CA So. Coast

MONTROSE
AIR QUALITY SERVICES

June 22, 2020

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

Subject: **Quarterly CGA Units 1 and 2**
Report Number: W002AS-678786-RT-1263

Dear Kevin,

This letter presents the results of the Continuous Emission Monitoring System (CEMS) quarterly test audit conducted by Dave Wonderly of Montrose Air Quality Services, LLC (MAQS) on June 1, 2020. MAQS was contracted by Desert View Power to perform this audit. The program consists of a Cylinder Gas Audit (CGA) for Units 1 and 2 on the 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
Client Project Manager
Montrose Air Quality Services, LLC

DW/cs
Attachments

Desert View Power, Inc. an affiliate of

Greenleaf POWER

CA: So. Coast

June 29, 2020

DVP-200014

Air Division Director

U.S. Environmental Protection Agency

Attn: AIR-5

75 Hawthorne Street

San Francisco, California 94105-3901

Subject: Desert View Power Inc. 2nd Quarter CGA test results 2020

RE: A-3-1

NSR 4-4-11

SE 87-01

CB-OP 99-01

Dear Sir:

In compliance with our permit, enclosed is the 2nd Quarter Cylinder Gas Audit (CGA) results for 2020, for Desert View Power Inc. The enclosed CGA was performed on June 1, 2020.

If you have questions or comments, please feel free to call me at (760)-262-1653.

Sincerely,

Jim Robertson

Plant Manager Greenleaf Power

62-300 Gene Welmas Dr | Mecca, CA 92254
(760)396-2554
www.greenleaf-power.com

Desert View Power, Inc. an affiliate of
Greenleaf POWER

enclosure

cc: Chief, Stationary Source Division
California Air Resources Board
P.O. Box 2815
Sacramento, California 95814

Air Pollution Control Officer
Attn: Mr. David Jones, AQAC Supervisor
SCAQMD File # 100154
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, California 91765-4182

Director, Air Management Division
Attn: A-3-3
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, California 94105-3901

62-300 Gene Welmas Dr | Mecca, CA 92254
(760)396-2554
www.greenleaf-power.com

TABLE 1
CYLINDER GAS AUDIT RESULTS
UNIT 1
Desert View Power
June 2, 2020

Parameter	Accuracy, % of Gas Value	Accuracy Acceptance Criteria	Difference From Gas Value, ppm	Difference Acceptance Criteria	Status*
SO_2 Low Range (mid span)	-7.9%	15%	-2.13	5 ppm	Pass
SO_2 Low range (low span)	-11.2%	15%	-1.40	5 ppm	Pass
NO_x Low range (mid span)	-1.0%	15%	-0.56	5 ppm	Pass
NO_x Low range(low span)	4.5%	15%	1.11	5 ppm	Pass
CO Low Range (mid span)	2.4%	15%	1.32	5 ppm	Pass
CO Low Range (low span)	5.3%	15%	1.33	5 ppm	Pass
O_2 (mid span)	-0.2%	15%	N/A	N/A	Pass
O_2 (low span)	-0.2%	15%	N/A	N/A	Pass
SO_2 High Range (mid span)	-1.8%	15%	-4.94	5 ppm	Pass
SO_2 High Range (low span)	2.2%	15%	2.78	5 ppm	Pass
NO_x High Range (mid span)	0.4%	15%	1.02	5 ppm	Pass
NO_x High Range (low span)	1.2%	15%	1.57	5 ppm	Pass
CO High Range (mid span)	2.0%	15%	5.43	5 ppm	Pass
CO High Range (low span)	6.4%	15%	7.91	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
June 2, 2020

Parameter	Accuracy, % of Gas Value	Accuracy Acceptance Criteria	Difference From Gas Value, ppm	Difference Acceptance Criteria	Status*
SO_2 Low Range (mid span)	-10.0%	15%	-2.72	5 ppm	Pass
SO_2 Low range (low span)	-11.5%	15%	-1.44	5 ppm	Pass
NO_x Low range (mid span)	4.6%	15%	2.56	5 ppm	Pass
NO_x Low range(low span)	9.5%	15%	2.36	5 ppm	Pass
CO Low Range (mid span)	7.3%	15%	4.01	5 ppm	Pass
CO Low Range (low span)	17.2%	15%	4.29	5 ppm	Pass
O_2 (mid span)	-0.2%	15%	NA	NA	Pass
O_2 (low span)	-0.4%	15%	NA	NA	Pass
SO_2 High Range (mid span)	2.9%	15%	8.13	5 ppm	Pass
SO_2 High Range (low span)	8.7%	15%	10.92	5 ppm	Pass
NO_x High Range (mid span)	0.5%	15%	1.33	5 ppm	Pass
NO_x High Range (low span)	2.2%	15%	2.78	5 ppm	Pass
CO High Range (mid span)	3.8%	15%	10.44	5 ppm	Pass
CO High Range (low span)	9.2%	15%	11.33	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: 6/2/2020

