DOCKETED

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RATA Report 2

Almega Environmental

Unit Name: OCSD P2 Unit 1

Report Start Date/Time : Tue 09/29/2015 7:26

Report End Date/Time : Tue 09/29/2015 7:55

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)					
09/29/2015 7:26	92.75 V	16.18 V	786.42 V					
09/29/2015 7:27	94.83 V	16.46 V	786.22 V					
09/29/2015 7:28	92.14 V	16.04 V	785.81 V					
09/29/2015 7:29	91.89 V	16.18 V	783.58 V					
09/29/2015 7:30	92.66 V	16.18 V	784.60 V					
09/29/2015 7:31	99.04 V	16.32 V	787.84 V					
09/29/2015 7:32	93.25 V	16.18 V	785.41 V					
09/29/2015 7:33	96.04 V	16.18 V	784.39 V					
09/29/2015 7:34	91.18 V	16.18 V	783.17 V					
09/29/2015 7:35	95.23 V	16.18 V	782.97 V					
09/29/2015 7:36	93.80 V	16.18 V	782.97 V					
09/29/2015 7:37	91.97 V	16.18 V	780.94 V					
09/29/2015 7:38	90.24 V	16.04 V	777.90 V					
09/29/2015 7:39	90.21 V	16.18 V	777.08 V					
09/29/2015 7:40	90.57 V	16.04 V	776.48 V					
09/29/2015 7:41	95.19 V	16.18 V	776.07 V					
09/29/2015 7:42	94.40 V	16.18 V	780.74 V					
09/29/2015 7:43	91.56 V	15.76 V	777.69 V					
09/29/2015 7:44	92.72 V	16.04 V	779.32 V					
09/29/2015 7:45	93.70 V	16.18 V	778.91 V					
09/29/2015 7:46	90.93 V	16.18 V	781.55 V					
09/29/2015 7:47	94.44 V	16.18 V	780.33 V					
09/29/2015 7:48	92.73 V	15.90 V	780.94 V					
09/29/2015 7:49	88.25 V	16.18 V	781.75 V					
09/29/2015 7:50	93.14 V	16.18 V	782.16 V					
09/29/2015 7:51	96.69 V	16.18 V	782.97 V					
09/29/2015 7:52	92.02 V	16.18 V	782.97 V					
09/29/2015 7:53	94.22 V	16.18 V	780.54 V					
09/29/2015 7:54	90.38 V	16.32 V	777.49 V					
09/29/2015 7:55	93.13 V	16.18 V	782.97 V					
Average:	92.98	16.16	781.74					
Maximum:	99.04	16.46	787.84					
Minimum:	88.25	15.76	776.07					

