. Calibrate
Sampling Instruments	1. Absence of malfunction 2. Proper response to zero span gas	As recommended by manufacturer	As recommended by manufacturer
Integrated Sampling Tanks	1. Absence of leaks	Depends on nature of use	1. Steam clean 2. Leak check
Mobil Van Sampling System	1. Absence of leaks	Depends on nature of use	1. Chang filters 2. Change gas dryer 3. Leak check 4. Check for system contamination
Sampling lines	1. Sample degradation less than 2%	After each test series	1. Blow dry, inert gas through line until dry

TABLE 2
MAJOR SAMPLING EQUIPMENT CALIBRATION REQUIREMENTS

Sampling Equipment	Calibration Frequency	Calibration Procedure	Acceptable Calibration Criteria
Continuous Analyzers	Before and After Each Test Day	3-point calibration error test	< 2% of analyzer range
Continuous Analyzers	Before and After Each Test Run	2-point sample system bias check	< 5% of analyzer range
Continuous Analyzers	After Each Test Run	2-point analyzer drift determination	< 3% of analyzer range
CEMS System	Beginning of Each Day	leak check	< 1 in. Hg decrease in 5 min. at > 20 in. Hg
Continuous Analyzers	Semi-Annually	3-point linearity	< 1% of analyzer range
NO_x Analyzer	Daily	NO_2 -> NO converter efficiency	> 90%
Differential Pressure Gauges (except for manometers)	Semi-Annually	Correction factor based on 5-point comparison to standard	+/- 5%
Differential Pressure Gauges (except for manometers)	Bi-Monthly	3-point comparison to standard, no correction factor	+/- 5%
Barometer	Semi-Annually	Adjusted to mercury-in-glass or National Weather Service Station	+/- 0.1 inches Hg
Dry Gas Meter	Semi-Annually	Calibration check at 4 flow rates using a NIST traceable standard	+/- 2%
Dry Gas Meter	Bi-Monthly	Calibration check at 2 flow rates using a NIST traceable standard	+/- 2% of semi-annual factor
Dry Gas Meter Orifice	Annually	4-point calibration for ΔH@	--
Temperature Sensors	Semi-Annually	3-point calibration vs. NIST traceable standard	+/- 1.5%

Note: Calibration requirements will be used that meet applicable regulatory agency requirements.

Appendix D.2
SCAQMD and STAC Certifications

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

October 30, 2018

Mr. John Peterson
Montrose Air Quality Services, LLC
1631 E. Saint Andrew Place
Santa Ana, CA 92705

Subject: LAP Approval Notice
Reference # 96LA1220

Dear Mr. Peterson:

We have reviewed your renewal letter under the South Coast Air Quality Management District's Laboratory Approval Program (SCAQMD LAP). We are pleased to inform you that your firm is approved for the period beginning October 30, 2018, and ending September 30, 2019 for the following methods, subject to the requirements in the LAP Conditions For Approval Agreement and conditions listed in the attachment to this letter:

- SCAQMD Methods 1-4
- SCAQMD Methods 5.1, 5.2, 5.3, 6.1
- SCAQMD Methods 10.1 and 100.1
- SCAQMD Methods 25.1 and 25.3 (Sampling)
- USEPA CTM-030 and ASTM D6522-00
- SCAQMD Rule 1121/ 1146.2 Protocol
- SCAQMD Rule 1420/1420.1/1420.2 – (Lead) Source and Ambient Sampling

Your LAP approval to perform nitrogen oxide emissions compliance testing for SCAQMD Rule 1121/ 1146.2 Protocols includes satellite facilities located at:

McKenna Boiler 1510 North Spring Street Los Angeles, CA 90012	Noritz America Corp. 11160 Grace Avenue Fountain Valley, CA 92708	Ajax Boiler, Inc. 2701 S. Harbor Blvd. Santa Ana, CA 92704

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

Sincerely,

D. Sarkar

Dipankar Sarkar
Program Supervisor
Source Test Engineering

DS:GK/gk

Attachment

181030 LapRenewalRev.doc

Cleaning the air that we breathe...™

STAC STACK TESTING ACCREDITATION COUNCIL

American Association for Laboratory Accreditation

Accredited Air Emission Testing Body

A2LA has accredited

MONTROSE AIR QUALITY SERVICES

In recognition of the successful completion of the joint A2LA and Stack Testing Accreditation Council (STAC) evaluation process, this laboratory is accredited to perform testing activities in compliance with ASTM D7036:2004 - Standard Practice for Competence of Air Emission Testing Bodies.

Presented this 5th day of March 2018.

President and CEO
For the Accreditation Council
Certificate Number 3925.01
Valid to February 29, 2020

This accreditation program is not included under the A2LA ILAC Mutual Recognition Arrangement.

Appendix D.3
Individual QI Certificate

CERTIFICATE OF COMPLETION

Sean Donovan

This document certifies that this individual has passed a comprehensive examination and is now a Qualified Individual (QI) as defined in Section 8.3 of ASTM D7036-04 for the following method(s):

SCAQMD Method 207.1

Certificate Number: 002-2016-06

Tate Strickler, Accreditation Director

DATE OF ISSUE: 11/30/16

DATE OF EXPIRATION: 11/30/21

MONTROSE
ENVIRONMENTAL

APPENDIX E
APPLICABLE PERMIT SECTIONS

FACILITY PERMIT TO OPERATE
CANYON POWER PLANT

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 1: POWER GENERATION					
GAS TURBINE, NO. 2, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000PC SPRINT, SIMPLE CYCLE, 479 MMBTU/HR AT 46 DEG F, WITH INLET CHILLING, WITH WATER INJECTION WITH A/N: 555829 GENERATOR, 50.95 MW	D7	C9	NOX: MAJOR SOURCE**	**CO**: 4 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1) -BACT, 12-6-2002*]; **CO**: 2000 PPMV NATURAL GAS (5) **[RULE 407, 4-2-1982]**; **NOX**: 2.5 PPMV NATURAL GAS (4) **[RULE 2005, 6-3-2011]**; **NOX**: 25 PPMV NATURAL GAS (8) **[40CFR 60 Subpart KKKK, 7-6-2006]**; **PM10**: 0.01 GRAINS/SCF NATURAL GAS (5A) **[RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; **PM10**: 0.1 GRAINS/SCF NATURAL GAS (5) **[RULE 409, 8-7-1981]**; **PM10**: 1.67 LBS/HR NATURAL GAS (5C) **[RULE 1303(b)(2)-Offset, 5-10-1996;** *RULE 1303(b)(2) -Offset, 12-6-2002*]; **PM10**: 11 LBS/HR NATURAL GAS (5B) **[RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; **SO2**: (9) **[40CFR 72 - Acid Rain Provisions, 11-24-1997]**; **SOX**: 0.06 LBS/MMBTU NATURAL GAS (8) **[40CFR 60 Subpart KKKK, 7-6-2006]**; **VOC**: 2 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002*]	A63.1, A99.1, A99.2, A99.3, A195.1, A195.2, A195.3, A327.1, B61.1, D12.1, D29.2, D29.3, D82.1, D82.2, E193.1, H23.1, I298.2, K40.1

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

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

FACILITY PERMIT TO OPERATE
CANYON POWER PLANT

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 1: POWER GENERATION					
CO OXIDATION CATALYST, NO. 2, BASF, 110 CUBIC FEET OF TOTAL CATALYST VOLUME A/N: 476657	C9	D7 C10			
SELECTIVE CATALYTIC REDUCTION, NO. 2, CORMETECH CMHT-21, 1012 CU.FT.; WIDTH: 2 FT 6 IN; HEIGHT: 25 FT 9 IN; LENGTH: 18 FT WITH A/N: 476657 AMMONIA INJECTION	C10	C9 S12		NH_3: 5 PPMV NATURAL GAS (4) [**RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1) -BACT, 12-6-2002*]	A195.5, D12.2, D12.3, D12.4, E179.1, E179.2, E193.1
STACK, TURBINE NO. 2, HEIGHT: 86 FT ; DIAMETER: 11 FT 8 IN A/N: 555829	S12	C10			

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

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

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

[Devices subject to this condition : C4, C10, C16, C22]

D12.5 The operator shall install and maintain a(n) non-resettable elapsed time meter to accurately indicate the elapsed operating time of the engine.

[**RULE 1110.2, 2-1-2008;** RULE 1110.2, 9-7-2012; **RULE 1303(b)(2)-Offset, 5-10-1996;** RULE 1303(b)(2)-Offset, 12-6-2002; RULE 1401, 9-10-2010; RULE 1470, 5-4-2012; **RULE 2012, 5-6-2005; 40CFR 60 Subpart IIII, 1-30-2013**]

[Devices subject to this condition : D25]

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

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
NH3 emissions	District method 207.1 and 5.3 or EPA method 17	1 hour	Outlet of the SCR serving this equipment

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

The test(s) shall be conducted at least quarterly during the first twelve months of operation and at least annually thereafter. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test.

If the turbine is not in operation during one calendar year, then no testing is required during that calendar year.

The NOx concentration, as determined by the CEMS, shall be simultaneously recorded during the ammonia slip test. If the CEMS is inoperable, a test shall be conducted to determine the NOx emissions using District Method 100.1 measured over a 60 minute averaging time period.

The test shall be conducted and the results submitted to the District within 60 days after the test date.

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration limit.

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

[Devices subject to this condition : D1, D7, D13, D19]

D29.3 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Sampling Time	Test Location
SOX emissions	AQMD Laboratory Method 307-91	Not Applicable	Fuel sample
VOC emissions	District Method 25.3	1 hour	Outlet of the SCR serving this equipment
PM emissions	District method 5.1	4 hours	Outlet of the SCR serving this equipment

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If you have any questions, please contact one of the following individuals by email or phone.

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TEST REPORT FOR
AMMONIA SLIP TEST
AT CANYON POWER PLANT UNIT 3
FACILITY ID: 153992, DEVICE ID: D13

Prepared For:

Canyon Power Plant
3071 E. Mira Loma Avenue
Anaheim, California 92806

For Submittal To:

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

Prepared By:

Montrose Air Quality Services, LLC
1631 E. St. Andrew Pl.
Santa Ana, California 92705
(714) 282-8240

Sean Donovan

Test Date: **October 15, 2019**
Production Date: **October 30, 2019**
Report Number: **W002AS-543385-RT-501**

CONFIDENTIALITY STATEMENT

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: 10/30/2019

Name: Sean Donovan 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.

Signature: ______________ Date: 10/30/2019

Name: Michael Chowsanitphon Title: Reporting Manager

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LIST OF FIGURES

1.0 INTRODUCTION AND SUMMARY

Montrose Air Quality Services, LLC (MAQS) was contracted the Canyon Power Plant to perform an ammonia slip test at Unit 3 as required by the facility Permit (Facility ID 153992) Condition Number D29.2. This report documents the results of the ammonia slip tests performed on October 15, 2019. The test was performed by Sean Donovan, Allen Dusky, and Henry Lee. Sean Donovan was the on-site Qualified Individual for MAQS. Ms. Bertha Hernandez coordinated the test for Canyon Power Plant.

The test consisted of duplicate ammonia tests performed at 50 MW. The test program followed the procedures described in the initial compliance test protocol (MAQS document R038842). The results of the test are summarized in Table 1-1. The table shows that the ammonia slip from this unit was less than the permitted limit of 5 ppm corrected to 15% O_2.

**TABLE 1-1
AMMONIA SLIP TEST RESULTS SUMMARY
CANYON POWER PLANT UNIT 3
OCTOBER 15, 2019**

Parameter	Units	Result(1)	Limit
NH_3	ppm	1.4	--
NH_3	ppmc	1.3	5

(1) Maximum of duplicate runs, as required by SCAQMD Method 207.1

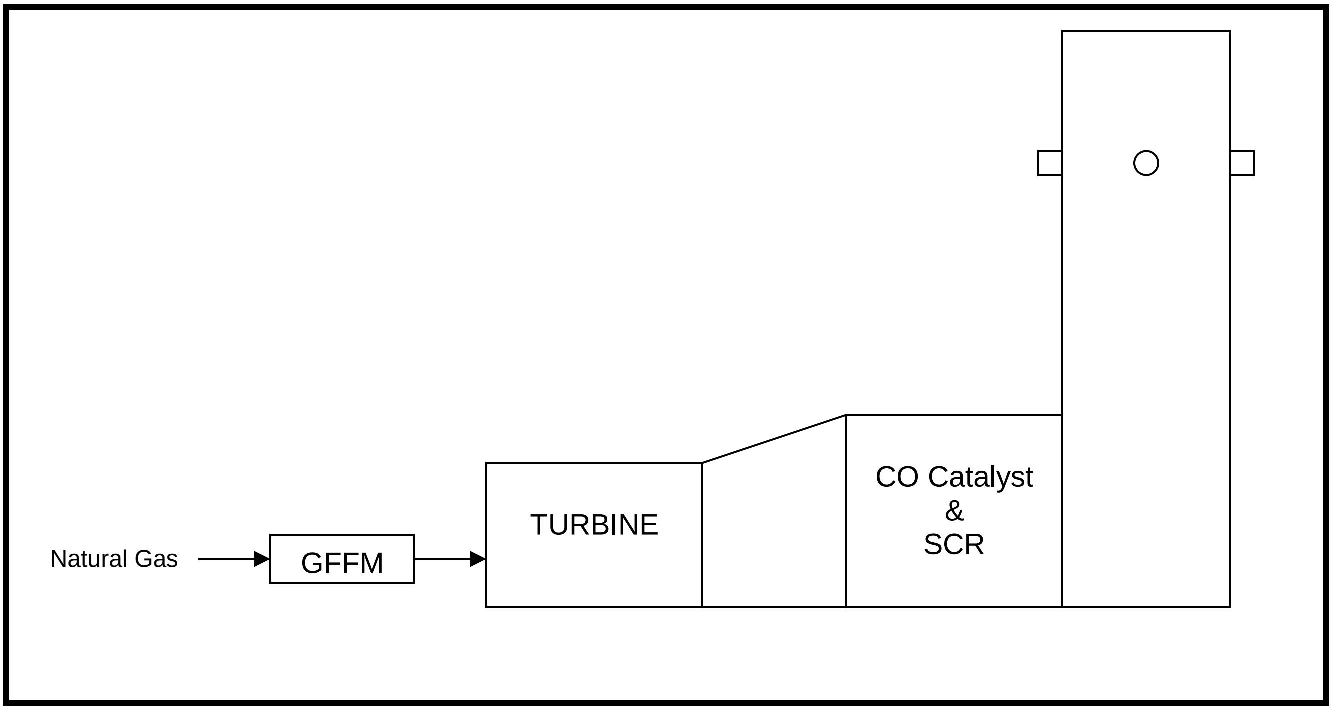
Section 2 of this document provides a brief description of the unit, test conditions, sample location, and CEMS. Details of the test procedures are provided in Section 3. Section 4 provides the results of each individual test. All raw data, calculations, quality assurance data, unit operating conditions, and CEMS data are provided in the appendices.

2.0 UNIT AND CEMS DESCRIPTION

2.1 UNIT DESCRIPTION

The City of Anaheim Canyon Power Plant is located at 3071 E. Mira Loma Avenue, Anaheim, California 92806. The facility consists of four identical generating units. Each unit consists of a natural gas fired, GE Model LM6000PC Sprint simple cycle, gas turbine. The units are natural gas fired with a rated heat input of 479 MMBtu per hour at 46°F, with water injection. The units are equipped with a CO catalyst and Selective Catalytic Reduction (SCR) system for NO_x control. Figure 2-1 presents a block diagram of the unit.

FIGURE 2-1
UNIT BLOCK DIAGRAM
CANYON POWER PLANT



Stack Inside Diameter:	11 feet, 8 inches
Distance from Upstream Disturbance:	23 feet, 4 inches (2.0 Diameters)
Distance from Stack Exit:	16 feet, 6 inches (1.4 Diameters)

2.2 TEST CONDITIONS

The tests were performed with the unit operating at an average load of 50 MW. Tests were performed while the unit was firing natural gas and operating under normal conditions. Unit operation was established by the Canyon Power Plant operators.

2.3 SAMPLE LOCATION

The measurements were made from sample ports located on the exhaust stack. There are four sample ports equally spaced at this location. The stack inside diameter at the sample plane is 11 feet, 8 inches. The sample ports are located 23 feet, 4 inches (2.0 diameters) downstream of the nearest flow disturbance and 16 feet, 6 inches (1.4 diameters) from the stack exit.

3.0 TEST DESCRIPTION

Flue gas samples were collected non-isokinetically using a SCAQMD Method 207.1 sample train. The samples were collected using a 12-point traverse at the exhaust stack location. Each test was performed over a 60 minute interval. The sample gas was drawn through a glass probe, Teflon sample line, two impingers each containing 100 ml of 0.1N H_2SO_4, an empty impinger, an impinger containing silica gel, and a dry gas meter. The optional nozzle and filter were not used since the source is natural gas fired. The contents of the sample line and the first three impingers were recovered and analyzed by SCAQMD Method 207.1 for ammonia concentration by Ion Specific Electrode analysis.

Stack NO_x and O_2 concentrations and stack volumetric flow rate data were recorded from the Continuous Emission Monitoring System (CEMS) which is installed on the unit. These data were used to correct the ammonia concentration to 15% O_2.

4.0 TEST RESULTS

The results of the test are summarized in Table 4-1. The results show that the maximum ammonia slip was 1.4 ppm @ 15% O_2 which is less than the permitted limit of 5 ppm @ 15% O_2.

TABLE 4-1
AMMONIA SLIP TEST RESULTS
CANYON POWER PLANT UNIT 3
OCTOBER 15, 2019

Parameter	Units	Run 1	Run 2	Average	Maximum[1]	Limit
Test		1-NH_3-U3	2-NH_3-U3			--
Date		10/15/2019	10/15/2019			--
Time		1518/1624	1652/1758			--
O_2[2]	%	14.55	14.56	14.56	--	--
Stack Flow[2]	dscfm @ T_{ref}	230,061	230,455	230,258	--	--
NO_x[2]	ppmc	2.3	2.3	2.3	--	2.5
NH_3	ppm	1.4	1.3	1.4	1.4	--
NH_3	ppmc	1.3	1.2	1.3	1.3	5
NH_3	lb/hr	0.9	0.8	0.8	0.9	--
NH_3	lb/MMBtu	0.002	0.002	0.002	0.002	--
NH_3	lb/MMSCF	1.9	1.7	1.8	1.9	--

(1) Maximum of duplicate test runs, as required by SCAQMD Method 207.1
(2) From facility CEMS

MONTROSE AIR QUALITY SERVICES

APPENDIX A
RAW DATA

Appendix A.1
Sample Data Sheets

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: SCPPA
LOCATION: Canyon / Unit 3
DATE: 10/15/19
RUN NO: 1 - NH3 - U3
OPERATOR: CR/AD
METER BOX NO: 38 - WCS
METER ΔH@: 1.642
METER Yd: ~~0.989~~ 0.994 HC 10/15/19
STACK AREA, FT²:
TRAVERSE POINTS, MIN/POINT: 5/12
ΔH= ~~1.5~~ X ΔP: N/A SD 10/15/19
Probe Condition, pre/post test: N/A
Silica Gel Expanded, Y/N: N
Filter Condition after Test: N/A
Check Weight: 500.0 / 500.0

AMBIENT TEMPERATURE: 78°
BAROMETRIC PRESSURE: 29.80
ASSUMED MOISTURE: 12%
PITOT TUBE COEFF, Cp: NA
PROBE ID NO/MATERIAL: NA / Glass
PROBE LENGTH: 2'
NOZZLE ID NO/ MATERIAL: NA
NOZZLE DIAMETER: NA
FILTER NO/TYPE: NA
PRE-TEST LEAK RATE: <0.005 CFM@ 12 in. Hg.
POST-TEST LEAK RATE: <0.005 CFM@ 10 in. Hg.
PITOT LEAK CHECK - PRE: NA POST: NA
CHAIN OF CUSTODY: SAMPLE CUSTODIAN HC
SAMPLER AD
SAMPLE CUSTODIAN HC

Imp. #	Contents	Post-Test	- Pre-Test	= Difference
1	H_2SO_4	879.7	687.5	
2	H_2SO_4	735.1	732.1	
3	MT	623.7	622.2	
4	SG	951.2	936.9	
CR	H_2O	100		
Total:				

Point	Time	Meter Volume, ft³	ΔP in. H_2O	ΔH in. H_2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O_2 %	P. static in. H_2O
3	1518	910.320	X	1.5	X	X	X	58	93	90	5		X
2	1523												
1	1528	921.560											
E	1533	~~920.560~~*		–				–	–	–	–		
3	1535	921.560		1.5				56	94	91	5		
2	1540												
1	1545												
E	1550	932.700		–				–	–	–	–		
3	1552	932.700		1.5				55	93	91	5		
2	1557												
1	1602												
E	1607	943.784		–				–	–	–	–		
3	1609	943.784		1.5				55	93	91	5		
2	1614												
1	1619												
E	1624	954.798		–				–	–	–	–		
Average:													

Comments: *AD 10-15-19

DS834049

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: SCPPA
LOCATION: Canyon / Unit 3
DATE: 10/15/19
RUN NO: 2 - NH3 - U3
OPERATOR: HL / AD
METER BOX NO: 3B-WCS
METER ΔH@: ~~0.99~~ *AD 1.642
METER Yd: 0.994
STACK AREA, FT²:
TRAVERSE POINTS, MIN/POINT: 5 / 12
ΔH= * 1.5 X ΔP:
Probe Condition, pre/post test: N/A
Silica Gel Expanded, Y/N: N
Filter Condition after Test: N/A
Check Weight: 500.0 / 500.0

AMBIENT TEMPERATURE: 76°
BAROMETRIC PRESSURE: 29.80
ASSUMED MOISTURE: 12%
PITOT TUBE COEFF, Cp: NA
PROBE ID NO/MATERIAL: NA / Glass
PROBE LENGTH: 7'
NOZZLE ID NO/ MATERIAL: NA
NOZZLE DIAMETER: NA
FILTER NO/TYPE: NA
PRE-TEST LEAK RATE: <0.005 CFM@ 13 in. Hg.
POST-TEST LEAK RATE: <0.005 CFM@ 12 in. Hg.
~~PITOT LEAK CHECK - PRE:~~ NA POST: NA
CHAIN OF CUSTODY: SAMPLE CUSTODIAN HC
SAMPLER AD
SAMPLE CUSTODIAN HC

Imp. #	Contents	Post-Test	- Pre-Test	= Difference
1	H_2SO_4	891.2	698.6	
2	H_2SO_4	713.4	711.0	
3	MT	599.3	598.6	
4	SG	977.6	967.6	
LR	H_2O	100		
Total:				

Point	Time	Meter Volume, ft³	ΔP in. H_2O	ΔH in. H_2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O_2 %	P. static in. H_2O
3	1652	956.500	X	1.5	X	X	X	58	87	86	5		X
2	1657												
1	1702												
E	1707	967.215		—				—	—	—	—		
3	1709	967.215		1.5				56	84	83	5		
2	1714												
1	1719												
E	1724	978.161		—				—	—	—	—		
3	1726	978.161		1.5				55	83	81	5		
2	1731												
1	1736												
E	1741	989.017		—				—	—	—	—		
3	1743	989.017		1.5				54	82	80	5		
2	1748												
1	1753												
E	1758	999.811		—				—	—	—	—		
Average:													

Comments: * = AD 10·15·19

DS834049

Appendix A.2
Laboratory Data

MONTROSE

AIR QUALITY SERVICES

AMMONIA BY ION SELECTIVE ELECTRODE ANALYSIS

Project #: 002AS-543385 District Method: SCAQMD 207.1 Sample Date: 10/15/2019

Client/Location: SCPPA Calibration Date: 10/17/2019 Analysis Date: 10/17/2019

Sample Location: U3 Calibration Curve: y=-58.2497x+93.4997 Analyst's Initials: HS

Test #'s: NH3-U3 R^2: 1.COCO

Sample	Electrode Potential (mV)	TV (ml)	Conc. µg NH_3 – N / ml	Cavg (µg NH_3 – N / ml)	µg NH_3 / sample	Comments/ Temp/pH
Standard Check: 28 µg NH_3/ml	93	—	27.893	—	—	**Percent Recovery:**
Repeat 28 µg NH_3/ml	92	—	28.004	27.948	—	100%
1-NH3-U3	77.7	—	1.867	—	—	
1-NH3-U3	78.0	541.7	1.845	1.856	1222.387	pH<2 23°C
2-NH3-U3	81.5	—	1.607	—	—	
2-NH3-U3	81.6	557.6	1.601	1.604	1087.042	pH<2 23°C
Spike 2-NH3-U3	16.7	—	20.819	—	—	
Spike 2-NH3-U3	17.0	—	20.573	20.696	—	99%
28 ppm NH3	10.2	—	26.918	—	—	
28 ppm NH3	10.2	—	26.918	26.918	—	96%
Field Blank	199.9	—	0.015	—	—	
Field Blank	200.0	—	0.015	0.0149	—	
Reagent Blank	199.6	—	0.015	—	—	
Reagent Blank	199.2	—	0.015	0.0152	—	
DI H2O Blank	207.3	—	~~0.015~~* .011	—	—	
DI H2O Blank	207.3	—	0.011	0.0111	—	
28 ppm NH3	10.0	—	27.132	—	—	
28 ppm NH3	10.0	—	27.132	27.132	—	97%

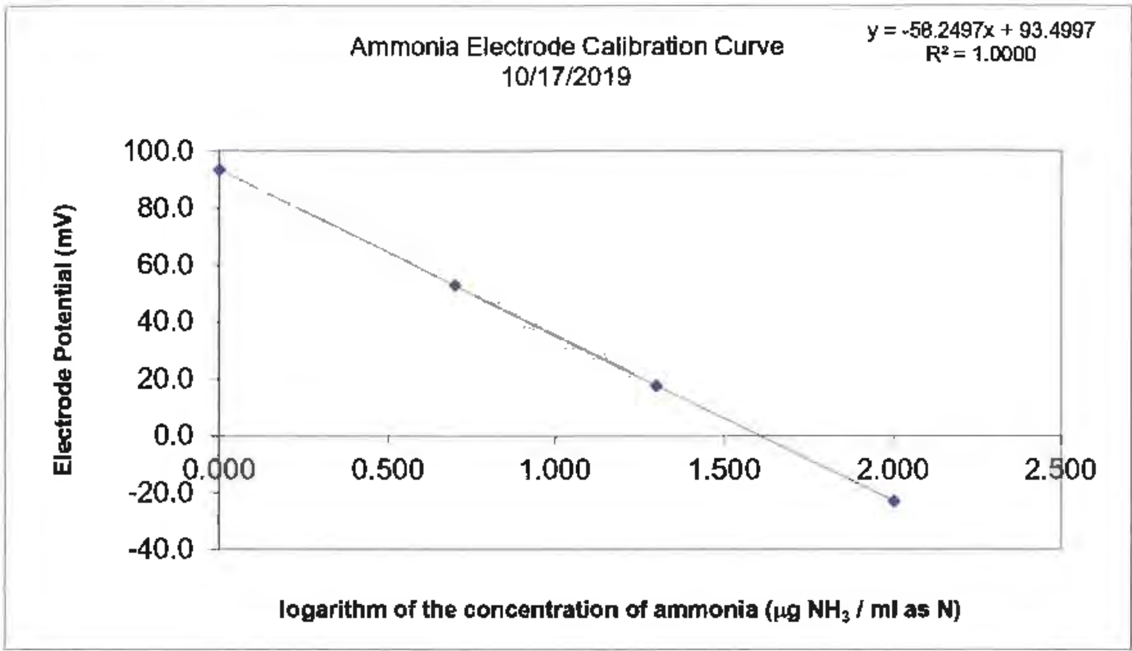
* HS 10/17/19

Notes: Total volume of samples and standards used: 100 ml
Volume of pH adjusting ISA used in ml: 2 ml
Absorbing solution: 0.1 N H2SO4

Calculations: Conc. (µg NH_3 – N / ml) = $10^{(P-B)/M}$
P = electrode potential, B = y-intercept and M = slope
Cavg = average result of duplicate analyses (µg NH_3 – N / ml) = (C1+C2)/2
µg NH_3 / sample = Cavg* 17.03/ 14.01 * TV
mg / sample = µg /sample ÷ 1000
ppm NH_3 = mg NH_3/sample x 1/Vmstd x 1/454000 x SV/17 x 10^6

AMMONIA ELECTRODE CALIBRATION CURVE

NH_3 concentration (μg NH_3 / ml as N)	log NH_3 concentration	Electrode potential (mV)	Sample Temperature (C)	Room Temperature (C)
1	0.000	93.4	23	21
5	0.699	53.0	23	21
20	1.301	17.6	23	21
100	2.000	-23.0	23	21



slope -58.2497
y-intercept 93.4997

Concentration (μg NH_3 / ml as N)	Value LR line	Difference	% Difference
1	1.0039	0.0039	0.3949
5	4.9577	-0.0423	-0.8467
20	20.0912	0.0912	0.4560
100	100.0012	0.0012	0.0012

Calculation:

Regression Line: P=M*log(μg of NH_3/ ml as N)+B

Measured Concentration of Ammonia (C) in μg / ml NH_3 as N: $C=10^{(P-B)/M}$

where P = electrode potential, M= slope (must be -57±3) and B= intercept

All standards were prepared in 0.04N H_2SO_4 and allowed to equilibrate to room temperature.

AMMONIA BY ION SELECTIVE ELECTRODE ANALYSIS CALCULATION

Client/ Location:	SCPPA
Sample Location:	Unit 3
District Method:	SCAQMD 207.1
Sample Date:	10/15/2019
Analysis Date:	10/17/2019
Analyst's Initials:	HS
Calibration Curve Slope	-58.2497
Y-intercept	93.4997
R^2	

Sample	P mV	Conc. µg NH_3 /ml as N	C avg as N	TV (ml)	C avg as NH_3	µg NH_3/ sample
28 ug NH_3 / ml as N	9.3	27.893				
repeat 28 ug NH_3/ml as N	9.2	28.004	27.948	NA	33.973	NA
1-NH3	77.7	1.867				
repeat 1- NH_3	78.0	1.845	1.856	541.7	2.257	1222.387
2-NH_3	81.5	1.607				
repeat 2- NH_3	81.6	1.601	1.604	557.6	1.950	1087.042
spike 2-NH_3	16.7	20.819				
repeat spike	17.0	20.573	20.696	NA	25.157	NA
28 NH_3/ml as N	10.2	26.918				
repeat 28 ug NH_3/ml as N	10.2	26.918	26.918	NA	32.721	NA
Field Blank	199.9	0.015				
repeat Field Blank	200.0	0.015	0.0149	NA	0.018	NA
Reagent Blank	199.6	0.015				
repeat Reagent Blank	199.2	0.015	0.0152	NA	0.018	NA
DI H2O Blank	207.3	0.011				
Repeat DI H2O Blank	207.3	0.011	0.0111	NA	0.014	NA
28 NH_3/ml as N	10.0	27.132				
repeat 28 ug NH_3/ml as N	10.0	27.132	27.132	NA	32.980	NA

Notes:

Measured Concentration of Ammonia (C) in µg NH_3 / ml as N

$C=10^{(P-B)/M}$

P = electrode potential (mV), M=slope and B=intercept

Average Measured Ammonia Concentration (Cavg) = (C1 + C2)/2

where C1, C2 results from duplicate analyses (µg NH_3 /ml as N)

Cavg (µg NH_3/ml as NH_3) = Cavg (µg NH_3/ ml as N) * 17.03/ 14.01

µg NH_3 / sample = Cavg (µg NH_3/ml as NH_3) * TV

Used 100 ml of samples and standards with 2 ml ISA and constant stirring rate.

All solutions turned blue and remained blue with ISA unless otherwise indicated.

Sample PH and Temperatures can be found on the laboratory datasheet.

Maximum samples (including blanks) between 28 ug/ml check standard is 5 samples analyzed in duplicate.