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	24.7	55.5	25	55	12.5	27.1	5.07	9.51
Replicate								
1	24.32	54.39	25.97	56.10	10.20	24.93	5.05	9.49
2	26.57	55.29	26.43	56.29	11.45	24.86	5.06	9.49
3	26.55	55.14	26.60	56.58	11.64	25.11	5.07	9.48
Average	25.81	54.94	26.33	56.32	11.10	24.97	5.06	9.49
Difference, ppm	1.11	-0.56	1.33	1.32	-1.40	-2.13	n/a	n/a
Accuracy	4.5%	-1.0%	5.3%	2.4%	-11.2%	-7.9%	-0.2%	-0.2%

Client: Desert View Power
Location: Mecca
Date: 6/2/2020

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	128.5	282	123.3	274	125	277.0
Replicate						
1	128.20	281.87	130.46	278.80	119.72	268.24
2	130.83	283.29	131.46	279.74	130.74	273.01
3	131.18	283.91	131.70	279.74	132.88	274.94
Average	130.07	283.02	131.21	279.43	127.78	272.06
Difference, ppm	1.57	1.02	7.91	5.43	2.78	-4.94
Accuracy	1.2%	0.4%	6.4%	2.0%	2.2%	-1.8%

Client: Desert View Power
Location: Mecca
Date: 6/2/2020

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	24.7	55.5	25	55	12.5	27.1	5.07	9.51
Replicate								
1	26.86	57.96	28.80	58.61	9.86	24.11	5.05	9.49
2	27.04	58.13	29.31	58.98	11.52	24.42	5.05	9.49
3	27.27	58.08	29.77	59.45	11.79	24.61	5.05	9.49
Average	27.06	58.06	29.29	59.01	11.06	24.38	5.05	9.49
Difference, ppm	2.36	2.56	4.29	4.01	-1.44	-2.72	n/a	n/a
Accuracy	9.5%	4.6%	17.2%	7.3%	-11.5%	-10.0%	-0.4%	-0.2%

Client: Desert View Power
Location: Mecca
Date: 6/2/2020

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	128.5	282	123.3	274	125	277.0
Replicate						
1	130.83	283.06	133.97	283.91	123.43	280.41
2	131.47	283.45	134.84	284.56	140.99	286.71
3	131.54	283.47	135.09	284.85	143.33	288.28
Average	131.28	283.33	134.63	284.44	135.92	285.13
Difference, ppm	2.78	1.33	11.33	10.44	10.92	8.13
Accuracy	2.2%	0.5%	9.2%	3.8%	8.7%	2.9%

CYLINDER GAS AUDIT
WORK SHEET

CeDAR 1-Minute Data
Data for 6/1/2020 9:37 AM thru 6/1/2020 11:36 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
6/1/2020 10:20	18.44	7.14	3.94	5.39	24.35	11.19	6.33	5.38
6/1/2020 10:21	6.52	1.7	1.31	5.05	3.07	3.83	3.49	5.05
6/1/2020 10:22	6.63	0.65	2.33	5.05	2.31	1.43	3.76	5.05
6/1/2020 10:23	6.08	0.3	2.34	5.05	2.57	0.63	3.87	5.05
6/1/2020 10:24	5.78	0	2.31	5.04	2.2	0.09	3.88	5.04
6/1/2020 10:25	5.51	0.08	2.67	7.09	2.59	0.11	4.25	7.68
6/1/2020 10:26	6.08	0.14	3.54	9.49	3.07	0.06	4.96	9.49
6/1/2020 10:27	5.98	0	3.71	9.5	3.2	0	5.03	9.49
6/1/2020 10:28	5.33	0	3.41	7.31	2.93	0	4.64	6.65
6/1/2020 10:29	4.63	0	2.37	5.06	2.25	0	4.04	5.05
6/1/2020 10:30	4.38	0	2.41	5.05	2.17	0	3.99	5.05
6/1/2020 10:31	4.39	0	2.68	7.11	2.5	0	4.5	7.7
6/1/2020 10:32	4.7	0	3.63	9.49	3.28	0	5.34	9.49
6/1/2020 10:33	5.14	0	3.9	9.5	3.15	0	5.32	9.49
6/1/2020 10:34	4.71	0	3.42	7.46	3.07	0	4.99	6.79
6/1/2020 10:35	4.49	0	2.51	5.07	2.08	0	4.27	5.05
6/1/2020 10:36	3.55	0	2.47	5.05	2.06	0	4.35	5.04
6/1/2020 10:37	3.89	0	2.73	7.26	2.5	0	4.84	7.85
6/1/2020 10:38	4.5	0	3.84	9.48	3.03	0	5.55	9.49
6/1/2020 10:39	12.46	1.63	16.4	5.12	23.07	2.39	25.6	3.78
6/1/2020 10:40	26.19	11.24	33.59	0.05	30.44	9.6	32.12	0.04
6/1/2020 10:41	22.14	9.57	25.85	0	26.36	8.83	28.4	0.02
6/1/2020 10:42	22.99	9.82	25.92	0	26.67	9.19	28.51	0.02
6/1/2020 10:43	23.46	10.16	26.02	0	26.57	9.38	28.58	0.02
6/1/2020 10:44	24.15	10.23	26.06	0	27.01	9.45	28.66	0.01
6/1/2020 10:45	24.32	10.2	25.97	0	26.86	9.86	28.8	0.01
6/1/2020 10:46	36.3	14.04	39.34	0	44.94	14.32	46.3	0.01
6/1/2020 10:47	51.93	22.47	55.84	0	57.64	21.37	58.19	0.01
6/1/2020 10:48	53.17	23.92	56.06	0	57.72	22.94	58.33	0
6/1/2020 10:49	53.61	24.68	56.14	0	57.82	23.69	58.43	0
6/1/2020 10:50	54.39	24.93	56.1	0	57.96	24.11	58.61	0
6/1/2020 10:51	46.77	22.63	47.25	0	44	21.15	44.94	0
6/1/2020 10:52	27.64	13.57	26.74	0	27.51	13.58	29.24	0
6/1/2020 10:53	26.53	11.89	26.47	0	27.13	11.98	29.26	0
6/1/2020 10:54	26.57	11.45	26.43	0	27.04	11.52	29.31	0
6/1/2020 10:55	32.99	12.87	34.04	0	39.55	13.9	41.3	0
6/1/2020 10:56	53.56	22.41	55.94	0	57.62	21.94	58.8	0
6/1/2020 10:57	54.51	24.31	56.36	0	58.24	23.7	58.89	0
6/1/2020 10:58	55.29	24.86	56.29	0	58.13	24.42	58.98	0
6/1/2020 10:59	48.09	23.04	48.19	0	44.71	21.66	45.91	0