Unit Name: OCSD P2 Unit 1

Report Start Date/Time : Tue 09/29/2015 7:56

Report End Date/Time : Tue 09/29/2015 8:25

DATE/TIME	NOx Raw (ppmvd)	NOx @15%O2 (ppmvd)	NOx Lbs/Hr	O2 (%)	Stack Flow (dscfm)	CO Raw (ppmvd)	CO @15%O2 (ppmvd)	CO Lbs/Hr
09/29/2015 7:56	53.48 V	33.03 V	3.83 V	11.35 V	9981.99 V	496.30 V	306.53 V	21.60 V
09/29/2015 7:57	53.13 V	32.82 V	3.81 V	11.35 V	9993.98 V	495.60 V	306.10 V	21.60 V
09/29/2015 7:58	52.78 V	32.69 V	3.77 V	11.37 V	9962.87 V	493.80 V	305.79 V	21.45 V
09/29/2015 7:59	52.76 V	32.59 V	3.77 V	11.35 V	9971.95 V	492.50 V	304.19 V	21.42 V
09/29/2015 8:00	53.63 V	32.94 V	3.80 V	11.30 V	9877.72 V	497.30 V	305.47 V	21.42 V
09/29/2015 8:01	54.21 V	33.39 V	3.85 V	11.32 V	9910.74 V	492.10 V	303.07 V	21.27 V
09/29/2015 8:02	54.94 V	33.74 V	3.87 V	11.29 V	9835.72 V	489.30 V	300.48 V	20.99 V
09/29/2015 8:03	54.66 V	33.58 V	3.90 V	11.30 V	9937.94 V	496.70 V	305.11 V	21.53 V
09/29/2015 8:04	56.92 V	34.96 V	4.06 V	11.29 V	9953.34 V	491.70 V	301.96 V	21.34 V
09/29/2015 8:05	56.17 V	34.69 V	4.01 V	11.35 V	9961.91 V	492.10 V	303.94 V	21.38 V
09/29/2015 8:06	55.45 V	34.16 V	3.94 V	11.32 V	9919.41 V	493.10 V	303.76 V	21.33 V
09/29/2015 8:07	55.81 V	34.47 V	3.98 V	11.35 V	9936.80 V	493.60 V	304.87 V	21.39 V
09/29/2015 8:08	54.94 V	33.84 V	3.91 V	11.32 V	9916.31 V	489.30 V	301.34 V	21.16 V
09/29/2015 8:09	54.10 V	33.32 V	3.86 V	11.32 V	9943.55 V	491.70 V	302.82 V	21.32 V
09/29/2015 8:10	55.30 V	33.96 V	3.93 V	11.29 V	9918.39 V	493.20 V	302.88 V	21.33 V
09/29/2015 8:11	55.53 V	34.29 V	3.97 V	11.35 V	9967.35 V	492.10 V	303.86 V	21.39 V
09/29/2015 8:12	55.12 V	34.04 V	3.94 V	11.35 V	9971.95 V	496.00 V	306.35 V	21.57 V
09/29/2015 8:13	54.77 V	33.72 V	3.91 V	11.32 V	9957.35 V	499.10 V	307.30 V	21.67 V
09/29/2015 8:14	55.56 V	34.22 V	3.97 V	11.32 V	9958.58 V	490.70 V	302.21 V	21.31 V
09/29/2015 8:15	54.87 V	33.89 V	3.92 V	11.35 V	9964.42 V	499.00 V	308.20 V	21.68 V
09/29/2015 8:16	55.05 V	34.00 V	3.95 V	11.35 V	10012.12 V	495.30 V	305.92 V	21.63 V
09/29/2015 8:17	55.46 V	34.25 V	3.97 V	11.35 V	9981.99 V	491.70 V	303.69 V	21.40 V
09/29/2015 8:18	54.53 V	33.58 V	3.90 V	11.32 V	9973.89 V	491.00 V	302.39 V	21.36 V
09/29/2015 8:19	55.75 V	34.43 V	3.99 V	11.35 V	9981.99 V	488.60 V	301.78 V	21.27 V
09/29/2015 8:20	54.63 V	33.64 V	3.91 V	11.32 V	9984.32 V	492.80 V	303.42 V	21.46 V
09/29/2015 8:21	54.91 V	34.00 V	3.98 V	11.37 V	10108.87 V	489.00 V	302.82 V	21.56 V
09/29/2015 8:22	54.66 V	33.85 V	3.96 V	11.37 V	10103.83 V	499.10 V	309.07 V	21.99 V
09/29/2015 8:23	54.33 V	33.73 V	3.94 V	11.40 V	10108.77 V	498.30 V	309.39 V	21.97 V
09/29/2015 8:24	54.31 V	33.62 V	3.93 V	11.37 V	10091.92 V	498.10 V	308.37 V	21.92 V
09/29/2015 8:25	54.15 V	33.62 V	3.92 V	11.40 V	10095.58 V	497.70 V	309.02 V	21.91 V
Average:	54.73	33.77	3.91	11.34	9976.18	493.89	304.74	21.49
Maximum:	56.92	34.96	4.06	11.40	10108.87	499.10	309.39	21.99
Minimum:	52.76	32.59	3.77	11.29	9835.72	488.60	300.48	20.99