AMMONIA BY ION SELECTIVE ELECTRODE ANALYSIS QUALITY CONTROL

Client/ Location: SCPPA
Sample Location: Unit 3
District Method: SCAQMD 207.1
Sample Date: 10/15/2019
Analysis Date: 10/17/2019
Analyst's Initials: HS

Sample	% recovery	RPD %	RPA %
28 ug NH_3 / ml as N repeat 28 ug NH_3/ml as N	NA	-0.40	-0.185
1-NH3 repeat 1- NH3	NA	1.19	NA
2-NH3 repeat 2- NH3	NA	0.40	NA
spike 2-NH3 repeat spike	99.44	1.19	NA
28 NH_3/ml as N repeat 28 ug NH_3/ml as N	NA	0.00	-3.864
Field Blank repeat Field Blank	NA	0.40	NA
Reagent Blank repeat Reagent Blank	NA	-1.58	NA
DI H2O Blank Repeat DI H2O Blank	NA	0.00	NA
28 NH_3/ml as N repeat 28 ug NH_3/ml as N	NA	0.00	-3.101

Notes:

spike: 100 ml sample + 2 ml (1000 µg NH_3 / ml as N)

Matrix Spike Percent Recovery (%R)

%R = (C spike*0.104 - Csample*0.102)/2 *100

Cspike = average result of matrix spike (µg NH_3/ ml as N)

Relative Percent Difference (RPD) = (C1-C2)/ Cavg *100 (must be 5% or less)

Relative Percent Accuracy (RPA) (must be 10% or less)

RPA = (Cavg-theoretical value of standard)/ theoretical value of standard * 100

Appendix A.3
QA/QC Data

SEMI-ANNUAL DRY GAS METER/ORIFICE CALIBRATION

Orifice Method - Triplicate Runs/Four Calibration Points
English Meter Box Units, English K' Factor
Filename: M:\Santa Ana\Equipment\Test Equipment\Calibrations\Dry Gas Meters\38-wcs\2019\[semi annual cal 38wcs 9-7-19.xlsx]WC
File Modified From: APEX 522 Series Meter box Calibration
Revised: 4/8/2005

ID #: c-5000 38-wcs
Date: 9/7/2019
Bar. Pressure: 29.96 (in. Hg)
Performed By: R. Howard
Meter Serial #:

		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)	(deg F)	(number)	(see above)	(in Hg)	(deg F)	(deg F)	(deg F)
0.13	26.00	590.100	595.474	5.374	89.0	83.0	87.0	83.0	33	0.1551	18.0	80.0	80.0	80.0
0.13	26.00	595.474	600.851	5.377	87.0	83.0	87.0	84.0	33	0.1551	18.0	80.0	80.0	80.0
0.13	26.00	600.851	606.221	5.370	87.0	84.0	87.0	83.0	33	0.1551	18.0	80.0	80.0	80.0
0.51	12.00	538.700	544.047	5.347	83.0	80.0	84.0	80.0	48	0.3345	16.0	80.0	80.0	80.0
0.51	12.00	544.047	549.390	5.343	84.0	80.0	85.0	82.0	48	0.3345	16.0	80.0	80.0	80.0
0.51	12.00	549.390	554.742	5.352	85.0	82.0	85.0	83.0	48	0.3345	16.0	80.0	80.0	80.0
1.70	7.00	555.400	560.936	5.536	85.0	81.0	87.0	81.0	63	0.5915	15.0	80.0	80.0	80.0
1.70	7.00	560.936	566.470	5.534	87.0	81.0	88.0	82.0	63	0.5915	15.0	80.0	80.0	80.0
1.70	7.00	566.470	572.008	5.538	88.0	82.0	88.0	82.0	63	0.5915	15.0	80.0	80.0	80.0
3.00	5.00	572.900	577.997	5.097	88.0	81.0	90.0	82.0	73	0.7678	12.0	80.0	80.0	80.0
3.00	5.00	577.997	583.091	5.094	90.0	82.0	91.0	84.0	73	0.7678	12.0	80.0	80.0	80.0
3.00	5.00	583.091	588.191	5.100	91.0	84.0	90.0	83.0	73	0.7678	12.0	80.0	80.0	80.0

DRY GAS METER		ORIFICE				DRY GAS METER CALIBRATION FACTOR	ORIFICE CALIBRATION FACTOR	Individual Run	Individual Orifice	Orifice Average	Orifice Average
VOLUME CORRECTED	VOLUME CORRECTED	VOLUME CORRECTED	VOLUME CORRECTED	VOLUME NOMINAL		Y	dH@				
Vm(std)	Vm(std)	Vcr(std)	Vcr(std)	Vcr		Value	Value	0.95 < Y	Ymax - Ymin	0.98 < Y/Yd	dH@ - dH@ av
(cu ft)	(liters)	(cu ft)	(liters)	(cu ft)		(number)	(in H2O)	< 1.05?	< 0.010?	< 1.02?	< 0.155?
5.206	147.5	5.201	147.3	5.314		0.999	1.779	Pass			
5.213	147.6	5.201	147.3	5.314		0.998	1.778	Pass			
5.207	147.5	5.201	147.3	5.314		0.999	1.778	Pass			
					Average	0.998	1.778		Pass	Pass	Pass
5.223	147.9	5.175	146.5	5.287		0.991	1.511	Pass			
5.209	147.5	5.175	146.5	5.287		0.993	1.506	Pass			
5.208	147.5	5.175	146.5	5.287		0.994	1.504	Pass			
					Average	0.993	1.507		Pass	Pass	Pass
5.406	153.1	5.338	151.2	5.455		0.988	1.607	Pass			
5.394	152.8	5.338	151.2	5.455		0.990	1.605	Pass			
5.393	152.7	5.338	151.2	5.455		0.990	1.604	Pass			
					Average	0.989	1.605		Pass	Pass	Pass
4.977	140.9	4.950	140.2	5.058		0.995	1.681	Pass			
4.960	140.5	4.950	140.2	5.058		0.998	1.677	Pass			
4.964	140.6	4.950	140.2	5.058		0.997	1.675	Pass			
					Average	0.997	1.678		Pass	Pass	Pass

Average Yd: 0.994 dH@: 1.642
Q @ dH = 1: 0.585

SIGNED: Signature on File Date: 9/7/2019

semi annual cal 38wcs 9-7-19.xlsx WCS
10/15/2019
12:24 PM

MONTROSE AIR QUALITY SERVICES

DIGITAL TEMPERATURE READOUT CALIBRATION

Digital Temperature Readout ID: 38-WCS
Readout Description: Control Box
Date: 7/2/2019
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				Reference Thermometer °F				Difference		
		Reading 1	Reading 2	Reading 3	Average	Reading 1	Reading 2	Reading 3	Average	°F	%, (°R)	
T3 (OIL)	38-WCS	358	358	358	358	358	358	358	358	0.0	0.0%	Pass
T2 (Boiling H_2O)	38-WCS	211	211	211	211	212	212	212	212	1.0	0.1%	Pass
T1 (Ice/Water)	38-WCS	32	32	32	32	32	32	32	32	0.0	0.0%	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				T/C Source °F				Difference		
		Reading 1	Reading 2	Reading 3	Average	Reading 1	Reading 2	Reading 3	Average	°F	%, (°R)	
T4 (~650 F)	S/N 106970	653	653	653	653	650	650	650	650	3.0	0.3%	Pass
T3 (~370 F)	S/N 106970	378	378	378	378	370	370	370	370	8.0	1.0%	Pass
T2 (~212 F)	S/N 106970	214	214	214	214	212	212	212	212	2.0	0.3%	Pass
T1 (~32 F)	S/N 106970	33	33	33	33	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)

MONTROSE
AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: SCPPA
LOCATION: Canyon / Unit 3
DATE: 10/15/19
RUN NO: FB-NH3
OPERATOR: HL
METER BOX NO: 38-WCS
METER ΔH@:
METER Yd: 0.994
STACK AREA, FT²: 106.90
TRAVERSE POINTS, MIN/POINT: N/A
ΔH= N/A X ΔP:
Probe Condition, pre/post test: N/A
Silica Gel Expanded, Y/N: N
Filter Condition after Test: N/A
Check Weight: 500.0 / 500.0

AMBIENT TEMPERATURE: 80°
BAROMETRIC PRESSURE: 29.80
ASSUMED MOISTURE: 12%
PITOT TUBE COEFF, Cp: N/A
PROBE ID NO/MATERIAL: N/A
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: N/A
NOZZLE DIAMETER: N/A
FILTER NO/TYPE: N/A
PRE-TEST LEAK RATE: : <0.005 CFM@ 12 in. Hg.
POST-TEST LEAK RATE: : <0.005 CFM@ 13 in. Hg.
PITOT LEAK CHECK - PRE: — POST: —
CHAIN OF CUSTODY: SAMPLE CUSTODIAN SD
SAMPLER HL / AD
SAMPLE CUSTODIAN SD

Imp. #	Contents	Post-Test	- Pre-Test	= Difference
1	H_2SO_4	821.1	719.6	
2	H_2SO_4	701.0	700.9	
3	MT	609.9	609.3	
4	SG	859.3	859.1	
LR				
Total:				

Point	Time	Meter Volume, ft³	ΔP in. H_2O	ΔH in. H_2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O_2 %	P. static in. H_2O
Average:													

FIELD BLANK

Comments:

DS834049

CHAIN OF CUSTODY

CLIENT: SCPPA   PROJECT #: W002AS-543385   TEST DATE(S): 10/15/2019

LOCATION: U3   SAMPLER(S): HL/AD

SAMPLE LOCATION: Stack   PROJECT MANAGER: SD

TEST METHOD(S): SCAQMD 207.1   DATE DUE: 10/22/2019

OUTSIDE LAB REQUIRED?: No   COMPLIANCE TEST?: Yes

DATE	TIME	TEST #	SAMPLE DESCRIPTION	CONTAINERS	SAMPLER	COMMENTS
10/15/2019	1518/1624	1-NH3-U3	Probe, Line, Impingers	1	HL/AD	
10/15/2019	1652/1758	2-NH3-U3	Probe, Line, Impingers	1	HL/AD	
10/15/2019		Reagent Blank	0.1 N H_2SO_4	1	SD	
10/15/2019		Reagent Blank	DI H2O	1	SD	
10/15/2019		Field Blank	Probe, Line, Impingers	1	HL/AD	

RELEASED BY	DATE/TIME	RECEIVED BY	DATE/TIME
	10.16.19/10:03		10/16/19 10:03

ANALYSIS REQUIRED: NH_3 by SCAQMD 207.1 (ISE)

MONTROSE AIR QUALITY SERVICES   Date of Last Revision 9/1/2017   Chain of Custody - DS834001 - Excel
Master Document Storage\Forms\Datasheets\Lab Forms

APPENDIX B
FACILITY CEMS DATA

1-NH3-U3

Average Values Report
Generated: 10/15/2019 17:16

Company: City Of Anaheim
Plant: 3071 Miraloma Ave.,
City/St: Anaheim, CA, 92806
Source: unit3

Period Start: 10/15/2019 15:19
Period End: 10/15/2019 16:24
Validation Type: 1/1 min
Averaging Period: 1 min
Type: Block Avg

Period Start:	Average 3_O2 %	Average 3_NOXPPM ppm	Average 3_NOX_CORR ppm	Average 3_NOX_LBHR #/hr	Average 3_NOX_LBMM #/MBTU	Average 3_COPPM ppm	Average 3_CO_CORR ppm	Average 3_CO_LBHR #/hr	Average 3_NH3_Flow #/hr	Average 3_GasFlow kscfh	Average 3_LOAD MW	Average 3_STACKFLW kscfm
10/15/2019 15:19	14.57	2.43	2.26	3.91	0.008	2.62	2.44	2.69	75.35	465.3	49.92	234.2
10/15/2019 15:20	14.59	2.44	2.28	3.91	0.008	2.61	2.44	2.69	75.34	465.3	49.98	234.9
10/15/2019 15:21	14.61	2.46	2.31	4.39	0.009	2.61	2.45	2.69	75.41	465.0	49.86	235.5
10/15/2019 15:22	14.61	2.46	2.31	4.40	0.009	2.61	2.45	2.69	75.45	465.1	50.18	235.6
10/15/2019 15:23	14.63	2.46	2.31	4.39	0.009	2.62	2.47	2.68	75.43	464.8	49.94	236.1
10/15/2019 15:24	14.59	2.46	2.30	3.91	0.008	2.61	2.44	2.69	75.42	465.2	50.03	234.9
10/15/2019 15:25	14.56	2.45	2.28	3.91	0.008	2.62	2.44	2.69	75.48	465.1	49.89	233.7
10/15/2019 15:26	14.54	2.46	2.28	3.90	0.008	2.61	2.42	2.64	75.44	464.9	50.11	232.8
10/15/2019 15:27	14.53	2.45	2.27	3.90	0.008	2.60	2.41	2.63	75.33	454.7	50.12	232.4
10/15/2019 15:28	14.51	2.45	2.26	3.91	0.008	2.61	2.41	2.64	75.49	455.4	49.93	232.0
10/15/2019 15:29	14.51	2.44	2.25	3.90	0.008	2.63	2.43	2.64	75.33	454.9	49.90	231.8
10/15/2019 15:30	14.53	2.43	2.25	3.91	0.008	2.65	2.45	2.69	75.54	465.4	49.86	232.8
10/15/2019 15:31	14.57	2.43	2.26	3.91	0.008	2.65	2.47	2.69	75.40	465.0	49.83	234.0
10/15/2019 15:32	14.59	2.46	2.30	3.91	0.008	2.62	2.45	2.69	75.45	465.4	50.07	235.0
10/15/2019 15:33	14.61	2.45	2.30	3.90	0.008	2.62	2.46	2.68	75.47	464.9	49.97	235.4
10/15/2019 15:34	14.63	2.43	2.29	3.91	0.008	2.62	2.47	2.69	75.38	455.3	50.02	236.4
10/15/2019 15:35	14.64	2.45	2.31	4.40	0.009	2.61	2.46	2.69	75.43	465.1	49.90	236.7
10/15/2019 15:36	14.61	2.47	2.32	4.40	0.009	2.59	2.43	2.69	75.46	465.3	50.05	235.7
10/15/2019 15:37	14.57	2.50	2.33	4.39	0.009	2.56	2.39	2.64	75.43	464.9	49.86	233.9
10/15/2019 15:38	14.55	2.50	2.32	4.39	0.009	2.59	2.41	2.63	75.37	464.6	49.74	233.1
10/15/2019 15:39	14.51	2.49	2.30	3.90	0.008	2.60	2.40	2.63	75.41	464.5	49.88	231.6
10/15/2019 15:40	14.52	2.47	2.28	3.90	0.008	2.63	2.43	2.68	75.49	464.6	50.05	232.0
10/15/2019 15:41	14.53	2.44	2.26	3.91	0.008	2.64	2.45	2.69	75.39	465.1	50.05	232.6
10/15/2019 15:42	14.56	2.43	2.26	3.90	0.008	2.65	2.47	2.68	75.41	464.9	49.91	233.6
10/15/2019 15:43	14.57	2.44	2.27	3.91	0.008	2.64	2.46	2.69	75.33	465.2	50.05	234.1
10/15/2019 15:44	14.60	2.45	2.29	3.91	0.008	2.63	2.46	2.69	75.58	465.3	50.02	235.3
10/15/2019 15:45	14.61	2.44	2.29	3.90	0.008	2.64	2.48	2.73	75.20	464.8	49.91	235.4
10/15/2019 15:46	14.63	2.42	2.28	3.91	0.008	2.65	2.49	2.74	75.29	465.5	50.01	236.5
10/15/2019 15:47	14.61	2.41	2.26	3.91	0.008	2.67	2.50	2.74	75.34	465.1	50.01	235.6
10/15/2019 15:48	14.57	2.42	2.26	3.91	0.008	2.65	2.47	2.69	75.37	465.2	49.90	234.1
10/15/2019 15:49	14.52	2.45	2.27	3.91	0.008	2.61	2.41	2.64	75.31	465.6	49.77	232.5
10/15/2019 15:50	14.50	2.51	2.31	4.40	0.009	2.59	2.39	2.64	75.40	465.6	50.08	231.8
10/15/2019 15:51	14.48	2.53	2.33	4.40	0.009	2.59	2.38	2.59	75.38	466.0	49.99	231.2
10/15/2019 15:52	14.48	2.52	2.32	4.40	0.009	2.58	2.37	2.59	75.32	465.7	50.07	231.1
10/15/2019 15:53	14.51	2.52	2.33	4.40	0.009	2.57	2.37	2.59	75.15	465.5	49.82	232.1
10/15/2019 15:54	14.54	2.53	2.35	4.40	0.009	2.57	2.38	2.59	75.25	465.9	49.79	233.4
10/15/2019 15:55	14.56	2.52	2.35	4.40	0.009	2.58	2.40	2.64	75.23	465.6	49.88	234.0
10/15/2019 15:56	14.58	2.49	2.32	4.40	0.009	2.58	2.41	2.64	75.17	465.6	49.87	234.7
10/15/2019 15:57	14.59	2.48	2.32	4.40	0.009	2.58	2.41	2.64	75.17	466.1	49.99	235.3
10/15/2019 15:58	14.58	2.48	2.32	4.40	0.009	2.59	2.42	2.64	75.19	465.9	49.97	234.8
10/15/2019 15:59	14.55	2.52	2.34	4.40	0.009	2.58	2.40	2.64	75.13	465.3	50.02	233.4
10/15/2019 16:00	14.53	2.53	2.34	4.40	0.009	2.57	2.38	2.59	75.30	465.9	49.93	233.0
10/15/2019 16:01	14.50	2.56	2.36	4.40	0.009	2.55	2.35	2.59	75.18	466.0	49.94	232.0
10/15/2019 16:02	14.48	2.59	2.38	4.40	0.009	2.54	2.33	2.54	75.19	465.8	49.99	231.1
10/15/2019 16:03	14.48	2.61	2.40	4.40	0.009	2.52	2.32	2.54	75.05	465.2	50.00	230.9
10/15/2019 16:04	14.50	2.64	2.43	4.40	0.009	2.51	2.31	2.54	75.21	466.0	49.95	232.0
10/15/2019 16:05	14.53	2.64	2.45	4.40	0.009	2.49	2.31	2.54	75.09	465.1	49.85	232.6
10/15/2019 16:06	14.54	2.64	2.45	4.40	0.009	2.49	2.31	2.54	75.25	465.8	49.95	233.3
10/15/2019 16:07	14.57	2.64	2.46	4.40	0.009	2.48	2.31	2.54	75.37	466.1	50.08	234.6
10/15/2019 16:08	14.58	2.65	2.47	4.40	0.009	2.47	2.31	2.54	76.70	465.8	49.83	234.8
10/15/2019 16:09	14.58	2.60	2.43	4.40	0.009	2.48	2.32	2.54	76.43	465.6	49.86	234.7
10/15/2019 16:10	14.55	2.51	2.33	4.40	0.009	2.49	2.31	2.54	76.38	465.7	49.96	233.6
10/15/2019 16:11	14.53	2.49	2.31	3.90	0.008	2.50	2.32	2.54	76.37	464.9	49.85	232.5
10/15/2019 16:12	14.51	2.46	2.27	3.91	0.008	2.53	2.34	2.54	76.52	465.4	49.85	232.0
10/15/2019 16:13	14.50	2.40	2.21	3.91	0.008	2.56	2.36	2.59	76.50	465.4	49.96	231.7
10/15/2019 16:14	14.50	2.35	2.17	3.91	0.008	2.59	2.39	2.64	76.48	465.1	50.18	231.5
10/15/2019 16:15	14.52	2.37	2.19	3.91	0.008	2.57	2.38	2.59	76.45	465.9	49.88	232.6
10/15/2019 16:16	14.55	2.38	2.21	3.91	0.008	2.55	2.37	2.59	76.47	465.4	49.99	233.5
10/15/2019 16:17	14.56	2.36	2.20	3.91	0.008	2.57	2.39	2.64	76.37	465.0	49.86	233.7
10/15/2019 16:18	14.60	2.35	2.20	3.91	0.008	2.60	2.43	2.69	76.54	465.0	50.14	235.2
10/15/2019 16:19	14.59	2.38	2.23	3.91	0.008	2.59	2.42	2.64	76.48	465.2	49.65	234.9
10/15/2019 16:20	14.57	2.40	2.24	3.91	0.008	2.54	2.37	2.59	76.38	465.0	49.86	234.0
10/15/2019 16:21	14.54	2.39	2.22	3.91	0.008	2.54	2.36	2.59	76.35	465.0	49.80	232.9
10/15/2019 16:22	14.52	2.38	2.20	3.90	0.008	2.56	2.37	2.59	76.24	464.8	49.97	232.1
10/15/2019 16:23	14.50	2.36	2.18	3.91	0.008	2.60	2.40	2.64	76.30	465.6	49.90	231.8
10/15/2019 16:24	14.50	2.34	2.16	3.91	0.008	2.63	2.42	2.64	76.35	465.1	49.86	231.5
Daily Average*	**14.55**	**2.47**	**2.30**	**4.12**	**0.008**	**2.58**	**2.40**	**2.63**	**75.62**	**465.3**	**49.94**	**233.6**
Maximum*	**14.64**	**2.65**	**2.47**	**4.40**	**0.009**	**2.67**	**2.50**	**2.74**	**76.70**	**466.1**	**50.18**	**236.7**
	10/15/2019 15:35	10/15/2019 16:08	10/15/2019 16:08	10/15/2019 16:10	10/15/2019 16:10	10/15/2019 15:47	10/15/2019 15:47	10/15/2019 15:47	10/15/2019 16:08	10/15/2019 16:07	10/15/2019 16:14	10/15/2019 15:35
Minimum*	**14.48**	**2.34**	**2.16**	**3.90**	**0.008**	**2.47**	**2.31**	**2.54**	**75.05**	**464.5**	**49.65**	**230.9**
	10/15/2019 16:03	10/15/2019 16:24	10/15/2019 16:24	10/15/2019 16:22	10/15/2019 16:24	10/15/2019 16:08	10/15/2019 16:10	10/15/2019 16:12	10/15/2019 16:03	10/15/2019 15:39	10/15/2019 16:19	10/15/2019 16:03

* Does not include Invalid Averaging Periods ("N/A")

2-NH_3-U3

Average Values Report
Generated: 10/15/2019 18:24

Company: City Of Anaheim
Plant: 3071 Miraloma Ave.,
City/St: Anaheim, CA, 92806
Source: unit3

Period Start: 10/15/2019 16:53
Period End: 10/15/2019 17:58
Validation Type: 1/1 min
Averaging Period: 1 min
Type: Block Avg

Period Start:	Average 3_O2 %	Average 3_NOXPPM ppm	Average 3_NOX_CORR ppm	Average 3_NOX_LBHR #/hr	Average 3_NOX_LBMM #/MBTU	Average 3_COPPM ppm	Average 3_CO_CORR ppm	Average 3_CO_LBHR #/hr	Average 3_CO_LBMM #/MBTU	Average 3_GasFlow kscfh	Average 3_LOAD MW	Average 3_STACKFLW kscfm
10/15/2019 16:53	14.52	2.44	2.26	3.91	0.008	2.70	2.50	2.74	0.0056	465.1	49.88	232.3
10/15/2019 16:54	14.52	2.42	2.24	3.91	0.008	2.71	2.51	2.74	0.0056	465.7	49.92	232.5
10/15/2019 16:55	14.53	2.46	2.28	3.91	0.008	2.69	2.49	2.74	0.0056	465.9	49.87	233.0
10/15/2019 16:56	14.55	2.47	2.29	3.91	0.008	2.65	2.46	2.69	0.0055	465.5	49.88	233.5
10/15/2019 16:57	14.57	2.47	2.30	3.92	0.008	2.67	2.49	2.74	0.0056	466.6	50.03	234.8
10/15/2019 16:58	14.60	2.44	2.29	3.91	0.008	2.71	2.54	2.79	0.0057	465.8	50.01	235.5
10/15/2019 16:59	14.59	2.38	2.23	3.92	0.008	2.75	2.57	2.84	0.0058	466.3	50.09	235.4
10/15/2019 17:00	14.57	2.36	2.20	3.91	0.008	2.79	2.60	2.83	0.0058	465.1	49.70	234.1
10/15/2019 17:01	14.55	2.32	2.16	3.91	0.008	2.80	2.60	2.84	0.0058	465.8	49.99	233.7
10/15/2019 17:02	14.53	2.32	2.15	3.91	0.008	2.83	2.62	2.89	0.0059	465.8	49.81	233.0
10/15/2019 17:03	14.51	2.31	2.13	3.91	0.008	2.82	2.60	2.84	0.0058	465.9	49.91	232.3
10/15/2019 17:04	14.53	2.30	2.13	3.92	0.008	2.81	2.60	2.84	0.0058	466.3	49.84	233.2
10/15/2019 17:05	14.56	2.31	2.15	3.91	0.008	2.81	2.61	2.89	0.0059	465.9	49.74	234.1
10/15/2019 17:06	14.58	2.33	2.18	3.92	0.008	2.81	2.62	2.89	0.0059	466.1	49.91	234.9
10/15/2019 17:07	14.60	2.34	2.19	3.91	0.008	2.80	2.62	2.88	0.0059	465.5	49.97	235.4
10/15/2019 17:08	14.59	2.36	2.21	3.92	0.008	2.79	2.61	2.89	0.0059	466.3	49.99	235.4
10/15/2019 17:09	14.57	2.36	2.20	3.91	0.008	2.78	2.59	2.83	0.0058	465.4	49.72	234.2
10/15/2019 17:10	14.55	2.37	2.20	3.91	0.008	2.78	2.58	2.83	0.0058	465.0	49.97	233.3
10/15/2019 17:11	14.54	2.36	2.19	3.91	0.008	2.79	2.59	2.84	0.0058	465.9	50.00	233.4
10/15/2019 17:12	14.52	2.35	2.17	3.92	0.008	2.80	2.59	2.84	0.0058	466.2	49.91	232.8
10/15/2019 17:13	14.53	2.33	2.16	3.92	0.008	2.80	2.59	2.84	0.0058	466.5	49.90	233.3
10/15/2019 17:14	14.56	2.32	2.16	3.91	0.008	2.80	2.61	2.84	0.0058	465.7	50.03	234.0
10/15/2019 17:15	14.58	2.37	2.21	3.91	0.008	2.79	2.60	2.84	0.0058	465.8	49.94	234.8
10/15/2019 17:16	14.60	2.42	2.27	3.91	0.008	2.81	2.63	2.89	0.0059	466.0	49.83	235.6
10/15/2019 17:17	14.56	2.44	2.27	3.91	0.008	2.83	2.63	2.89	0.0059	465.7	49.95	234.0
10/15/2019 17:18	14.55	2.47	2.29	3.91	0.008	2.81	2.61	2.88	0.0059	465.6	49.93	233.6
10/15/2019 17:19	14.53	2.50	2.32	4.40	0.009	2.79	2.58	2.83	0.0058	465.2	49.79	232.7
10/15/2019 17:20	14.53	2.49	2.31	3.91	0.008	2.78	2.57	2.83	0.0058	465.3	49.95	232.7
10/15/2019 17:21	14.53	2.48	2.30	3.91	0.008	2.78	2.57	2.84	0.0058	465.5	49.99	232.8
10/15/2019 17:22	14.55	2.49	2.31	4.40	0.009	2.78	2.58	2.83	0.0058	465.2	49.97	233.4
10/15/2019 17:23	14.57	2.50	2.33	4.40	0.009	2.76	2.57	2.84	0.0058	465.8	49.94	234.4
10/15/2019 17:24	14.60	2.52	2.36	4.40	0.009	2.74	2.57	2.84	0.0058	466.1	49.92	235.7
10/15/2019 17:25	14.59	2.51	2.35	4.40	0.009	2.77	2.59	2.83	0.0058	465.2	49.77	234.9
10/15/2019 17:26	14.57	2.49	2.32	4.40	0.009	2.80	2.61	2.88	0.0059	465.5	49.92	234.3
10/15/2019 17:27	14.54	2.51	2.33	4.40	0.009	2.81	2.61	2.84	0.0058	465.6	50.11	233.2
10/15/2019 17:28	14.53	2.52	2.33	4.40	0.009	2.78	2.57	2.83	0.0058	465.3	50.01	232.7
10/15/2019 17:29	14.51	2.50	2.31	4.40	0.009	2.78	2.57	2.83	0.0058	465.3	50.00	232.0
10/15/2019 17:30	14.53	2.53	2.34	4.40	0.009	2.75	2.55	2.79	0.0057	466.0	49.97	233.0
10/15/2019 17:31	14.56	2.55	2.37	4.40	0.009	2.74	2.55	2.79	0.0057	465.4	49.72	233.9
10/15/2019 17:32	14.59	2.57	2.40	4.40	0.009	2.72	2.54	2.79	0.0057	465.6	49.86	235.1
10/15/2019 17:33	14.59	2.60	2.43	4.39	0.009	2.71	2.53	2.78	0.0057	465.0	50.05	234.8
10/15/2019 17:34	14.59	2.60	2.43	4.40	0.009	2.70	2.52	2.79	0.0057	465.5	49.96	235.0
10/15/2019 17:35	14.56	2.60	2.42	4.40	0.009	2.71	2.52	2.78	0.0057	465.1	50.04	233.7
10/15/2019 17:36	14.54	2.58	2.39	4.40	0.009	2.73	2.53	2.78	0.0057	465.2	49.86	233.0
10/15/2019 17:37	14.54	2.57	2.38	4.39	0.009	2.73	2.53	2.78	0.0057	464.8	49.89	232.8
10/15/2019 17:38	14.53	2.56	2.37	4.40	0.009	2.74	2.54	2.79	0.0057	465.6	49.94	232.9
10/15/2019 17:39	14.55	2.54	2.36	4.40	0.009	2.77	2.57	2.83	0.0058	465.4	49.85	233.5
10/15/2019 17:40	14.59	2.51	2.35	4.39	0.009	2.80	2.62	2.88	0.0059	464.7	49.96	234.6
10/15/2019 17:41	14.60	2.50	2.34	4.40	0.009	2.82	2.64	2.88	0.0059	465.4	49.98	235.4
10/15/2019 17:42	14.59	2.49	2.33	4.40	0.009	2.84	2.66	2.93	0.0060	465.3	49.81	234.9
10/15/2019 17:43	14.56	2.48	2.31	4.40	0.009	2.86	2.66	2.93	0.0060	465.2	50.02	233.8
10/15/2019 17:44	14.56	2.47	2.30	3.91	0.008	2.85	2.65	2.93	0.0060	465.4	49.88	233.9
10/15/2019 17:45	14.55	2.50	2.32	4.39	0.009	2.82	2.62	2.88	0.0059	464.9	49.95	233.2
10/15/2019 17:46	14.55	2.55	2.37	4.39	0.009	2.81	2.61	2.88	0.0059	464.8	49.98	233.2
10/15/2019 17:47	14.55	2.53	2.35	4.40	0.009	2.82	2.62	2.88	0.0059	465.3	50.02	233.4
10/15/2019 17:48	14.59	2.51	2.35	4.40	0.009	2.83	2.65	2.88	0.0059	465.4	49.87	235.0
10/15/2019 17:49	14.60	2.49	2.33	4.40	0.009	2.86	2.68	2.93	0.0060	465.5	49.93	235.4
10/15/2019 17:50	14.62	2.49	2.34	4.40	0.009	2.88	2.71	2.98	0.0061	465.3	50.06	236.1
10/15/2019 17:51	14.59	2.50	2.34	4.40	0.009	2.89	2.70	2.98	0.0061	465.1	49.91	234.8
10/15/2019 17:52	14.59	2.48	2.32	4.39	0.009	2.89	2.70	2.97	0.0061	464.5	49.96	234.5
10/15/2019 17:53	14.56	2.50	2.33	4.40	0.009	2.89	2.69	2.93	0.0060	465.4	49.79	233.9
10/15/2019 17:54	14.55	2.54	2.36	4.39	0.009	2.85	2.65	2.88	0.0059	464.8	49.84	233.2
10/15/2019 17:55	14.56	2.54	2.36	4.39	0.009	2.85	2.65	2.93	0.0060	464.9	49.82	233.6
10/15/2019 17:56	14.58	2.52	2.35	4.39	0.009	2.90	2.71	2.98	0.0061	465.0	49.84	234.4
10/15/2019 17:57	14.61	2.50	2.34	4.40	0.009	2.98	2.80	3.08	0.0063	465.1	50.02	235.6
10/15/2019 17:58	14.63	2.49	2.34	4.39	0.009	3.00	2.82	3.08	0.0063	465.0	49.98	236.3
Daily Average*	**14.56**	**2.46**	**2.29**	**4.18**	**0.009**	**2.79**	**2.60**	**2.86**	**0.0058**	**465.5**	**49.92**	**234.0**
Maximum*	**14.63**	**2.60**	**2.43**	**4.40**	**0.009**	**3.00**	**2.82**	**3.08**	**0.0063**	**466.6**	**50.11**	**236.3**
	10/15/2019 17:58	10/15/2019 17:35	10/15/2019 17:34	10/15/2019 17:57	10/15/2019 17:58	10/15/2019 17:58	10/15/2019 17:58	10/15/2019 17:58	10/15/2019 17:58	10/15/2019 16:57	10/15/2019 17:27	10/15/2019 17:58
Minimum*	**14.51**	**2.30**	**2.13**	**3.91**	**0.008**	**2.65**	**2.46**	**2.69**	**0.0055**	**464.5**	**49.70**	**232.0**
	10/15/2019 17:29	10/15/2019 17:04	10/15/2019 17:04	10/15/2019 17:44	10/15/2019 17:44	10/15/2019 16:56	10/15/2019 16:56	10/15/2019 16:56	10/15/2019 16:56	10/15/2019 17:52	10/15/2019 17:00	10/15/2019 17:29

