Delta
Air Quality Services, Incorporated

May 27, 2016
R1413758

Mr. Greg Studer
Desert View Power
62-300 Gene Welmas Drive
Mecca, CA 92254-0758

Subject: Quarterly CGA - Units 1 and 2

Dear Greg:

This letter presents the results of the Continuous Emission Monitoring System (CEMS) quarterly test audit conducted by Dave Wonderly, of Delta Air Quality Services (Delta), an affiliate of Montrose Air Quality Services, LLC (Montrose). Delta was contracted by Desert View Power to perform this audit on May 12, 2016. The program consists of a Cylinder Gas Audit (CGA) for Unit 1 and Unit 2, on NO_x, CO, SO_2, and O_2 monitors, in accordance with 40 CFR Part 60 Appendix F Section 5.1.2.

The CGA comprised of challenging the entire unit CEMS, as close to the tip of the probe as possible, with NBS traceable gases of known concentration. The gases were injected at the probe through previously installed audit ports.

Two audit gases per monitor range were selected according to the requirements of Appendix F. Each monitor was challenged by each of its two gases three separate times. The accuracy was calculated two ways. By the percent difference between the actual known gas concentration and the average value read by the monitor, and the difference in ppm from actual known gas concentration and the average value read by the monitor. Results are shown in the attached tables (Tables 1 and 2).

The results of the CGA demonstrate that the CEMS was operating within the EPA quality assurance specification of either 15% accuracy or 5 ppm difference for all parameters. All data, including gas bottle certifications and monitor response data sheets, are provided as an attachment. If you have any questions or comments, please do not hesitate to call me at (714) 279-6777.

Sincerely,

Dave Wonderly
Program Manager

DW/rcr
Attachments

1631 E. St. Andrew Pl • Santa Ana, California 92705 • www.montrose-env.com
Phone (714) 279-6777 • Fax (714) 242-9081

MONTROSE

TABLE 1
CYLINDER GAS AUDIT RESULTS
UNIT 1
DESERT VIEW POWER
MAY 12, 2016

Parameter	Accuracy, % of Gas Value	Accuracy Acceptance Criteria	Difference From Gas Value, ppm	Difference Acceptance Criteria	Status*
SO_2 Low Range (mid span)	-1.2%	15%	-0.33	5 ppm	Pass
SO_2 Low range (low span)	-2.3%	15%	-0.28	5 ppm	Pass
NO_x Low range (mid span)	-1.6%	15%	-0.91	5 ppm	Pass
NO_x Low range(low span)	-0.3%	15%	-0.06	5 ppm	Pass
CO Low Range (mid span)	1.3%	15%	0.73	5 ppm	Pass
CO Low Range (low span)	-0.2%	15%	-0.04	5 ppm	Pass
O_2 (mid span)				N/A	Pass
O_2 (low span)	0.0%	15%	N/A	N/A	Pass
	0.5%	15%	N/A		
SO_2 High Range (mid span)				5 ppm	Pass
SO_2 High Range (low span)	-0.2%	15%	-0.47	5 ppm	Pass
	2.2%	15%	2.71		
NO_x High Range (mid span)				5 ppm	Pass
NO_x High Range (low span)	0.4%	15%	1.16	5 ppm	Pass
	-0.4%	15%	-0.55		
CO High Range (mid span)				5 ppm	Pass
CO High Range (low span)	-0.2%	15%	-0.47	5 ppm	Pass

* Pass if accuracy less than 15% or within 5 ppm and O_2 accuracy is less than 15%

TABLE 2
CYLINDER GAS AUDIT RESULTS
UNIT 2
DESERT VIEW POWER
MAY 12, 2016

Parameter	Accuracy, % of Gas Value	Accuracy Acceptance Criteria	Difference From Gas Value, ppm	Difference Acceptance Criteria	Status*
SO_2 Low Range (mid span)	-4.2%	15%	-1.17	5 ppm	Pass
SO_2 Low range (low span)	-6.8%	15%	-0.83	5 ppm	Pass
NO_x Low range (mid span)	1.2%	15%	0.69	5 ppm	Pass
NO_x Low range(low span)	5.8%	15%	1.46	5 ppm	Pass
CO Low Range (mid span)	2.4%	15%	1.34	5 ppm	Pass
CO Low Range (low span)	5.2%	15%	1.30	5 ppm	Pass
O_2 (mid span)				N/A	Pass
O_2 (low span)	0.3%	15%	NA	N/A	Pass
	0.8%	15%	NA		
SO_2 High Range (mid span)				5 ppm	Pass
SO_2 High Range (low span)	0.4%	15%	1.12	5 ppm	Pass
	-3.8%	15%	-4.65		
NO_x High Range (mid span)				5 ppm	Pass
NO_x High Range (low span)	1.1%	15%	2.91	5 ppm	Pass
	-1.6%	15%	-1.95		
CO High Range (mid span)				5 ppm	Pass
CO High Range (low span)	2.0%	15%	5.52	5 ppm	Pass

* Pass if accuracy less than 15% or within 5 ppm and O_2 accuracy is less than 15%