CYLINDER GAS AUDIT
WORK SHEET

6/1/2020 11:00	28.07	13.81	26.8	0	27.68	13.83	29.74	0
6/1/2020 11:01	27.23	12.14	26.58	0	27.33	12.25	29.61	0
6/1/2020 11:02	26.55	11.64	26.6	0	27.27	11.79	29.77	0
6/1/2020 11:03	35.72	13.72	36.6	0	42.12	14.82	44.2	0
6/1/2020 11:04	54.07	22.85	56.34	0	57.83	22.41	59.2	0
6/1/2020 11:05	55.09	24.6	56.5	0	58.11	23.98	59.41	0
6/1/2020 11:06	55.14	25.11	56.58	0	58.08	24.61	59.45	0
6/1/2020 11:07	69.04	37.74	71.27	0	83.79	45.38	86.18	0
6/1/2020 11:08	124.43	103.38	128.76	0	130.03	106.99	133.49	0
6/1/2020 11:09	126.74	116.06	129.93	0	130.47	119.09	133.79	0
6/1/2020 11:10	128.2	119.72	130.46	0	130.83	123.43	133.97	0
6/1/2020 11:11	158.76	143.79	161.18	0	183.32	161.26	186.83	0
6/1/2020 11:12	276.01	244.81	275.96	0	281.53	256.04	283.16	0
6/1/2020 11:13	281.41	262.78	278.57	0	283.09	273.31	283.8	0
6/1/2020 11:14	281.87	268.24	278.8	0	283.06	280.41	283.91	0
6/1/2020 11:15	241.66	241.36	238.66	0	217.86	239.6	218.94	0
6/1/2020 11:16	133.46	147	133.03	0	132.34	156.96	135.08	0
43983.47014	131.46	134.07	131.49	0	131.61	144.84	134.54	0
43983.47083	130.83	130.74	131.46	0	131.47	140.99	134.84	0
43983.47153	167.74	157.16	168.46	0	191.38	179.28	194.53	0
43983.47222	279.85	254.06	277.42	0	282.58	267.16	283.93	0
43983.47292	282.36	268.47	279.44	0	283.05	281.29	284.58	0
43983.47361	283.29	273.01	279.74	0	283.45	286.71	284.56	0
43983.47431	247.62	247.74	243.67	0	223.12	247.82	224.51	0
43983.475	134.25	150.86	133.96	0	132.49	161.84	135.59	0
43983.47569	131.35	136.88	131.84	0	131.98	148.55	135.26	0
43983.47639	131.18	132.88	131.7	0	131.54	143.33	135.09	0
43983.47708	169.5	160.86	170.21	0	192.8	182.36	195.86	0
43983.47778	280.12	257.24	277.97	0	282.73	269.79	284.2	0
43983.47847	283.48	270.8	279.61	0	283.43	283.26	284.66	0
43983.47917	283.91	274.94	279.74	0	283.47	288.28	284.85	0
43983.47986	284.02	276.68	279.78	0	283.57	291.07	284.65	0
43983.48056	284.18	277.89	279.84	0	283.54	292.57	284.72	0