* Does not include Invalid Averaging Periods ("N/A")

APPENDIX C
CALCULATIONS

Appendix C.1
General Emissions Calculations

GENERAL EMISSION CALCULATIONS

I. Stack Gas Velocity

A. Stack gas molecular weight, lb/lb-mole

$$MW_{dry} = 0.44 * \%CO_2 + 0.32 * \%O_2 + 0.28 * \%N_2$$

$$MW_{wet} = MW_{dry} * (1 - B_{wo}) + 18 * B_{wo}$$

B. Absolute stack pressure, iwg

$$Ps = Pbar + \frac{Psg}{13.6}$$

C. Stack gas velocity, ft/sec

$$V_s = 2.9 * C_p * \sqrt{\Delta P} * \sqrt{T_s} * \sqrt{\frac{29.92 * 28.95}{P_s * MW_{wet}}}$$

II. Moisture

A. Sample gas volume, dscf

$$V_{mstd} = 0.03342 * V_m * (P_{bar} + \frac{\Delta H}{13.6}) * \frac{T_{ref}}{T_m} * Y_d$$

B. Water vapor volume, scf

$$V_{wstd} = 0.0472 * V_{lc} * \frac{T_{ref}}{528\ ^oR}$$

C. Moisture content, dimensionless

$$B_{wo} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})}$$

III. Stack gas volumetric flow rate

A. Actual stack gas volumetric flow rate, wacfm

$$Q = V_s * A_s * 60$$

B. Standard stack gas flow rate, dscfm

$$Q_{sd} = Q * (1 - B_{wo}) * \frac{T_{ref}}{T_s} * \frac{P_s}{29.92}$$

IV. Gaseous Mass Emission Rates, lb/hr

$$M = \frac{ppm * MW_i * Q_{sd} * 60}{SV * 10^6}$$

V. Emission Rates, lb/MMBtu

$$\frac{lb}{MMBtu} = \frac{ppm * MW_i * F}{SV * 10^6} * \frac{20.9}{20.9 - \%O_2}$$

VI. Percent Isokinetic

$$I = \frac{17.32 \text{ x } T_s \text{ } (V_m std)}{(1\text{-}Bwo) \text{ 0 x Vs x Ps x Dn2}} \text{ x } \frac{520°R}{T_{ref}}$$

VII. Particulate emissions

(a) Grain loading, gr/dscf
$C = 0.01543\ (M_n/V_{m\ std})$

(b) Grain loading at 12% CO_2, gr/dscf
$C_{12\%}\ CO_2 = C\ (12/\%\ CO_2)$

(c) Mass emissions, lb/hr
M = C x Qsd x (60 min/hr)/(7000 gr/lb)

(d) Particulate emission factor

$$lb/10^6 \text{ Btu} = C\text{x } \frac{1 \text{ lb}}{7000 \text{ gr}} \text{ x F x } \frac{20.9}{20.9 - \%\ O_2}$$

MONTROSE AIR QUALITY SERVICES

Nomenclature:

A_s	= stack area, ft^2
B_{wo}	= flue gas moisture content, dimensionless
$C_{12\%CO2}$	= particulate grain loading, gr/dscf corrected to 12% CO_2
C	= particulate grain loading, gr/dscf
C_p	= pitot calibration factor, dimensionless
Dn	= nozzle diameter, in.
F	= fuel F-Factor, dscf/MMBtu @ 0% O_2
H	= orifice differential pressure, iwg
I	= % isokinetics
M_n	= mass of collected particulate, mg
M_i	= mass emission rate of specie i, lb/hr
MW	= molecular weight of flue gas, lb/lb-mole
M_{wi}	= molecular weight of specie i: SO_2: 64 NO_x: 46 CO: 28 HC: 16
0	= sample time, min.
ΔP	= average velocity head, iwg = $(\sqrt{\Delta P})^2$
P_{bar}	= barometric pressure, inches Hg
P_s	= stack absolute pressure, inches Hg
P_{sg}	= stack static pressure, iwb
Q	= wet stack flow rate at actual conditions, wacfm
Q_{sd}	= dry standard stack flow rate, dscfm
SV	= specific molar volume of an ideal gas at standard conditions, ft^3/lb-mole
T_m	= meter temperature, °R
T_{ref}	= reference temperature, °R
T_s	= stack temperature, °R
V_s	= stack gas velocity, ft/sec
V_{lc}	= volume of liquid collected in impingers, ml
V_m	= uncorrected dry meter volume, dcf
V_{mstd}	= dry meter volume at standard conditions, dscf
V_{wstd}	= volume of water vapor at standard conditions, scf
Y_d	= meter calibration coefficient

Appendix C.2
Spreadsheet Summaries

MONTROSE

SCAQMD 207.1 EXAMPLE CALCULATION
TEST NUMBER: 1-NH3-U3

Identifier	Description	Units	Equation	Value
A	Reference Temperature	F	--	60
B	Reference Temperature	R	A + 460	520
C	Meter Calibration Factor (Yd)	--	--	0.994
D	Barometric Pressure	" Hg	--	29.80
E	Meter Volume	acf	--	44.478
F	Meter Temperature	F	--	92.0
G	Meter Temperature	R	F + 460	552.0
H	Delta H	" H_2O	--	1.5
I	Meter Volume (standard)	dscf	0.03342 * E * (D + H/13.6) * B/G * C	41.632
J	Liquid Collected	grams	--	111.0
K	Water vapor volume	scf	0.0472 * J * B/528	5.160
L	Moisture Content	--	K/(K + I)	0.110
M	Gas Constant	ft-lbf/lb-mole-R	--	1545.33
N	Specific Molar Volume	SCF/lb-mole	385.3 * B / 528	379.5
O	F-Factor	dscf/MMBtu	--	8,710
P	HHV	Btu/SCF	--	1,050
Q	Mass Conversion Factor	lb/ug	--	2.2046E-09
R	O_2 Correction Factor	--	--	15
S	Stack Flow Rate @ 68 F	dscfm	--	233,600
T	Stack Flow Rate @ Tref	dscfm	S * B/528	230,061
U	Mass NH_3	ug	--	1,222
V	Mass NH_3	lb	U * Q	2.69E-06
W	MW of NH_3	lb/lb-mole	--	17.03
X	NH_3	ppm	(V * N *10^6)/(I * W)	1.4
Y	Flue Gas O_2	%	--	14.55
Z	NH_3	ppmc	X * (20.9 - R)/(20.9 - Y)	1.3
AA	NH_3	lb/hr	X * T * W * 60/(N * 10^6)	0.9
AB	NH_3	lb/MMBtu	(X * W * O)/(385.3 * 10^6) * 20.9/(20.9 - Y)	0.002
AC	NH_3	lb/MMSCF	AB * P	1.9

Note:

(1) Some values may be slightly different from those shown on the run sheets due to round off errors. This page is intended to show the calculation methodology only.

MONTROSE

SCAQMD METHOD 207.1
DATA WORKSHEET AND SUMMARY

Facility	**Canyon**		Parameter		**NH_3**
Unit	**U3**		Fuel		**Natural gas**
Sample Location	**Stack**		Data By		**SD**
Test Number	1-NH3-U3	2-NH3-U3	Average	Maximum	Limit
Reference Temperature (°F)	60	60			
Test Date	10/15/2019	10/15/2019			
Test Method	SCAQMD 207 1	SCAQMD 207.1			
Sample Train	38-WCS	38-WCS			
Meter Calibration Factor	0.994	0.994			
Stack Area (ft^2)	106.90	106.90			
Sample Time (Minutes)	60	60			
Barometric Pressure ("Hg)	29.80	29.80			
Start/Stop Time	1518/1624	1652/1758			
Meter Volume (acf)	44.478	43.311			
Meter Temperature (°F)	92.0	83.3			
Meter Pressure (iwg)	1.5	1.5			
Liquid Volume (ml)	111.0	105.7			
Stack O_2 (%)	14.55	14.56	14.56	(from facility CEMS)	
Unit Load (MW)	50	50	49.9		
Standard Sample Volume (SCF)	41.632	41.188			
Moisture Fraction	0.110	0.107			
Stack Flow Rate (dscfm, 68 °F)	233,600	234,000	233,800	(from facility CEMS)	
Stack Flow Rate (@ Tref)	230,061	230,455	230,258		
Gas Constant (ft-lbf/lb-mole-R)	1545.33	1545.33			
Molecular Weight NH_3 (lb/lb-mole)	17.03	17.03			
Specific Molar Volume (ft^3/lb-mole)	379.5	379.5			
F-Factor (dscf/MMBtu)	8,710	8,710			
HHV(Btu/SCF)	1,050	1,050			
Mass Conversion (lb/ug)	2.2046E-09	2.2046E-09			
O_2 Correction Factor (%)	15	15			
Mass NH_3 (ug)	1,222	1,087			
Mass NH_3 (lb)	2.69E-06	2.40E-06			
NH_3 (ppmv, flue gas)	1.4	1.3	1.4	1.4	
NH_3 (ppmv @ O_2 Correction Factor)	1.3	1.2	1.3	1.3	5
NH_3 (lb/hr)	0.9	0.8	0.8	0.9	
NH_3 (lb/MMBtu)	0.002	0.002	0.002	0.002	
NH_3 (lb/MMSCF)	1.9	1.7	1.8	1.9	

Note: SCAQMD Method 207.1 requires the higher of the duplicate runs be reported as the test result.

APPENDIX D
QUALITY ASSURANCE

Appendix D.1
Quality Assurance Program Summary

QUALITY ASSURANCE PROGRAM SUMMARY

As part of Montrose Air Quality Services, LLC (MAQS) ASTM D7036-04 certification, MAQS is committed to providing emission related data which is complete, precise, accurate, representative, and comparable. MAQS quality assurance program and procedures are designed to ensure that the data meet or exceed the requirements of each test method for each of these items. The quality assurance program consists of the following items:

- Assignment of an Internal QA Officer
- Development and use of an internal QA Manual
- Personnel training
- Equipment maintenance and calibration
- Knowledge of current test methods
- Chain-of-custody
- QA reviews of test programs

Assignment of an Internal QA Officer: MAQS has assigned an internal QA Officer who is responsible for administering all aspects of the QA program.

Internal Quality Assurance Manual: MAQS has prepared a QA Manual according to the requirements of ASTM D7036-04 and guidelines issued by EPA. The manual documents and formalizes all of MAQS QA efforts. The manual is revised upon periodic review and as MAQS adds capabilities. The QA manual provides details on the items provided in this summary.

Personnel Testing and Training: Personnel testing and training is essential to the production of high quality test results. MAQS training programs include:

- A requirement for all technical personnel to read and understand the test methods performed
- A requirement for all technical personnel to read and understand the MAQS QA manual
- In-house testing and training
- Quality Assurance meetings
- Third party testing where available
- Maintenance of training records.

Equipment Maintenance and Calibration: All laboratory and field equipment used as a part of MAQS emission measurement programs is maintained according to manufacturer's recommendations. A summary of the major equipment maintenance schedules is summarized in Table 1. In addition to routine maintenance, calibrations are performed on all sampling equipment according to the procedures outlined in the applicable test method. The calibration intervals and techniques for major equipment components is summarized in Table 2. The calibration technique may vary to meet regulatory agency requirements.

Knowledge of Current Test Methods: MAQS maintains current copies of EPA, ARB, and SCAQMD Source Test Manuals and Rules and Regulations.

Chain-of-Custody: MAQS maintains chain-of-custody documentation on all data sheets and samples. Samples are stored in a locked area accessible only to MAQS source test personnel. Data sheets are kept in the custody of the originator, program manager, or in locked storage until return to MAQS office. Electronic field data is duplicated for backup on secure storage media. The original data sheets are used for report preparation and any additions are initialed and dated.

QA Reviews: Periodic field, laboratory, and report reviews are performed by the in-house QA coordinator. Periodically, test plans are reviewed to ensure proper test methods are selected and reports are reviewed to ensure that the methods were followed and any deviations from the methods are justified and documented.

ASTM D7036-04 Required Information

Uncertainty Statement

Montrose is qualified to conduct this test program and has established a quality management system that led to accreditation with ASTM Standard D7036-04 (Standard Practice for Competence of Air Emission Testing Bodies). Montrose participates in annual functional assessments for conformance with D7036-04 which are conducted by the American Association for Laboratory Accreditation (A2LA). All testing performed by Montrose is supervised on site by at least one Qualified Individual (QI) as defined in D7036-04 Section 8.3.2. Data quality objectives for estimating measurement uncertainty within the documented limits in the test methods are met by using approved test protocols for each project as defined in D7036-04 Sections 7.2.1 and 12.10. Additional quality assurance information is presented in the report appendices.

Performance Data

Performance data are available for review.

Qualified Personnel

A qualified individual (QI), defined by performance on a third party or internal test on the test methods, will be present on each test event.

Plant Entry and Safety Requirements

Plant Entry

All test personnel are required to check in with the guard at the entrance gate or other designated area. Specific details are provided by the facility and project manager.

Safety Requirements

All personnel shall have the following personal protective equipment (PPE) and wear them where designated:

- Hard Hat
- Safety Glasses
- Steel Toe Boots
- Hearing Protection
- Gloves
- High Temperature Gloves (if required)

The following safety measures will be followed:

- Good housekeeping
- SDS for all on-site hazardous materials
- Confine selves to necessary areas (stack platform, mobile laboratory, CEMS data acquisition system, control room, administrative areas)
- Knowledge of evacuation procedures

Each facility will provide plant specific safety training.

TABLE 1
EQUIPMENT MAINTENANCE SCHEDULE

Equipment	Acceptance Limits	Frequency of Service	Methods of Service
Pumps	1. Absence of leaks 2. Ability to draw manufacturers required vacuum and flow	As recommended by manufacturer	1. Visual inspection 2. Clean 3. Replace parts 4. Leak check
Flow Meters	1. Free mechanical movement	As recommended by manufacturer	1. Visual inspection 2. Clean 3. Calibrate
Sampling Instruments	1. Absence of malfunction 2. Proper response to zero span gas	As recommended by manufacturer	As recommended by manufacturer
Integrated Sampling Tanks	1. Absence of leaks	Depends on nature of use	1. Steam clean 2. Leak check
Mobil Van Sampling System	1. Absence of leaks	Depends on nature of use	1. Change filters 2. Change gas dryer 3. Leak check 4. Check for system contamination
Sampling lines	1. Sample degradation less than 2%	After each test series	1. Blow dry, inert gas through line until dry

TABLE 2
MAJOR SAMPLING EQUIPMENT CALIBRATION REQUIREMENTS

Sampling Equipment	Calibration Frequency	Calibration Procedure	Acceptable Calibration Criteria
Continuous Analyzers	Before and After Each Test Day	3-point calibration error test	< 2% of analyzer range
Continuous Analyzers	Before and After Each Test Run	2-point sample system bias check	< 5% of analyzer range
Continuous Analyzers	After Each Test Run	2-point analyzer drift determination	< 3% of analyzer range
CEMS System	Beginning of Each Day	leak check	< 1 in. Hg decrease in 5 min. at > 20 in. Hg
Continuous Analyzers	Semi-Annually	3-point linearity	< 1% of analyzer range
NO_x Analyzer	Daily	NO_2 -> NO converter efficiency	> 90%
Differential Pressure Gauges (except for manometers)	Semi-Annually	Correction factor based on 5-point comparison to standard	+/- 5%
Differential Pressure Gauges (except for manometers)	Bi-Monthly	3-point comparison to standard, no correction factor	+/- 5%
Barometer	Semi-Annually	Adjusted to mercury-in-glass or National Weather Service Station	+/- 0.1 inches Hg
Dry Gas Meter	Semi-Annually	Calibration check at 4 flow rates using a NIST traceable standard	+/- 2%
Dry Gas Meter	Bi-Monthly	Calibration check at 2 flow rates using a NIST traceable standard	+/- 2% of semi-annual factor
Dry Gas Meter Orifice	Annually	4-point calibration for ΔH@	--
Temperature Sensors	Semi-Annually	3-point calibration vs. NIST traceable standard	+/- 1.5%

Note: Calibration requirements will be used that meet applicable regulatory agency requirements.

Appendix D.2
SCAQMD and STAC Certifications

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

September 6, 2019

Mr. John Peterson
Montrose Air Quality Services, LLC
1631 E. Saint Andrew Place
Santa Ana, CA 92705

Subject: LAP Approval Notice
Reference # 96LA1220

Dear Mr. Peterson:

We have reviewed your renewal letter under the South Coast Air Quality Management District's Laboratory Approval Program (LAP). We are pleased to inform you that your firm is approved for the period beginning September 30, 2019, and ending September 30, 2020 for the following methods, subject to the requirements in the LAP Conditions For Approval Agreement and conditions listed in the attachment to this letter:

Methods 1-4
Methods 5.1, 5.2, 5.3, 6.1
Methods 10.1 and 100.1
Methods 25.1 and 25.3 (Sampling)
USEPA CTM-030 and ASTM D6522-00
Rule 1121/ 1146.2 Protocol
Rule 1420/1420.1/1420.2 – (Lead) Source and Ambient Sampling

Your LAP approval to perform nitrogen oxide emissions compliance testing for Rule 1121/ 1146.2 Protocols includes satellite facilities located at:

McKenna Boiler
1510 North Spring Street
Los Angeles, CA 90012

Noritz America Corp.
11160 Grace Avenue
Fountain Valley, CA 92708

Ajax Boiler, Inc.
2701 S. Harbor Blvd.
Santa Ana, CA 92704

Laundry Building of VA Greater Los Angeles Healthcare System
508 Constitution Avenue
Los Angeles, CA 90049

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

Sincerely,

D. Sarkar

Dipankar Sarkar
Program Supervisor
Source Test Engineering

DS:GK/gk
Attachment

190906 LapRenewalRev.doc

STAC STACK TESTING ACCREDITATION COUNCIL

A2LA American Association for Laboratory Accreditation

Accredited Air Emission Testing Body

A2LA has accredited

MONTROSE AIR QUALITY SERVICES

In recognition of the successful completion of the joint A2LA and Stack Testing Accreditation Council (STAC) evaluation process, this laboratory is accredited to perform testing activities in compliance with ASTM D7036:2004 - Standard Practice for Competence of Air Emission Testing Bodies.

Presented this 5th day of March 2018.

President and CEO
For the Accreditation Council
Certificate Number 3925.01
Valid to February 29, 2020

AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION CORPORATE SEAL 1978 DISTRICT OF COLUMBIA A2LA

This accreditation program is not included under the A2LA ILAC Mutual Recognition Arrangement.

Appendix D.3
Individual QI Certificate

CERTIFICATE OF COMPLETION

Sean Donovan

This document certifies that this individual has passed a comprehensive examination and is now a Qualified Individual (QI) as defined in Section 8.3 of ASTM D7036-04 for the following method(s):

SCAQMD Method 207.1

Certificate Number: 002-2016-06

Tate Strickler, Accreditation Director

DATE OF ISSUE: 11/30/16

DATE OF EXPIRATION: 11/30/21

MONTROSE ENVIRONMENTAL

APPENDIX E
APPLICABLE PERMIT SECTIONS

FACILITY PERMIT TO OPERATE
CANYON POWER PLANT

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
Process 1: POWER GENERATION					
GAS TURBINE, NO. 3, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000PC SPRINT, SIMPLE CYCLE, 479 MMBTU/HR AT 46 DEG F, WITH INLET CHILLING, WITH WATER INJECTION WITH A/N: 555830 GENERATOR, 50.95 MW	D13	C15	NOX: MAJOR SOURCE**	**CO**: 4 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1) -BACT, 12-6-2002*]; **CO**: 2000 PPMV NATURAL GAS (5) **[RULE 407, 4-2-1982]**; **NOX**: 2.5 PPMV NATURAL GAS (4) **[RULE 2005, 6-3-2011]**; **NOX**: 25 PPMV NATURAL GAS (8) **[40CFR 60 Subpart KKKK, 7-6-2006]**; **PM10**: 0.01 GRAINS/SCF NATURAL GAS (5A) **[RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; **PM10**: 0.1 GRAINS/SCF NATURAL GAS (5) **[RULE 409, 8-7-1981]**; **PM10**: 1.67 LBS/HR NATURAL GAS (5C) **[RULE 1303(b)(2)-Offset, 5-10-1996;** *RULE 1303(b)(2) -Offset, 12-6-2002*]; **PM10**: 11 LBS/HR NATURAL GAS (5B) **[RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; **SO2**: (9) **[40CFR 72 - Acid Rain Provisions, 11-24-1997]**; **SOX**: 0.06 LBS/MMBTU NATURAL GAS (8) **[40CFR 60 Subpart KKKK, 7-6-2006]**; **VOC**: 2 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002*]	A63.1, A99.1, A99.2, A99.3, A195.1, A195.2, A195.3, A327.1, B61.1, D12.1, D29.2, D29.3, D82.1, D82.2, E193.1, H23.1, I298.3, K40.1

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

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

FACILITY PERMIT TO OPERATE
CANYON POWER PLANT

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 1: POWER GENERATION					
CO OXIDATION CATALYST, NO. 3, BASF, 110 CUBIC FEET OF TOTAL CATALYST VOLUME A/N: 476660	C15	D13 C16			
SELECTIVE CATALYTIC REDUCTION, NO. 3, CORMETECH CMHT-21, 1012 CU.FT.; WIDTH: 2 FT 6 IN; HEIGHT: 25 FT 9 IN; LENGTH: 18 FT WITH A/N: 476660 AMMONIA INJECTION	C16	C15 S18		NH_3: 5 PPMV NATURAL GAS (4) [**RULE 1303(a)(1)-BACT, 5-10-1996**; *RULE 1303(a)(1) -BACT, 12-6-2002*]	A195.6, D12.2, D12.3, D12.4, E179.1, E179.2, E193.1
STACK, TURBINE NO. 3, HEIGHT: 86 FT ; DIAMETER: 11 FT 8 IN A/N: 555830	S18	C16			

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

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

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

[Devices subject to this condition : C4, C10, C16, C22]

D12.5 The operator shall install and maintain a(n) non-resettable elapsed time meter to accurately indicate the elapsed operating time of the engine.

[**RULE 1110.2, 2-1-2008;** RULE 1110.2, 9-7-2012; **RULE 1303(b)(2)-Offset, 5-10-1996;** RULE 1303(b)(2)-Offset, 12-6-2002; RULE 1401, 9-10-2010; RULE 1470, 5-4-2012; **RULE 2012, 5-6-2005; 40CFR 60 Subpart IIII, 1-30-2013**]

[Devices subject to this condition : D25]

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

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
NH3 emissions	District method 207.1 and 5.3 or EPA method 17	1 hour	Outlet of the SCR serving this equipment

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

The test(s) shall be conducted at least quarterly during the first twelve months of operation and at least annually thereafter. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test.

If the turbine is not in operation during one calendar year, then no testing is required during that calendar year.

The NOx concentration, as determined by the CEMS, shall be simultaneously recorded during the ammonia slip test. If the CEMS is inoperable, a test shall be conducted to determine the NOx emissions using District Method 100.1 measured over a 60 minute averaging time period.

The test shall be conducted and the results submitted to the District within 60 days after the test date.

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration limit.

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

[Devices subject to this condition : D1, D7, D13, D19]

D29.3 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Sampling Time	Test Location
SOX emissions	AQMD Laboratory Method 307-91	Not Applicable	Fuel sample
VOC emissions	District Method 25.3	1 hour	Outlet of the SCR serving this equipment
PM emissions	District method 5.1	4 hours	Outlet of the SCR serving this equipment

THIS IS THE LAST PAGE OF THIS DOCUMENT

If you have any questions, please contact one of the following individuals by email or phone.

Name: Mr. Sean Donovan
Title: Client Project Manager
Region: West
E-Mail: SDonovan@montrose-env.com
Phone: (714) 279-6777

Name: Mr. Matt McCune
Title: Regional Vice President
Region: West
E-Mail: MMccune@montrose-env.com
Phone: (714) 279-6777

TEST REPORT FOR
AMMONIA SLIP TEST
AT CANYON POWER PLANT UNIT 4
FACILITY ID 153992, DEVICE ID D19

Prepared For:

Canyon Power Plant
3071 E. Mira Loma Avenue.
Anaheim, California 92806

For Submittal To:

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

Prepared By:

Montrose Air Quality Services, LLC
1631 E. St. Andrew Pl.
Santa Ana, California 92705
(714) 279-6777

Sean M. Donovan

Test Date: **June 11, 2019**
Production Date: **July 16, 2019**
Report Number: **W002AS-543226-RT-53**

CONFIDENTIALITY STATEMENT

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: Sean Donovan Date: 7/16/2019

Name: Sean Donovan 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.

Signature: Matt McC Date: 7/16/2019

Name: Matt McCune Title: Regional Vice President

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION AND SUMMARY

Montrose Air Quality Services, LLC (MAQS) was contracted the Canyon Power Plant to perform an ammonia slip test at Unit 4 as required by the facility Permit (Facility ID 153992) Condition Number D29.2. This report documents the results of the ammonia slip tests performed on June 11, 2019. The test was performed by John Groenenboom, Shannon Scrugham, and Luis Olivares. John Groenenboom was the on-site Qualified Individual for MAQS. Ms. Bertha Hernandez coordinated the test for Canyon Power Plant.

The test consisted of duplicate ammonia tests performed at 50 MW. The test program followed the procedures described in the initial compliance test protocol (MAQS document R038842). The results of the test are summarized in Table 1-1. The table shows that the ammonia slip from this unit was less than the permitted limit of 5 ppm corrected to 15% O_2.

TABLE 1-1
AMMONIA SLIP TEST RESULTS
CANYON POWER PLANT UNIT 4
JUNE 11, 2019

Parameter	Units	Result(1)	Limit
NH_3	ppm	1.8	--
NH_3	ppmc	1.7	5

(1) Maximum of duplicate runs, as required by SCAQMD Method 207.1

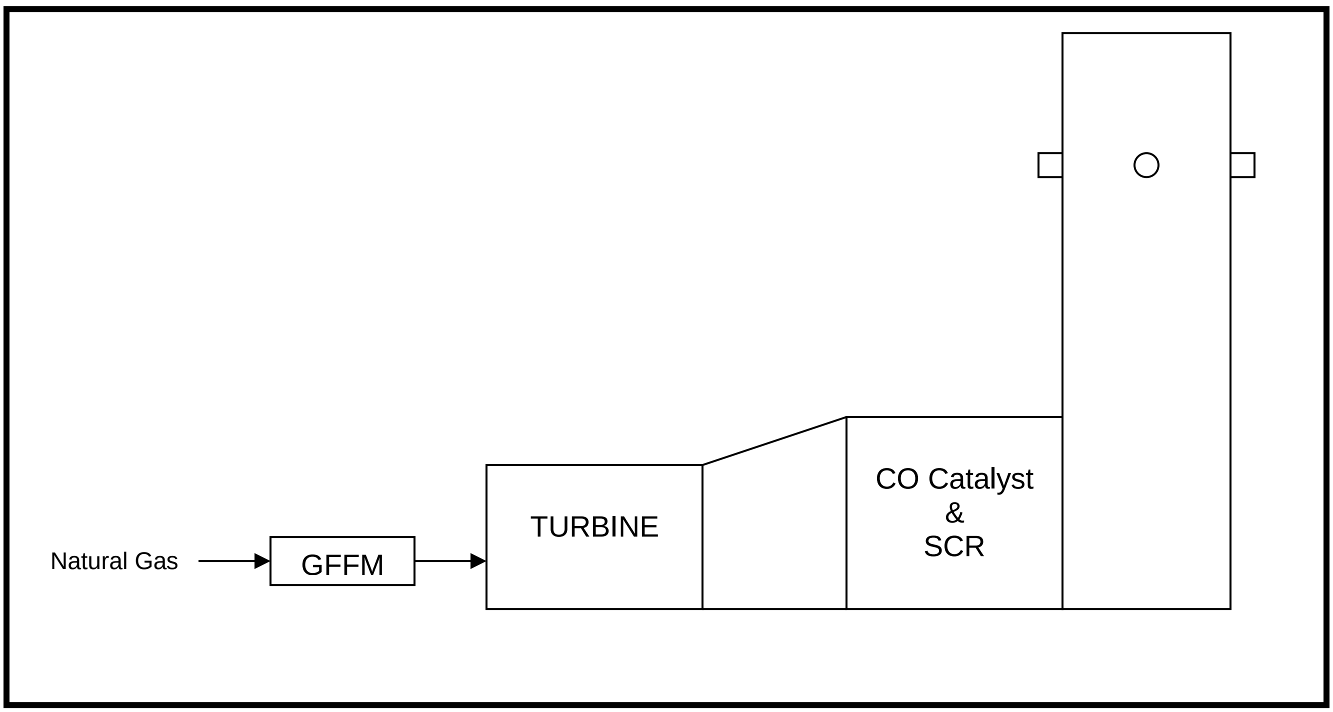
Section 2 of this document provides a brief description of the unit, test conditions, sample location, and CEMS. Details of the test procedures are provided in Section 3. Section 4 provides the results of each individual test. All raw data, calculations, quality assurance data, unit operating conditions, and CEMS data are provided in the appendices.

2.0 UNIT AND CEMS DESCRIPTION

2.1 UNIT DESCRIPTION

The City of Anaheim Canyon Power Plant is located at 3071 E. Mira Loma Avenue, Anaheim, California 92806. The facility consists of four identical generating units. Each unit consists of a natural gas fired, GE Model LM6000PC Sprint simple cycle, gas turbine. The units are natural gas fired with a rated heat input of 479 MMBtu per hour at 46 degrees Fahrenheit, with water injection. The units are equipped with a CO catalyst and Selective Catalytic Reduction (SCR) system for NO_x control. Figure 2-1 presents a block diagram of the unit.

FIGURE 2-1
UNIT BLOCK DIAGRAM
CANYON POWER PLANT



Stack Inside Diameter:	11 feet, 8 inches
Distance from Upstream Disturbance:	23 feet, 4 inches (2.0 Diameters)
Distance from Stack Exit:	16 feet, 6 inches (1.4 Diameters)

2.2 TEST CONDITIONS

The tests were performed with the unit operating at an average load of 50 MW. Tests were performed while the unit was firing natural gas and operating under normal conditions. Unit operation was established by the Canyon Power Plant operators.

2.3 SAMPLE LOCATION

The measurements were made from sample ports located on the exhaust stack. There are four sample ports equally spaced at this location. The stack inside diameter at the sample plane is 11 feet, 8 inches. The sample ports are located 23 feet, 4 inches (2.0 diameters) downstream of the nearest flow disturbance and 16 feet, 6 inches (1.4 diameters) from the stack exit.

3.0 TEST DESCRIPTION

Flue gas samples were collected non-isokinetically using a SCAQMD Method 207.1 sample train. The samples were collected using a 12-point traverse at the exhaust stack location. Each test was performed over a 60 minute interval. The sample gas was drawn through a glass probe, Teflon sample line, two impingers each containing 100 ml of 0.1N H_2SO_4, an empty impinger, an impinger containing silica gel, and a dry gas meter. The optional nozzle and filter were not used since the source is natural gas fired. The contents of the sample line and the first three impingers were recovered and analyzed by SCAQMD Method 207.1 for ammonia concentration by Ion Specific Electrode analysis.