CYLINDER GAS AUDIT
WORK SHEET

Client: DESERT VIEW POWER
Location: Mecca

Unit No: 1
Data By: DW

Date. 5/12/2016

NORMAL RANGE

	NOx ppm		CO ppm		SO2 ppm		O2 %	
Reference Gas	Point 1	Point 2	Point 1	Point 2	Point 1	Point 2	Point 1	Point 2
Concentration	25.3	57.6	25	55.6	12.2	27.8	5.08	9.95
Replicate								
1	25.23	56.66	24.70	56.09	11.24	27.31	5.11	9.96
2	25.17	56.62	25.07	56.31	12.29	27.52	5.10	9.95
3	25.31	56.79	25.11	56.60	12.23	27.58	5.10	9.95
Average	25.24	56.69	24.96	56.33	11.92	27.47	5.10	9.95
Difference, ppm	-0.06	-0.91	-0.04	0.73	-0.28	-0.33	n/a	n/a
Accuracy	-0.3%	-1.6%	-0.2%	1.3%	-2.3%	-1.2%	0.5%	0.0%

Client: Colmac
Location: Mecca
Date: 5/12/2016

Unit No: 1
Data By: DW

HIGH RANGE

	NOx ppm		CO ppm		SO2 ppm	
Reference Gas	Point 1	Point 2	Point 1	Point 2	Point 1	Point 2
Concentration	124	274	130	274	124	274.0
Replicate						
1	123.09	275.19	133.25	271.93	123.29	271.93
2	123.44	274.89	133.97	273.93	127.79	273.93
3	123.82	275.39	134.56	274.73	129.04	274.73
Average	123.45	275.16	133.93	273.53	126.71	273.53
Difference, ppm	-0.55	1.16	3.93	-0.47	2.71	-0.47
Accuracy	-0.4%	0.4%	3.0%	-0.2%	2.2%	-0.2%

Client: Colmac
Location: Mecca
Date: 5/12/2016

Unit No: 2
Data By: DW

CYLINDER GAS AUDIT
WORK SHEET

NORMAL RANGE

	NOx ppm		CO ppm		SO2 ppm		O2 %	
Reference Gas	Point 1	Point 2	Point 1	Point 2	Point 1	Point 2	Point 1	Point 2
Concentration	25.3	57.6	25	55.6	12.2	27.8	5.08	9.95
Replicate								
1	26.46	57.76	26.31	56.97	10.96	26.63	5.13	9.99
2	26.92	58.53	26.24	56.97	11.65	26.70	5.12	9.98
3	26.91	58.57	26.34	56.87	11.49	26.56	5.11	9.98
Average	26.76	58.29	26.30	56.94	11.37	26.63	5.12	9.98
Difference, ppm	1.46	0.69	1.30	1.34	-0.83	-1.17	n/a	n/a
Accuracy	5.8%	1.2%	5.2%	2.4%	-6.8%	-4.2%	0.8%	0.3%

Client: Colmac
Location: Mecca
Date: 5/12/2016

Unit No: 2
Data By: DW

HIGH RANGE

	NOx ppm		CO ppm		SO2 ppm	
Reference Gas	Point 1	Point 2	Point 1	Point 2	Point 1	Point 2
Concentration	124	274	130	274	124	274.0
Replicate						
1	127.15	276.84	134.78	279.24	124.05	274.30
2	120.22	277.15	135.49	279.60	117.83	275.36
3	118.78	276.75	135.34	279.73	116.16	275.71
Average	122.05	276.91	135.20	279.52	119.35	275.12
Difference, ppm	-1.95	2.91	5.20	5.52	-4.65	1.12
Accuracy	-1.6%	1.1%	4.0%	2.0%	-3.8%	0.4%