R-2

RATA Report 2

Unit Name: OCSD P2 Unit 1

Report Start Date/Time : Tue 09/29/2015 7:56

Report End Date/Time : Tue 09/29/2015 8:25

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)					
09/29/2015 7:56	89.50 V	16.18 V	780.94 V					
09/29/2015 7:57	94.84 V	15.90 V	782.36 V					
09/29/2015 7:58	90.32 V	16.18 V	777.29 V					
09/29/2015 7:59	91.00 V	16.18 V	780.13 V					
09/29/2015 8:00	91.32 V	16.04 V	777.08 V					
09/29/2015 8:01	91.72 V	15.90 V	777.90 V					
09/29/2015 8:02	91.63 V	16.04 V	773.84 V					
09/29/2015 8:03	92.61 V	16.18 V	781.75 V					
09/29/2015 8:04	92.79 V	16.18 V	783.17 V					
09/29/2015 8:05	95.46 V	16.18 V	779.32 V					
09/29/2015 8:06	91.98 V	16.18 V	777.90 V					
09/29/2015 8:07	89.01 V	16.18 V	777.29 V					
09/29/2015 8:08	91.48 V	16.18 V	777.90 V					
09/29/2015 8:09	89.06 V	16.04 V	780.33 V					
09/29/2015 8:10	90.66 V	16.18 V	780.33 V					
09/29/2015 8:11	92.83 V	16.18 V	779.93 V					
09/29/2015 8:12	93.48 V	16.18 V	780.13 V					
09/29/2015 8:13	93.17 V	16.46 V	780.94 V					
09/29/2015 8:14	90.17 V	16.04 V	781.55 V					
09/29/2015 8:15	91.45 V	16.18 V	779.52 V					
09/29/2015 8:16	90.07 V	16.18 V	783.38 V					
09/29/2015 8:17	91.89 V	16.18 V	780.94 V					
09/29/2015 8:18	92.70 V	16.18 V	782.57 V					
09/29/2015 8:19	93.75 V	16.18 V	780.94 V					
09/29/2015 8:20	92.32 V	16.18 V	783.58 V					
09/29/2015 8:21	92.71 V	16.18 V	789.06 V					
09/29/2015 8:22	92.08 V	16.18 V	788.66 V					
09/29/2015 8:23	91.98 V	16.18 V	786.83 V					
09/29/2015 8:24	95.70 V	16.32 V	787.64 V					
09/29/2015 8:25	92.13 V	15.90 V	786.22 V					
Average:	91.99	16.15	781.31					
Maximum:	95.70	16.46	789.06					
Minimum:	89.01	15.90	773.84					