Stack O_2 and NO_x concentrations and stack volumetric flow rate data were recorded from the Continuous Emission Monitoring System (CEMS) which is installed on the unit. These data were used to correct the ammonia concentration to 15% O_2.

4.0 TEST RESULTS

The results of the test are summarized in Table 4-1. The results show that the maximum ammonia slip was 1.7 ppm @ 15% O_2 which is less than the permitted limit of 5 ppm @ 15% O_2.

TABLE 4-1
AMMONIA SLIP TEST RESULTS
CANYON POWER PLANT UNIT 4
JUNE 11, 2019

Parameter	Units	Run 1	Run 2	Average	Maximum(1)	Limit
Test		1-NH_3-U4	2-NH_3-U4			--
Date		6/11/2019	6/11/2019			--
Time		1027/1133	1213/1319			--
O_2(2)	%	14.43	14.39	14.41	--	--
Stack Flow(2)	dscfm @ T_{ref}	229,962	227,992	228,977	--	--
NO_x(2)	ppmc	2.3	2.1	2.2	--	2.5
NH_3	ppm	1.8	1.6	1.7	1.8	--
NH_3	ppmc	1.7	1.4	1.6	1.7	5
NH_3	lb/hr	1.1	1.0	1.1	1.1	--
NH_3	lb/MMBtu	0.002	0.002	0.002	0.002	--
NH_3	lb/MMSCF	2.4	2.1	2.2	2.4	--

(1) Maximum of duplicate test runs, as required by SCAQMD Method 207.1
(2) From facility CEMS

APPENDIX A
RAW DATA

Appendix A.1
Sample Data Sheets

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: Canyon
LOCATION: Canyon 4
DATE: 6/11/19
RUN NO: 1-NH3-U4
OPERATOR: SS
METER BOX NO: 12W65
METER ΔH@: 1.624
METER Yd: 1.005
STACK AREA, FT²: 106.90
TRAVERSE POINTS, MIN/POINT: 5/12
ΔH= ______ X ΔP:
Probe Condition, pre/post test: good/good
Silica Gel Expanded, Y/N: N
Filter Condition after Test: NA
Check Weight: 499.9/500.0

AMBIENT TEMPERATURE: 87°
BAROMETRIC PRESSURE: 29.75
ASSUMED MOISTURE: 11.7
PITOT TUBE COEFF, Cp: N/A NA
PROBE ID NO/MATERIAL: NA / glass
PROBE LENGTH: 6'
NOZZLE ID NO/ MATERIAL: NA
NOZZLE DIAMETER: NA
FILTER NO/TYPE: NA
PRE-TEST LEAK RATE: : <0.005 CFM@ 15 in. Hg.
POST-TEST LEAK RATE: 0.010 CFM@ 15 in. Hg.
PITOT LEAK CHECK - PRE: NA POST: NA
CHAIN OF CUSTODY: SAMPLE CUSTODIAN SG
SAMPLER SS
SAMPLE CUSTODIAN SG

Imp. #	Contents	Post-Test	Pre-Test	= Difference
1	H_2SO_4	892.6	701.5	
2	H_2SO_4	731.1	727.0	
3	MT	660.4	659.7	
4	SG	940.2	926.6	
LQ		Ø	100	
Total:				

Point	Time	Meter Volume, ft³	ΔP in. H_2O	ΔH in. H_2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O_2 %	P. static in. H_2O
W 3	1027	184.580	N/A	1.5	N/A	N/A	N/A	59	86	87	3.0		N/A
2	1032												
1	1037												
STOP	1042												
N 3	1044	199.875		1.5				56	85	84	3.0		
2	1049												
1	1054												
STOP	1059												
E 3	1101	210.310		1.5				59	86	86	3.0		
2	1106												
1	1111												
STOP	1116												
S 3	1118	221.300		1.5				60	88	87	3.0		
2	1123												
1	1128												
END	1133	231.130											
Average:													

Comments:

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: CANYON
LOCATION: Canyon 4
DATE: 6/11/19
RUN NO: 2-NH3-N4
OPERATOR: SS
METER BOX NO: 12WCS
METER ΔH@: 1.624
METER Yd: ~~1.004~~ 1.005 JG 6/11/19
STACK AREA, FT²: 10690
TRAVERSE POINTS, MIN/POINT: 5/12
ΔH= ____ X ΔP:
Probe Condition, pre/post test: good/good
Silica Gel Expanded, Y/N: N
Filter Condition after Test: NA
Check Weight: 499.9/500.0

AMBIENT TEMPERATURE: 87
BAROMETRIC PRESSURE: 29.75
ASSUMED MOISTURE: 11.7
PITOT TUBE COEFF, Cp: NA
PROBE ID NO/MATERIAL: NA / Glass
PROBE LENGTH: 7'
NOZZLE ID NO/ MATERIAL: NA
NOZZLE DIAMETER: NA
FILTER NO/TYPE: NA
PRE-TEST LEAK RATE: : 0.000 CFM@ 15 in. Hg.
POST-TEST LEAK RATE: : 0.009 CFM@ 15 in. Hg.
PITOT LEAK CHECK - PRE: N/A POST: N/A
CHAIN OF CUSTODY: SAMPLE CUSTODIAN JG
SAMPLER SS
SAMPLE CUSTODIAN JG

Imp. #	Contents	Post-Test	Pre-Test	Difference
1	H_2SO_4	873.4	678.6	
2	H_2SO_4	684.3	679.8	
3	mt	644.9	640.6	
4	SG	818.7	802.3	
LR		0	100.0	-100
Total:				

Point	1213 Time	Meter Volume, ft³	ΔP in. H_2O	ΔH in. H_2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O_2 %	P. static in. H_2O
3	~~1213~~	233.300	N/A	1.5	N/A	N/A	N/A	60	88	88	3		N/A
2	1218												
1	1223												
STOP	1228												
3	1230	242.168		1.5				60	87	87	3.0		
2	1235												
1	1240												
STOP	1245												
3	1247	253.680		1.5				60	88	87	3.0		
2	1252												
1	1257												
STOP	1302	264.660		1.5				60	89	88	3.0		
3	1304												
2	1309												
1	1314												
END	1319	275.850											
Average:													

Comments: * SS 6/11/19

Appendix A.2
Laboratory Data

MONTROSE
AIR QUALITY SERVICES

AMMONIA BY ION SELECTIVE ELECTRODE ANALYSIS

Project #: 002AS-543226 District Method: SCAQMD 207.1 Sample Date: 6/11/19 *
Client/Location: SCPPA U4 Calibration Date: 6/18/19 Analysis Date: ~~6/18/19~~ 6/18/19
Sample Location: Stack Calibration Curve: y=-57.6167+85.0667 Analyst's Initials: KC
Test #'s: 1,2 -NH_3 R^2: 0.9999

Sample	Electrode Potential (mV)	TV (ml)	Conc. µg NH_3 – N / ml	Cavg (µg NH_3 – N / ml)	µg NH_3 / sample	Comments/ Temp/pH
Standard Check: 28 µg NH_3/ml	2.2	—	27.431	27.431	—	Percent Recovery: T=22°C
Repeat 28 µg NH_3/ml	2.2	—	27.431	—	—	T=22°C
1-NH_3	65.1	556	2.221	2.190	1480.346	T=22°C pH<2
repeat 1-NH_3	65.8	—	2.160	—	—	T=22°C
2-NH_3	69.9	587	1.833	1.830	1305.518	T=22°C pH<2
repeat 2-NH_3	70.0	—	1.826	—	—	T=22°C
Spike 2-NH_3	8.2	—	21.583	21.713	—	T=22°C
repeat spike 2-NH_3	7.9	—	21.843	—	—	T=22°C
28 µg NH_3/ml	2.5	—	27.104	27.433	—	T=22°C
repeat 28µg NH_3/ml	1.9	—	27.762	—	—	T=22°C
Reagent blank	189.9	—	0.015	0.015	—	T=22°C
repeat Reagent blank	190.0	—	0.015	—	—	T=22°C
Field blank	181.0	—	0.022	0.022	—	T=22°C
repeat Field blank	180.9	—	0.022	—	—	T=22°C
DI H_2O blank	180.0	—	0.023	0.022	—	T=22°C
repeat DI H_2O blank	180.5	—	0.022	—	—	T=22°C
28 µg NH_3/ml	2.8	—	26.781	26.888	—	T=22°C
repeat 28 µg NH_3/ml	2.6	—	26.996	—	—	T=22°C

Notes: Total volume of samples and standards used: 100ml * KC 6/18/19
Volume of pH adjusting ISA used in ml: 2ml
Absorbing solution: 0.1N H_2SO_4

Calculations: Conc. (µg NH_3 – N / ml) = $10^{(P-B)/M}$
P = electrode potential, B = y-intercept and M = slope
Cavg = average result of duplicate analyses (µg NH_3 – N / ml) = (C1+C2)/2
µg NH_3 / sample = Cavg* 17.03/ 14.01 * TV
mg / sample = µg /sample ÷ 1000
ppm NH_3 = mg NH_3/sample x 1/Vmstd x 1/454000 x SV/17 x 10^6

AMMONIA BY ION SELECTIVE ELECTRODE ANALYSIS CALCULATION

Project Number:	002AS-543226
Client/ Location:	SCPPA
Sample Location:	U4
District Method:	SCAQMD 207.1
Sample Date:	6/11/2019
Analysis Date:	6/18/2019
Analyst's Initials:	KC
Calibration Curve Slope	-57.6167
Y-intercept	85.0667
R^2	0.9999

Probe #9

Sample	P mV	Conc. µg NH_3 /ml as N	C avg as N	TV (ml)	C avg as NH_3	µg NH_3/ sample
28 ug NH_3 / ml as N	2.2	27.431				
Repeat 28 ug NH_3/ml as N	2.2	27.431	27.431	NA	33.344	NA
1-NH3	65.1	2.221				
Repeat 1- NH3	65.8	2.160	2.190	556	2.662	1480.346
2-NH_3	69.9	1.833				
Repeat 2- NH_3	70.0	1.826	1.830	587	2.224	1305.518
spike 2-NH_3	8.2	21.583				
Repeat 2-NH3 spike	7.9	21.843	21.713	NA	26.393	NA
28 NH_3/ml as N	2.5	27.104				
Repeat 28 ug NH_3/ml as N	1.9	27.762	27.433	NA	33.346	NA
Reagent Blank	189.9	0.015				
Repeat Reagent Blank	190.0	0.015	0.015	NA	0.018	NA
Field Blank	181.0	0.022				
Repeat Field Blank	180.9	0.022	0.022	NA	0.026	NA
DI H2O Blank	180.0	0.023				
Repeat DI H2O Blank	180.5	0.022	0.022	NA	0.027	NA
28 NH_3/ml as N	2.8	26.781				
Repeat 28 ug NH_3/ml as N	2.6	26.996	26.888	NA	32.685	NA

Notes:

Measured Concentration of Ammonia (C) in µg NH_3 / ml as N

$C=10^{(P-B)/M}$

P = electrode potential (mV), M=slope and B=intercept

Average Measured Ammonia Concentration (Cavg) = (C1 + C2)/2

where C1, C2 results from duplicate analyses (µg NH_3 /ml as N)

Cavg (µg NH_3/ml as NH_3) = Cavg (µg NH_3/ ml as N) * 17.03/ 14.01

µg NH_3 / sample = Cavg (µg NH_3/ml as NH_3) * TV

Used 100 ml of samples and standards with 2 ml ISA and constant stirring rate.

All solutions turned blue and remained blue with ISA unless otherwise indicated.

Sample PH and Temperatures can be found on the laboratory datasheet.

Maximum samples (including blanks) between 28 ug/ml check standard is 5 samples analyzed in duplicate.

AMMONIA BY ION SELECTIVE ELECTRODE ANALYSIS QUALITY CONTROL

Project Number:	002AS-543226
Client/ Location:	SCPPA
Sample Location:	U4
District Method:	SCAQMD 207.1
Sample Date:	6/11/2019
Analysis Date:	6/18/2019
Analyst's Initials:	KC

Sample	% recovery	RPD %	RPA %
28 ug NH3 / ml as N epeat 28 ug NH3/ml as	NA	0.00	-2.032
1-NH3 Repeat 1- NH3	NA	2.80	NA
2-NH3 Repeat 2- NH3	NA	0.40	NA
spike 2-NH3 Repeat 2-NH3 spike	103.58	-1.20	NA
28 NH3/ml as N epeat 28 ug NH3/ml as	NA	-2.40	-2.025
Reagent Blank Repeat Reagent Blank	NA	0.40	NA
Field Blank Repeat Field Blank	NA	-0.40	NA
DI H2O Blank Repeat DI H2O Blank	NA	2.00	NA
28 NH3/ml as N epeat 28 ug NH3/ml as	NA	-0.80	-3.970

Notes:

spike: 100 ml sample + 2 ml (1000 μg NH_3 / ml as N)

Matrix Spike Percent Recovery (%R)

%R = (C spike*0.104 - Csample*0.102)/2 *100

Cspike = average result of matrix spike (μg NH_3/ ml as N)

Relative Percent Difference (RPD) = (C1-C2)/ Cavg *100 (must be 5% or less)

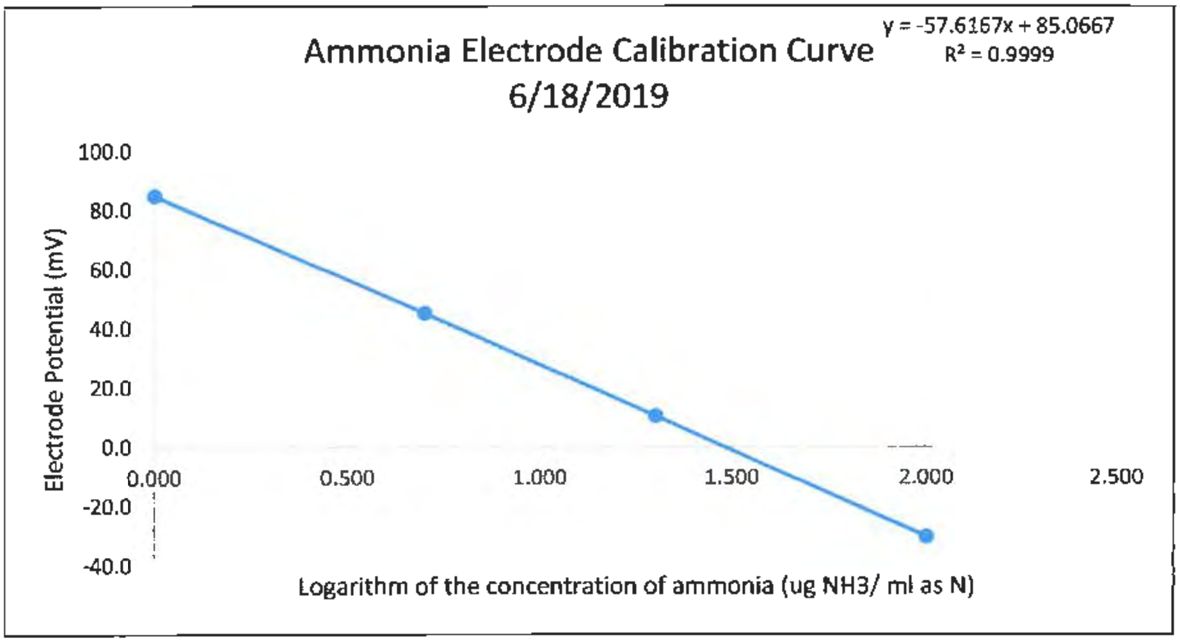
Relative Percent Accuracy (RPA) (must be 10% or less)

RPA = (Cavg-theoretical value of standard)/ theoretical value of standard * 100

AMMONIA ELECTRODE CALIBRATION CURVE

Probe 9

NH_3 concentration (μg NH_3 / ml as N)	log NH_3 concentration	Electrode potential (mV)	Sample Temperature (C)	Room Temperature (C)
1	0.000	84.7	22	22
5	0.699	45.2	22	22
20	1.301	10.4	22	22
100	2.000	-30.5	22	22



slope -57.6167
y-intercept 85.0667

Concentration (μg NH_3 / ml as N)	Value LR line	Difference	% Difference
1	1.0148	0.0148	1.4765
5	4.9196	-0.0804	-1.6080
20	19.7661	-0.2339	-1.1695
100	101.3407	1.3407	1.3407

Calculation:

Regression Line: P=M*log(μg of NH_3/ ml as N)+B

Measured Concentration of Ammonia (C) in μg / ml NH_3 as N: $C=10^{(P-B)/M}$

where P = electrode potential, M= slope (must be -57±3) and B= intercept

All standards were prepared in 0.04N H_2SO_4 and allowed to equilibrate to room temperature.

Appendix A.3
QA/QC Data

MONTROSE

SCAQMD METHOD 207.1 - AMMONIA
DETERMINATION OF SAMPLE TIME

Source: Canyon U4
Date: 6/11/2019
Performed by: JG

Constants:

	1,000	mg/gram
	454	grams/lb
	35.315	SCF/SCM
	379.5	SCF/lb-mole
	1,000,000	parts/million parts
MW_{NH3}	17.03	lb/lb-mole
MW_{N2}	14.01	lb/lb-mole

Variables:

Target concentration	5	ppm @ O_2 correction factor
O_2 correction factor	15	% O_2
Expected Flue Gas O_2	14.5	% O_2
F	2	Safety Factor
P	128.5	electrode potential corresponding to minimum value on calibration curve (mV)
B	128.83	y-intercept
M	-58.676	slope
V_r	0.5	Assumed liquid volume of probe rinse and first impinger (L)
Q @ dH = 1	0.55	cfm

Calculated Values:

Target concentration	5.4	ppm - raw
Target concentration	3.90	mg/dscm
C_1	1.013	Lowest concentration on a calibration curve (mg NH3-N/L)
RL	0.616	analytical mass reporting limit, mg
PSV	0.316	Planned sample volume, cubic meters
PSV	11.144	Planned sample volume, cubic feet
VSR	33.0	achievable volumetric sampling rate (dscf/hr)
PST	**20.3**	**Planned sample time, minutes (minimum)**

Notes:
1) A minimum of 1 hour sample time is required for any mass per hour limits.
2) Facility Permit or Rule may specify sample time

SEMI-ANNUAL DRY GAS METER/ORIFICE CALIBRATION

Orifice Method - Triplicate Runs/Four Calibration Points
English Meter Box Units, English K' Factor
Filename: M:\Santa Ana\Equipment\Test Equipment\Calibrations\Dry Gas Meters\12-wcs\2019\[Semi-Annual Meter Calibration12 wcs 2-19-19.xls]V
File Modified From: APEX 522 Series Meter box Calibration
Revised: 4/6/2005

Model #: c5000
ID #: 12 wcs
Date: 2/19/2019
Bar. Pressure: 30.14 (in. Hg)
Performed By: R. Howard

		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)	(deg F)	(number)	(see above)	(in Hg)	(deg F)	(deg F)	(deg F)
0.11	26.00	192.500	197.783	5.283	55.0	54.0	54.0	53.0	33	0.1551	17.0	47.0	47.0	47.0
0.11	26.00	197.783	203.063	5.280	54.0	53.0	53.0	52.0	33	0.1551	17.0	48.0	48.0	48.0
0.11	26.00	203.063	208.349	5.286	53.0	52.0	54.0	53.0	33	0.1551	17.0	49.0	49.0	49.0
0.56	12.00	160.300	165.451	5.151	54.0	52.0	54.0	52.0	48	0.3345	16.0	44.0	44.0	44.0
0.56	12.00	165.451	170.606	5.155	54.0	52.0	54.0	52.0	48	0.3345	16.0	45.0	45.0	45.0
0.56	12.00	170.606	175.754	5.148	54.0	52.0	54.0	52.0	48	0.3345	16.0	45.0	45.0	45.0
1.80	7.00	142.700	147.933	5.233	54.0	50.0	54.0	50.0	63	0.5915	13.0	45.0	45.0	45.0
1.80	7.00	147.933	153.160	5.227	54.0	50.0	54.0	51.0	63	0.5915	13.0	45.0	45.0	45.0
1.80	7.00	153.160	158.399	5.239	54.0	51.0	54.0	52.0	63	0.5915	13.0	44.0	44.0	44.0
3.10	5.00	176.900	181.799	4.899	55.0	52.0	55.0	53.0	73	0.7678	12.0	45.0	45.0	45.0
3.10	5.00	181.799	186.690	4.891	55.0	53.0	56.0	54.0	73	0.7678	12.0	46.0	46.0	46.0
3.10	5.00	186.690	191.599	4.909	56.0	54.0	57.0	54.0	73	0.7678	12.0	46.0	46.0	46.0

DRY GAS METER		ORIFICE				DRY GAS METER CALIBRATION FACTOR	ORIFICE CALIBRATION FACTOR	Individual Run	Individual Orifice	Orifice Average	Orifice Average
VOLUME CORRECTED	VOLUME CORRECTED	VOLUME CORRECTED	VOLUME CORRECTED	VOLUME NOMINAL		Y	dH@				
Vm(std)	Vm(std)	Vcr(std)	Vcr(std)	Vcr		Value	Value	0.95 < Y	Ymax - Ymin	0.98 < Y/Yd	dH@ - dH@ av
(cu ft)	(liters)	(cu ft)	(liters)	(cu ft)		(number)	(in H2O)	< 1.05?	< 0.010?	< 1.02?	< 0.155?
5.486	154.8	5.400	152.9	5.149		0.968	1.486	Pass			
5.474	155.0	5.394	152.8	5.154		0.986	1.492	Pass			
5.480	155.2	5.389	152.6	5.159		0.983	1.495	Pass			
					Average	0.986	1.491		Pass	Pass	Pass
5.346	151.4	5.386	152.6	5.108		1.008	1.623	Pass			
5.350	151.5	5.383	152.4	5.113		1.006	1.625	Pass			
5.343	151.3	5.383	152.4	5.113		1.008	1.626	Pass			
					Average	1.007	1.625		Pass	Pass	Pass
5.458	154.6	5.553	157.3	5.275		1.017	1.678	Pass			
5.449	154.3	5.553	157.3	5.275		1.019	1.676	Pass			
5.456	154.5	5.559	157.4	5.270		1.019	1.669	Pass			
					Average	1.018	1.674		Pass	Pass	Pass
5.108	144.7	5.149	145.8	4.891		1.008	1.708	Pass			
5.092	144.2	5.144	145.7	4.898		1.010	1.706	Pass			
5.104	144.5	5.144	145.7	4.896		1.008	1.705	Pass			
					Average	1.009	1.706		Pass	Pass	Pass

Average Yd:	1.005	dH@:	1.624
		Q @ dH = 1:	0.589

SIGNED: Signature on File   Date: 2/19/2019

Semi-Annual Meter Calibration12 wcs 2-19-19.xls WCS
6/21/2019
2:14 PM

MONTROSE
AIR QUALITY SERVICES

DIGITAL TEMPERATURE READOUT CALIBRATION

Digital Temperature Readout ID: 12-WCS
Readout Description: Control Box
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)	12-WCS	355	355	355	355	358	358	358	358	3.0	0.4%	Pass
T2 (Boiling H_2O)	12-WCS	209	209	209	209	212	212	212	212	3.0	0.4%	Pass
T1 (Ice/Water)	12-WCS	29	29	29	29	32	32	32	32	3.0	0.6%	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	648	648	648	648	650	650	650	650	2.0	0.2%	Pass
T3 (~370 F)	S/N 106970	361	361	361	361	365	365	365	365	4.0	0.5%	Pass
T2 (~212 F)	S/N 106970	209	209	209	209	212	212	212	212	3.0	0.4%	Pass
T1 (~32 F)	S/N 106970	28	28	28	28	32	32	32	32	4.0	0.8%	Pass

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

MONTROSE AIR QUALITY SERVICES

WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET – STANDARD

CLIENT: Canyon
LOCATION: Canyon 4
DATE: 6/11/19
RUN NO: FB - NH3
OPERATOR: SC
METER BOX NO: C-LUCS
METER ΔH@: 1.624
METER Yd: 1.005
STACK AREA, FT²: 106.90
TRAVERSE POINTS, MIN/POINT:
ΔH= ______ X ΔP:
Probe Condition, pre/post test: good
Silica Gel Expanded, Y/N: N
Filter Condition after Test: NA
Check Weight: 499.9/500.0

AMBIENT TEMPERATURE: 90
BAROMETRIC PRESSURE: 29.75
ASSUMED MOISTURE: 4.7
PITOT TUBE COEFF, Cp: NA
PROBE ID NO/MATERIAL: NA / Glass
PROBE LENGTH: 7' / 10
NOZZLE ID NO/ MATERIAL: NA
NOZZLE DIAMETER: NA
FILTER NO/TYPE: NA
PRE-TEST LEAK RATE: : <0.005 CFM@ 15 in. Hg.
POST-TEST LEAK RATE: : ______ CFM@ ______ in. Hg.
PITOT LEAK CHECK - PRE: NA POST: NA
CHAIN OF CUSTODY: SAMPLE CUSTODIAN SC
SAMPLER SC
SAMPLE CUSTODIAN SC

Imp. #	Contents	Post-Test	- Pre-Test	= Difference
1	H_2SO_4	778.3	678.0	
2	H_2SO_4	679.2	679.2	
3	MT	639.7	639.7	
4	SG	818.6	818.7	
4R			100	
Total:				

Point	Time	Meter Volume, ft³	ΔP in. H_2O	ΔH in. H_2O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F In	Meter Temp, °F Out	Vacuum in. Hg.	O_2 %	P. static in. H_2O
Average:													

Comments:

CHAIN OF CUSTODY

CLIENT: SCPPA PROJECT #: 002AS-543226 TEST DATE(S): 6/11/2019

LOCATION: U4 SAMPLER(S): SS/LO

SAMPLE LOCATION: Stack PROJECT MANAGER: JG

TEST METHOD(S): SCAQMD 207.1 DATE DUE: 6/18/2019

OUTSIDE LAB REQUIRED?: No COMPLIANCE TEST?: Yes

DATE	TIME	TEST #	SAMPLE DESCRIPTION	CONTAINERS	SAMPLER	COMMENTS
6/11/2019	1027/1133	1-NH3-U4	Probe, Line, Impingers	1	SS/LO	
6/11/2019	1213/1319	2-NH3-U4	Probe, Line, Impingers	1	SS/LO	
6/11/2019		Reagent Blank	0.1 N H_2SO_4	1	JG	
6/11/2019		Reagent Blank	DI H2O	1	JG	
6/11/2019		Field Blank	Probe, Line, Impingers	1	SS/LO	

RELEASED BY	DATE/TIME	RECEIVED BY	DATE/TIME
[illegible]	6/12/19 0500	[illegible]	6/12/19 0500

ANALYSIS REQUIRED: NH_3 by SCAQMD 207.1 (ISE)

Samples were stored at 43°F before analysis

MONTROSE

Date of Last Revision 9/1/2017

Chain of Custody - DS834001 - Excel
Master Document Storage\Forms\Datasheets\Lab Forms

APPENDIX B
FACILITY CEMS DATA

Fort09

Babcock & Wilcox Power Generation Group NetDAHSK
Average Values Report
Version 60.0
Generated: 6/11/2019 13:08

Company: City Of Anaheim
Plant: 3071 Miraloma Ave.,
City/St: Anaheim, CA, 92806
Source: unit4, unit4_inlet

Period Start: 6/11/2019 10:27
Period End: 6/11/2019 11:33
Validation Type: 1/1 min
Averaging Period: 1 min
Type: Block Avg

Period Start	4_Flame_On 1=ON	4_GasFlow kscfh	4_NH3_Flow #/hr	4_O2 %	4_NOXPPM ppm	4_NOX CORR ppm	4_STACKFLW kscfm	4I_NOX_COR ppm	4_NH3SLIP ppm	4_LOAD MW	4_NOX_LBHR #/hr
6/11/2019 10:27	1	472.4	81.37	14.44	2.50	2.28	232.9	17.95	9.54	49.98	3.97
6/11/2019 10:28	1	472.9	81.52	14.45	2.50	2.29	233.5	18.05	9.43	50.19	3.97
6/11/2019 10:29	1	472.6	81.40	14.45	2.51	2.30	233.4	18.08	9.38	50.17	3.97
6/11/2019 10:30	1	473.3	81.43	14.44	2.50	2.28	233.4	17.96	9.49	50.21	3.98
6/11/2019 10:31	1	473.2	81.39	14.44	2.50	2.28	233.4	17.96	9.48	50.28	3.98
6/11/2019 10:32	1	473.5	81.44	14.44	2.49	2.27	233.5	18.04	9.39	50.24	3.98
6/11/2019 10:33	1	473.3	81.45	14.44	2.46	2.25	233.4	17.97	9.46	50.11	3.98
6/11/2019 10:34	1	473.3	81.45	14.44	2.42	2.21	233.4	17.91	9.48	50.10	3.98
6/11/2019 10:35	1	473.5	81.51	14.44	2.41	2.20	233.5	17.83	9.56	50.21	3.98
6/11/2019 10:36	1	473.7	81.53	14.44	2.40	2.19	233.6	17.72	9.65	50.06	3.98
6/11/2019 10:37	1	473.9	80.32	14.44	2.36	2.16	233.7	17.75	9.21	50.45	3.98
6/11/2019 10:38	1	474.0	80.36	14.44	2.36	2.16	233.7	17.75	9.22	50.08	3.98
6/11/2019 10:39	1	474.1	80.43	14.45	2.43	2.22	234.2	17.73	9.27	50.17	3.98
6/11/2019 10:40	1	473.8	80.33	14.44	2.47	2.26	233.7	17.63	9.43	50.08	3.98
6/11/2019 10:41	1	474.0	80.32	14.44	2.47	2.26	233.7	17.57	9.49	50.12	3.98
6/11/2019 10:42	1	474.0	80.22	14.44	2.45	2.24	233.7	17.48	9.53	50.16	3.98
6/11/2019 10:43	1	474.3	80.30	14.44	2.44	2.23	233.9	17.42	9.58	50.20	3.98
6/11/2019 10:44	1	474.6	80.27	14.43	2.42	2.21	233.7	17.44	9.55	50.16	3.99
6/11/2019 10:45	1	473.8	80.25	14.43	2.42	2.21	233.3	17.51	9.52	50.13	3.98
6/11/2019 10:46	1	474.3	80.19	14.43	2.44	2.23	233.5	17.44	9.56	50.35	3.98
6/11/2019 10:47	1	474.4	80.33	14.44	2.45	2.24	233.9	17.33	9.69	50.25	3.98
6/11/2019 10:48	1	474.4	80.18	14.43	2.44	2.23	233.6	17.42	9.57	50.15	3.98
6/11/2019 10:49	1	474.3	80.35	14.43	2.43	2.22	233.5	17.48	9.57	50.29	3.98
6/11/2019 10:50	1	474.2	80.26	14.42	2.42	2.20	233.1	17.44	9.60	50.19	3.98
6/11/2019 10:51	1	474.0	80.20	14.43	2.44	2.23	233.4	17.44	9.58	50.19	3.98
6/11/2019 10:52	1	474.2	80.29	14.43	2.44	2.23	233.5	17.37	9.67	50.21	3.98
6/11/2019 10:53	1	474.4	80.35	14.44	2.44	2.23	233.9	17.43	9.58	50.18	3.98
6/11/2019 10:54	1	474.2	80.33	14.43	2.42	2.21	233.5	17.35	9.68	50.20	3.98
6/11/2019 10:55	1	474.3	80.27	14.43	2.41	2.20	233.5	17.47	9.53	50.13	3.98
6/11/2019 10:56	1	474.1	80.24	14.42	2.42	2.20	233.1	17.44	9.60	50.08	3.98
6/11/2019 10:57	1	474.3	80.41	14.43	2.43	2.22	233.5	17.43	9.64	50.18	3.98
6/11/2019 10:58	1	474.3	80.28	14.43	2.43	2.22	233.5	17.38	9.65	50.13	3.98
6/11/2019 10:59	1	474.1	80.29	14.42	2.43	2.21	233.1	17.45	9.61	50.26	3.98
6/11/2019 11:00	1	473.8	80.34	14.43	2.45	2.23	233.3	17.35	9.73	50.10	3.98
6/11/2019 11:01	1	474.2	80.30	14.43	2.47	2.25	233.5	17.19	9.87	50.21	3.98
6/11/2019 11:02	1	474.5	80.26	14.43	2.44	2.29	233.6	17.17	9.85	50.22	3.99
6/11/2019 11:03	1	473.8	80.23	14.42	2.41	2.19	232.9	17.30	9.74	50.23	3.98
6/11/2019 11:04	1	473.9	80.19	14.44	2.42	2.21	233.7	17.38	9.59	50.21	3.99
6/11/2019 11:05	1	473.5	80.10	14.44	2.44	2.23	233.5	17.31	9.67	50.19	3.99
6/11/2019 11:06	1	473.8	80.26	14.44	2.43	2.22	233.7	17.23	9.77	50.11	3.99
6/11/2019 11:07	1	473.9	80.31	14.43	2.43	2.22	233.3	17.17	9.89	50.13	3.92
6/11/2019 11:08	1	473.6	80.33	14.43	2.42	2.21	233.2	17.05	10.01	50.20	3.98
6/11/2019 11:09	1	474.0	80.31	14.44	2.40	2.19	233.7	17.15	9.83	50.09	3.98
6/11/2019 11:10	1	474.5	80.28	14.44	2.38	2.17	234.0	17.30	9.62	50.02	3.99
6/11/2019 11:11	1	474.7	80.40	14.43	2.35	2.15	233.5	17.35	9.64	50.20	3.98
6/11/2019 11:12	1	474.3	80.41	14.44	2.37	2.16	233.9	17.44	9.52	50.25	3.90
6/11/2019 11:13	1	473.9	79.39	14.44	2.39	2.18	233.7	17.44	9.25	50.26	3.98
6/11/2019 11:14	1	474.6	79.21	14.44	2.41	2.20	234.0	17.48	9.14	50.15	3.99
6/11/2019 11:15	1	474.0	79.27	14.42	2.49	2.27	233.0	17.39	9.43	50.16	3.98
6/11/2019 11:16	1	474.4	79.23	14.42	2.54	2.31	233.2	17.45	9.37	50.01	4.48
6/11/2019 11:17	1	474.2	79.20	14.43	2.56	2.33	233.5	17.52	9.23	50.13	4.48
6/11/2019 11:18	1	474.2	79.22	14.42	2.56	2.33	233.1	17.56	9.29	50.05	4.48
6/11/2019 11:19	1	474.3	79.26	14.42	2.57	2.34	233.2	17.63	9.23	50.10	4.48
6/11/2019 11:20	1	474.1	79.22	14.42	2.57	2.34	233.1	17.51	9.35	50.22	4.48
6/11/2019 11:21	1	474.3	79.14	14.42	2.56	2.33	233.2	17.48	9.33	50.22	4.48
6/11/2019 11:22	1	474.5	79.22	14.43	2.56	2.33	233.6	17.60	9.20	50.15	4.48
6/11/2019 11:23	1	474.5	79.14	14.42	2.56	2.33	233.3	17.55	9.25	50.29	4.48
6/11/2019 11:24	1	474.3	79.17	14.43	2.55	2.33	233.5	17.50	9.29	50.18	4.48
6/11/2019 11:25	1	474.3	79.24	14.44	2.55	2.33	233.9	17.62	9.15	50.26	4.48
6/11/2019 11:26	1	474.1	79.16	14.43	2.55	2.33	233.4	17.65	9.15	50.39	4.48
6/11/2019 11:27	1	474.3	79.17	14.43	2.57	2.34	233.3	17.60	9.20	50.16	4.48
6/11/2019 11:28	1	474.2	79.19	14.43	2.58	2.35	233.5	17.57	9.25	50.12	4.48
6/11/2019 11:29	1	474.2	79.22	14.43	2.58	2.35	233.5	17.54	9.29	50.19	4.48
6/11/2019 11:30	1	473.9	79.26	14.42	2.58	2.35	233.0	17.48	9.41	50.17	4.48
6/11/2019 11:31	1	473.9	79.21	14.42	2.58	2.35	233.0	17.44	9.44	50.18	4.48
6/11/2019 11:32	1	473.9	79.14	14.43	2.58	2.35	233.3	17.52	9.30	50.19	4.48
6/11/2019 11:33	1	473.6	79.18	14.42	2.60	2.37	232.8	17.45	9.46	50.17	4.48
Final Average*	1	474.0	80.13	14.43	2.47	2.25	233.5	17.52	9.49	50.18	4.11
Maximum*	1	474.6	81.53	14.45	2.60	2.37	234.2	18.08	10.01	50.45	4.48
Minimum*	1	472.4	79.14	14.42	2.36	2.15	232.8	17.05	9.14	49.98	3.97