CYLINDER GAS AUDIT
WORK SHEET

CeDAR 1-Minute Data
Data for 5/12/2016 8:39 AM thru 5/12/2016 10:10 AM

Timestamp	(Boiler 1) NOx ppm 1-Min	(Boiler 1) SO2 ppm 1-Min	(Boiler 1) CO ppm 1-Min	(Boiler 1) O2% 1-Min	(Boiler 2) NOx ppm 1-Min	(Boiler 2) SO2 ppm 1-Min	(Boiler 2) CO ppm 1-Min	(Boiler 2) O2% 1-Min
5/12/2016 8:39	16.57	0.07	6.67	11.63	35.28	0.00	54.49	11.22
5/12/2016 8:40	1.56	0.00	24.56	5.14	2.13	0.00	26.49	5.15
5/12/2016 8:41	0.00	0.00	24.80	5.12	1.56	0.00	26.34	5.13
5/12/2016 8:42	0.00	0.00	24.70	5.11	0.73	0.00	26.31	5.13
5/12/2016 8:43	0.00	0.00	36.03	7.89	0.72	0.00	39.29	8.27
5/12/2016 8:44	0.00	0.00	55.88	9.95	1.05	0.00	56.89	9.99
5/12/2016 8:45	0.00	0.00	56.09	9.96	0.78	0.00	56.97	9.99
5/12/2016 8:46	0.00	0.00	53.54	8.77	0.54	0.00	52.73	8.38
5/12/2016 8:47	0.00	0.00	25.92	5.12	0.72	0.00	26.73	5.13
5/12/2016 8:48	0.00	0.00	25.07	5.10	0.50	0.00	26.24	5.12
5/12/2016 8:49	0.00	0.00	33.60	7.39	0.61	0.00	36.56	7.79
5/12/2016 8:50	0.00	0.00	56.17	9.95	0.77	0.00	56.90	9.98
5/12/2016 8:51	0.00	0.00	56.31	9.95	0.51	0.00	56.97	9.98
5/12/2016 8:52	0.00	0.00	45.92	7.40	0.67	0.00	44.79	7.09
5/12/2016 8:53	0.00	0.00	25.18	5.11	0.71	0.00	26.30	5.12
5/12/2016 8:54	0.00	0.00	25.11	5.10	0.78	0.00	26.34	5.11
5/12/2016 8:55	0.00	0.00	35.03	7.59	0.80	0.00	37.82	7.94
5/12/2016 8:56	0.00	0.00	56.41	9.94	0.50	0.00	56.99	9.98
5/12/2016 8:57	0.00	0.00	56.54	9.95	0.54	0.00	57.00	9.98
5/12/2016 8:58	0.00	0.00	56.60	9.95	0.70	0.00	56.87	9.98
5/12/2016 8:59	0.02	0.00	56.61	9.95	0.67	0.00	57.00	9.94
5/12/2016 9:00	0.00	5.19	18.93	1.38	0.71	8.17	15.81	0.78
5/12/2016 9:01	0.00	10.46	0.39	0.01	1.02	10.70	0.93	0.02
5/12/2016 9:02	0.00	11.01	0.36	0.00	0.82	10.86	0.91	0.01
5/12/2016 9:03	0.00	11.24	0.19	0.00	0.80	10.96	0.95	0.02
5/12/2016 9:04	0.00	20.81	0.45	0.00	1.20	22.99	0.91	0.03
5/12/2016 9:05	0.00	26.73	0.32	0.00	0.95	26.21	0.93	0.01
5/12/2016 9:06	0.29	27.21	0.43	0.00	0.99	26.48	0.97	0.01
5/12/2016 9:07	0.20	27.31	0.35	0.00	1.15	26.63	0.94	0.01
5/12/2016 9:08	0.00	26.54	0.36	0.00	0.82	24.05	1.00	0.00
5/12/2016 9:09	0.02	13.75	0.44	0.00	1.21	12.05	0.95	0.00
5/12/2016 9:10	0.00	12.29	0.49	0.00	0.98	11.65	0.97	0.00
5/12/2016 9:11	0.03	16.35	0.52	0.00	0.94	18.09	0.95	0.00
5/12/2016 9:12	0.01	26.73	0.49	0.00	1.23	26.53	0.94	0.00
5/12/2016 9:13	0.00	27.52	0.56	0.00	1.17	26.70	0.89	0.00
5/12/2016 9:14	0.10	23.19	0.47	0.00	1.11	19.81	0.97	0.00
5/12/2016 9:15	0.00	12.88	0.67	0.00	1.01	11.57	1.04	0.00
5/12/2016 9:16	0.00	12.23	0.70	0.00	1.13	11.49	1.06	0.00
5/12/2016 9:17	0.00	16.81	0.74	0.00	1.03	18.16	1.11	0.00
5/12/2016 9:18	0.00	27.10	0.67	0.00	1.02	26.46	0.99	0.00
5/12/2016 9:19	0.00	27.58	0.59	0.00	1.23	26.56	1.04	0.00
5/12/2016 9:20	0.00	23.04	0.68	0.00	1.22	19.64	0.94	0.00
5/12/2016 9:21	0.00	12.76	0.77	0.00	1.46	11.43	1.15	0.00
5/12/2016 9:22	0.00	12.11	0.81	0.00	1.35	11.34	1.12	0.00
5/12/2016 9:23	0.00	17.10	0.84	0.00	1.34	18.13	1.11	0.00
5/12/2016 9:24	0.00	27.12	0.77	0.00	1.27	26.19	1.05	0.00
5/12/2016 9:25	0.00	27.63	0.92	0.00	1.31	26.44	1.18	0.00
5/12/2016 9:26	1.92	23.94	1.05	0.00	5.99	19.19	1.23	0.00
5/12/2016 9:27	23.84	2.63	1.04	0.00	26.40	0.00	1.22	0.00
5/12/2016 9:28	24.91	0.65	0.94	0.00	26.55	0.00	1.18	0.00
5/12/2016 9:29	25.23	0.29	1.00	0.00	26.46	0.00	1.20	0.00
5/12/2016 9:30	29.50	0.21	1.07	0.00	34.73	0.00	1.06	0.00
5/12/2016 9:31	55.79	0.09	1.10	0.00	58.36	0.00	1.35	0.00