Client: **Desert View Power**
Location: **Mecca**
Date: 6/2/2020

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	24.7	55.5	12.5	27.1	5.07	9.51	25	55
% of Range	25%	56%	25%	54%	20%	38%	25%	55%
Status	OK	OK	OK	OK	OK	OK	OK	OK
Cylinder No.	CC499373	CC31709	CC499373	CC31709	CB12323	CC95736	CC499373	CC31709

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	128.5	282	125	277	123.3	274
% of Range	26%	56%	25%	55%	25%	55%
Status	OK	OK	OK	OK	OK	OK
Cylinder No.	CC74949	CC169801	CC74949	CC169801	CC74949	CC169801

PRAXAIR

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Tel: (323) 585-2154 Fax:(714) 542-6689
PGVPID: F22018

DocNumber: 000120028

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

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

Praxair Order Number: 70480156
Customer P. O. Number:
Customer Reference Number:

Fill Date: 1/29/2018
Part Number: NI CO25MNS11EAS
Lot Number: 70086802906
Cylinder Style & Outlet: AS CGA 660
Cylinder Pressure & Volume: 2000 psig 140 cu. ft

CO-25.0
NO-24.7
SO_2-12.5
CC499373
Exp. 2/9/21
F22018

Certified Concentration:

Expiration Date:		2/9/2021	NIST Traceable
Cylinder Number:		CC499373	Analytical Uncertainty:
25.0	ppm	CARBON MONOXIDE	± 0.8 %
24.7	ppm	NITRIC OXIDE	± 0.7 %
12.5	ppm	SULFUR DIOXIDE	± 1.7 %
	Balance	NITROGEN	

NOx = 24.9 ppm **NOx for Reference Only**

Certifcation Information: *Certification Date:* 2/9/2018 *Term:* 36 Months *Expiration Date:* 2/9/2021

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

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

1. **Component: CARBON MONOXIDE**

Requested Concentration: 25 ppm
Certified Concentration: 25.0 ppm
Instrument Used: Horiba VIA-510 S/N 576876015
Analytical Method: NDIR
Last Multipoint Calibration: 1/15/2018

Reference Standard Type: GMIS
Ref. Std. Cylinder #: ALM-035595
Ref. Std. Conc: 25.3 ppm
Ref. Std. Traceable to SRM #: 2635a
SRM Sample #: 58 E 34
SRM Cylinder #: FF10666

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

Z:	0	R:	25.2	C:	24.9	Conc:	24.933
R:	25.3	Z:	0	C:	25	Conc:	25.033
Z:	0	C:	25	R:	25.3	Conc:	25.033

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: NITRIC OXIDE**

Requested Concentration: 25 ppm
Certified Concentration: 24.7 ppm
Instrument Used: Thermo Electron 42i-LS S/N 1030645077
Analytical Method: Chemiluminescence
Last Multipoint Calibration: 1/12/2018

Reference Standard Type: SRM
Ref. Std. Cylinder #: CC2852
Ref. Std. Conc: 51.00 ppm
Ref. Std. Traceable to SRM #: 1683b
SRM Sample #: 45-V-42
SRM Cylinder #: CAL017897

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

Z:	0	R:	51	C:	24.7	Conc:	24.7
R:	51	Z:	0	C:	24.8	Conc:	24.8
Z:	0	C:	24.8	R:	51	Conc:	24.8

UOM: ppm **Mean Test Assay:** 24.767 ppm

Second Analysis Data: **Date:** 2/9/2018

Z:	0	R:	51	C:	24.6	Conc:	24.648
R:	50.8	Z:	0	C:	24.5	Conc:	24.548
Z:	0	C:	24.5	R:	50.9	Conc:	24.548

UOM: ppm **Mean Test Assay:** 24.582 ppm

3. **Component: SULFUR DIOXIDE**

Requested Concentration: 12 ppm
Certified Concentration: 12.5 ppm
Instrument Used: Ametek 921CE S/N AW-921-S321
Analytical Method: Ultraviolet Absorption
Last Multipoint Calibration: 1/16/2018

Reference Standard Type: GMIS
Ref. Std. Cylinder #: CC423833
Ref. Std. Conc: 10.21 ppm
Ref. Std. Traceable to SRM #: PRM#C1194
SRM Sample #: C1194310
SRM Cylinder #: D506172

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

Z:	0	R:	99.8	C:	122.3	Conc:	12.375
R:	101.6	Z:	0	C:	123.1	Conc:	12.456
Z:	0	C:	122.7	R:	101.3	Conc:	12.416