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RATA Report 1

9/29/2015 12:10:24 PM

Unit Name: OCSD P2 Unit 1

Report Start Date/Time : Tue 09/29/2015 8:26

Report End Date/Time : Tue 09/29/2015 8:55

DATE/TIME	NOx Raw (ppmvd)	NOx @15%O2 (ppmvd)	NOx Lbs/Hr	O2 (%)	Stack Flow (dscfm)	CO Raw (ppmvd)	CO @15%O2 (ppmvd)	CO Lbs/Hr
09/29/2015 8:26	53.55 V	33.25 V	3.87 V	11.40 V	10078.48 V	499.80 V	310.32 V	21.97 V
09/29/2015 8:27	54.04 V	33.47 V	3.89 V	11.37 V	10043.42 V	496.30 V	307.34 V	21.74 V
09/29/2015 8:28	53.07 V	32.77 V	3.81 V	11.35 V	10022.57 V	499.00 V	308.12 V	21.81 V
09/29/2015 8:29	54.22 V	33.48 V	3.91 V	11.35 V	10065.24 V	489.60 V	302.32 V	21.49 V
09/29/2015 8:30	54.07 V	33.39 V	3.92 V	11.35 V	10097.87 V	497.70 V	307.32 V	21.92 V
09/29/2015 8:31	54.56 V	33.69 V	3.95 V	11.35 V	10085.32 V	499.80 V	308.62 V	21.98 V
09/29/2015 8:32	54.42 V	33.70 V	3.94 V	11.37 V	10097.14 V	496.00 V	307.15 V	21.84 V
09/29/2015 8:33	55.11 V	34.03 V	3.98 V	11.35 V	10077.50 V	494.30 V	305.22 V	21.72 V
09/29/2015 8:34	55.71 V	34.30 V	4.03 V	11.32 V	10080.28 V	493.10 V	303.60 V	21.68 V
09/29/2015 8:35	56.06 V	34.73 V	4.07 V	11.38 V	10132.76 V	493.50 V	305.69 V	21.81 V
09/29/2015 8:36	54.87 V	33.89 V	3.98 V	11.35 V	10107.79 V	497.30 V	307.15 V	21.92 V
09/29/2015 8:37	54.70 V	34.07 V	3.97 V	11.43 V	10112.13 V	502.90 V	313.23 V	22.18 V
09/29/2015 8:38	51.63 V	32.33 V	3.55 V	11.48 V	9576.43 V	512.20 V	320.72 V	21.39 V
09/29/2015 8:39	46.99 V	29.51 V	3.02 V	11.51 V	8952.02 V	515.00 V	323.42 V	20.11 V
09/29/2015 8:40	44.91 V	27.39 V	2.68 V	11.23 V	8335.75 V	515.40 V	314.38 V	18.74 V
09/29/2015 8:41	46.53 V	27.86 V	2.68 V	11.05 V	8037.40 V	495.60 V	296.71 V	17.37 V
09/29/2015 8:42	48.90 V	28.82 V	2.75 V	10.89 V	7830.48 V	490.70 V	289.15 V	16.76 V
09/29/2015 8:43	51.74 V	30.34 V	2.88 V	10.84 V	7764.80 V	481.50 V	282.32 V	16.30 V
09/29/2015 8:44	52.01 V	30.34 V	2.87 V	10.79 V	7705.66 V	480.30 V	280.16 V	16.14 V
09/29/2015 8:45	53.70 V	31.31 V	2.99 V	10.78 V	7763.73 V	481.10 V	280.48 V	16.29 V
09/29/2015 8:46	53.27 V	31.06 V	2.99 V	10.78 V	7818.46 V	479.40 V	279.56 V	16.35 V
09/29/2015 8:47	53.80 V	31.62 V	3.05 V	10.86 V	7907.36 V	483.80 V	284.31 V	16.68 V
09/29/2015 8:48	53.80 V	31.62 V	3.05 V	10.86 V	7907.06 V	479.40 V	281.79 V	16.53 V
09/29/2015 8:49	53.87 V	31.59 V	3.05 V	10.84 V	7903.59 V	486.30 V	285.14 V	16.76 V
09/29/2015 8:50	54.50 V	32.04 V	3.10 V	10.87 V	7923.79 V	481.00 V	282.80 V	16.62 V
09/29/2015 8:51	53.80 V	31.62 V	3.07 V	10.86 V	7953.27 V	481.10 V	282.79 V	16.69 V
09/29/2015 8:52	54.45 V	32.01 V	3.10 V	10.86 V	7943.44 V	481.00 V	282.73 V	16.66 V
09/29/2015 8:53	53.59 V	31.58 V	3.06 V	10.89 V	7955.03 V	480.80 V	283.32 V	16.68 V
09/29/2015 8:54	54.29 V	31.91 V	3.07 V	10.86 V	7876.27 V	483.50 V	284.20 V	16.61 V
09/29/2015 8:55	54.00 V	31.58 V	3.04 V	10.81 V	7838.85 V	481.40 V	281.49 V	16.46 V
Average:	53.01	31.98	3.38	11.11	8866.46	491.63	296.72	19.04
Maximum:	56.06	34.73	4.07	11.51	10132.76	515.40	323.42	22.18
Minimum:	44.91	27.39	2.68	10.78	7705.66	479.40	279.56	16.14