CYLINDER GAS AUDIT
WORK SHEET

5/12/2016 9:32	56.66	0.00	1.10	0.00	57.76	0.00	1.21	1.28
5/12/2016 9:33	52 45	0.00	1.21	0.00	47.87	0.00	1.23	0.06
5/12/2016 9:34	26.04	0.00	1.26	0.00	26.66	0.00	1.07	0.00
5/12/2016 9:35	25.17	0.00	1.24	0.00	26.92	0.00	1.28	0.00
5/12/2016 9:36	26.94	0.00	1.23	0.00	31.01	0.00	1.15	0.00
5/12/2016 9:37	54.54	0.00	1.23	0.00	58.22	0.00	1.23	0.00
5/12/2016 9:38	56.62	0.00	1.39	0.00	58.53	0.00	1.25	0.00
5/12/2016 9:39	50.08	0.00	1.29	0.00	47.17	0.00	1.28	0.00
5/12/2016 9:40	25.53	0.00	1.28	0.00	26.69	0.00	1.24	0.00
5/12/2016 9:41	25.31	0.00	1.35	0.00	26.91	0.00	1.23	0.00
5/12/2016 9:42	33.23	0.00	1.33	0.00	38.97	0.00	1.25	0.00
5/12/2016 9:43	56.56	0.00	1.38	0.00	58.49	0.00	1.28	0.00
5/12/2016 9:44	56.79	0.00	1.49	0.00	58.57	0.00	1.31	0.00
5/12/2016 9:45	56.90	0.00	1.52	0.00	58.49	0.00	1.35	0.00
5/12/2016 9:46	81.86	60.69	69 45	1.34	85.75	80.34	88.97	3.86
5/12/2016 9:47	115.56	115.45	123.08	0.17	119.92	116.56	135 92	0.23
5/12/2016 9:48	123.09	123.29	133.25	0.00	127.15	124.05	134.78	0.00
5/12/2016 9:49	160.41	179.36	179.80	0.00	183.88	193.57	189.99	0.00
5/12/2016 9:50	274.12	268.56	276.68	0.00	276.59	272.50	278.98	0.00
5/12/2016 9:51	275.19	271.93	276.78	0.00	276.84	274.30	279.24	0.00
5/12/2016 9:52	223.90	204.41	216.62	0.00	207.89	193.73	212.11	0.27
5/12/2016 9:53	124.19	129.69	134 08	0.00	121.77	120.27	135.61	1.19
5/12/2016 9:54	123.44	127.79	133.97	0.00	120.22	117.83	135.49	1.27
5/12/2016 9:55	178.21	199.58	197.27	0.00	197.54	208.57	206.90	0.35
5/12/2016 9:56	274.88	271.82	277.11	0.00	276.68	274.13	279.36	0.00
5/12/2016 9:57	274.89	273.93	277.42	0.00	277.15	275.36	279.60	0.00
5/12/2016 9:58	230.40	210.93	223.10	0.00	212.89	199.30	218.11	0.45
5/12/2016 9:59	124.42	131.21	134.82	0.00	120.13	118.61	135.82	1 48
5/12/2016 10:00	123.82	129.04	134.56	0.00	118.78	116.16	135.34	1.52
5/12/2016 10:01	178.88	202.14	198.56	0.00	198.40	209.55	209.11	0.42
5/12/2016 10:02	274.98	272.61	277.67	0.00	276.60	274.47	279.58	0.00
5/12/2016 10:03	275.39	274.73	277.97	0.00	276.75	275.71	279.73	0.00
5/12/2016 10:04	275.48	275.37	277.96	0.00	277 40	276.25	279.90	0.00
5/12/2016 10:05	187.08	136.92	143.33	6.28	129.12	91.46	194.94	14.45

Client: **DESERT VIEW POWER**
Location: **Mecca**
Date: 5/12/2016

Unit No: **Boiler 1&2**
Data By: **Dave Wonderly**

Instrument	NOx ppm Low Range		SO2 ppm Low Range		O2 %		CO ppm Low Range	
Range	100		50		25		100	
Gas Specification	Point 1	Point 2	Point 1	Point 2	Point 1	Point 2	Point 1	Point 2
Min	20	50	20	50	4	8	20	50
Max	30	60	30	60	6	12	30	60
Units	% FS	% FS	% FS	% FS	% O2	% O3	% FS	% FS
Gas Requirement	ppm NOx	ppm NOx	ppm SO2	ppm SO2	% O2	% O2	ppm CO	ppm CO
Min	**20**	**50**	**10**	**25**	**4**	**8**	**20**	**50**
Max	**30**	**60**	**15**	**30**	**6**	**12**	**30**	**60**
Gas Used	25.3	57.6	12.2	27.8	5.08	9.95	25	55.6
% of Range	25%	58%	24%	56%	20%	40%	25%	56%
Status	OK	OK	OK	OK	OK	OK	OK	OK
Cylinder No.	CC358132	CC325587	CC31695	CC99793	SA4726	CC72871	SA4726	CC72871
Ending Pressure	400	800	1400	1400	700	800	700	800
Exp Date	5/10/2016	6/10/2021	6/10/2017	cc99793	6/3/2021	6/5/2021	6/3/2021	6/5/2021

Instrument	NOx ppm High Range		SO2 ppm High Range		CO ppm High Range	
Range	500		500		500	
Gas Specification	Point 1	Point 2	Point 1	Point 2	Point 1	Point 2
Min	20	50	20	50	20	50
Max	30	60	30	60	30	60
Units	% FS	% FS	% FS	% FS	% FS	% FS
Gas Requirement	ppm NOx	ppm NOx	ppm SO2	ppm SO2	ppm CO	ppm CO
Min	**100**	**250**	**100**	**250**	**100**	**250**
Max	**150**	**300**	**150**	**300**	**150**	**300**
Gas Used	124	274	124	274	130	274
% of Range	25%	55%	25%	55%	26%	55%
Status	OK	OK	OK	OK	OK	OK
Cylinder No.	CC318251	CC121194	CC318251	CC121194	CC318251	CC121194
Ending Pressure	1500	empty	1500	500	1500	500
Exp Date	6/29/2021	6/13/2021	6/29/2021	6/13/2021	6/29/2021	6/13/2021

PRAXAIR

DocNumber 000071788

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Tel (323) 585-2154 Fax (714) 542-6689
PGVPID. F22014

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information.