UOM: ppm **Mean Test Assay:** 12.416 ppm

Second Analysis Data: **Date:** 2/9/2018

Z:	0	R:	101.5	C:	124.3	Conc:	12.512
R:	101.6	Z:	0	C:	124.2	Conc:	12.502
Z:	0	C:	124.9	R:	101.2	Conc:	12.572

UOM: ppm **Mean Test Assay:** 12.528 ppm

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PRAXAIR

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

DocNumber: 000120028

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Analyzed by: Henry Koung

Certified by: Amalia Real

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PRAXAIR

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

DocNumber: 000120030

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

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

Praxair Order Number: 70480156
Customer P. O. Number:
Customer Reference Number:

Fill Date: 1/25/2018
Part Number: NI CO55MNS10EAS
Lot Number: 70086802503
Cylinder Style & Outlet: AS CGA 660
Cylinder Pressure & Volume: 2000 psig 140 cu ft

CO- 55.0
NO- 55.5
SO_2- 27.1
CC31709
Exp. 2/7/22
F22018

Certified Concentration:

Expiration Date:		2/7/2022	NIST Traceable
Cylinder Number:		CC31709	Analytical Uncertainty:
55.0	ppm	CARBON MONOXIDE	± 0.6 %
55.5	ppm	NITRIC OXIDE	± 0.7 %
27.1	ppm	SULFUR DIOXIDE	± 1 %
	Balance	NITROGEN	

NOx = 55.6 ppm **NOx for Reference Only**

Certifcation Information: *Certification Date:* 2/7/2018 *Term:* 48 Months *Expiration Date:* 2/7/2022

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: 55 ppm
Certified Concentration: 55.0 ppm
Instrument Used: Horiba VIA-510 S/N 576876015
Analytical Method: NDIR
Last Multipoint Calibration: 1/15/2018

Reference Standard Type: GMIS
Ref. Std. Cylinder #: CC186877
Ref. Std. Conc: 50.3 ppm
Ref. Std. Traceable to SRM #: 1678c
SRM Sample #: 041-41
SRM Cylinder #: FF18402

First Analysis Data: **Date:** 1/31/2018

Z:	0	R:	50.2	C:	55	Conc:	55
R:	50.4	Z:	0	C:	55.1	Conc:	55.1
Z:	0	C:	55	R:	50.3	Conc:	55

UOM: ppm **Mean Test Assay:** 55.033 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: NITRIC OXIDE

Requested Concentration: 55 ppm
Certified Concentration: 55.5 ppm
Instrument Used: Thermo Electron 42i-LS S/N 1030645077
Analytical Method: Chemiluminescence
Last Multipoint Calibration: 1/12/2018

Reference Standard Type: SRM
Ref. Std. Cylinder #: CC2852
Ref. Std. Conc: 51.00 ppm
Ref. Std. Traceable to SRM #: 1683b
SRM Sample #: 45-V-42
SRM Cylinder #: CAL017897

First Analysis Data: **Date:** 1/31/2018

Z:	0	R:	51	C:	55.4	Conc:	55.4
R:	51	Z:	0	C:	55.5	Conc:	55.5
Z:	0	C:	55.5	R:	51	Conc:	55.5

UOM: ppm **Mean Test Assay:** 55.467 ppm

Second Analysis Data: **Date:** 2/7/2018

Z:	0	R:	51	C:	55.5	Conc:	55.573
R:	50.9	Z:	0	C:	55.4	Conc:	55.473
Z:	0	C:	55.4	R:	50.9	Conc:	55.473

UOM: ppm **Mean Test Assay:** 55.506 ppm

3. Component: SULFUR DIOXIDE

Requested Concentration: 27 ppm
Certified Concentration: 27.1 ppm
Instrument Used: Ametek 921CE S/N AW-921-S321
Analytical Method: Ultraviolet Absorption
Last Multipoint Calibration: 1/16/2018

Reference Standard Type: NTRM
Ref. Std. Cylinder #: CC72598
Ref. Std. Conc: 48.58 ppm
Ref. Std. Traceable to SRM #: NTRM12070
SRM Sample #: JOB NO 16055
SRM Cylinder #: N/A

First Analysis Data: **Date:** 1/31/2018

Z:	0	R:	48.6	C:	27.1	Conc:	27.052
R:	48.7	Z:	0	C:	27.3	Conc:	27.251
Z:	0	C:	27.2	R:	48.7	Conc:	27.152

UOM: ppm **Mean Test Assay:** 27.152 ppm

Second Analysis Data: **Date:** 2/7/2018

Z:	0	R:	48.9	C:	27.2	Conc:	27.04
R:	48.8	Z:	0	C:	27.2	Conc:	27.04
Z:	0	C:	27.2	R:	48.9	Conc:	27.04

UOM: ppm **Mean Test Assay:** 27.04 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.