*Does not include Invalid Averaging Periods ("N/A")

2-NH_3

Font09

Babcock & Wilcox Power Generation Group NetDAHS®
Average Values Report
Version 60.0
Generated: 6/11/2019 15:40

Company: City Of Anaheim
Plant: 3071 Miraloma Ave.,
City/St: Anaheim, CA, 92806
Source: unit4, unit4_inlet

Period Start: 6/11/2019 12:13
Period End: 6/11/2019 13:19
Validation Type: 1/1 min
Averaging Period: 1 min
Type: Block Avg

Period Start	4_Flame_On 1=ON	4_GasFlow kscfh	4_NH3_Flow #/hr	4_O2 %	4_NOXPPM ppm	41_NOX ppm	4_STACKFLW kscfm	4_NOX CORR ppm	4_NH3SLIP ppm	4_LOAD MW	4_NOX_LBHR #/hr
6/11/2019 12:13	1	474.3	80.40	14.35	2.17	19.07	230.7	1.95	9.91	50.27	3.49
6/11/2019 12:14	1	474.3	80.32	14.35	2.23	18.99	230.8	2.01	10.01	50.16	3.49
6/11/2019 12:15	1	474.2	80.23	14.35	2.31	19.05	230.6	2.08	10.02	50.26	3.98
6/11/2019 12:16	1	474.5	80.35	14.35	2.34	19.01	230.8	2.11	10.11	50.36	3.99
6/11/2019 12:17	1	474.8	80.24	14.35	2.34	19.01	230.9	2.11	10.06	50.16	3.99
6/11/2019 12:18	1	473.9	80.20	14.36	2.32	18.87	230.8	2.09	10.14	50.17	3.98
6/11/2019 12:19	1	474.2	80.13	14.38	2.29	18.87	231.7	2.07	9.94	50.26	3.98
6/11/2019 12:20	1	473.5	80.30	14.38	2.23	18.75	231.4	2.02	10.09	50.22	3.48
6/11/2019 12:21	1	473.8	80.29	14.38	2.20	18.76	231.5	1.99	10.03	50.28	3.48
6/11/2019 12:22	1	473.7	79.92	14.38	2.21	18.72	231.5	2.00	9.97	50.23	3.48
6/11/2019 12:23	1	473.6	79.13	14.37	2.23	18.68	231.1	2.01	9.83	50.14	3.48
6/11/2019 12:24	1	474.0	79.19	14.38	2.29	18.68	231.6	2.07	9.84	50.20	3.98
6/11/2019 12:25	1	474.1	79.17	14.38	2.35	18.64	231.6	2.13	9.92	50.15	3.98
6/11/2019 12:26	1	474.0	79.15	14.38	2.34	18.66	231.6	2.12	9.89	50.18	3.98
6/11/2019 12:27	1	473.9	79.11	14.38	2.34	18.56	231.6	2.12	9.96	50.17	3.98
6/11/2019 12:28	1	473.9	79.17	14.39	2.32	18.68	231.9	2.10	9.80	50.19	3.98
6/11/2019 12:29	1	473.8	79.17	14.39	2.31	18.64	231.9	2.09	9.83	50.18	3.98
6/11/2019 12:30	1	473.3	79.20	14.39	2.31	18.70	231.6	2.09	9.81	50.12	3.98
6/11/2019 12:31	1	473.5	79.26	14.39	2.31	18.66	231.7	2.09	9.86	50.13	3.98
6/11/2019 12:32	1	473.1	79.24	14.39	2.31	18.70	231.5	2.09	9.84	50.17	3.97
6/11/2019 12:33	1	473.3	79.34	14.39	2.32	18.76	231.6	2.10	9.82	50.28	3.99
6/11/2019 12:34	1	473.7	79.22	14.38	2.32	18.69	231.5	2.10	9.88	50.25	3.98
6/11/2019 12:35	1	473.1	79.24	14.39	2.34	18.70	231.5	2.12	9.87	50.09	3.97
6/11/2019 12:36	1	473.2	79.24	14.39	2.34	18.77	231.6	2.12	9.80	50.23	3.98
6/11/2019 12:37	1	473.2	79.27	14.39	2.33	18.67	231.6	2.11	9.88	50.07	3.98
6/11/2019 12:38	1	473.4	79.21	14.38	2.31	18.64	231.3	2.09	9.93	50.32	3.98
6/11/2019 12:39	1	473.1	79.23	14.39	2.31	18.75	231.5	2.09	9.79	50.24	3.97
6/11/2019 12:40	1	473.5	79.26	14.39	2.32	18.75	231.6	2.10	9.80	50.11	3.98
6/11/2019 12:41	1	473.2	79.19	14.38	2.33	18.77	231.2	2.11	9.83	50.14	3.98
6/11/2019 12:42	1	473.4	78.48	14.38	2.33	18.79	231.3	2.11	9.59	50.23	3.98
6/11/2019 12:43	1	473.2	78.42	14.38	2.35	18.71	231.2	2.13	9.67	50.14	3.98
6/11/2019 12:44	1	473.2	78.38	14.39	2.41	18.78	231.6	2.18	9.60	50.12	3.98
6/11/2019 12:45	1	473.1	78.31	14.39	2.44	18.76	231.5	2.21	9.62	50.26	3.97
6/11/2019 12:46	1	472.7	78.27	14.39	2.44	18.69	231.3	2.21	9.68	50.10	3.97
6/11/2019 12:47	1	473.2	78.28	14.39	2.43	18.82	231.6	2.20	9.53	50.21	3.98
6/11/2019 12:48	1	473.2	78.29	14.39	2.39	18.73	231.6	2.17	9.59	50.06	3.98
6/11/2019 12:49	1	473.1	78.30	14.39	2.38	18.73	231.5	2.16	9.59	50.12	3.97
6/11/2019 12:50	1	473.3	78.25	14.39	2.38	18.73	231.6	2.16	9.51	50.17	3.98
6/11/2019 12:51	1	473.1	78.30	14.39	2.38	18.74	231.5	2.16	9.58	50.19	3.97
6/11/2019 12:52	1	473.2	78.35	14.39	2.37	18.73	231.6	2.15	9.59	50.34	3.98
6/11/2019 12:53	1	473.1	78.33	14.39	2.37	18.65	231.5	2.15	9.66	50.28	3.97
6/11/2019 12:54	1	473.0	78.31	14.39	2.37	18.67	231.5	2.15	9.64	50.16	3.97
6/11/2019 12:55	1	472.9	78.22	14.40	2.37	18.66	231.7	2.15	9.57	50.22	3.97
6/11/2019 12:56	1	[illegible]	78.23	14.39	2.40	18.70	231.4	2.15	9.62	50.23	3.97
6/11/2019 12:57	1	473.0	78.25	14.40	2.44	18.84	231.8	2.21	9.47	50.30	3.97
6/11/2019 12:58	1	473.1	78.29	14.39	2.45	18.85	231.5	2.22	9.54	50.21	3.97
6/11/2019 12:59	1	473.1	78.41	14.39	2.45	18.81	231.5	2.22	9.61	50.10	3.97
6/11/2019 13:00	1	473.0	78.39	14.40	2.44	18.80	231.8	2.21	9.55	50.20	3.97
6/11/2019 13:01	1	473.2	78.29	14.39	2.43	18.89	231.6	2.20	9.47	50.28	3.98
6/11/2019 13:02	1	473.1	78.49	14.39	2.43	18.72	231.5	2.20	9.69	50.10	3.97
6/11/2019 13:03	1	473.3	78.40	14.39	2.42	18.70	231.6	2.19	9.66	50.23	3.98
6/11/2019 13:04	1	473.3	78.33	14.39	2.42	18.65	231.6	2.19	9.69	50.23	3.98
6/11/2019 13:05	1	473.3	78.41	14.39	2.42	18.72	231.6	2.19	9.65	[illegible]	3.98
6/11/2019 13:06	1	473.2	78.32	14.39	2.42	18.81	231.6	2.19	9.54	50.15	3.98
6/11/2019 13:07	1	473.2	78.31	14.39	2.42	18.80	231.6	2.19	9.55	50.25	3.98
6/11/2019 13:08	1	473.1	78.30	14.39	2.41	18.78	231.5	2.18	9.56	50.11	3.97
6/11/2019 13:09	1	473.1	78.40	14.40	2.41	18.71	231.9	2.19	9.60	50.17	3.97
6/11/2019 13:10	1	473.2	78.45	14.40	2.41	18.83	231.9	2.19	9.51	50.23	3.98
6/11/2019 13:11	1	473.5	78.44	14.39	2.41	18.79	231.7	2.18	9.58	50.23	3.98
6/11/2019 13:12	1	473.2	78.49	14.39	2.41	18.79	231.6	2.18	9.60	50.14	3.98
6/11/2019 13:13	1	473.1	78.42	14.39	2.42	18.77	231.5	2.19	9.62	50.08	3.97
6/11/2019 13:14	1	473.2	78.59	14.39	2.43	18.84	231.6	2.20	9.61	50.40	3.98
6/11/2019 13:15	1	473.8	78.59	14.39	2.42	18.77	231.9	2.19	9.63	50.31	3.99
6/11/2019 13:16	1	473.2	78.53	14.39	2.41	18.76	231.6	2.18	9.64	50.10	3.98
6/11/2019 13:17	1	473.0	78.42	14.39	2.41	18.75	231.5	2.18	9.63	50.19	3.97
6/11/2019 13:18	1	473.4	78.45	14.39	2.41	18.75	231.7	2.18	9.62	50.15	3.90
6/11/2019 13:19	1	473.1	78.58	14.39	2.40	18.73	231.5	2.18	9.70	50.31	3.97
Final Average*	1	473.4	78.89	14.39	2.36	18.76	231.5	2.14	9.73	50.19	3.93
Maximum*	1	474.8	80.40	14.40	2.45	19.07	231.9	2.22	10.14	50.40	3.99
Minimum*	1	472.7	78.22	14.35	2.17	18.56	230.6	1.95	9.47	50.06	3.48

*Does not include Invalid Averaging Periods ("N/A")

APPENDIX C
CALCULATIONS

Appendix C.1
General Emissions Calculations

GENERAL EMISSION CALCULATIONS

I. Stack Gas Velocity

A. Stack gas molecular weight, lb/lb-mole

$$MW_{dry} = 0.44 * \%CO_2 + 0.32 * \%O_2 + 0.28 * \%N_2$$

$$MW_{wet} = MW_{dry} * (1 - B_{wo}) + 18 * B_{wo}$$

B. Absolute stack pressure, iwg

$$Ps = Pbar + \frac{Psg}{13.6}$$

C. Stack gas velocity, ft/sec

$$V_s = 2.9 * C_p * \sqrt{\Delta P} * \sqrt{T_s} * \sqrt{\frac{29.92 * 28.95}{P_s * MW_{wet}}}$$

II. Moisture

A. Sample gas volume, dscf

$$V_{mstd} = 0.03342 * V_m * (P_{bar} + \frac{\Delta H}{13.6}) * \frac{T_{ref}}{T_m} * Y_d$$

B. Water vapor volume, scf

$$V_{wstd} = 0.0472 * V_{lc} * \frac{T_{ref}}{528\ ^oR}$$

C. Moisture content, dimensionless

$$B_{wo} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})}$$

III. Stack gas volumetric flow rate

A. Actual stack gas volumetric flow rate, wacfm

$$Q = V_s * A_s * 60$$

B. Standard stack gas flow rate, dscfm

$$Q_{sd} = Q * (1 - B_{wo}) * \frac{T_{ref}}{T_s} * \frac{P_s}{29.92}$$

IV. Gaseous Mass Emission Rates, lb/hr

$$M = \frac{ppm * MW_i * Q_{sd} * 60}{SV * 10^6}$$

V. Emission Rates, lb/MMBtu

$$\frac{lb}{MMBtu} = \frac{ppm * MW_i * F}{SV * 10^6} * \frac{20.9}{20.9 - \%O_2}$$

VI. Percent Isokinetic

$$I = \frac{17.32 \text{ x } T_s (V_m std)}{(1\text{-}Bwo)\ 0 \text{ x } Vs \text{ x } Ps \text{ x } Dn2} \text{ x } \frac{520°R}{T_{ref}}$$

VII. Particulate emissions

(a) Grain loading, gr/dscf
$C = 0.01543 (M_n/V_{m\ std})$

(b) Grain loading at 12% CO_2, gr/dscf
$C_{12\%}\ CO_2 = C\ (12/\%\ CO_2)$

(c) Mass emissions, lb/hr
M = C x Qsd x (60 min/hr)/(7000 gr/lb)

(d) Particulate emission factor

$$lb/10^6\ Btu = Cx\ \frac{1\ lb}{7000\ gr} \text{ x F x } \frac{20.9}{20.9 - \%\ O_2}$$

Nomenclature:

A_s	= stack area, ft^2
B_{wo}	= flue gas moisture content, dimensionless
$C_{12\%CO2}$	= particulate grain loading, gr/dscf corrected to 12% CO_2
C	= particulate grain loading, gr/dscf
C_p	= pitot calibration factor, dimensionless
Dn	= nozzle diameter, in.
F	= fuel F-Factor, dscf/MMBtu @ 0% O_2
H	= orifice differential pressure, iwg
I	= % isokinetics
M_n	= mass of collected particulate, mg
M_i	= mass emission rate of specie i, lb/hr
MW	= molecular weight of flue gas, lb/lb-mole
M_{wi}	= molecular weight of specie i:
	SO_2: 64
	NO_x: 46
	CO: 28
	HC: 16
0	= sample time, min.
ΔP	= average velocity head, iwg = $(\sqrt{\Delta P})^2$
P_{bar}	= barometric pressure, inches Hg
P_s	= stack absolute pressure, inches Hg
P_{sg}	= stack static pressure, iwb
Q	= wet stack flow rate at actual conditions, wacfm
Q_{sd}	= dry standard stack flow rate, dscfm
SV	= specific molar volume of an ideal gas at standard conditions, ft^3/lb-mole
T_m	= meter temperature, °R
T_{ref}	= reference temperature, °R
T_s	= stack temperature, °R
V_s	= stack gas velocity, ft/sec
V_{lc}	= volume of liquid collected in impingers, ml
V_m	= uncorrected dry meter volume, dcf
V_{mstd}	= dry meter volume at standard conditions, dscf
V_{wstd}	= volume of water vapor at standard conditions, scf
Y_d	= meter calibration coefficient

Appendix C.2
Spreadsheet Summaries

MONTROSE

SCAQMD 207.1 EXAMPLE CALCULATION
TEST NUMBER: 1-NH3-U4

Identifier	Description	Units	Equation	Value
A	Reference Temperature	F	--	60
B	Reference Temperature	R	A + 460	520
C	Meter Calibration Factor (Yd)	--	--	1.005
D	Barometric Pressure	" Hg	--	29.69
E	Meter Volume	acf	--	41.550
F	Meter Temperature	F	--	86.1
G	Meter Temperature	R	F + 460	546.1
H	Delta H	" H_2O	--	1.5
I	Meter Volume (standard)	dscf	0.03342 * E * (D + H/13.6) * B/G * C	39.600
J	Liquid Collected	grams	--	107.5
K	Water vapor volume	scf	0.0472 * J * B/528	4.997
L	Moisture Content	--	K/(K + I)	0.112
M	Gas Constant	ft-lbf/lb-mole-R	--	1545.33
N	Specific Molar Volume	SCF/lb-mole	385.3 * B / 528	379.5
O	F-Factor	dscf/MMBtu	--	8,710
P	HHV	Btu/SCF	--	1,050
Q	Mass Conversion Factor	lb/ug	--	2.2046E-09
R	O_2 Correction Factor	--	--	15
S	Stack Flow Rate @ 68 F	dscfm	--	233,500
T	Stack Flow Rate @ Tref	dscfm	S * B/528	229,962
U	Mass NH_3	ug	--	1,480
V	Mass NH_3	lb	U * Q	3.26E-06
W	MW of NH_3	lb/lb-mole	--	17.03
X	NH_3	ppm	(V * N *10^6)/(I * W)	1.8
Y	Flue Gas O_2	%	--	14.43
Z	NH_3	ppmc	X * (20.9 - R)/(20.9 - Y)	1.7
AA	NH_3	lb/hr	X * T * W * 60/(N * 10^6)	1.1
AB	NH_3	lb/MMBtu	(X * W * O)/(385.3 * 10^6) * 20.9/(20.9 - Y)	0.002
AC	NH_3	lb/MMSCF	AB * P	2.4

Note:

(1) Some values may be slightly different from those shown on the run sheets due to round off errors. This page is intended to show the calculation methodology only.

SCAQMD METHOD 207.1
DATA WORKSHEET AND SUMMARY

Facility........................	**Canyon**		Parameter..................		**NH_3**
Unit........................	**U4**		Fuel..................		**Natural gas**
Sample Location........................	**Stack**		Data By..................		**JG**
Test Number........................	1-NH3-U4	2-NH3-U4	Average	Maximum	Limit
Reference Temperature (°F)..............	60	60			
Test Date..............................	6/11/2019	6/11/2019			
Test Method..............................	SCAQMD 207 1	SCAQMD 207 1			
Sample Train..............................	12-WCS	12-WCS			
Meter Calibration Factor..................	1.005	1.005			
Stack Area (ft^2)..............................	106.90	106.90			
Sample Time (Minutes)..................	60	60			
Barometric Pressure ("Hg)................	29.75	29.75			
Start/Stop Time	1027/1133	1213/1319			
Meter Volume (acf)........................	41.550	42.550			
Meter Temperature (°F)..................	86.1	87.8			
Meter Pressure (iwg)......................	1.5	1.5			
Liquid Volume (ml)........................	107.5	112.0			
Stack O_2 (%)........................	14.43	14.39	14.41	(from facility CEMS)	
Unit Load (MW)........................	50.2	50.2	50.2		
Standard Sample Volume (SCF).......	39.680	40.509			
Moisture Fraction........................	0.112	0.114			
Stack Flow Rate (dscfm, 68 °F)..........	233,500	231,500	232,500	(from facility CEMS)	
Stack Flow Rate (@ Tref)................	229,962	227,992	228,977		
Gas Constant (ft-lbf/lb-mole-R)..........	1545.33	1545.33			
Molecular Weight NH_3 (lb/lb-mole).....	17.03	17.03			
Specific Molar Volume (ft^3/lb-mole)....	379.5	379.5			
F-Factor (dscf/MMBtu)..................	8,710	8,710			
HHV(Btu/SCF)..........................	1,050	1,050			
Mass Conversion (lb/ug)..................	2.2046E-09	2.2046E-09			
O_2 Correction Factor (%)..................	15	15			
Mass NH_3 (ug)........................	1,480	1,306			
Mass NH_3 (lb)........................	3.26E-06	2.88E-06			
NH_3 (ppmv, flue gas)..................	1.8	1.6	1.7	1.8	
NH_3 (ppmv @ O_2 Correction Factor)..	1.7	1.4	1.6	1.7	5
NH_3 (lb/hr)..............................	1.1	1.0	1.1	1.1	
NH_3 (lb/MMBtu)........................	0.002	0.002	0.002	0.002	
NH_3 (lb/MMSCF)........................	2.4	2.1	2.2	2.4	

Note: SCAQMD Method 207.1 requires the higher of the duplicate runs be reported as the test result.

2Q19 Canyon 4 NH3
7/13/2019
7:26 PM

APPENDIX D
QUALITY ASSURANCE

Appendix D.1
Quality Assurance Program Summary

QUALITY ASSURANCE PROGRAM SUMMARY

As part of Montrose Air Quality Services, LLC (MAQS) ASTM D7036-04 certification, MAQS is committed to providing emission related data which is complete, precise, accurate, representative, and comparable. MAQS quality assurance program and procedures are designed to ensure that the data meet or exceed the requirements of each test method for each of these items. The quality assurance program consists of the following items:

- Assignment of an Internal QA Officer
- Development and use of an internal QA Manual
- Personnel training
- Equipment maintenance and calibration
- Knowledge of current test methods
- Chain-of-custody
- QA reviews of test programs

Assignment of an Internal QA Officer: MAQS has assigned an internal QA Officer who is responsible for administering all aspects of the QA program.

Internal Quality Assurance Manual: MAQS has prepared a QA Manual according to the requirements of ASTM D7036-04 and guidelines issued by EPA. The manual documents and formalizes all of MAQS QA efforts. The manual is revised upon periodic review and as MAQS adds capabilities. The QA manual provides details on the items provided in this summary.

Personnel Testing and Training: Personnel testing and training is essential to the production of high quality test results. MAQS training programs include:

- A requirement for all technical personnel to read and understand the test methods performed
- A requirement for all technical personnel to read and understand the MAQS QA manual
- In-house testing and training
- Quality Assurance meetings
- Third party testing where available
- Maintenance of training records.

Equipment Maintenance and Calibration: All laboratory and field equipment used as a part of MAQS emission measurement programs is maintained according to manufacturer's recommendations. A summary of the major equipment maintenance schedules is summarized in Table 1. In addition to routine maintenance, calibrations are performed on all sampling equipment according to the procedures outlined in the applicable test method. The calibration intervals and techniques for major equipment components is summarized in Table 2. The calibration technique may vary to meet regulatory agency requirements.

Knowledge of Current Test Methods: MAQS maintains current copies of EPA, ARB, and SCAQMD Source Test Manuals and Rules and Regulations.

MONTROSE AIR QUALITY SERVICES

Chain-of-Custody: MAQS maintains chain-of-custody documentation on all data sheets and samples. Samples are stored in a locked area accessible only to MAQS source test personnel. Data sheets are kept in the custody of the originator, program manager, or in locked storage until return to MAQS office. Electronic field data is duplicated for backup on secure storage media. The original data sheets are used for report preparation and any additions are initialed and dated.

QA Reviews: Periodic field, laboratory, and report reviews are performed by the in-house QA coordinator. Periodically, test plans are reviewed to ensure proper test methods are selected and reports are reviewed to ensure that the methods were followed and any deviations from the methods are justified and documented.

ASTM D7036-04 Required Information

Uncertainty Statement

Montrose is qualified to conduct this test program and has established a quality management system that led to accreditation with ASTM Standard D7036-04 (Standard Practice for Competence of Air Emission Testing Bodies). Montrose participates in annual functional assessments for conformance with D7036-04 which are conducted by the American Association for Laboratory Accreditation (A2LA). All testing performed by Montrose is supervised on site by at least one Qualified Individual (QI) as defined in D7036-04 Section 8.3.2. Data quality objectives for estimating measurement uncertainty within the documented limits in the test methods are met by using approved test protocols for each project as defined in D7036-04 Sections 7.2.1 and 12.10. Additional quality assurance information is presented in the report appendices.

Performance Data

Performance data are available for review.

Qualified Personnel

A qualified individual (QI), defined by performance on a third party or internal test on the test methods, will be present on each test event.

Plant Entry and Safety Requirements

Plant Entry

All test personnel are required to check in with the guard at the entrance gate or other designated area. Specific details are provided by the facility and project manager.

Safety Requirements

All personnel shall have the following personal protective equipment (PPE) and wear them where designated:

- Hard Hat
- Safety Glasses
- Steel Toe Boots
- Hearing Protection
- Gloves
- High Temperature Gloves (if required)

The following safety measures will be followed:

- Good housekeeping
- SDS for all on-site hazardous materials
- Confine selves to necessary areas (stack platform, mobile laboratory, CEMS data acquisition system, control room, administrative areas)
- Knowledge of evacuation procedures

Each facility will provide plant specific safety training.

TABLE 1
EQUIPMENT MAINTENANCE SCHEDULE

Equipment	Acceptance Limits	Frequency of Service	Methods of Service
Pumps	1. Absence of leaks 2. Ability to draw manufacturers required vacuum and flow	As recommended by manufacturer	1. Visual inspection 2. Clean 3. Replace parts 4. Leak check
Flow Meters	1. Free mechanical movement	As recommended by manufacturer	1. Visual inspection 2. Clean 3. Calibrate
Sampling Instruments	1. Absence of malfunction 2. Proper response to zero span gas	As recommended by manufacturer	As recommended by manufacturer
Integrated Sampling Tanks	1. Absence of leaks	Depends on nature of use	1. Steam clean 2. Leak check
Mobil Van Sampling System	1. Absence of leaks	Depends on nature of use	1. Chang filters 2. Change gas dryer 3. Leak check 4. Check for system contamination
Sampling lines	1. Sample degradation less than 2%	After each test series	1. Blow dry, inert gas through line until dry

TABLE 2
MAJOR SAMPLING EQUIPMENT CALIBRATION REQUIREMENTS

Sampling Equipment	Calibration Frequency	Calibration Procedure	Acceptable Calibration Criteria
Continuous Analyzers	Before and After Each Test Day	3-point calibration error test	< 2% of analyzer range
Continuous Analyzers	Before and After Each Test Run	2-point sample system bias check	< 5% of analyzer range
Continuous Analyzers	After Each Test Run	2-point analyzer drift determination	< 3% of analyzer range
CEMS System	Beginning of Each Day	leak check	< 1 in. Hg decrease in 5 min. at > 20 in. Hg
Continuous Analyzers	Semi-Annually	3-point linearity	< 1% of analyzer range
NO_x Analyzer	Daily	NO_2 -> NO converter efficiency	> 90%
Differential Pressure Gauges (except for manometers)	Semi-Annually	Correction factor based on 5-point comparison to standard	+/- 5%
Differential Pressure Gauges (except for manometers)	Bi-Monthly	3-point comparison to standard, no correction factor	+/- 5%
Barometer	Semi-Annually	Adjusted to mercury-in-glass or National Weather Service Station	+/- 0.1 inches Hg
Dry Gas Meter	Semi-Annually	Calibration check at 4 flow rates using a NIST traceable standard	+/- 2%
Dry Gas Meter	Bi-Monthly	Calibration check at 2 flow rates using a NIST traceable standard	+/- 2% of semi-annual factor
Dry Gas Meter Orifice	Annually	4-point calibration for $\Delta H@$	--
Temperature Sensors	Semi-Annually	3-point calibration vs. NIST traceable standard	+/- 1.5%

Note: Calibration requirements will be used that meet applicable regulatory agency requirements.

Appendix D.2
SCAQMD and STAC Certifications

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

October 30, 2018

Mr. John Peterson
Montrose Air Quality Services, LLC
1631 E. Saint Andrew Place
Santa Ana, CA 92705

Subject: LAP Approval Notice
Reference # 96LA1220

Dear Mr. Peterson:

We have reviewed your renewal letter under the South Coast Air Quality Management District's Laboratory Approval Program (SCAQMD LAP). We are pleased to inform you that your firm is approved for the period beginning October 30, 2018, and ending September 30, 2019 for the following methods, subject to the requirements in the LAP Conditions For Approval Agreement and conditions listed in the attachment to this letter:

SCAQMD Methods 1-4
SCAQMD Methods 5.1, 5.2, 5.3, 6.1
SCAQMD Methods 10.1 and 100.1
SCAQMD Methods 25.1 and 25.3 (Sampling)
USEPA CTM-030 and ASTM D6522-00
SCAQMD Rule 1121/ 1146.2 Protocol
SCAQMD Rule 1420/1420.1/1420.2 – (Lead) Source and Ambient Sampling

Your LAP approval to perform nitrogen oxide emissions compliance testing for SCAQMD Rule 1121/ 1146.2 Protocols includes satellite facilities located at:

McKenna Boiler
1510 North Spring Street
Los Angeles, CA 90012

Noritz America Corp.
11160 Grace Avenue
Fountain Valley, CA 92708

Ajax Boiler, Inc.
2701 S. Harbor Blvd.
Santa Ana, CA 92704

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

Sincerely,

D. Sarkar

Dipankar Sarkar
Program Supervisor
Source Test Engineering

DS:GK/gk

Attachment

181030 LapRenewalRev.doc

Cleaning the air that we breathe...™

American Association for Laboratory Accreditation

Accredited Air Emission Testing Body

A2LA has accredited

MONTROSE AIR QUALITY SERVICES

In recognition of the successful completion of the joint A2LA and Stack Testing Accreditation Council (STAC) evaluation process, this laboratory is accredited to perform testing activities in compliance with ASTM D7036:2004 - Standard Practice for Competence of Air Emission Testing Bodies.