PRAXAIR WHSE INDIO CA
64481 CABAZON RD
INDIO CA 922010

Praxair Order Number 26623632
Customer P. O. Number 05125090
Customer Reference Number

Fill Date 9/18/2014
Fill Number EV HIXAE266-5
Lot Number 109439105
Cylinder Style & Valve AS CGA 660
Cylinder Pressure & Volume 2030 psig 140 cu ft

Certified Concentration:

Expiration Date		9/30/2022	NIST Traceable
Cylinder Number		CC318251	Analytical Uncertainty
130	ppm	CARBON MONOXIDE	± 0.6 %
124	ppm	NITRIC OXIDE	± 0.5 %
124	ppm	SULFUR DIOXIDE	± 0.8 %
	Balance	NITROGEN	

NOx = 124 ppm

NOx for Reference Only

Certification Information. *Certification Date* 9/30/2014 *Term* 96 Months *Expiration Date* 9/30/2022

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

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

1 Component CARBON MONOXIDE

Requested Concentration 125 ppm
Certified Concentration 130 ppm
Instrument Used HORIBA VIA-510 S/N 576 615
Analytical Method NDIR
Last Multipoint Calibration 9/12/2014

First Analysis Data							Date 9/30/2014
Z	0	R	148.6	C	130	Conc	130
R	148.6	Z	0	C	130	Conc	130
Z	0	C	130	R	148.6	Conc	130
UOM	ppm			Mean Test Assay			130 ppm

Reference Standard Type GMIS
Ref Std Cylinder # CC181210
Ref Std Conc 148.6 ppm
Ref Std Traceable to SRM # 1675c
SRM Sample # 3-130
SRM Cylinder # CAL017865

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

2 Component NITRIC OXIDE

Requested Concentration 125 ppm
Certified Concentration 124 ppm
Instrument Used Thermo Electron 42i S/N 0726024326
Analytical Method Chemiluminescence
Last Multipoint Calibration 9/2/2014

First Analysis Data							Date 9/30/2014
Z	0	R	104.8	C	124.0	Conc	124.6
R	104.9	Z	0	C	124.6	Conc	124.6
Z	0	C	124.6	R	104.8	Conc	124.6
UOM	ppm			Mean Test Assay			124.07 ppm

Reference Standard Type GMIS
Ref Std Cylinder # SAC0215
Ref Std Conc 164.0 ppm
Ref Std Traceable to SRM # 1-124b
SRM Sample # 44-T-20
SRM Cylinder # PE5010

Second Analysis Data							Date 9/30/2014
Z	0	R	104.8	C	124.5	Conc	124.5
R	104.8	Z	0	C	124	Conc	124
Z	0	C	124.2	R	104.8	Conc	124.2
UOM	ppm			Mean Test Assay			124.23 ppm

3 Component SULFUR DIOXIDE

Requested Concentration 125 ppm
Certified Concentration 124 ppm
Instrument Used HORIBA VIA-510, S/N 584604
Analytical Method NDIR
Last Multipoint Calibration 9/2/2014

First Analysis Data							Date 9/23/2014
Z	0	R	251	C	124	Conc	124
R	251	Z	0	C	124	Conc	124
Z	0	C	124	R	251	Conc	124
UOM	ppm			Mean Test Assay			124 ppm

Reference Standard Type GMIS
Ref Std Cylinder # CC140871
Ref Std Conc 251 ppm
Ref Std Traceable to SRM # 1681b
SRM Sample # 94-3-18
SRM Cylinder # FF22307

Second Analysis Data							Date 9/30/2014
Z	0	R	251	C	124	Conc	124
R	251	Z	0	C	124	Conc	124
Z	0	C	125	R	251	Conc	126
UOM	ppm			Mean Test Assay			124.33 ppm

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

5700 South Alameda Street
Los Angeles, CA 90058
Tel (323) 585-2154 Fax (714) 542-6689
PGVPID: F22013

DocNumber: 000065551

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

PRAXAIR WHSE INDIO CA
84481 CABAZON RD
INDIO CA 922010

Praxair Order Number: 24065203
Customer P. O. Number: 04456403
Customer Reference Number:

Fill Date: 6/16/2011
Part Number: EV NIX4E269-AS
Lot Number: 109113609
Cylinder Style & Outlet: AS CGA 660
Cylinder Pressure & Volume: 1800 psig 125 cu ft

Certified Concentration:

Expiration Date:	6/29/2021	NIST Traceable
Cylinder Number:	CC121194	Analytical Uncertainty:
274 ppm	CARBON MONOXIDE	± 1 %
274 ppm	NITRIC OXIDE	± 0.5 %
274 ppm	SULFUR DIOXIDE	± 0.9 %
Balance	NITROGEN	

NOx = 274 ppm

NOx for Reference Only

Certification Information: *Certification Date:* 6/29/2013 *Term:* 96 Months *Expiration Date:* 6/29/2021

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

Last certified concentration was [CO] = 274 ppm, [NO] = 274 ppm, [SO2] = 274 ppm and [NOx] = 274 ppm on 06/07/2011

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

1. Component: CARBON MONOXIDE

Requested Concentration: 275 ppm
Certified Concentration: 274 ppm
Instrument Used: Horiba VIA-510, S/N 577172043
Analytical Method: NDIR
Last Multipoint Calibration: 6/5/2013

First Analysis Date:						Date: 6/29/2013
Z: 0	R: 247.2	C: 274	Conc: 274			
R: 247.2	Z: 0	C: 274	Conc: 274			
Z: 0	C: 274	R: 247.2	Conc: 274			
UOM: ppm		Mean Test Assay: 274 ppm				

Reference Standard Type: GMIS
Ref. Std. Cylinder #: CC110115
Ref. Std. Conc: 247.2 ppm
Ref. Std. Traceable to SRM #: 2636a
SRM Sample #: 57-9-C
SRM Cylinder #: CLM-004462