PRAXAIR

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PGVPID: F22018

DocNumber: 000120030

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Analyzed by: Henry Koung

Certified by: Amalia Real

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

DocNumber: 000119814

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Tel:(323)585-2154 Fax:(714)542-6689
PGVP ID: F22018

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

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

Praxair Order Number: 70478952
Customer PO Number:
Customer Reference Number:

Fill Date: 1/26/2018
Part Number: NI CO125NS4E-AS
Lot Number: 70086802507
Cylinder Style and Outlet: AS CGA 660
Cylinder Pressure and Volume: 2000 psig 140 cu. ft.

CO-123.3 ppm
NOX-128.5 ppm
SO2-125.0 ppm
CC74949
EXP-2-5-26
F22018

Certified Concentration:

Expiration Date:	02/05/2026	NIST Traceable
Cylinder Number:	CC74949	Expanded Uncertainty:
123.3 ppm	CARBON MONOXIDE	± 0.4 %
128.5 ppm	NITRIC OXIDE	± 0.7 %
125 ppm	SULFUR DIOXIDE	± 1.0 %
Balance	NITROGEN	

NOx ppm = 128.5 ppn NOX for Reference Only

Certification Information: *Certification Date :* 2/5/2018 *Term :* 96 Months *Expiration Date :* 02/05/2026

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

Analytical Data:

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

1. Component: CARBON MONOXIDE

Requested Concentration: 125 ppm
Certified Concentration: 123.3 ppm
Instrument Used: HORIBA, VIA-510 576 876 015
Analytical Method: NDIR
Last Multipoint Calibration: 01/02/2018

Reference Standard Type: GMIS
Ref. Std. Cylinder #: CC243b60
Ref. Std. Conc: 102.2 ppm
Ref. Std. traceable to SRM #: 1679c
SRM Sample #: 3-I-45
SRM Cylinder #: FF28593

First Analysis Data:						Date:	01/29/2015
Z:	0	R:	102.2	C:	123.4	Conc:	123.3
R:	102.3	Z:	0	C:	123.5	Conc:	123.4
Z:	0	C:	123.5	R:	102.3	Conc:	123.3
UOM:	ppm					Mean Test Assay:	123.3 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: NITRIC OXIDE

Requested Concentration: 125 ppm
Certified Concentration: 128.5 ppm
Instrument Used: Thermo Electron 42I S/N 072602432C
Analytical Method: Chemiluminescence
Last Multipoint Calibration: 01/29/2018

Reference Standard Type: NTRM
Ref. Std. Cylinder #: CC338497
Ref. Std. Conc: 100.4 ppm
Ref. Std. traceable to SRM #: 1684b
SRM Sample #: 44-T-83
SRM Cylinder #: FF9258

First Analysis Data:						Date:	01/29/2018
Z:	0	R:	100.4	C:	128.4	Conc:	128.4
R:	100.4	Z:	0	C:	128.3	Conc:	128.3
Z:	0	C:	128.3	R:	100.4	Conc:	128.1
UOM:	ppm					Mean Test Assay:	128.3 ppm

Second Analysis Data:						Date:	02/05/2018
Z:	0	R:	100.4	C:	128.9	Conc:	128.9
R:	100.3	Z:	0	C:	128.7	Conc:	128.7
Z:	0	C:	128.7	R:	100.3	Conc:	128.7
UOM:	ppm					Mean Test Assay:	128.8 ppm

3. Component: SULFUR DIOXIDE

Requested Concentration: 125 ppm
Certified Concentration: 125 ppm
Instrument Used: HORIBA, VIA-510, 5203551011
Analytical Method: NDIR
Last Multipoint Calibration: 01/27/2018

Reference Standard Type: NTRM
Ref. Std. Cylinder #: SA15531
Ref. Std. Conc: 95.17 ppm
Ref. Std. traceable to SRM #: 120702
SRM Sample #: 12070204
SRM Cylinder #:

First Analysis Data:						Date:	01/29/2018
Z:	0	R:	95.2	C:	125.6	Conc:	125.4
R:	95.3	Z:	0	C:	125.4	Conc:	125.2
Z:	0	C:	125.4	R:	95.3	Conc:	125.1
UOM:	ppm					Mean Test Assay:	125.3 ppm

Second Analysis Data:						Date:	02/05/2018
Z:	0	R:	95.2	C:	124.7	Conc:	124.7
R:	95.1	Z:	0	C:	124.6	Conc:	124.6
Z:	0	C:	124.6	R:	95.1	Conc:	124.7
UOM:	ppm					Mean Test Assay:	124.7 ppm

Analyzed by: Leeanna Rodriguez

Certified by: Quinn Hailes

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AC 2-13-18

PRAXAIR

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Tel:(323)585-2154 Fax:(714)542-6689
PGVP ID: F22018

DocNumber: 000119815

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

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

Praxair Order Number: 70478952
Customer PO Number:
Customer Reference Number:

Fill Date: 1/25/2018
Part Number: NI CO275NS1E-AS
Lot Number: 70086602508
Cylinder Style and Outlet: AS CGA 660
Cylinder Pressure and Volume: 2000 psig 140 cu ft