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Unit Name: OCSD P2 Unit 1

Report Start Date/Time : Tue 09/29/2015 8:26

Report End Date/Time : Tue 09/29/2015 8:55

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)					
09/29/2015 8:26	91.94 V	16.18 V	784.39 V					
09/29/2015 8:27	93.50 V	16.18 V	783.78 V					
09/29/2015 8:28	92.33 V	16.18 V	784.39 V					
09/29/2015 8:29	93.15 V	16.18 V	787.84 V					
09/29/2015 8:30	96.17 V	16.18 V	790.48 V					
09/29/2015 8:31	95.74 V	16.18 V	789.47 V					
09/29/2015 8:32	93.71 V	16.60 V	787.44 V					
09/29/2015 8:33	95.81 V	16.04 V	789.06 V					
09/29/2015 8:34	94.57 V	16.60 V	790.69 V					
09/29/2015 8:35	92.10 V	16.46 V	790.28 V					
09/29/2015 8:36	93.05 V	16.32 V	790.89 V					
09/29/2015 8:37	91.03 V	16.32 V	784.39 V					
09/29/2015 8:38	84.65 V	15.62 V	738.51 V					
09/29/2015 8:39	78.51 V	14.65 V	688.17 V					
09/29/2015 8:40	76.11 V	13.67 V	660.36 V					
09/29/2015 8:41	73.25 V	13.25 V	648.99 V					
09/29/2015 8:42	70.44 V	12.70 V	643.10 V					
09/29/2015 8:43	74.70 V	12.42 V	641.28 V					
09/29/2015 8:44	75.23 V	12.28 V	639.86 V					
09/29/2015 8:45	73.00 V	12.42 V	644.93 V					
09/29/2015 8:46	75.31 V	12.56 V	649.19 V					
09/29/2015 8:47	74.91 V	12.70 V	651.43 V					
09/29/2015 8:48	71.76 V	12.56 V	651.43 V					
09/29/2015 8:49	76.45 V	12.70 V	652.65 V					
09/29/2015 8:50	72.71 V	12.97 V	652.04 V					
09/29/2015 8:51	73.27 V	12.97 V	654.68 V					
09/29/2015 8:52	74.33 V	12.83 V	654.07 V					
09/29/2015 8:53	74.25 V	12.70 V	653.66 V					
09/29/2015 8:54	75.65 V	12.70 V	648.59 V					
09/29/2015 8:55	74.89 V	12.28 V	649.60 V					
Average:	82.42	14.31	709.19					
Maximum:	96.17	16.60	790.89					
Minimum:	70.44	12.28	639.86					