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

2. Component: NITRIC OXIDE

Requested Concentration: 275 ppm
Certified Concentration: 274 ppm
Instrument Used: Thermo Electron 42i S/N 0726024320
Analytical Method: Chemiluminescence
Last Multipoint Calibration: 6/5/2013

First Analysis Date:						Date: 6/29/2013
Z: 0	R: 253	C: 273	Conc: 273			
R: 253	Z: 0	C: 273	Conc: 273			
Z: 0	C: 273	R: 253	Conc: 273			
UOM: ppm		Mean Test Assay: 273 ppm				

Reference Standard Type: GMIS
Ref. Std. Cylinder #: CC121758
Ref. Std. Conc: 253.0 ppm
Ref. Std. Traceable to SRM #: vs. 1685b
SRM Sample #: 43-L-11
SRM Cylinder #: CAL017304

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

3. Component: SULFUR DIOXIDE

Requested Concentration: 275 ppm
Certified Concentration: 274 ppm
Instrument Used: HORIBA, VIA-510, 56946604
Analytical Method: NDIR11
Last Multipoint Calibration: 6/5/2013

First Analysis Date:						Date: 6/29/2013
Z: 0	R: 250	C: 274	Conc: 274			
R: 250	Z: 0	C: 274	Conc: 274			
Z: 0	C: 274	R: 250	Conc: 274			
UOM: ppm		Mean Test Assay: 274 ppm				

Reference Standard Type: GMIS
Ref. Std. Cylinder #: CC107920
Ref. Std. Conc: 250 ppm
Ref. Std. Traceable to SRM #: vs. 1661a
SRM Sample #: 94-H-05
SRM Cylinder #: FF28146

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

Analyzed by: Nelson Ma

Certified by: Diego Mestanza

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

PRAXAIR

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Tel: (323) 585-2154 Fax:(714) 542-6689
PGVPID: F22015

DocNumber: 000079874

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

ıer & Order Information:

PRAXAIR WHSE INDIO CA
34481 CABAZON RD
INDIO CA 922010

Praxair Order Number 31160285
Customer P. O. Number: 05518343
Customer Reference Number:

Fill Date: 5/4/2015
Part Number: EV NISD12ME-AS
Lot Number: 109512403
Cylinder Valve & Outlet AS CGA 660
Cylinder Pressure & Volume: 2000 psig 140 cu ft

Certified Concentration:

Expiration Date:		5/19/2019	NIST Traceable
Cylinder Number:		CC31695	Analytical Uncertainty:
12.2	ppm	SULFUR DIOXIDE	± 1.1 %
	Balance	NITROGEN	

fcation Information: *Certification Date:* 5/19/2015 *Term:* 48 Months *Expiration Date.* 5/19/2019

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

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

Component: SULFUR DIOXIDE

Requested Concentration	12 ppm
Certified Concentration	12.2 ppm
Instrument Used	Ametek 921GE S/N AW-021-5321
Analytical Method	Ultraviolet Absorption
Last Multipoint Calibration	4/27/2015

Reference Standard Type	GMIS
Ref. Std Cylinder #	CC36421
Ref. Std Conc.	10.02 ppm
Ref. Std Traceable to SRM #	1689
SRM Sample #	98-A-26
SRM Cylinder #	FF40552

First Analysis Data: Date: 5/12/2015

Z:	0	R:	99	C:	121.3	Conc:	12.261
R:	99.2	Z:	0	C:	121.1	Conc:	12.24
Z:	0	C:	121	R:	99.2	Conc:	12.23

UOM: ppm Mean Test Assay: 12.244 ppm

Second Analysis Data: Date: 5/19/2015

Z:	0	R:	100.3	C:	120.3	Conc:	12.038
R:	100	Z:	0	C:	121	Conc:	12.108
Z:	0	C:	120.8	R:	[illegible]	Conc:	12.088

UOM: ppm Mean Test Assay: 12.078 ppm

Analyzed by: Nelson M. Nelson Ma

Certified by: N. Haddad Nassim Haddad

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

5700 South Alameda Street
Los Angeles, CA 90058
Tel (323) 582-7154 Fax (213) 587-6629
REVISED 12/2015

DocNumber: 000081865

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

stomer & Order Information:

PRAXAIR WHSE INDIO CA
84481 CABAZON RD
INDIO CA 922010

Praxair Order Number 31735123
Customer P. O. Number 0561179A
Customer Reference Number

Fill Date [illegible]
Fill Number [illegible]
Lot Number [illegible]
Cylinder Style & Outlet [illegible]
Cylinder Pressure & Volume [illegible]

Certified Concentration:

Expiration Date:	7/24/2019	NIST Traceable
Cylinder Number:	CC99793	Analytical Uncertainty
27.8 ppm	SULFUR DIOXIDE	± 1 %
Balance	NITROGEN	

rtification Information: *Certification Date:* 7/24/2015 *Term:* 48 Months *Expiration Date* 7/24/2019

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

nalytical Data: *(R=Reference Standard, Z=Zero Gas, C=Gas Certificate)*

. Component: SULFUR DIOXIDE

Requested Concentration	27.5 ppm
Certified Concentration	27.8 ppm
Instrument Used	Ametek 921CL S/N AW-921-5321
Analytical Method	Ultraviolet Absorption
Last Multipoint Calibration	6/25/2015