Presented this 5th day of March 2018.

President and CEO
For the Accreditation Council
Certificate Number 3925.01
Valid to February 29, 2020

*This accreditation program is not included under the **A2LA ILAC** Mutual Recognition Arrangement.*

Appendix D.3
Individual QI Certificate

CERTIFICATE OF COMPLETION

John Groenenboom

This document certifies that this individual has passed a comprehensive examination and is now a Qualified Individual (QI) as defined in Section 8.3 of ASTM D7036-04 for the following method(s):

SCAQMD Method 207.1

Certificate Number: 002-2017-51

Tate Strickler, Accreditation Director

DATE OF ISSUE: 1/17/17

DATE OF EXPIRATION: 1/17/22

MONTROSE
ENVIRONMENTAL

APPENDIX E
APPLICABLE PERMIT SECTIONS

FACILITY PERMIT TO OPERATE
CANYON POWER PLANT

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 1: POWER GENERATION					
GAS TURBINE, NO. 4, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000PC SPRINT, SIMPLE CYCLE, 479 MMBTU/HR AT 46 DEG F, WITH INLET CHILLING, WITH WATER INJECTION WITH A/N: 555831 GENERATOR, 50.95 MW	D19	C21	NOX: MAJOR SOURCE**	CO: 4 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1) -BACT, 12-6-2002*]; **CO:** 2000 PPMV NATURAL GAS (5) **[RULE 407, 4-2-1982]; NOX:** 2.5 PPMV NATURAL GAS (4) **[RULE 2005, 6-3-2011]; NOX:** 25 PPMV NATURAL GAS (8) **[40CFR 60 Subpart KKKK, 7-6-2006]; PM10:** 0.01 GRAINS/SCF NATURAL GAS (5A) **[RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; **PM10:** 0.1 GRAINS/SCF NATURAL GAS (5) **[RULE 409, 8-7-1981]; PM10:** 1.67 LBS/HR NATURAL GAS (5C) **[RULE 1303(b)(2)-Offset, 5-10-1996;** *RULE 1303(b)(2) -Offset, 12-6-2002*]; **PM10:** 11 LBS/HR NATURAL GAS (5B) **[RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; **SO2:** (9) **[40CFR 72 - Acid Rain Provisions, 11-24-1997]; SOX:** 0.06 LBS/MMBTU NATURAL GAS (8) **[40CFR 60 Subpart KKKK, 7-6-2006]; VOC:** 2 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002*]	A63.1, A99.1, A99.2, A99.3, A195.1, A195.2, A195.3, A327.1, B61.1, D12.1, D29.2, D29.3, D82.1, D82.2, E193.1, H23.1, I298.4, K40.1

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

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

FACILITY PERMIT TO OPERATE
CANYON POWER PLANT

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
Process 1: POWER GENERATION					
CO OXIDATION CATALYST, NO. 4, BASF, 110 CUBIC FEET OF TOTAL CATALYST VOLUME A/N: 476663	C21	D19 C22			
SELECTIVE CATALYTIC REDUCTION, NO. 4, CORMETECH CMHT-21, 1012 CU.FT.; WIDTH: 2 FT 6 IN; HEIGHT: 25 FT 9 IN; LENGTH: 18 FT WITH A/N: 476663 AMMONIA INJECTION	C22	C21 S24		NH3: 5 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1) -BACT, 12-6-2002*]	A195.7, D12.2, D12.3, D12.4, E179.1, E179.2, E193.1
STACK, TURBINE NO. 4, HEIGHT: 86 FT ; DIAMETER: 11 FT 8 IN A/N: 555831	S24	C22			
System 2: INTERNAL COMBUSTION ENGINE					

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

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

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

[Devices subject to this condition : C4, C10, C16, C22]

D12.5 The operator shall install and maintain a(n) non-resettable elapsed time meter to accurately indicate the elapsed operating time of the engine.

[**RULE 1110.2, 2-1-2008;** RULE 1110.2, 9-7-2012; **RULE 1303(b)(2)-Offset, 5-10-1996;** RULE 1303(b)(2)-Offset, 12-6-2002; RULE 1401, 9-10-2010; RULE 1470, 5-4-2012; **RULE 2012, 5-6-2005; 40CFR 60 Subpart IIII, 1-30-2013**]

[Devices subject to this condition : D25]

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

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
NH3 emissions	District method 207.1 and 5.3 or EPA method 17	1 hour	Outlet of the SCR serving this equipment

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

The test(s) shall be conducted at least quarterly during the first twelve months of operation and at least annually thereafter. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test.

If the turbine is not in operation during one calendar year, then no testing is required during that calendar year.

The NOx concentration, as determined by the CEMS, shall be simultaneously recorded during the ammonia slip test. If the CEMS is inoperable, a test shall be conducted to determine the NOx emissions using District Method 100.1 measured over a 60 minute averaging time period.

The test shall be conducted and the results submitted to the District within 60 days after the test date.

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration limit.

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

[Devices subject to this condition : D1, D7, D13, D19]

D29.3 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Sampling Time	Test Location
SOX emissions	AQMD Laboratory Method 307-91	Not Applicable	Fuel sample
VOC emissions	District Method 25.3	1 hour	Outlet of the SCR serving this equipment
PM emissions	District method 5.1	4 hours	Outlet of the SCR serving this equipment

THIS IS THE LAST PAGE OF THIS DOCUMENT

If you have any questions, please contact one of the following individuals by email or phone.

Name: Mr. John Groenenboom
Title: Client Project Manager
Region: Western
E-Mail: JGroenenboom@montrose-env.com
Phone: (714) 279-6777

Name: Mr. Matt McCune
Title: Regional Vice President
Region: Western
E-Mail: MMccune@montrose-env.com
Phone: (714) 279-6777

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 17

AQ-14 & AQ-24
RTC INVENTORY

FACILITY PERMIT TO OPERATE

CANYON POWER PLANT
3071 E MIRALOMA AVE
ANAHEIM, CA 92806

NOTICE

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

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

Wayne Nastri
Executive Officer

By ______________ for
Laki Tisopulos, Ph.D., P.E.
Deputy Executive Officer
Engineering and Permitting

FACILITY PERMIT TO OPERATE
CANYON POWER PLANT

TABLE OF CONTENTS

FACILITY PERMIT TO OPERATE
CANYON POWER PLANT

SECTION B: RECLAIM ANNUAL EMISSION ALLOCATION

The annual allocation of NOx RECLAIM Trading Credits (RTCs) for this facility is calculated pursuant to Rule 2002. Total NOx emission shall not exceed such annual allocations unless the operator obtains RTCs corresponding to the facility's increased emissions in compliance with Rules 2005 and 2007.

The level of Starting Allocation plus Non-Tradable Credits used to determine compliance with Rule 2005(c)(4) and applicability of Rule 2005(e) - Trading Zone Restrictions is listed on the last page of this Section.

The following table lists the annual allocations that were issued to this facility and the amounts of RTCs held by this facility on the day of printing this Section.

RECLAIM POLLUTANT ANNUAL ALLOCATION (POUNDS)

Year Begin (month/year)	Year End (month/year)	Zone	NOx RTC Initially Allocated	NOx RTC[1] Holding as of 01/01/2019 (pounds)	Non-Tradable[2] Non-Usable RTCs (pounds)
7/2016	6/2017	Coastal	0	3238	2548
1/2017	12/2017	Coastal	0	6391	0
7/2017	6/2018	Coastal	0	14377	0
1/2018	12/2018	Coastal	0	42179	1648
7/2018	6/2019	Coastal	0	18585	1292
1/2019	12/2019	Coastal	0	40532	1648
7/2019	6/2020	Coastal	0	17292	1292
1/2020	12/2020	Coastal	0	37283	3248
7/2020	6/2021	Coastal	0	14745	2548
1/2021	12/2021	Coastal	0	33988	3295
7/2021	6/2022	Coastal	0	12160	2585
1/2022	12/2022	Coastal	0	27445	6543
7/2022	6/2023	Coastal	0	7027	5133
1/2023	12/2023	Coastal	0	27445	0
7/2023	6/2024	Coastal	0	7027	0
1/2024	12/2024	Coastal	0	27445	0
7/2024	6/2025	Coastal	0	7027	0

Footnotes:

1. This number may change due to pending trades, emissions reported under Quarterly Certification of Emissions Report (QCER) and Annual Permit Emission Program (APEP) Report required pursuant to Rule 2004, or deductions made pursuant to Rule 2010(b). The most recent total RTC information can be obtained from the District's RTC Listing.
2. The use of such credits is subject to restrictions set forth in paragraph (f)(1) of Rule 2002.

FACILITY PERMIT TO OPERATE
CANYON POWER PLANT

SECTION B: RECLAIM ANNUAL EMISSION ALLOCATION

The annual allocation of NOx RECLAIM Trading Credits (RTCs) for this facility is calculated pursuant to Rule 2002. Total NOx emission shall not exceed such annual allocations unless the operator obtains RTCs corresponding to the facility's increased emissions in compliance with Rules 2005 and 2007.

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Year Begin (month/year)	Year End (month/year)	Zone	NOx RTC Initially Allocated	NOx RTC[1] Holding as of 01/01/2019 (pounds)	Non-Tradable[2] Non-Usable RTCs (pounds)
1/2025	12/2025	Coastal	0	27445	0
7/2025	6/2026	Coastal	0	7027	0
1/2026	12/2026	Coastal	0	27445	0
7/2026	6/2027	Coastal	0	7027	0
1/2027	12/2027	Coastal	0	27445	0
7/2027	6/2028	Coastal	0	7027	0
1/2028	12/2028	Coastal	0	27445	0
7/2028	6/2029	Coastal	0	7027	0
1/2029	12/2029	Coastal	0	27445	0
7/2029	6/2030	Coastal	0	7027	0
1/2030	12/2030	Coastal	0	27445	0
7/2030	6/2031	Coastal	0	7027	0
1/2031	12/2031	Coastal	0	27445	0
7/2031	6/2032	Coastal	0	7027	0
1/2032	12/2032	Coastal	0	27445	0
7/2032	6/2033	Coastal	0	7027	0
1/2033	12/2033	Coastal	0	27445	0

Footnotes:

1. This number may change due to pending trades, emissions reported under Quarterly Certification of Emissions Report (QCER) and Annual Permit Emission Program (APEP) Report required pursuant to Rule 2004, or deductions made pursuant to Rule 2010(b). The most recent total RTC information can be obtained from the District's RTC Listing.

2. The use of such credits is subject to restrictions set forth in paragraph (f)(1) of Rule 2002.

FACILITY PERMIT TO OPERATE
CANYON POWER PLANT

SECTION B: RECLAIM ANNUAL EMISSION ALLOCATION

The annual allocation of NOx RECLAIM Trading Credits (RTCs) for this facility is calculated pursuant to Rule 2002. Total NOx emission shall not exceed such annual allocations unless the operator obtains RTCs corresponding to the facility's increased emissions in compliance with Rules 2005 and 2007.

The level of Starting Allocation plus Non-Tradable Credits used to determine compliance with Rule 2005(c)(4) and applicability of Rule 2005(e) - Trading Zone Restrictions is listed on the last page of this Section.

The following table lists the annual allocations that were issued to this facility and the amounts of RTCs held by this facility on the day of printing this Section.

RECLAIM POLLUTANT ANNUAL ALLOCATION (POUNDS)

Year Begin (month/year)	Year End (month/year)	Zone	NOx RTC Initially Allocated	NOx RTC[1] Holding as of 01/01/2019 (pounds)	Non-Tradable[2] Non-Usable RTCs (pounds)
7/2033	6/2034	Coastal	0	7027	0
1/2034	12/2034	Coastal	0	27445	0

Footnotes:

1. This number may change due to pending trades, emissions reported under Quarterly Certification of Emissions Report (QCER) and Annual Permit Emission Program (APEP) Report required pursuant to Rule 2004, or deductions made pursuant to Rule 2010(b). The most recent total RTC information can be obtained from the District's RTC Listing.
2. The use of such credits is subject to restrictions set forth in paragraph (f)(1) of Rule 2002.

SECTION B: RECLAIM ANNUAL EMISSION ALLOCATION

The annual allocation of RECLAIM Trading Credits (RTCs) for this facility is calculated pursuant to Rule 2002. If the facility submits a permit application to increase in an annual allocation to a level greater than the facility's starting Allocation plus Non-Tradable credits as listed below, the application will be evaluated for compliance with Rule 2005 (c)(4). Rule 2005 (e) - Trading Zone Restrictions applies if an annual allocation is increased to a level greater than the facility's Starting Allocation plus Non-Tradable Credits:

Year Begin (month/year)	End	Zone	RTC Starting Allocation (pounds)	Non-Tradable Credits(NTC) (pounds)

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 18

AQ-17
NH3 FLOW METER ACCURACY REPORTS

HRD 6

HOMER R. DULIN CO.

729 EAST WILLOW STREET
SIGNAL HILL, CALIFORNIA 90755
(562) 424-8533 FAX (562) 426-7707

CERT. NO. 4-198AF-19

CALIBRATION CERTIFICATION

SUBMITTED BY: CITY OF ANAHEIM

FLOWMETER SERIAL NO: . MFG. SERIAL NO: 14136005

MANUFACTURER: MICRO MOTION MODEL: CMF025M313NQBUEZZZ

TUBE NO: . FLOAT NO: .

DATA IS: As Found ; Out of Tolerance, See As Left Data See Remarks ☑
Adjustment Required Calibrated @ customer's facility ☐

REMARKS: METER VERY UNSTABLE & OUT OF TOLERANCE - PROGRAMMING REQUIRED - SEE AS LEFT DATA -
.

ACCURACY N/A

INDICATED		ACTUAL	
LB/H		LBS/HR	
150.22		152.40	
131.53		133.92	
112.60		114.36	
93.91		96.00	
75.00		76.68	
56.31		57.78	
46.83		48.30	
37.34		38.70	
28.22		28.80	
0.00		0.00	

Flowmeter Certified with HOMER R. DULIN CO.

Equip. No. 11605 Accuracy 0.005% Equip. Cal. Date: 8/29/18 Cal. Due: 8/29/21

NIST Cert. No. TEST# MS 15560 Procedure No: ISA:RP 16.6

Our standards are certified by or are traceable to the National Institute of Standards and Technology and systems comply with MIL-STD 45662A, ANSI/NCSL Z540.3, ISO/IEC 17025, and ISO 10012. The collective uncertainty of the standards used in this calibration does not exceed 25% of the certified accuracy of the instrument under test. This document may not be reproduced, except in full, without prior written approval of the Homer R. Dulin Co. Rev.1 Dated 8/19/14

P.O. No . Shipper No. .

4-9-19	N/A	R. MARTINEZ Rogelio Martinez
CALIBRATION DATE	RECALIBRATION DUE	CALIBRATION TECHNICIAN

HRD 6

HOMER R. DULIN CO.

729 EAST WILLOW STREET
SIGNAL HILL, CALIFORNIA 90755
(562) 424-8533 FAX (562) 426-7707

CERT. NO. 4-198AL-19

CALIBRATION CERTIFICATION

SUBMITTED BY: CITY OF ANAHEIM

FLOWMETER SERIAL NO: . MFG. SERIAL NO: 14136005

MANUFACTURER: MICRO MOTION MODEL: CMF025M313NQBUEZZZ

TUBE NO: . FLOAT NO: .

DATA IS: As Left ; In Tolerance See Remarks ☑

Calibrated @ customer's facility ☐

REMARKS: METER PROGRAMMED PRIOR TO AS LEFT DATA - DIRECT READING ELECTRONIC INDICATOR TRANSMITTER S/N: 14136005, CALIBRATED IN LBS/HR H2O @ 75°F. SP.GR. 1.0 FIRST CALIBRATION

ACCURACY ± 1% RATE

INDICATED		ACTUAL	
LB/H		LBS/HR	
150.20		151.20	
132.60		133.56	
112.90		113.70	
92.50		93.06	
75.10		75.48	
55.50		55.74	
37.78		37.80	
28.30		28.26	
18.85		18.95	
0.00		0.00	

Flowmeter Certified with HOMER R. DULIN CO.

Equip. No. 11605 Accuracy 0.005% Equip. Cal. Date: 8/29/18 Cal. Due: 8/29/21

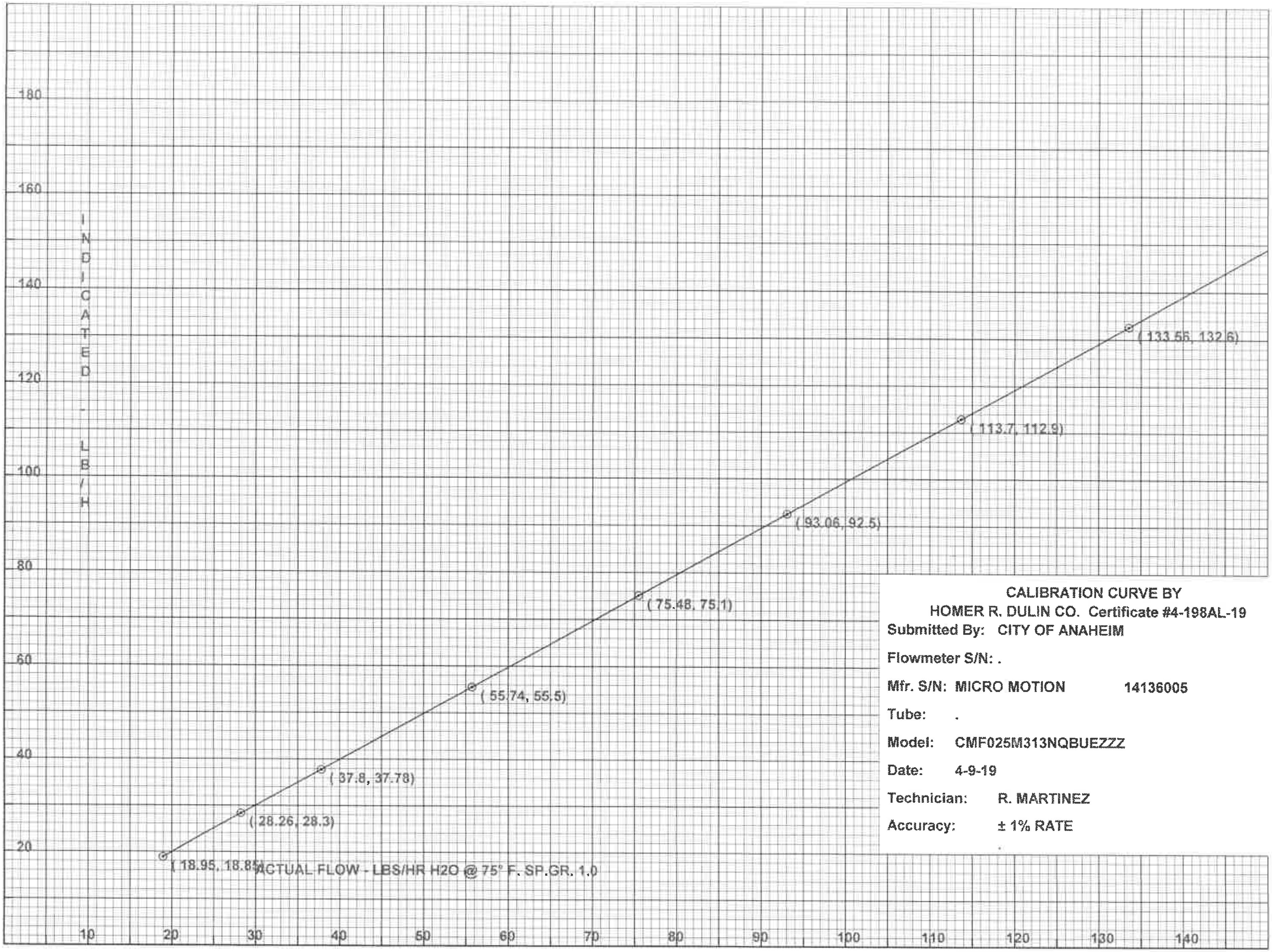
NIST Cert. No. TEST# MS 15560 Procedure No: ISA:RP 16.6

Our standards are certified by or are traceable to the National Institute of Standards and Technology and systems comply with MIL-STD 45662A, ANSI/NCSL Z540.3, ISO/IEC 17025, and ISO 10012. The collective uncertainty of the standards used in this calibration does not exceed 25% of the certified accuracy of the instrument under test. This document may not be reproduced, except in full, without prior written approval of the Homer R. Dulin Co. Rev.1 Dated 8/19/14

P.O. No . Shipper No. .

4-9-19	4-9-20	R. MARTINEZ Rogelio Martinez
CALIBRATION DATE	RECALIBRATION DUE	CALIBRATION TECHNICIAN

HRD 6



CALIBRATION CURVE BY
HOMER R. DULIN CO. Certificate #4-198AL-19

Submitted By: CITY OF ANAHEIM

Flowmeter S/N: .

Mfr. S/N: MICRO MOTION 14136005

Tube: .

Model: CMF025M313NQBUEZZZ

Date: 4-9-19

Technician: R. MARTINEZ

Accuracy: ± 1% RATE

HRD 6

HOMER R. DULIN CO.

729 EAST WILLOW STREET
SIGNAL HILL, CALIFORNIA 90755
(562) 424-8533 FAX (562) 426-7707

CERT. NO. 4-134-19

CALIBRATION CERTIFICATION

SUBMITTED BY: CITY OF ANAHEIM

FLOWMETER SERIAL NO: . MFG. SERIAL NO: 14236418

MANUFACTURER: MICRO MOTION MODEL: CMF025M313NQBUEZZZ

TUBE NO: . FLOAT NO: .

DATA IS: As Found/As Left ; In Tolerance

See Remarks ☑

Calibrated @ customer's facility ☐

REMARKS: DIRECT READING ELECTRONIC INDICATOR TRANSMITTER S/N: 14138117, CALIBRATED IN LBS/HR H2O @ 75°F. SP.GR. 1.0 FIRST CALIBRATION

ACCURACY ± 1% RATE

.

INDICATED		ACTUAL	
LB/H		LBS/HR	
148.30		148.56	
132.20		131.88	
112.50		112.20	
94.00		94.08	
75.38		75.30	
56.20		55.98	
37.57		37.38	
27.78		27.60	
18.85		18.78	
0.00		0.00	

Flowmeter Certified with HOMER R. DULIN CO.

Equip. No. 11605 Accuracy 0.005% Equip. Cal. Date: 8/29/18 Cal. Due: 8/29/21

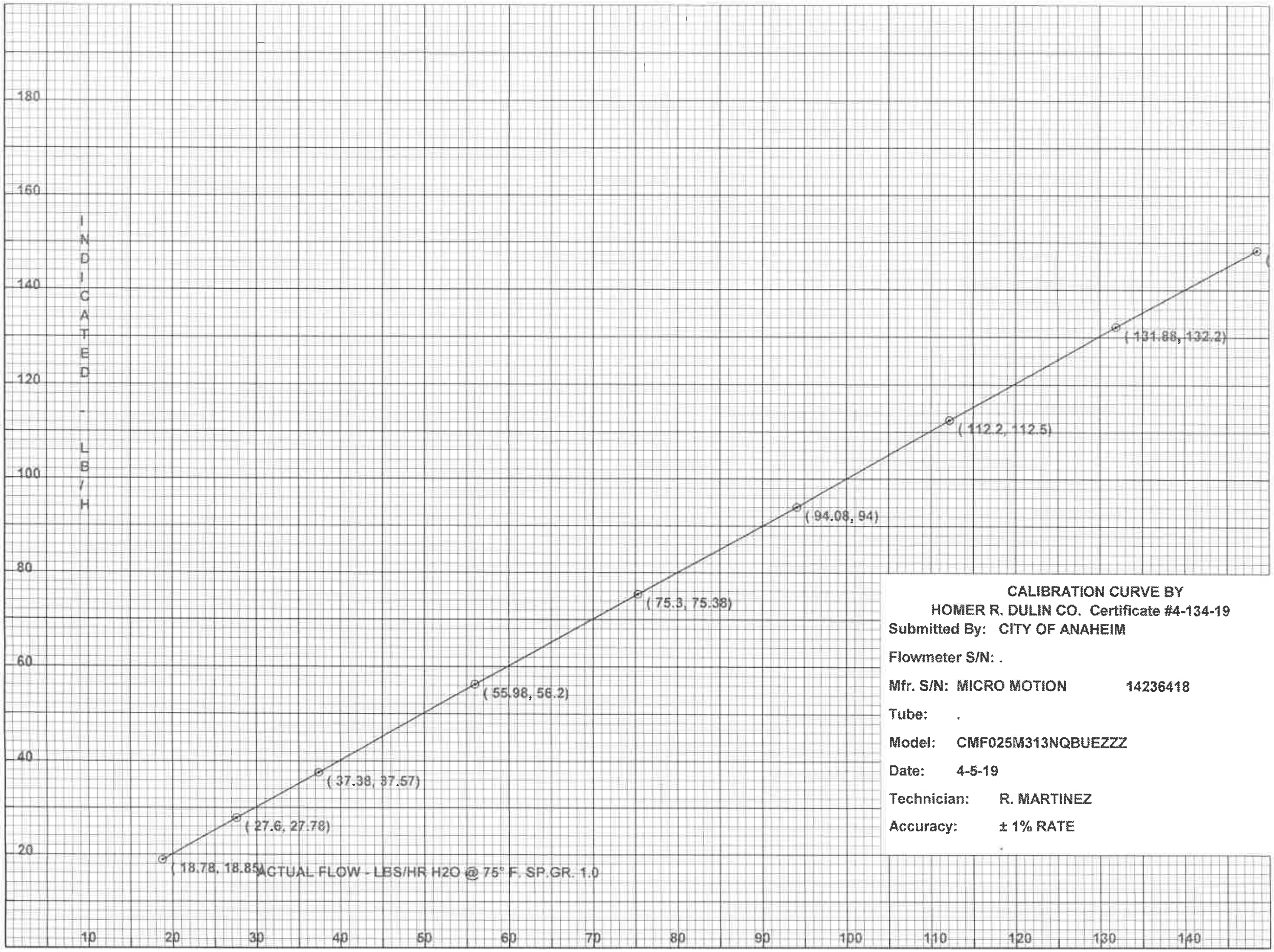
NIST Cert. No. TEST# MS 15560 Procedure No: ISA:RP 16.6

Our standards are certified by or are traceable to the National Institute of Standards and Technology and systems comply with MIL-STD 45662A, ANSI/NCSL Z540.3, ISO/IEC 17025, and ISO 10012. The collective uncertainty of the standards used in this calibration does not exceed 25% of the certified accuracy of the instrument under test. This document may not be reproduced, except in full, without prior written approval of the Homer R. Dulin Co. Rev.1 Dated 8/19/14

P.O. No . Shipper No. .

4-5-19	4-5-20	R. MARTINEZ Rogelio Martinez
CALIBRATION DATE	RECALIBRATION DUE	CALIBRATION TECHNICIAN

HRD 6



CALIBRATION CURVE BY
HOMER R. DULIN CO. Certificate #4-134-19

Submitted By: CITY OF ANAHEIM

Flowmeter S/N: .

Mfr. S/N: MICRO MOTION 14236418

Tube: .

Model: CMF025M313NQBUEZZZ

Date: 4-5-19

Technician: R. MARTINEZ

Accuracy: ± 1% RATE

HRD 6

HOMER R. DULIN CO.

729 EAST WILLOW STREET
SIGNAL HILL, CALIFORNIA 90755
(562) 424-8533 FAX (562) 426-7707

CERT. NO. 5-254-19

CALIBRATION CERTIFICATION

SUBMITTED BY: CITY OF ANAHEIM

FLOWMETER SERIAL NO: . MFG. SERIAL NO: 14139410

MANUFACTURER: MICRO MOTION MODEL: CMF025M313NQBUEZZZ

TUBE NO: . FLOAT NO: .

DATA IS: As Left ; In Tolerance

See Remarks ☑

Calibrated @ customer's facility ☐

REMARKS: NO AS FOUND DATA - METER PROGRAMMED PRIOR TO CALIBRATION - DIRECT READING ELECTRONIC INDICATOR TRANSMITTER S/N: 14139410, CALIBRATED IN LBS/HR H2O @ 75° F. SP.GR. 1.0 FIRST CALIBRATION

ACCURACY ± 1% RATE

INDICATED		ACTUAL	
LB/HR		LBS/HR	
150.4		149.7	
132.5		132.9	
113.4		113.1	
94.5		94.3	
75.6		75.8	
55.9		55.8	
38.2		38.4	
28.6		28.5	
18.8		18.8	
0.0		0.0	

Flowmeter Certified with HOMER R. DULIN CO.

Equip. No. 11605 Accuracy 0.005% Equip. Cal. Date: 8/29/18 Cal. Due: 8/29/21

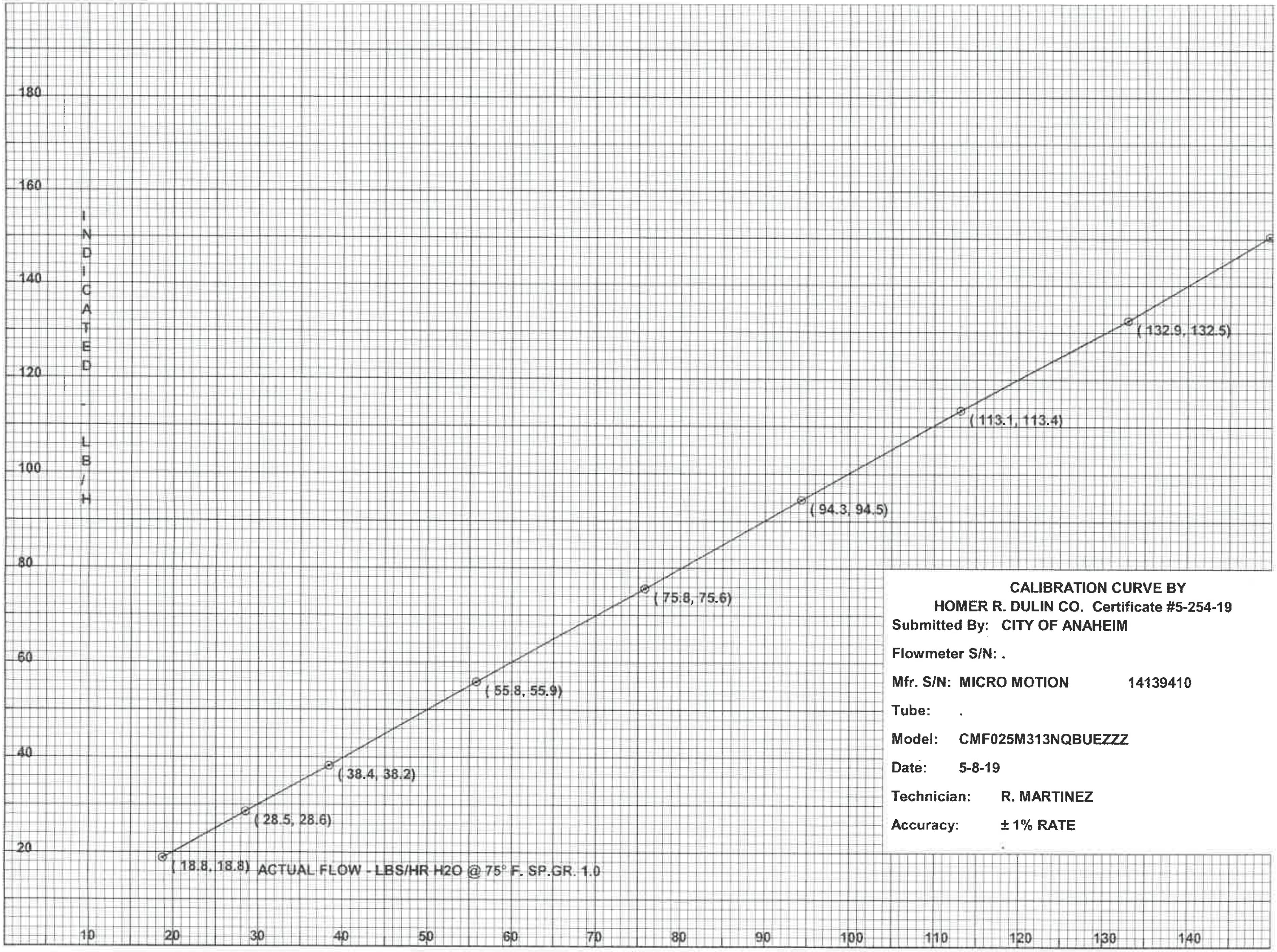
NIST Cert. No. TEST# MS 15560 Procedure No: ISA:RP 16.6

Our standards are certified by or are traceable to the National Institute of Standards and Technology and systems comply with MIL-STD 45662A, ANSI/NCSL Z540.3, ISO/IEC 17025, and ISO 10012. The collective uncertainty of the standards used in this calibration does not exceed 25% of the certified accuracy of the instrument under test. This document may not be reproduced, except in full, without prior written approval of the Homer R. Dulin Co. Rev.1 Dated 8/19/14

P.O. No . Shipper No. .