R-3

Unit Name: OCSD P2 Unit 1

Report Start Date/Time : Tue 09/29/2015 9:12

Report End Date/Time : Tue 09/29/2015 9:41

DATE/TIME	NOx Raw (ppmvd)	NOx @15%O2 (ppmvd)	NOx Lbs/Hr	O2 (%)	Stack Flow (dscfm)	CO Raw (ppmvd)	CO @15%O2 (ppmvd)	CO Lbs/Hr
09/29/2015 9:12	52.91 V	32.09 V	3.35 V	11.17 V	8833.03 V	486.30 V	294.96 V	18.73 V
09/29/2015 9:13	52.31 V	31.65 V	3.29 V	11.15 V	8783.33 V	491.40 V	297.28 V	18.82 V
09/29/2015 9:14	52.55 V	31.71 V	3.30 V	11.12 V	8768.23 V	485.90 V	293.21 V	18.58 V
09/29/2015 9:15	52.79 V	31.77 V	3.31 V	11.10 V	8749.87 V	483.50 V	291.01 V	18.45 V
09/29/2015 9:16	52.75 V	31.84 V	3.32 V	11.13 V	8767.29 V	489.00 V	295.15 V	18.70 V
09/29/2015 9:17	51.94 V	31.34 V	3.24 V	11.12 V	8701.19 V	483.20 V	291.58 V	18.34 V
09/29/2015 9:18	51.30 V	31.04 V	3.19 V	11.15 V	8676.48 V	491.40 V	297.28 V	18.59 V
09/29/2015 9:19	51.24 V	30.92 V	3.14 V	11.12 V	8553.72 V	490.00 V	295.68 V	18.28 V
09/29/2015 9:20	50.75 V	30.54 V	3.09 V	11.10 V	8492.60 V	491.30 V	295.63 V	18.20 V
09/29/2015 9:21	49.79 V	29.88 V	3.01 V	11.07 V	8419.22 V	487.60 V	292.66 V	17.90 V
09/29/2015 9:22	50.18 V	30.13 V	3.02 V	11.07 V	8400.11 V	489.00 V	293.57 V	17.91 V
09/29/2015 9:23	50.59 V	30.28 V	3.02 V	11.04 V	8329.92 V	491.10 V	293.94 V	17.84 V
09/29/2015 9:24	49.90 V	29.87 V	2.97 V	11.04 V	8305.59 V	488.00 V	292.08 V	17.68 V
09/29/2015 9:25	50.32 V	30.12 V	2.97 V	11.04 V	8230.42 V	489.00 V	292.68 V	17.55 V
09/29/2015 9:26	50.36 V	29.91 V	2.94 V	10.97 V	8141.66 V	493.60 V	293.13 V	17.53 V
09/29/2015 9:27	50.71 V	30.12 V	2.95 V	10.97 V	8114.59 V	488.00 V	289.80 V	17.27 V
09/29/2015 9:28	51.33 V	30.49 V	2.95 V	10.97 V	8009.44 V	489.90 V	291.01 V	17.11 V
09/29/2015 9:29	50.79 V	29.93 V	2.87 V	10.89 V	7870.64 V	487.20 V	287.09 V	16.72 V
09/29/2015 9:30	51.62 V	30.26 V	2.89 V	10.84 V	7817.81 V	484.90 V	284.24 V	16.53 V
09/29/2015 9:31	52.38 V	30.63 V	2.93 V	10.81 V	7806.38 V	481.80 V	281.73 V	16.40 V
09/29/2015 9:32	53.20 V	31.11 V	2.97 V	10.81 V	7784.71 V	486.00 V	284.18 V	16.50 V
09/29/2015 9:33	54.11 V	31.55 V	3.01 V	10.78 V	7763.40 V	481.10 V	280.55 V	16.29 V
09/29/2015 9:34	55.05 V	32.06 V	3.06 V	10.77 V	7763.51 V	486.00 V	282.99 V	16.45 V
09/29/2015 9:35	55.45 V	32.34 V	3.10 V	10.79 V	7793.92 V	479.00 V	279.40 V	16.28 V
09/29/2015 9:36	55.11 V	32.15 V	3.10 V	10.79 V	7847.64 V	484.80 V	282.85 V	16.59 V
09/29/2015 9:37	55.89 V	32.60 V	3.15 V	10.79 V	7870.33 V	485.20 V	283.01 V	16.65 V
09/29/2015 9:38	55.59 V	32.59 V	3.16 V	10.84 V	7916.32 V	484.50 V	284.01 V	16.73 V
09/29/2015 9:39	55.81 V	32.64 V	3.18 V	10.81 V	7939.73 V	480.80 V	281.21 V	16.65 V
09/29/2015 9:40	55.42 V	32.50 V	3.19 V	10.84 V	8034.93 V	478.00 V	280.27 V	16.75 V
09/29/2015 9:41	56.07 V	32.96 V	3.25 V	10.86 V	8089.99 V	481.00 V	282.73 V	16.97 V
Average:	52.61	31.23	3.10	10.96	8219.20	486.28	288.83	17.43
Maximum:	56.07	32.96	3.35	11.17	8833.03	493.60	297.28	18.82
Minimum:	49.79	29.87	2.87	10.77	7763.40	478.00	279.40	16.28