Reference Standard Type	EPPM
Ref. Std. Cylinder #	CC72535
Ref. Std. Conc.	48.50 ppm
Ref. Std. Traceable to SRM #	N/A
SRM Sample #	120701
SRM Cylinder #	N/A

First Analysis Data: Date: 7/17/2015

Z:	0	R:	489.7	C:	280.8	Conc:	27.851
R:	490.2	Z:	0	C:	280.6	Conc:	27.821
Z:	0	C:	281.1	R:	490	Conc:	27.871

UOM: ppm **Mean Test Assay:** 27.848 ppm

Second Analysis Data: Date: 7/24/2015

Z:	0	R:	490	C:	27.816	Conc:	27.877
R:	489.5	Z:	0	C:	281.5	Conc:	27.880
Z:	0	C:	281.5	R:	491	Conc:	27.845

UOM: ppm **Mean Test Assay:** 27.809 ppm

Analyzed by: Nassim Haddad

Certified by: Nelson Ma

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

PRAXAIR

Praxair
5200 South Alameda Street
Los Angeles, CA [illegible]
Tel: (323) 583-[illegible] Fax: 714-[illegible]
GVWD: F22012

DocNumber 000054328

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information

PRAXAIR WHSE INDIO CA
84461 CABAZON RD
INDIO CA 92201

Praxair Order Number 23879516
Customer P.O. Number 04420817
Customer Reference Number

Certified Concentration

Expiration Date		6/5/2021	NIST Traceable
Cylinder Number		CC72871	Analytical Uncertainty
55.6	ppm	CARBON MONOXIDE	± 1 %
9.95	%	OXYGEN	± 1.2 %
	Balance	NITROGEN	

Certification Information Certification Date: 6/5/2013 Term: 96 Months Expiration Date: 6/5/2021

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

Analytical Data

1 Component: CARBON MONOXIDE

Requested Concentration: 55 ppm
Certified Concentration: 55.6 ppm
Instrument Used: Horiba VIA-510 S/N [illegible]
Analytical Method: NDIR
Last Multipoint Calibration: 5/24/2013

Reference Standard Type: GMS
Ref. Std. Cylinder #: CC[illegible]
Ref. Std. Conc: 50.6 ppm
Ref. Std. Traceability Method: NIST
SRM Sample #: [illegible]
SRM Cylinder #: [illegible]

First Analysis Data						Date 6/5/2013
Z	0	R	50.6	C	55.6	Conc 55.6
R	50.6	Z	0	C	55.6	Conc 55.6
Z	0	C	55.6	R	50.6	Conc 55.6
DCM	ppm			Mean Test Assay		[illegible] ppm

Second Analysis Data						Date
Z	0	R	0	C	0	Conc 0
R	0	Z	0	C	0	Conc 0
Z	0	C	0	R	0	Conc 0
DCM	ppm			Mean Test Assay		0 ppm

2 Component: OXYGEN

Requested Concentration: 10 %
Certified Concentration: 9.95 %
Instrument Used: OXYMAT 6E
Analytical Method: PARAMAGNETIC
Last Multipoint Calibration: 5/24/2013

Reference Standard Type: GMS
Ref. Std. Cylinder #: [illegible]
Ref. Std. Conc: [illegible]
Ref. Std. Traceability Method: [illegible]
SRM Sample #: [illegible]
SRM Cylinder #: CC[illegible]

First Analysis Data						Date 6/5/2013
Z	0	R	10.01	C	9.95	Conc 9.95
R	10.01	Z	0	C	9.95	Conc 9.95
Z	0	C	9.95	R	10.01	Conc 9.95
DCM	%			Mean Test Assay		9.95 %

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

Analyzed by: Yong Yu

Certified by: Henry Khung

PRAXAIR

Praxair
[illegible] South Alameda Street
Los Angeles, CA 90019
Tel: [illegible] Fax: [illegible]
[illegible]

DocNumber: 0000[illegible]467

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information.

PRAXAIR WHSE INDIO CA
84481 CARAZON RD
INDIO CA 92210

Praxair Order Number 238[illegible]584
Customer P. O. Number 0442[illegible]
Customer Reference Number

Certified Concentration:

Expiration Date		6/3/2021	NIST Traceable
Cylinder Number		SA4726	Analytical Uncertainty
25.0	ppm	CARBON MONOXIDE	± 0.5 %
5.08	%	OXYGEN	± 1 %
	Balance	NITROGEN	

Certification Information: *Certification Date* 6/3/2013 *Term* 96 Months *Expiration Date* 6/3/2021

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

Analytical Data: (Re Reference Standard: Zero Gas, Cross Gas Candidate)

1. Component CARBON MONOXIDE

Requested Concentration: 25 ppm
Certified Concentration: 25.0 ppm
Instrument Used: Horiba VIA 510 S/N [illegible]7043
Analytical Method: NDIR
Last Multipoint Calibration: [illegible]

Reference Standard Type: GMIS
Ref. Std. Cylinder #: [illegible]
Ref. Std. Conc: [illegible] ppm
Ref. Std. Traceable to SRM #: [illegible]
SRM Sample #: [illegible]
SRM Cylinder #: [illegible]

First Analysis Data						Date	6/3/2013
Z	0	R	24.7	C	25	Conc	25
R	24.7	Z	0	C	25	Conc	25
Z	0	C	25	R	24.7	Conc	25
UOM	ppm			Mean Test Assay			25 ppm