CO-274 ppm
NOX-282 ppm
SO2-277 ppm
CC169801
EXP-2-5-26

Certified Concentration:

Expiration Date:	02/05/2026	NIST Traceable Expanded Uncertainty:
Cylinder Number:	CC169801	
274 ppm	CARBON MONOXIDE	± 0.7 %
282 ppm	NITRIC OXIDE	± 0.3 %
277 ppm	SULFUR DIOXIDE	± 0.6 %
Balance	NITROGEN	

NOx ppm = 282 ppm NOX for Reference Only

Certification Information: *Certification Date:* 2/5/2018 *Term:* 96 Months *Expiration Date:* 02/05/2026

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

F22018

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-510 576 876 015
Analytical Method: NDIR
Last Multipoint Calibration: 01/02/2018

Reference Standard Type: GMIS
Ref. Std. Cylinder #: CC243385
Ref. Std. Conc: 248.5 ppm
Ref. Std. traceable to SRM #: 2636a
SRM Sample #: 57-E-28
SRM Cylinder #: FF23380

First Analysis Data:						Date: 01/29/2015	
Z:	0	R:	248.5	C:	275	Conc:	275
R:	248.4	Z:	0	C:	274	Conc:	274
Z:	0	C:	274	R:	248.4	Conc:	274
UOM:	ppm				Mean Test Assay:	274	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: NITRIC OXIDE

Requested Concentration: 275 ppm
Certified Concentration: 282 ppm
Instrument Used: Thermo Electron 42i S/N 072602432C
Analytical Method: Chemiluminescence
Last Multipoint Calibration: 01/29/2018

Reference Standard Type: GMIS
Ref. Std. Cylinder #: CC2744
Ref. Std. Conc: 253.2 ppm
Ref. Std. traceable to SRM #: 1685b
SRM Sample #: 43-M-28
SRM Cylinder #: FF20734

First Analysis Data:						Date: 01/29/2018	
Z:	0	R:	253	C:	283	Conc:	283
R:	253	Z:	0	C:	284	Conc:	284
Z:	0	C:	284	R:	253	Conc:	281
UOM:	ppm				Mean Test Assay:	283	ppm

Second Analysis Data:						Date: 02/05/2018	
Z:	0	R:	253	C:	281	Conc:	280
R:	254	Z:	0	C:	282	Conc:	281
Z:	0	C:	282	R:	254	Conc:	280
UOM:	ppm				Mean Test Assay:	281	ppm

3. Component: SULFUR DIOXIDE

Requested Concentration: 275 ppm
Certified Concentration: 277 ppm
Instrument Used: HORIBA, VIA 510, 5203551011
Analytical Method: NDIR
Last Multipoint Calibration: 01/27/2018

Reference Standard Type: GMIS
Ref. Std. Cylinder #: CC121190
Ref. Std. Conc: 495.4 ppm
Ref. Std. traceable to SRM #: 1661a
SRM Sample #: 94-I-18
SRM Cylinder #: FF22304

First Analysis Data:						Date: 01/29/2018	
Z:	0	R:	495.4	C:	276.6	Conc:	277
R:	495.4	Z:	0	C:	276.6	Conc:	277
Z:	0	C:	276.6	R:	495.4	Conc:	276
UOM:	ppm				Mean Test Assay:	276	ppm

Second Analysis Data:						Date: 02/05/2018	
Z:	0	R:	495.4	C:	276.2	Conc:	276
R:	495.2	Z:	0	C:	276.6	Conc:	277
Z:	0	C:	276.6	R:	495.2	Conc:	277
UOM:	ppm				Mean Test Assay:	277	ppm

Analyzed by: Leeanna Rod
Leeanna Rodriguez

Certified by:
Quinn Hailes

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Making our planet more productive

DocNumber: 271646

Praxair Distribution, Inc.
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Fax: 714-542-6689
PGVP ID: F22019

MONTROSE AIR QUALITY SERVICES

1631 E. St Andrew Pl.
Santa Ana, CA 92705

OF ANALYSIS / EPA PROTOCOL GAS

Certificate Issuance Date: 10/17/2019
Praxair Order Number: 88259319
Part Number: EV NICDOXE53-AS
Customer PC Number: MIKE MILLER

Fill Date: 10/10/2019
Lot Number: 70086928304
Cylinder Style & Outlet: AS CGA 580
Cylinder Pressure and Volume: 2000 psig 140 ft3

O_2 5.07
CO_2 10.11
CB12323
EXP. 10/16/2027
F22019

Certified Concentration

ProSpec EZ Cert

Expiration Date:	10/16/2027	NIST Traceable
Cylinder Number:	CB12323	Expanded Uncertainty
10.11 %	Carbon dioxide	± 0.4 %
5.07 %	Oxygen	± 0.3 %
Balance	Nitrogen	