R-4

RATA Report 2

Unit Name: OCSD P2 Unit 1

Report Start Date/Time : Tue 09/29/2015 9:12

Report End Date/Time : Tue 09/29/2015 9:41

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)					
09/29/2015 9:12	79.13 V	14.23 V	704.21 V					
09/29/2015 9:13	80.15 V	14.23 V	701.97 V					
09/29/2015 9:14	78.93 V	14.23 V	702.58 V					
09/29/2015 9:15	83.37 V	14.23 V	702.99 V					
09/29/2015 9:16	85.58 V	14.09 V	702.58 V					
09/29/2015 9:17	81.93 V	13.81 V	697.71 V					
09/29/2015 9:18	83.13 V	13.67 V	694.06 V					
09/29/2015 9:19	79.21 V	13.67 V	685.73 V					
09/29/2015 9:20	78.14 V	13.67 V	682.69 V					
09/29/2015 9:21	77.40 V	13.39 V	678.83 V					
09/29/2015 9:22	75.03 V	13.53 V	676.80 V					
09/29/2015 9:23	78.55 V	13.11 V	673.76 V					
09/29/2015 9:24	77.20 V	13.11 V	671.73 V					
09/29/2015 9:25	74.53 V	13.25 V	665.23 V					
09/29/2015 9:26	75.74 V	13.25 V	663.20 V					
09/29/2015 9:27	73.68 V	12.97 V	661.37 V					
09/29/2015 9:28	76.47 V	12.70 V	652.85 V					
09/29/2015 9:29	73.89 V	12.42 V	646.96 V					
09/29/2015 9:30	72.70 V	12.28 V	646.15 V					
09/29/2015 9:31	72.22 V	12.70 V	646.15 V					
09/29/2015 9:32	75.02 V	12.56 V	644.53 V					
09/29/2015 9:33	71.08 V	12.28 V	644.93 V					
09/29/2015 9:34	73.72 V	12.56 V	645.54 V					
09/29/2015 9:35	72.41 V	12.56 V	646.96 V					
09/29/2015 9:36	71.73 V	12.56 V	651.43 V					
09/29/2015 9:37	75.86 V	12.83 V	653.05 V					
09/29/2015 9:38	74.24 V	12.70 V	653.86 V					
09/29/2015 9:39	80.94 V	12.83 V	657.11 V					
09/29/2015 9:40	76.41 V	12.83 V	663.61 V					
09/29/2015 9:41	78.47 V	13.25 V	665.84 V					
Average:	76.89	13.18	669.48					
Maximum:	85.58	14.23	704.21					
Minimum:	71.08	12.28	644.53					