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

2. Component OXYGEN

Requested Concentration: 5 %
Certified Concentration: 5.08 %
Instrument Used: OXYMAT 6E
Analytical Method: PARAMAGNETIC
Last Multipoint Calibration: [illegible]/2013

Reference Standard Type: GMIS
Ref. Std. Cylinder #: [illegible]
Ref. Std. Conc: [illegible]
Ref. Std. Traceable to SRM #: [illegible]
SRM Sample #: [illegible]
SRM Cylinder #: [illegible]

First Analysis Data						Date:	6/3/2013
Z	0	R	5.07	C	[illegible]	Conc	5.08
R	5.07	Z	0	C	[illegible]	Conc	5.08
Z	0	C	[illegible]	R	5.07	Conc	5.08
UOM	%			Mean Test Assay			5.08 %

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

Analyzed by [illegible]

Certified by Henry [illegible]

[illegible]

PRAXAIR

Praxair
[illegible]

Doc Number [illegible]

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer Order Information
PRAXAIR [illegible]
[illegible] CARAVAN RD
INDIO CA [illegible]

Product Order Number [illegible]
Customer PO Number [illegible]
Customer Reference Code [illegible]

Certified Concentration

Validation Date	6/10/2021		NIST Traceable
Cylinder Number:	CC325587		Analytical Uncertainty
57.2	ppm	NITRIC OXIDE	1.07 %
	Balance	NITROGEN	

NOx = 57.6 ppm

NOx for Reference Only

Validation Completed Certification Date 6/10/2013 Term: 96 Months Expiration Date 6/10/2021

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

Analytical Data

Reference Standard Traceability

Component: NITRIC OXIDE

Reported Concentration	[illegible] ppm
Certified Concentration	57.2 ppm
Calibration Used	Thermo Electron 42i S/N 0726024 LC
Analytical Method	Chemiluminescence
Last Multiline Calibration	[illegible] 2013

Reference Standard Type	GMIS
Ref. Std. Cylinder #	CC[illegible]
Ref. Std. Conc.	[illegible] ppm
Ref. Std. Traceable to SRM #	[illegible]
SRM Sample #	[illegible]
SRM Cylinder #	[illegible]

First Analysis Date [illegible] Date [illegible]

Z	[illegible]	R	[illegible]	C	57.6	Conc	[illegible]
R	[illegible]	Z	[illegible]	C	57.2	Conc	[illegible]
Z	[illegible]	C	[illegible]	R	99.1	Conc	[illegible]

UOM [illegible] ppm Mean Test Assay [illegible] ppm

Second Analysis Date [illegible] Date [illegible]

Z	[illegible]	R	99.1	C	[illegible]	Conc	[illegible]
R	[illegible]	Z	[illegible]	C	[illegible]	Conc	[illegible]
Z	[illegible]	C	[illegible]	R	[illegible]	Conc	[illegible]

UOM [illegible] ppm Mean Test Assay [illegible] ppm

Analyzed by Nelson Ma

Certified by [illegible] Mestanza

[illegible]

PRAXAIR

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Tel (323) 585-2150 Fax (714) 542-6689
PGVPID: F22015

DocNumber: 000079837

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

PRAXAIR WHSE INDIO CA
84481 CABAZON RD
INDIO CA 922010

Praxair Order Number: 31160500
Customer P. O. Number: 05518378
Customer Reference Number:

Fill Date: 8/4/2015
Part Number: NI NO25ME-AS
Lot Number: 109512412
Cylinder Style & Outlet: A8 CGA 660
Cylinder Pressure & Volume: 2000 psig 140 cu ft

Certified Concentration:

Expiration Date	5/18/2018		NIST Traceable
Cylinder Number	CC358132		Analytical Uncertainty:
25.1	ppm	NITRIC OXIDE	± 1 %
	Balance	NITROGEN	

NOx = 25.3 ppm

NOx for Reference Only

Certification Information: *Certification Date:* 5/18/2015 *Term:* 36 Months *Expiration Date:* 5/18/2018

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

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

1. Component NITRIC OXIDE

Requested Concentration: 25 ppm
Certified Concentration: 25.1 ppm
Instrument Used: Thermo Electron 42i-LS S/N 1030645077
Analytical Method: Chemiluminescence
Last Multipoint Calibration: 4/27/2015

First Analysis Data:						Date: 5/11/2015
Z: 0	R: 20.2	C: 25.2	Conc: 25.2			
R: 20.2	Z: 0	C: 25.2	Conc: 25.2			
Z: 0	C: 25.2	R: 20.2	Conc: 25.2			
UOM: ppm		Mean Test Assay: 25.2 ppm				

Second Analysis Data:						Date: 5/18/2015
Z: 0	R: 20.2	C: 25.1	Conc: 25.1			
R: 20.2	Z: 0	C: 25.1	Conc: 25.1			
Z: 0	C: 25.1	R: 20.2	Conc: 25.1			
UOM: ppm		Mean Test Assay: 25.1 ppm				

Reference Standard Type: GMIS
Ref. Std. Cylinder #: CC457687
Ref. Std. Conc: 20.2 ppm
Ref. Std. Traceable to SRM #: 2628a
SRM Sample #: 50-G-17
SRM Cylinder #: FF31597

Analyzed by: Nelson Ma
Nelson Ma

Certified by: N. Haddad
Nassim Haddad

[illegible] by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical [illegible] analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The [illegible] information is at the sole discretion and risk of the user. In no event shall the liability of Praxair Distribution, Inc., arising out of the [illegible] for providing such information.

END OF DOCUMENT