5-8-19	5-8-20	R. MARTINEZ Rogelio Martinez
CALIBRATION DATE	RECALIBRATION DUE	CALIBRATION TECHNICIAN

HRD 6



CALIBRATION CURVE BY
HOMER R. DULIN CO. Certificate #5-254-19

Submitted By: CITY OF ANAHEIM

Flowmeter S/N: .

Mfr. S/N: MICRO MOTION 14139410

Tube: .

Model: CMF025M313NQBUEZZZ

Date: 5-8-19

Technician: R. MARTINEZ

Accuracy: ± 1% RATE

HRD 6

HOMER R. DULIN CO.

729 EAST WILLOW STREET
SIGNAL HILL, CALIFORNIA 90755
(562) 424-8533 FAX (562) 426-7707

CERT. NO. 3-417-19

CALIBRATION CERTIFICATION

SUBMITTED BY: CITY OF ANAHEIM

FLOWMETER SERIAL NO: . MFG. SERIAL NO: 14134531

MANUFACTURER: MICRO MOTION MODEL: CMF025M313NQBUEZZZ

TUBE NO: . FLOAT NO: .

DATA IS: As Found/As Left ; In Tolerance

See Remarks ☑

Calibrated @ customer's facility ☐

REMARKS: DIRECT READING ELECTRONIC INDICATOR TRANSMITTER S/N: 14134531, CALIBRATED IN LBS/HR H2O @ 75°F. SP.GR. 1.0 METER UNSTABLE BELOW 18.70 LB/HR INDICATED - FIRST CALIBRATION

ACCURACY ± 1% RATE

INDICATED		ACTUAL	
LB/H		LBS/HR	
149.70		149.46	
131.50		131.46	
112.70		112.80	
94.20		94.08	
75.60		75.54	
56.80		56.82	
37.80		38.02	
27.70		27.93	
18.70		18.85	
0.00		0.00	

Flowmeter Certified with HOMER R. DULIN CO.

Equip. No. 11605 Accuracy 0.005% Equip. Cal. Date: 8/29/18 Cal. Due: 8/29/21

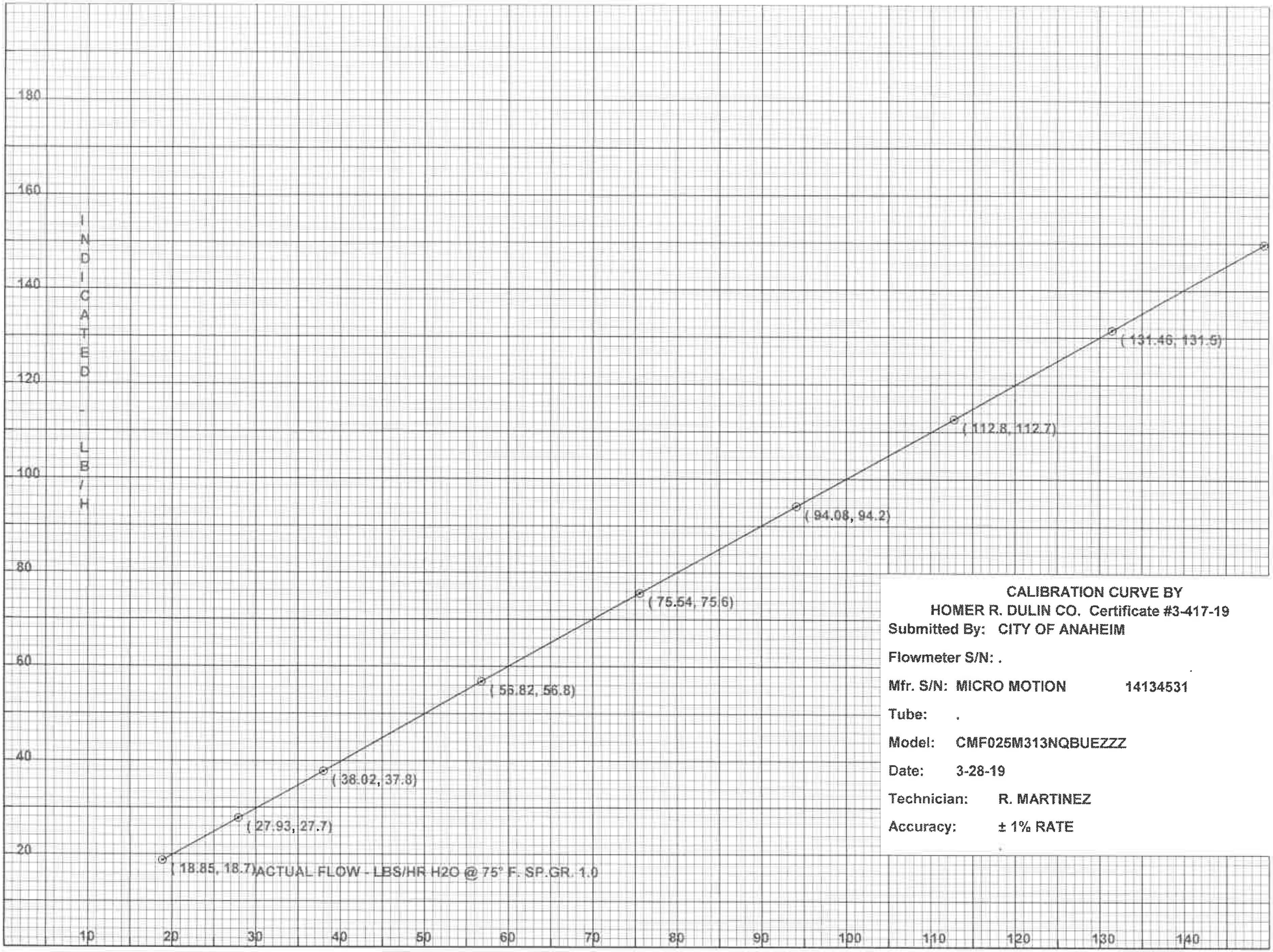
NIST Cert. No. TEST# MS 15560 Procedure No: ISA:RP 16.6

Our standards are certified by or are traceable to the National Institute of Standards and Technology and systems comply with MIL-STD 45662A, ANSI/NCSL Z540.3, ISO/IEC 17025, and ISO 10012. The collective uncertainty of the standards used in this calibration does not exceed 25% of the certified accuracy of the instrument under test. This document may not be reproduced, except in full, without prior written approval of the Homer R. Dulin Co. Rev.1 Dated 8/19/14

P.O. No . Shipper No. .

3-28-19	3-28-20	R. MARTINEZ
CALIBRATION DATE	RECALIBRATION DUE	CALIBRATION TECHNICIAN

HRD 6



CALIBRATION CURVE BY
HOMER R. DULIN CO. Certificate #3-417-19

Submitted By: CITY OF ANAHEIM

Flowmeter S/N: .

Mfr. S/N: MICRO MOTION 14134531

Tube: .

Model: CMF025M313NQBUEZZZ

Date: 3-28-19

Technician: R. MARTINEZ

Accuracy: ± 1% RATE

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 19

AQ-18
SCR INLET TEMPERATURE SENSOR

CALIBRATION REPORTS

Calibration: SCR Inlet Temperature
Unit 1 TE-403A-403D

Calibration Certificate

Certificate Number:

Position ID: 1-TE-403A

Printed: 2/1/2019 12:31:37 PM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	SCR INLET TEMP
Work Order Number	
Location	NH3 INJ SKID
Plant	CANYON/ERU/U1/

Device

Device ID	1-TE-403A		
Serial Number			
Manufacturer			
Rangeability			
Operating		Operating Humidity	

Function

Name	U1 SCR INLET TEMP (ud)	
Transfer Function	Linear	
Range	100 ... 1000 °F	100 ... 1000 °F

Calibration Event

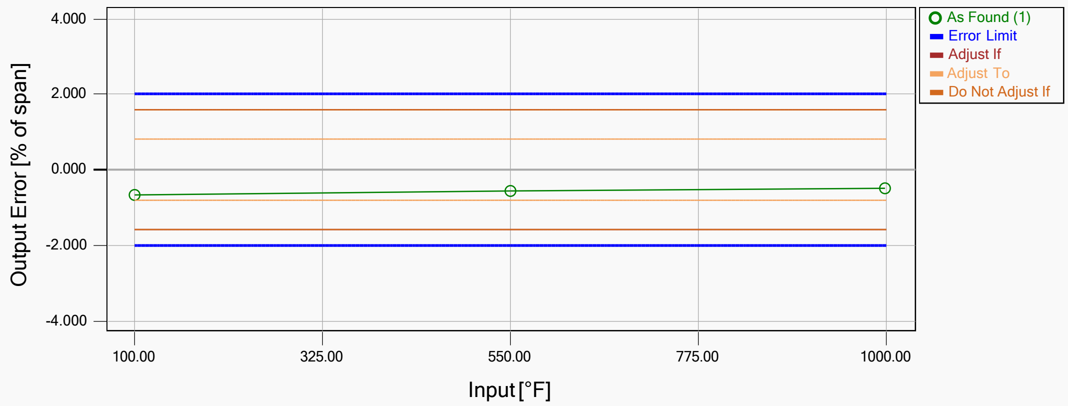
Calibration time	2/1/2019 10:21:23 AM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	2 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	TC-R-OUT/ TC1 : 65279	Due Date: 4/13/2019
Output Calibrator		Due Date:
Output Module		Due Date:



1. As Found

PASSED, DO NOT ADJUST

Maximum Error: -0.667 % of span

Nominal Input [°F]	Actual Input [°F]	Nominal Output [°F]	Actual Output [°F]	Found Error [% of span]
100.0	100.00	100.0	94.000	-0.667
550.0	550.00	550.0	545.000	-0.556
1000.0	999.99	1000.0	995.500	-0.499

Calibration Note:

Calibrated by: VINCENT NGUYEN
2/1/2019 10:21:23 AM

Calibration Certificate

Certificate Number:

Position ID: 1-TE-403B

Printed: 2/1/2019 12:31:37 PM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	SCR INLET TEMP
Work Order Number	
Location	NH3 INJ SKID
Plant	CANYON/ERU/U1/

Device

Device ID	1-TE-403B		
Serial Number			
Manufacturer			
Rangeability			
Operating		Operating Humidity	

Function

Name	U1 SCR INLET TEMP (ud)	
Transfer Function	Linear	
Range	100 ... 1000 °F	100 ... 1000 °F

Calibration Event

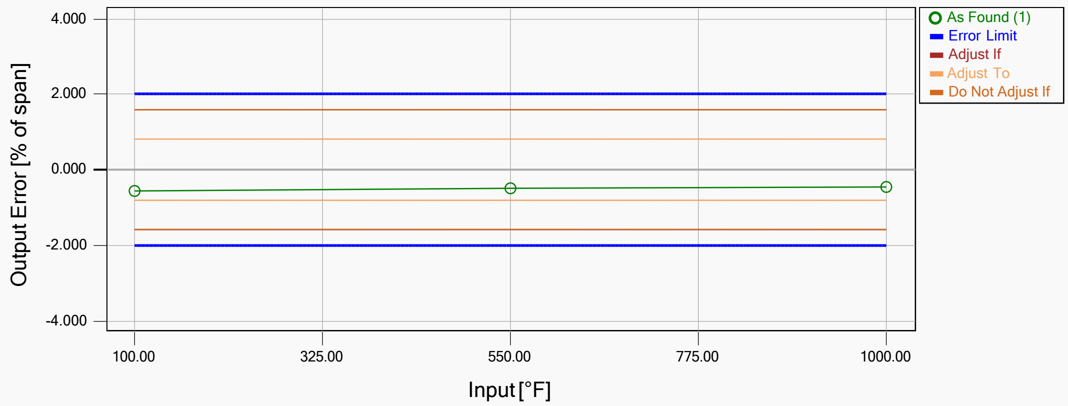
Calibration time	2/1/2019 10:24:47 AM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	2 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	TC-R-OUT/ TC1 : 65279	Due Date: 4/13/2019
Output Calibrator		Due Date:
Output Module		Due Date:



1. As Found

PASSED, DO NOT ADJUST

Maximum Error: -0.556 % of span

Nominal Input [°F]	Actual Input [°F]	Nominal Output [°F]	Actual Output [°F]	Found Error [% of span]
100.0	100.00	100.0	95.000	-0.556
550.0	550.00	550.0	545.500	-0.500
1000.0	1000.00	1000.0	996.000	-0.444

Calibration Note:

Calibrated by: VINCENT NGUYEN
2/1/2019 10:24:47 AM

Calibration Certificate

Certificate Number:

Position ID: 1-TE-403C

Printed: 2/1/2019 12:31:37 PM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	SCR INLET TEMP
Work Order Number	
Location	NH3 INJ SKID
Plant	CANYON/ERU/U1/

Device

Device ID	1-TE-403C		
Serial Number			
Manufacturer			
Rangeability			
Operating		Operating Humidity	

Function

Name	U1 SCR INLET TEMP (ud)	
Transfer Function	Linear	
Range	100 ... 1000 °F	100 ... 1000 °F

Calibration Event

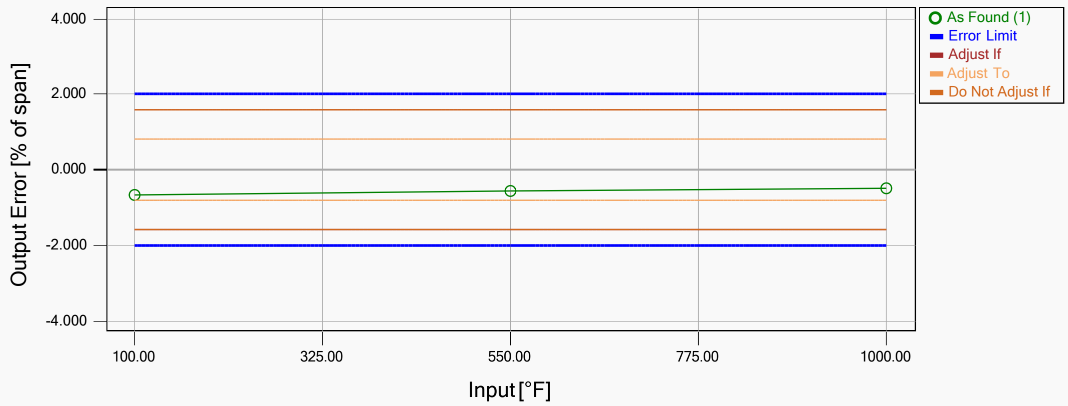
Calibration time	2/1/2019 10:28:38 AM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	2 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	TC-R-OUT/ TC1 : 65279	Due Date: 4/13/2019
Output Calibrator		Due Date:
Output Module		Due Date:



1. As Found

PASSED, DO NOT ADJUST

Maximum Error: -0.667 % of span

Nominal Input [°F]	Actual Input [°F]	Nominal Output [°F]	Actual Output [°F]	Found Error [% of span]
100.0	100.00	100.0	94.000	-0.667
550.0	550.01	550.0	545.000	-0.557
1000.0	1000.01	1000.0	995.500	-0.501

Calibration Note:

Calibrated by: VINCENT NGUYEN
2/1/2019 10:28:38 AM

Calibration Certificate

Certificate Number:

Position ID: 1-TE-403D

Printed: 2/1/2019 12:31:37 PM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	SCR INLET TEMP
Work Order Number	
Location	NH3 INJ SKID
Plant	CANYON/ERU/U1/

Device

Device ID	1-TE-403D		
Serial Number			
Manufacturer			
Rangeability			
Operating		Operating Humidity	

Function

Name	U1 SCR INLET TEMP (ud)	
Transfer Function	Linear	
Range	100 ... 1000 °F	100 ... 1000 °F

Calibration Event

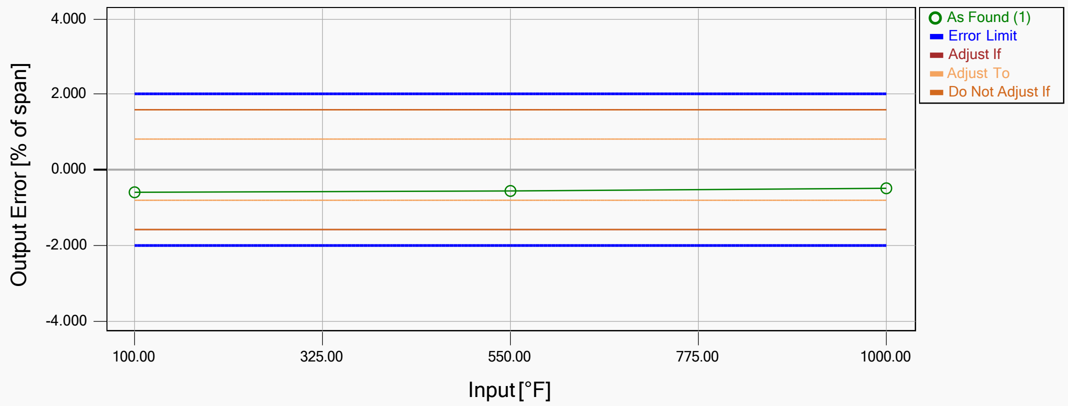
Calibration time	2/1/2019 10:32:11 AM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	2 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	TC-R-OUT/ TC1 : 65279	Due Date: 4/13/2019
Output Calibrator		Due Date:
Output Module		Due Date:



1. As Found

PASSED, DO NOT ADJUST

Maximum Error: -0.612 % of span

Nominal Input [°F]	Actual Input [°F]	Nominal Output [°F]	Actual Output [°F]	Found Error [% of span]
100.0	100.01	100.0	94.500	-0.612
550.0	550.01	550.0	545.000	-0.557
1000.0	1000.00	1000.0	995.500	-0.500

Calibration Note:

Calibrated by: VINCENT NGUYEN
2/1/2019 10:32:11 AM

Calibration: SCR Inlet Temperature
Unit 2 TE-403A-403D

Calibration Certificate

Certificate Number:

Position ID: 2-TE-403A

Printed: 2/1/2019 12:32:35 PM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	SCR INLET TEMP
Work Order Number	
Location	NH3 INJ SKID
Plant	CANYON/ERU/U2/

Device

Device ID	2-TE-403A		
Serial Number			
Manufacturer			
Rangeability			
Operating		Operating Humidity	

Function

Name	U2 SCR INLET TEMP (ud)	
Transfer Function	Linear	
Range	100 ... 1000 °F	100 ... 1000 °F

Calibration Event

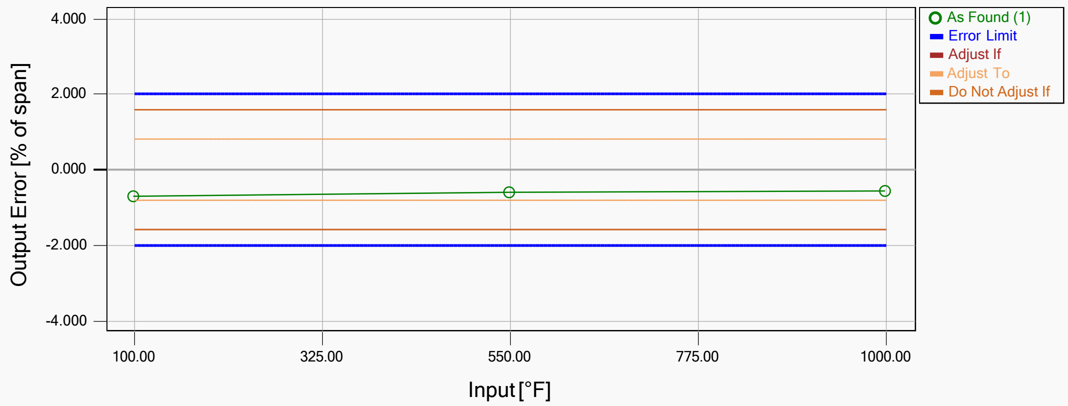
Calibration time	1/31/2019 10:14:33 AM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	2 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	TC-R-OUT/ TC1 : 65279	Due Date: 4/13/2019
Output Calibrator		Due Date:
Output Module		Due Date:



1. As Found

PASSED, DO NOT ADJUST

Maximum Error: -0.720 % of span

Nominal Input [°F]	Actual Input [°F]	Nominal Output [°F]	Actual Output [°F]	Found Error [% of span]
100.0	99.98~	100.0	93.500	-0.720~
550.0	549.96	550.0	544.500	-0.607
1000.0	999.97	1000.0	995.000	-0.552

Calibration Note:

Calibrated by: VINCENT NGUYEN
1/31/2019 10:14:33 AM

Calibration Certificate

Certificate Number:

Position ID: 2-TE-403B

Printed: 2/1/2019 12:32:35 PM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	SCR INLET TEMP
Work Order Number	
Location	NH3 INJ SKID
Plant	CANYON/ERU/U2/

Device

Device ID	2-TE-403B		
Serial Number			
Manufacturer			
Rangeability			
Operating		Operating Humidity	

Function

Name	U2 SCR INLET TEMP (ud)	
Transfer Function	Linear	
Range	100 ... 1000 °F	100 ... 1000 °F

Calibration Event

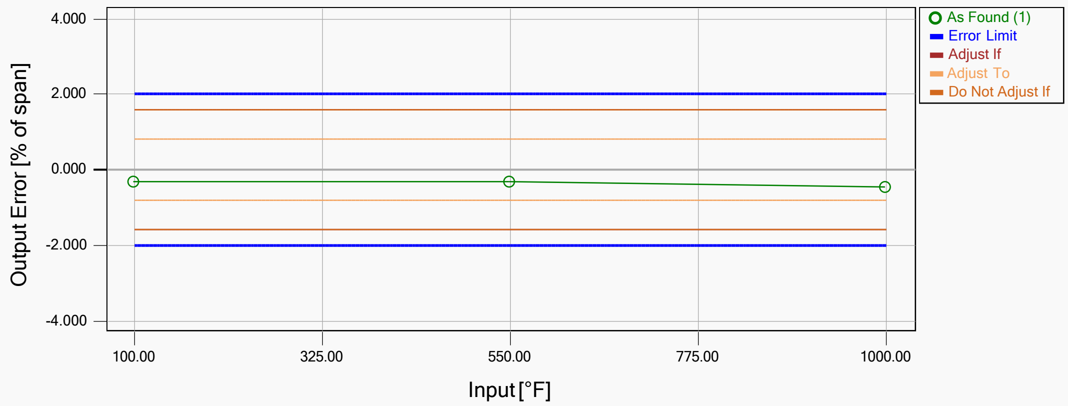
Calibration time	1/31/2019 10:18:28 AM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	2 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	TC-R-OUT/ TC1 : 65279	Due Date: 4/13/2019
Output Calibrator		Due Date:
Output Module		Due Date:



1. As Found

PASSED, DO NOT ADJUST

Maximum Error: -0.442 % of span

Nominal Input [°F]	Actual Input [°F]	Nominal Output [°F]	Actual Output [°F]	Found Error [% of span]
100.0	99.98	100.0	97.000	-0.331
550.0	549.98	550.0	547.000	-0.331
1000.0	999.98	1000.0	996.000	-0.442

Calibration Note:

Calibrated by: VINCENT NGUYEN
1/31/2019 10:18:28 AM

Calibration Certificate

Certificate Number:

Position ID: 2-TE-403C

Printed: 2/1/2019 12:32:35 PM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	SCR INLET TEMP
Work Order Number	
Location	NH3 INJ SKID
Plant	CANYON/ERU/U2/

Device

Device ID	2-TE-403C		
Serial Number			
Manufacturer			
Rangeability			
Operating		Operating Humidity	

Function

Name	U2 SCR INLET TEMP (ud)	
Transfer Function	Linear	
Range	100 ... 1000 °F	100 ... 1000 °F

Calibration Event

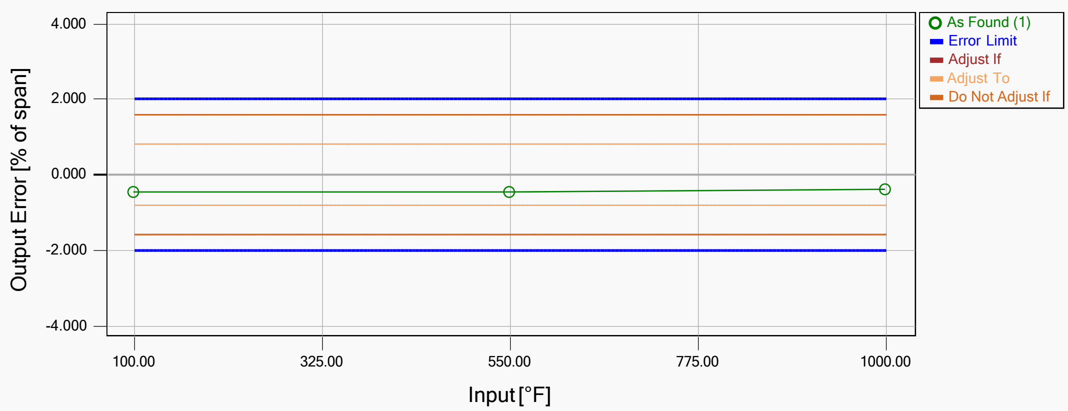
Calibration time	1/31/2019 10:22:35 AM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	2 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	TC-R-OUT/ TC1 : 65279	Due Date: 4/13/2019
Output Calibrator		Due Date:
Output Module		Due Date:



1. As Found

PASSED, DO NOT ADJUST

Maximum Error: -0.443 % of span

Nominal Input [°F]	Actual Input [°F]	Nominal Output [°F]	Actual Output [°F]	Found Error [% of span]
100.0	99.99	100.0	96.000	-0.443
550.0	549.99	550.0	546.000	-0.443
1000.0	999.99	1000.0	996.500	-0.388

Calibration Note:

Calibrated by: VINCENT NGUYEN
1/31/2019 10:22:35 AM

Calibration Certificate

Certificate Number:

Position ID: 2-TE-403D

Printed: 2/1/2019 12:32:35 PM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	SCR INLET TEMP
Work Order Number	
Location	NH3 INJ SKID
Plant	CANYON/ERU/U2/

Device

Device ID	2-TE-403D		
Serial Number			
Manufacturer			
Rangeability			
Operating		Operating Humidity	

Function

Name	U2 SCR INLET TEMP (ud)	
Transfer Function	Linear	
Range	100 ... 1000 °F	100 ... 1000 °F

Calibration Event

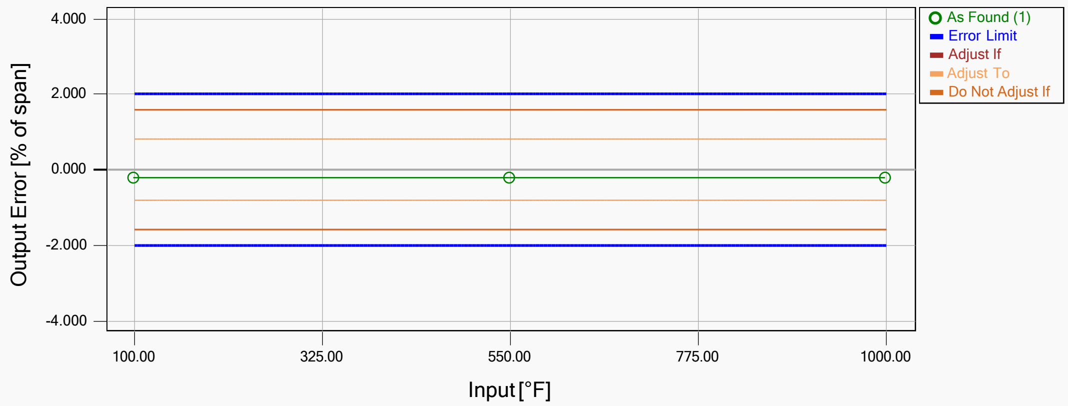
Calibration time	1/31/2019 10:26:02 AM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	2 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	TC-R-OUT/ TC1 : 65279	Due Date: 4/13/2019
Output Calibrator		Due Date:
Output Module		Due Date:



1. As Found

PASSED, DO NOT ADJUST

Maximum Error: -0.221 % of span

Nominal Input [°F]	Actual Input [°F]	Nominal Output [°F]	Actual Output [°F]	Found Error [% of span]
100.0	99.99	100.0	98.000	-0.221
550.0	549.99	550.0	548.000	-0.221
1000.0	999.99	1000.0	998.000	-0.221

Calibration Note:

Calibrated by: VINCENT NGUYEN
1/31/2019 10:26:02 AM

Calibration: SCR Inlet Temperature
Unit 3 TE-403A-403D

Calibration Certificate

Certificate Number:

Position ID: 3-TE-403A

Printed: 2/1/2019 12:33:24 PM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	SCR INLET TEMP
Work Order Number	
Location	NH3 INJ SKID
Plant	CANYON/ERU/U3/

Device

Device ID	3-TE-403A	
Serial Number		
Manufacturer		
Rangeability		
Operating		Operating Humidity

Function

Name	U3 SCR INLET TEMP (ud)	
Transfer Function	Linear	
Range	100 ... 1000 °F	100 ... 1000 °F

Calibration Event

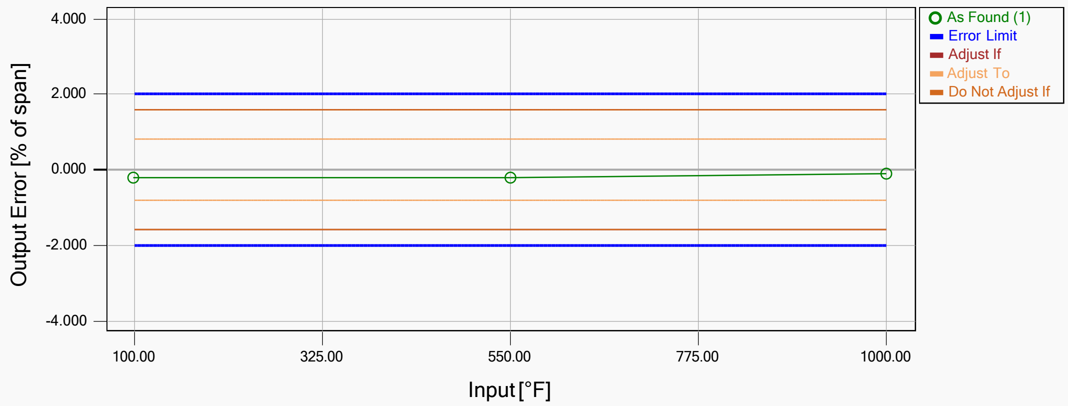
Calibration time	1/30/2019 12:19:42 PM	
Next Calibration		
Environment		Environment

Calibration Procedure

Due Date		Interval	0
Reject If Error >	2 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	TC-R-OUT/ TC1 : 65279	Due Date: 4/13/2019
Output Calibrator		Due Date:
Output Module		Due Date:



1. As Found

PASSED, DO NOT ADJUST

Maximum Error: -0.223 % of span

Nominal Input [°F]	Actual Input [°F]	Nominal Output [°F]	Actual Output [°F]	Found Error [% of span]
100.0	99.99	100.0	98.000	-0.221
550.0	550.01	550.0	548.000	-0.223
1000.0	1000.01	1000.0	999.000	-0.112