Certification Information:

Certification Date: 10/16/2019 *Term:* 96 Months *Expiration Date:* 10/16/2027

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

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

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

Analytical Data:

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

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

Requested Concentration: 10 %
Certified Concentration: 10.11 %
Instrument Used: Horiba VIA-510 S/N 20C194WK
Analytical Method: NDIR
Last Multipoint Calibration: 09/18/2019

Reference Standard: Type / Cylinder #: GMIS / CC164230
Concentration / Uncertainty: 14.00 % ±0.265%
Expiration Date: 04/16/2027
Traceable to: SRM # / Sample # / Cylinder #: SRM 1675b / 6-F-51 / CAL014538
SRM Concentration / Uncertainty: 13.963% / ±0.034%
SRM Expiration Date: 05/16/2022

First Analysis Data:							Date	10/16/2019
Z:	0	R:	14	C:	10.11	Conc:	10.11	
R:	14.01	Z:	0	C:	10.11	Conc:	10.11	
Z:	0	C:	10.11	R:	14	Conc:	10.11	
UOM:	%				Mean Test Assay:		10.11	%

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

2. *Component:* **Oxygen**

Requested Concentration: 5 %
Certified Concentration: 5.07 %
Instrument Used: OXYMAT 5E
Analytical Method: Paramagnetic
Last Multipoint Calibration: 09/18/2019

Reference Standard: Type / Cylinder #: GMIS / CC138810
Concentration / Uncertainty: 5.00 % ±0.234%
Expiration Date: 12/14/2026
Traceable to: SRM # / Sample # / Cylinder #: SRM 2658a / 72-D-28 / CAL016862
SRM Concentration / Uncertainty: 9.918% / ±0.022%
SRM Expiration Date: 02/03/2024

First Analysis Data:							Date	10/16/2019
Z:	0	R:	5	C:	5.07	Conc:	5.07	
R:	5	Z:	0	C:	5.07	Conc:	5.07	
Z:	0	C:	5.05	R:	4.99	Conc:	5.05	
UOM:	%				Mean Test Assay:		5.07	%

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

Analyzed By Jenna Lockhart

Certified By Jose Vasquez

LO 1-27-2020

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PRAXAIR
Making our planet more productive

MONTROSE AIR QUALITY SERVICES
1631 E. St Andrew Pl.
Santa Ana, CA 92705

1545 E EDINGER AVE
SANTA ANA CA 92705

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

E OF ANALYSIS / EPA PROTOCOL GAS

Certificate Modification Date: 09/13/2018
Praxair Order Number: 70710636
Part Number: NI CD19O5E-AS

Fill Date: 09/07/2018
Lot Number: 70086825002
Cylinder Style & Outlet: AS CGA 590
Cylinder Pressure and Volume: 2000 psig 140 ft3

~~CO 18.99%~~
~~O2 9.51%~~
CC95736
9/13/26
F22018

O2 9.51%
CO2 18.99%

Certified Concentration

Expiration Date:	09/13/2026	NIST Traceable
Cylinder Number:	CC95736	Expanded Uncertainty
18.99 %	Carbon dioxide	± 0.3 %
9.51 %	Oxygen	± 0.4 %
Balance	Nitrogen	

ProSpec EZ Cert

Certification Information:

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

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

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

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

Analytical Data:

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

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

Requested Concentration: 19 %
Certified Concentration: 18.99 %
Instrument Used: Horiba VIA-510 S/N 20C194WK
Analytical Method: NDIR
Last Multipoint Calibration 08/20/2018

First Analysis Data:						Date	09/13/2018
Z:	0	R:	20.1	C:	18.99	Conc:	18.99
R:	20.1	Z:	0	C:	19	Conc:	19
Z:	0	C:	19	R:	20.11	Conc:	19
UOM:	%			Mean Test Assay:			18.99 %

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

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

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

Requested Concentration: 9.5 %
Certified Concentration: 9.51 %
Instrument Used: OXYMAT 5E
Analytical Method: Paramagnetic
Last Multipoint Calibration: 09/04/2018

First Analysis Data:						Date	09/13/2018
Z:	0	R:	9.88	C:	9.52	Conc:	9.52
R:	9.88	Z:	0	C:	9.51	Conc:	9.51
Z:	0	C:	9.52	R:	9.89	Conc:	9.52
UOM:	%			Mean Test Assay:			9.51 %

Reference Standard: Type / Cylinder #: NTRM / DT0010402
Concentration / Uncertainty: 9.88 % ±0.4%
Expiration Date: 11/18/2022
Traceable to: SRM # / Sample # / Cylinder #: NTRM #170701 / N/A / NTRM #DT0010402
SRM Concentration / Uncertainty: 9.875% / ±0.040%
SRM Expiration Date: 11/18/2022

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

Analyzed By Jose Vasquez

Certified By Danielle Burns

SS 8/30/19

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