Calibration Note:

Calibrated by: VINCENT NGUYEN
1/30/2019 12:19:42 PM

Calibration Certificate

Certificate Number:

Position ID: 3-TE-403B

Printed: 2/1/2019 12:33:24 PM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	SCR INLET TEMP
Work Order Number	
Location	NH3 INJ SKID
Plant	CANYON/ERU/U3/

Device

Device ID	3-TE-403B		
Serial Number			
Manufacturer			
Rangeability			
Operating		Operating Humidity	

Function

Name	U3 SCR INLET TEMP (ud)	
Transfer Function	Linear	
Range	100 ... 1000 °F	100 ... 1000 °F

Calibration Event

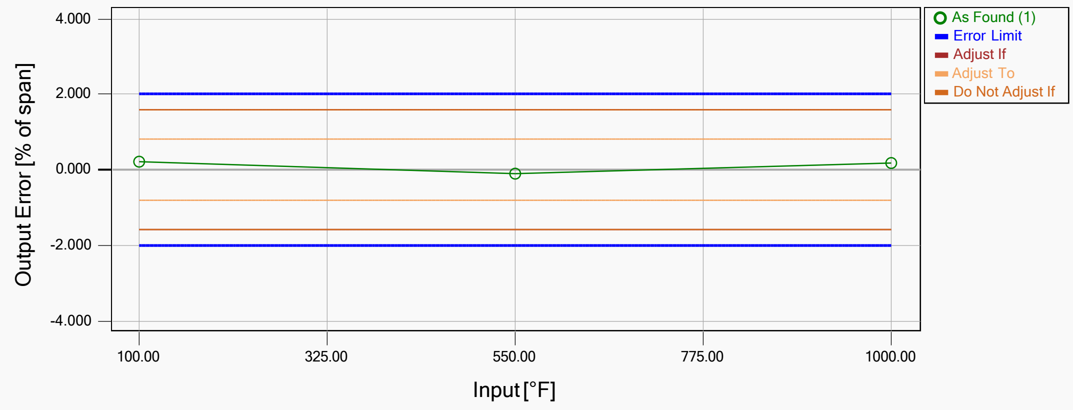
Calibration time	1/30/2019 12:24:20 PM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	2 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	TC-R-OUT/ TC1 : 65279	Due Date: 4/13/2019
Output Calibrator		Due Date:
Output Module		Due Date:



1. As Found

PASSED, DO NOT ADJUST

Maximum Error: 0.221 % of span

Nominal Input [°F]	Actual Input [°F]	Nominal Output [°F]	Actual Output [°F]	Found Error [% of span]
100.0	100.01	100.0	102.000	0.221
550.0	550.01	550.0	549.000	-0.112
1000.0	1000.01	1000.0	1001.500	0.166

Calibration Note:

Calibrated by: VINCENT NGUYEN
1/30/2019 12:24:20 PM

Calibration Certificate

Certificate Number:

Position ID: 3-TE-403C

Printed: 2/1/2019 12:33:24 PM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	SCR INLET TEMP
Work Order Number	
Location	NH3 INJ SKID
Plant	CANYON/ERU/U3/

Device

Device ID	3-TE-403C		
Serial Number			
Manufacturer			
Rangeability			
Operating		Operating Humidity	

Function

Name	U3 SCR INLET TEMP (ud)	
Transfer Function	Linear	
Range	100 ... 1000 °F	100 ... 1000 °F

Calibration Event

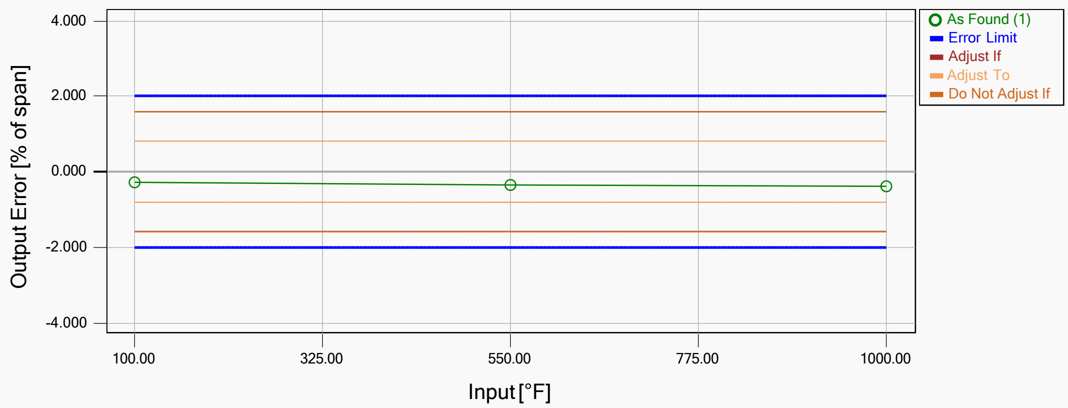
Calibration time	1/30/2019 12:31:44 PM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	2 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	TC-R-OUT/ TC1 : 65279	Due Date: 4/13/2019
Output Calibrator		Due Date:
Output Module		Due Date:



1. As Found

PASSED, DO NOT ADJUST

Maximum Error: -0.391 % of span

Nominal Input [°F]	Actual Input [°F]	Nominal Output [°F]	Actual Output [°F]	Found Error [% of span]
100.0	100.03~	100.0	97.500	-0.281~
550.0	550.05~	550.0	547.000	-0.339~
1000.0	1000.02~	1000.0	996.500	-0.391~

Calibration Note:

Calibrated by: VINCENT NGUYEN
1/30/2019 12:31:44 PM

Calibration Certificate

Certificate Number:

Position ID: 3-TE-403D

Printed: 2/1/2019 12:33:24 PM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	SCR INLET TEMP
Work Order Number	
Location	NH3 INJ SKID
Plant	CANYON/ERU/U3/

Device

Device ID	3-TE-403D		
Serial Number			
Manufacturer			
Rangeability			
Operating		Operating Humidity	

Function

Name	U3 SCR INLET TEMP (ud)	
Transfer Function	Linear	
Range	100 ... 1000 °F	100 ... 1000 °F

Calibration Event

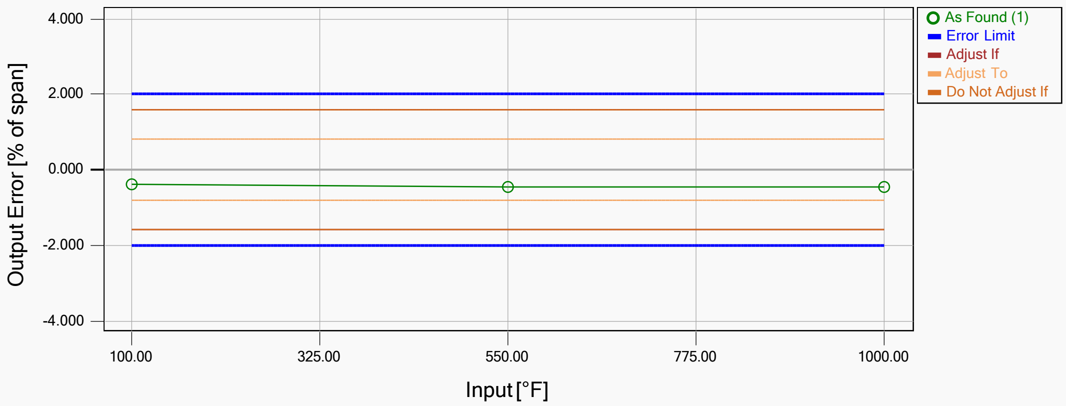
Calibration time	1/30/2019 12:36:09 PM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	2 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	TC-R-OUT/ TC1 : 65279	Due Date: 4/13/2019
Output Calibrator		Due Date:
Output Module		Due Date:



1. As Found

PASSED, DO NOT ADJUST

Maximum Error: -0.450 % of span

Nominal Input [°F]	Actual Input [°F]	Nominal Output [°F]	Actual Output [°F]	Found Error [% of span]
100.0	100.03~	100.0	96.500	-0.392~
550.0	550.05~	550.0	546.000	-0.450~
1000.0	1000.04~	1000.0	996.000	-0.449~

Calibration Note:

Calibrated by: VINCENT NGUYEN
1/30/2019 12:36:09 PM

Calibration: SCR Inlet Temperature
Unit 4 TE-403A-403D

Calibration Certificate

Certificate Number:

Position ID: 4-TE-403A

Printed: 2/1/2019 12:20:15 PM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	SCR INLET TEMP
Work Order Number	
Location	NH3 INJ SKID
Plant	CANYON/ERU/U4/

Device

Device ID	4-TE-403A		
Serial Number			
Manufacturer			
Rangeability			
Operating		Operating Humidity	

Function

Name	U4 SCR INLET TEMP (ud)	
Transfer Function	Linear	
Range	100 ... 1000 °F	100 ... 1000 °F

Calibration Event

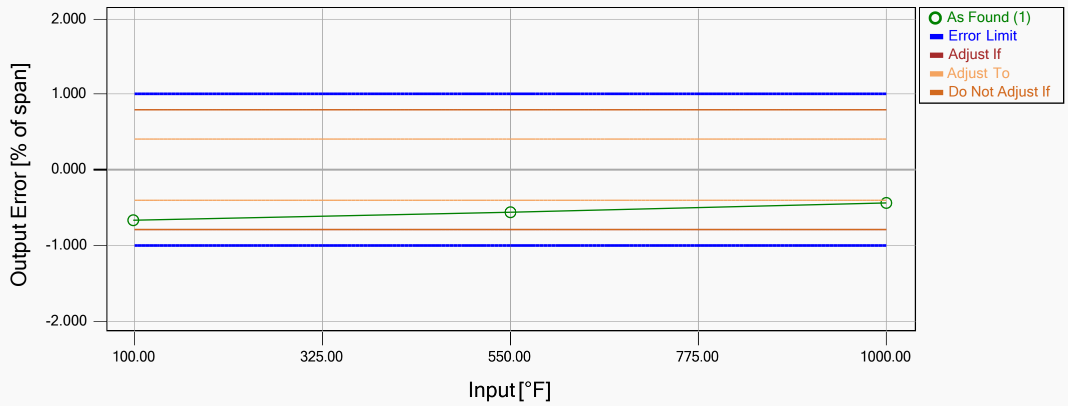
Calibration time	1/29/2019 11:08:05 AM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	1 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	TC-R-OUT/ TC1 : 65279	Due Date: 4/13/2019
Output Calibrator		Due Date:
Output Module		Due Date:



1. As Found

PASSED, DO NOT ADJUST

Maximum Error: -0.666 % of span

Nominal Input [°F]	Actual Input [°F]	Nominal Output [°F]	Actual Output [°F]	Found Error [% of span]
100.0	99.99	100.0	94.000	-0.666
550.0	550.00	550.0	545.000	-0.556
1000.0	1000.00	1000.0	996.000	-0.444

Calibration Note:

Calibrated by: VINCENT NGUYEN
1/29/2019 11:08:05 AM

Calibration Certificate

Certificate Number:

Position ID: 4-TE-403B

Printed: 2/1/2019 12:20:15 PM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	SCR INLET TEMP
Work Order Number	
Location	NH3 INJ SKID
Plant	CANYON/ERU/U4/

Device

Device ID	4-TE-403B		
Serial Number			
Manufacturer			
Rangeability			
Operating		Operating Humidity	

Function

Name	U4 SCR INLET TEMP (ud)	
Transfer Function	Linear	
Range	100 ... 1000 °F	100 ... 1000 °F

Calibration Event

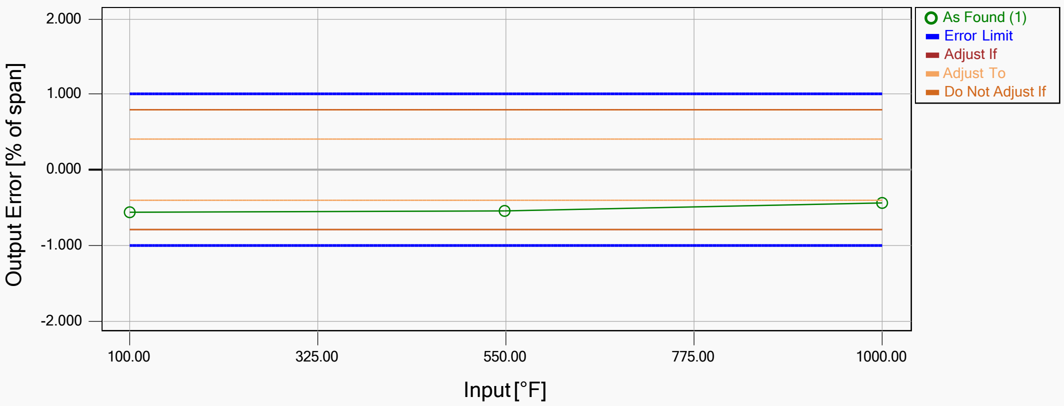
Calibration time	1/29/2019 11:14:28 AM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	1 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	TC-R-OUT/ TC1 : 65279	Due Date: 4/13/2019
Output Calibrator		Due Date:
Output Module		Due Date:



1. As Found

PASSED, DO NOT ADJUST

Maximum Error: -0.556 % of span

Nominal Input [°F]	Actual Input [°F]	Nominal Output [°F]	Actual Output [°F]	Found Error [% of span]
100.0	100.00	100.0	95.000	-0.556
550.0	549.99	550.0	545.000	-0.554
1000.0	1000.00	1000.0	996.000	-0.444

Calibration Note:

Calibrated by: VINCENT NGUYEN
1/29/2019 11:14:28 AM

Calibration Certificate

Certificate Number:

Position ID: 4-TE-403C

Printed: 2/1/2019 12:20:15 PM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	SCR INLET TEMP
Work Order Number	
Location	NH3 INJ SKID
Plant	CANYON/ERU/U4/

Device

Device ID	4-TE-403C		
Serial Number			
Manufacturer			
Rangeability			
Operating		Operating Humidity	

Function

Name	U4 SCR INLET TEMP (ud)	
Transfer Function	Linear	
Range	100 ... 1000 °F	100 ... 1000 °F

Calibration Event

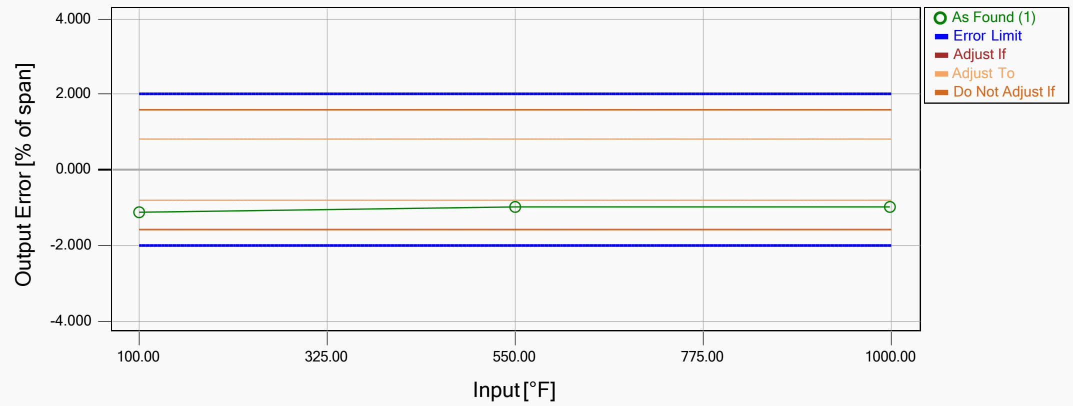
Calibration time	1/30/2019 10:07:32 AM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	2 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	TC-R-OUT/ TC1 : 65279	Due Date: 4/13/2019
Output Calibrator		Due Date:
Output Module		Due Date:



1. As Found

PASSED, DO NOT ADJUST

Maximum Error: -1.111 % of span

Nominal Input [°F]	Actual Input [°F]	Nominal Output [°F]	Actual Output [°F]	Found Error [% of span]
100.0	100.00	100.0	90.000	-1.111
550.0	550.00	550.0	541.000	-1.000
1000.0	999.99	1000.0	991.000	-0.999

Calibration Note:

Calibrated by: VINCENT NGUYEN
1/30/2019 10:07:32 AM

Calibration Certificate

Certificate Number:

Position ID: 4-TE-403D

Printed: 2/1/2019 12:20:15 PM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	SCR INLET TEMP
Work Order Number	
Location	NH3 INJ SKID
Plant	CANYON/ERU/U4/

Device

Device ID	4-TE-403D		
Serial Number			
Manufacturer			
Rangeability			
Operating		Operating Humidity	

Function

Name	U4 SCR INLET TEMP (ud)	
Transfer Function	Linear	
Range	100 ... 1000 °F	100 ... 1000 °F

Calibration Event

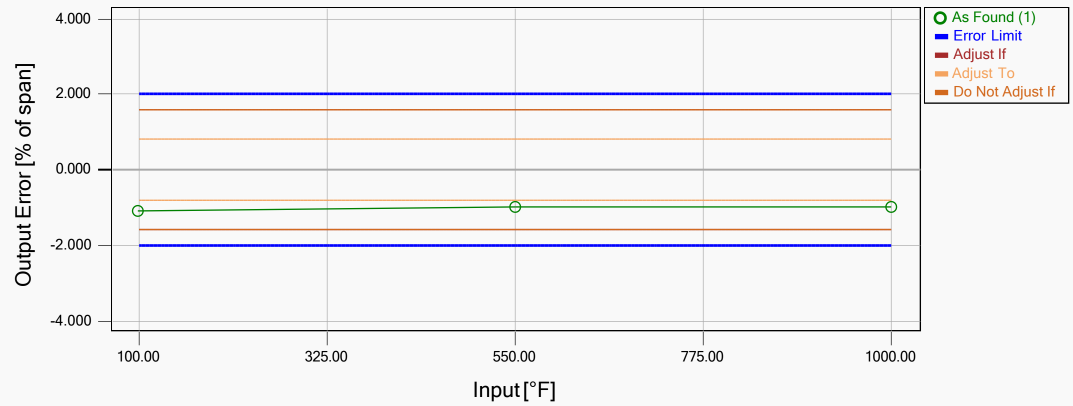
Calibration time	1/30/2019 10:12:04 AM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	2 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	TC-R-OUT/ TC1 : 65279	Due Date: 4/13/2019
Output Calibrator		Due Date:
Output Module		Due Date:



1. As Found

PASSED, DO NOT ADJUST

Maximum Error: -1.110 % of span

Nominal Input [°F]	Actual Input [°F]	Nominal Output [°F]	Actual Output [°F]	Found Error [% of span]
100.0	99.99	100.0	90.000	-1.110
550.0	550.00	550.0	541.000	-1.000
1000.0	1000.00	1000.0	991.000	-1.000

Calibration Note:

Calibrated by: VINCENT NGUYEN
1/30/2019 10:12:04 AM

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 20

AQ-19
SCR DIFFERENTIAL PRESSURE SENSOR

CALIBRATION REPORTS

Calibration Certificate

Certificate Number:

Position ID: 1-PDIT-4

Printed: 3/1/2019 11:31:32 AM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	U1 SCR DP
Work Order Number	
Location	U1 ERU
Plant	

Device

Device ID	1-PDIT-4		
Serial Number	393478		
Manufacturer	Rosemount 3051C		
Rangeability			
Operating		Operating Humidity	

Function

Name	U1 SCR DP (ud)	
Transfer Function	Linear	
Range	0 ... 10 inH2O (G)	4 ... 20 mA

Calibration Event

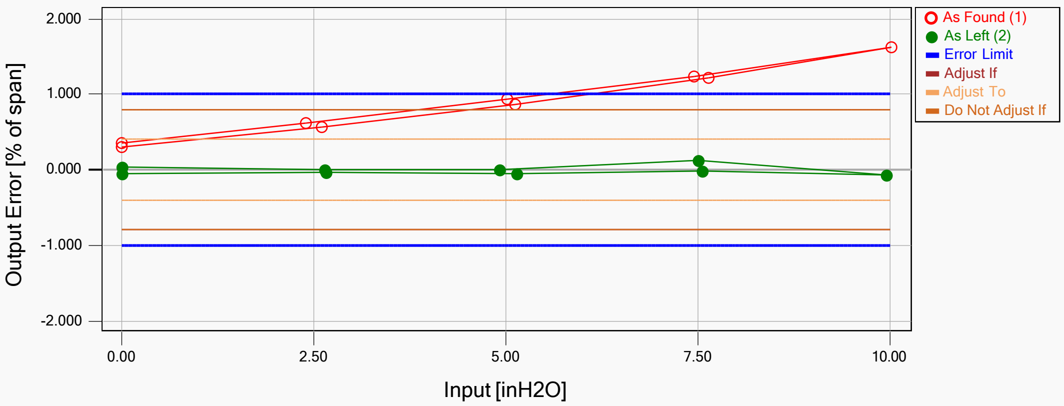
Calibration time	2/7/2019 9:16:37 AM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	1 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	P2C : 69381	Due Date: 4/12/2019
Output Calibrator	MC6 : 605835	Due Date: 4/12/2019
Output Module	IN : 25613	Due Date: 4/12/2019



1. As Found — FAILED

Maximum Error: 1.626 % of span

Nominal Input [inH2O]	Actual Input [inH2O]	Nominal Output [mA]	Actual Output [mA]	Found Error [% of span]
0.0000	0.01	4.0000	4.0717	0.348
2.500	2.41	8.000	7.9535	0.609
5.000	5.02	12.000	12.1812	0.933
7.500	7.45	16.000	16.1186	1.241
10.000	10.03	20.000	20.3082	1.626
7.500	7.65	16.000	16.4352	1.220
5.000	5.13	12.000	12.3472	0.870
2.500	2.61	8.000	8.2665	0.566
0.0000	0.00	4.0000	4.0468	0.293

2. As Left — PASSED, DO NOT ADJUST

Maximum Error: 0.116 % of span

Nominal Input [inH2O]	Actual Input [inH2O]	Nominal Output [mA]	Actual Output [mA]	Found Error [% of span]
0.0000	0.01	4.0000	4.0219	0.037
2.500	2.65	8.000	8.2408	0.005
5.000	4.93	12.000	11.8892	0.008
7.500	7.50	16.000	16.0186	0.116
10.000	9.95	20.000	19.9087	-0.071
7.500	7.56	16.000	16.0925	-0.022
5.000	5.14	12.000	12.2157	-0.052
2.500	2.67	8.000	8.2669	-0.032
0.0000	0.00	4.0000	3.9920	-0.050

Calibration Note:

Calibrated by: VINCENT NGUYEN
2/7/2019 9:16:37 AM

Calibration Certificate

Certificate Number:

Position ID: 2-PDIT-4

Printed: 3/1/2019 11:36:49 AM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	U2 CO CAT DP
Work Order Number	
Location	U1 ERU
Plant	

Device

Device ID	2-PDIT-4		
Serial Number	393483		
Manufacturer	Rosemount 3051C		
Rangeability			
Operating		Operating Humidity	

Function

Name	U2 CO CAT DP (ud)	
Transfer Function	Linear	
Range	0 ... 5 inH2O (G)	4 ... 20 mA

Calibration Event

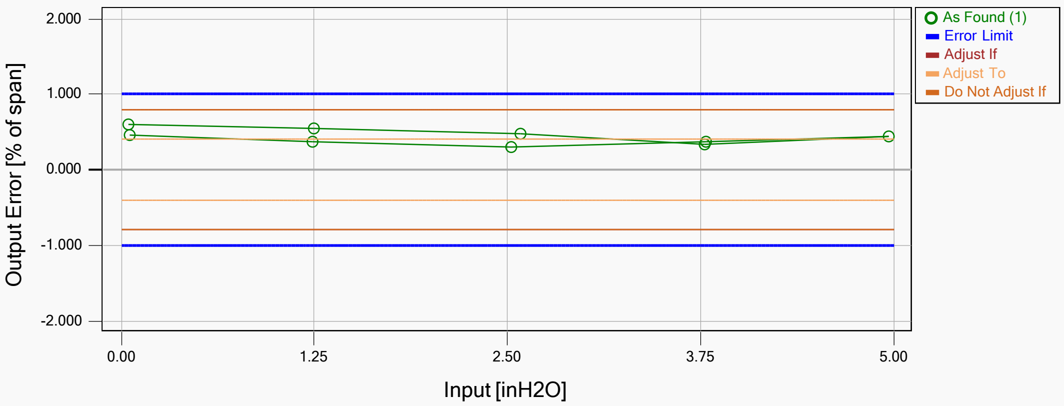
Calibration time	2/6/2019 9:16:23 AM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	1 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	P2C : 69381	Due Date: 4/12/2019
Output Calibrator	MC6 : 605835	Due Date: 4/12/2019
Output Module	IN : 25613	Due Date: 4/12/2019



1. As Found

PASSED, DO NOT ADJUST

Maximum Error: 0.595 % of span

Nominal Input [inH2O]	Actual Input [inH2O]	Nominal Output [mA]	Actual Output [mA]	Found Error [% of span]
0.0000	0.05	4.0000	4.2552	0.595
1.250	1.25	8.000	8.0883	0.552
2.500	2.59	12.000	12.3641	0.476
3.750	3.78	16.000	16.1500	0.338
5.0000	4.97	20.0000	19.9736	0.435
3.750	3.79	16.000	16.1874	0.371
2.500	2.53	12.000	12.1448	0.305
1.250	1.24	8.000	8.0282	0.376
0.0000	0.06	4.0000	4.2652	0.458

Calibration Note:

Calibrated by: VINCENT NGUYEN
2/6/2019 9:16:23 AM

Calibration Certificate

Certificate Number:

Position ID: 3-PDIT-4

Printed: 3/1/2019 11:39:09 AM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	U3 SCR DP
Work Order Number	
Location	U3 ERU
Plant	

Device

Device ID	3-PDIT-4		
Serial Number	393480		
Manufacturer	Rosemount 3051C		
Rangeability			
Operating		Operating Humidity	

Function

Name	U3 SCR DP (ud)	
Transfer Function	Linear	
Range	0 ... 10 inH2O (G)	4 ... 20 mA

Calibration Event

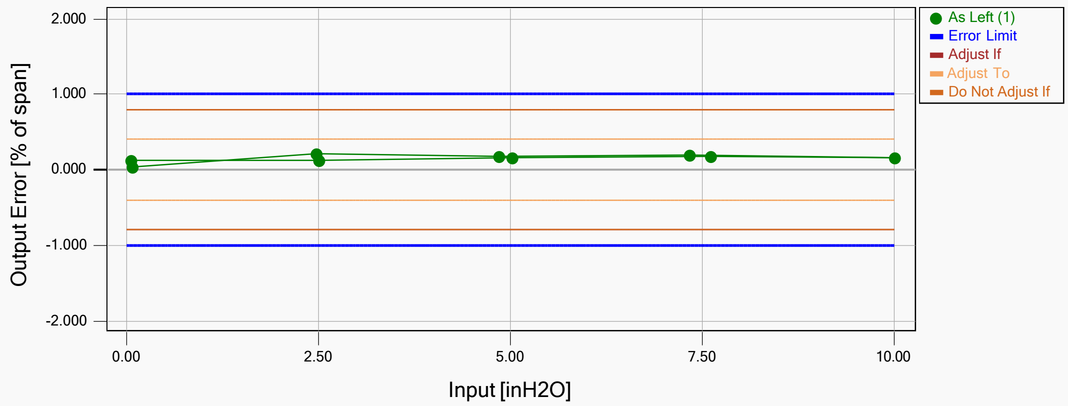
Calibration time	2/6/2019 10:47:44 AM	
Next Calibration		
Environment		Environment

Calibration Procedure

Due Date		Interval	0
Reject If Error >	1 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	P2C : 69381	Due Date: 4/12/2019
Output Calibrator	MC6 : 605835	Due Date: 4/12/2019
Output Module	IN : 25613	Due Date: 4/12/2019



1. As Left

PASSED, DO NOT ADJUST

Maximum Error: 0.208 % of span

Nominal Input [inH2O]	Actual Input [inH2O]	Nominal Output [mA]	Actual Output [mA]	Found Error [% of span]
0.0000	0.07	4.0000	4.1178	0.036
2.500	2.47	8.000	7.9853	0.208
5.000	4.85	12.000	11.7892	0.183
7.500	7.34	16.000	15.7752	0.195
10.000	10.01	20.000	20.0406	0.154
7.500	7.61	16.000	16.2054	0.184
5.000	5.03	12.000	12.0740	0.163
2.500	2.51	8.000	8.0362	0.126
0.0000	0.06	4.0000	4.1164	0.128

Calibration Note:

Calibrated by: VINCENT NGUYEN
2/6/2019 10:47:44 AM

Calibration Certificate

Certificate Number:

Position ID: 4-PDIT-403

Printed: 3/1/2019 11:29:59 AM
Printed by: vnguyen
CMX Version: 2.11.214.0 (2.11)

Position

Name	U4 SCR DP
Work Order Number	
Location	U4 ERU
Plant	CANYON/ERU/U4/

Device

Device ID	4-PDIT-403		
Serial Number	393481		
Manufacturer	Rosemount 3051C		
Rangeability			
Operating		Operating Humidity	

Function

Name	U4 SCR DP (ud)	
Transfer Function	Linear	
Range	0 ... 10 inH2O (G)	4 ... 20 mA

Calibration Event

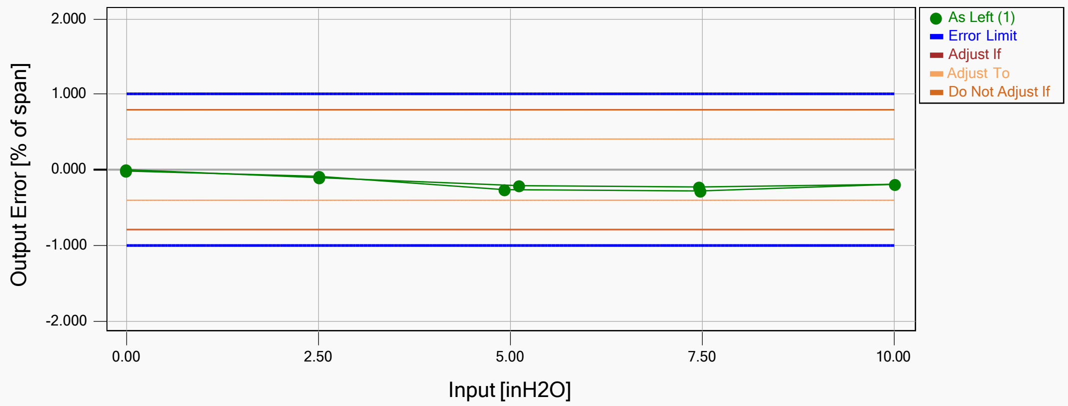
Calibration time	2/28/2019 10:05:25 AM		
Next Calibration			
Environment		Environment	

Calibration Procedure

Due Date		Interval	0
Reject If Error >	1 % of span		
Adjust To Error <	40 % of Reject If Error	Classification	
Calibration Strategy			

Calibrators

Input Calibrator	MC6 : 605835	Due Date: 4/12/2019
Input Module	P2C : 69381	Due Date: 4/12/2019
Output Calibrator	MC6 : 605835	Due Date: 4/12/2019
Output Module	IN : 25613	Due Date: 4/12/2019



1. As Left

PASSED, DO NOT ADJUST

Maximum Error: -0.283 % of span

Nominal Input [inH2O]	Actual Input [inH2O]	Nominal Output [mA]	Actual Output [mA]	Found Error [% of span]
0.0000	-0.01	4.0000	3.9804	-0.023
2.500	2.51	8.000	8.0032	-0.080
5.000	4.92	12.000	11.8309	-0.257
7.500	7.47	16.000	15.9068	-0.283
10.000	10.00	20.000	19.9689	-0.194
7.500	7.46	16.000	15.8987	-0.233
5.000	5.11	12.000	12.1425	-0.209
2.500	2.50	8.000	7.9843	-0.098
0.0000	-0.01	4.0000	3.9849	0.006

Calibration Note:

Calibrated by: VINCENT NGUYEN
2/28/2019 10:05:25 AM

CANYON POWER PLANT

ANNUAL COMPLIANCE REPORT

ATTACHMENT 21

WASTE-10
COOLING TOWER SLUDGE TESTING

No Sludge developed for CY 2019