R-4

RATA Report 1

Unit Name: OCSD P2 Unit 1

Report Start Date/Time : Tue 09/29/2015 9:42

Report End Date/Time : Tue 09/29/2015 10:11

DATE/TIME	NOx Raw (ppmvd)	NOx @15%O2 (ppmvd)	NOx Lbs/Hr	O2 (%)	Stack Flow (dscfm)	CO Raw (ppmvd)	CO @15%O2 (ppmvd)	CO Lbs/Hr
09/29/2015 9:42	54.76 V	32.42 V	3.21 V	10.94 V	8162.62 V	485.60 V	287.51 V	17.29 V
09/29/2015 9:43	55.42 V	32.74 V	3.26 V	10.91 V	8214.54 V	482.50 V	285.03 V	17.28 V
09/29/2015 9:44	55.04 V	32.68 V	3.25 V	10.96 V	8228.24 V	478.90 V	284.33 V	17.18 V
09/29/2015 9:45	54.70 V	32.48 V	3.25 V	10.96 V	8285.90 V	481.80 V	286.05 V	17.41 V
09/29/2015 9:46	56.02 V	33.27 V	3.35 V	10.97 V	8332.93 V	480.00 V	285.05 V	17.44 V
09/29/2015 9:47	55.48 V	33.02 V	3.34 V	10.99 V	8395.82 V	483.50 V	287.78 V	17.70 V
09/29/2015 9:48	55.71 V	33.26 V	3.36 V	11.02 V	8400.48 V	483.80 V	288.84 V	17.72 V
09/29/2015 9:49	55.49 V	33.13 V	3.37 V	11.02 V	8461.43 V	487.30 V	290.93 V	17.98 V
09/29/2015 9:50	56.17 V	33.44 V	3.42 V	10.99 V	8484.90 V	480.00 V	285.77 V	17.76 V
09/29/2015 9:51	54.84 V	32.74 V	3.37 V	11.02 V	8564.18 V	480.80 V	287.05 V	17.96 V
09/29/2015 9:52	55.12 V	32.99 V	3.42 V	11.04 V	8644.88 V	476.50 V	285.20 V	17.96 V
09/29/2015 9:53	54.98 V	33.00 V	3.45 V	11.07 V	8740.47 V	488.20 V	293.02 V	18.61 V
09/29/2015 9:54	54.49 V	32.89 V	3.45 V	11.13 V	8816.64 V	483.70 V	291.95 V	18.60 V
09/29/2015 9:55	54.08 V	32.63 V	3.42 V	11.12 V	8814.84 V	486.30 V	293.45 V	18.69 V
09/29/2015 9:56	53.55 V	32.31 V	3.38 V	11.12 V	8794.97 V	487.90 V	294.34 V	18.71 V
09/29/2015 9:57	52.85 V	31.97 V	3.33 V	11.15 V	8788.01 V	486.20 V	294.06 V	18.63 V
09/29/2015 9:58	53.56 V	32.32 V	3.36 V	11.12 V	8745.60 V	488.60 V	294.83 V	18.63 V
09/29/2015 9:59	52.86 V	31.90 V	3.30 V	11.12 V	8718.62 V	489.00 V	295.08 V	18.59 V
09/29/2015 10:00	52.52 V	31.68 V	3.27 V	11.12 V	8683.52 V	493.20 V	297.53 V	18.68 V
09/29/2015 10:01	52.24 V	31.44 V	3.26 V	11.10 V	8690.34 V	489.00 V	294.32 V	18.53 V
09/29/2015 10:02	53.10 V	32.04 V	3.29 V	11.12 V	8652.39 V	484.50 V	292.36 V	18.28 V
09/29/2015 10:03	52.68 V	31.62 V	3.25 V	11.07 V	8607.63 V	484.10 V	290.56 V	18.17 V
09/29/2015 10:04	53.76 V	32.34 V	3.32 V	11.09 V	8600.04 V	488.60 V	293.93 V	18.32 V
09/29/2015 10:05	52.75 V	31.75 V	3.23 V	11.10 V	8533.48 V	489.90 V	294.87 V	18.23 V
09/29/2015 10:06	51.79 V	31.16 V	3.15 V	11.09 V	8475.33 V	490.30 V	294.96 V	18.12 V
09/29/2015 10:07	52.68 V	31.45 V	3.16 V	11.02 V	8355.20 V	481.30 V	287.34 V	17.54 V
09/29/2015 10:08	53.20 V	31.76 V	3.16 V	11.02 V	8276.72 V	485.50 V	289.85 V	17.52 V
09/29/2015 10:09	52.59 V	31.23 V	3.08 V	10.97 V	8175.46 V	492.50 V	292.48 V	17.56 V
09/29/2015 10:10	53.23 V	31.52 V	3.10 V	10.94 V	8116.93 V	485.20 V	287.35 V	17.17 V
09/29/2015 10:11	52.48 V	31.01 V	3.01 V	10.92 V	8006.42 V	487.60 V	288.12 V	17.02 V
Average:	53.94	32.27	3.28	11.04	8492.28	485.41	290.46	17.98
Maximum:	56.17	33.44	3.45	11.15	8816.64	493.20	297.53	18.71
Minimum:	51.79	31.01	3.01	10.91	8006.42	476.50	284.33	17.02

R-5

Unit Name: OCSD P2 Unit 1

Report Start Date/Time : Tue 09/29/2015 9:42

Report End Date/Time : Tue 09/29/2015 10:11

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)					
09/29/2015 9:42	79.89 V	13.11 V	667.26 V					
09/29/2015 9:43	79.08 V	13.25 V	672.95 V					
09/29/2015 9:44	77.72 V	13.11 V	670.92 V					
09/29/2015 9:45	79.70 V	12.97 V	675.99 V					
09/29/2015 9:46	77.46 V	13.53 V	678.83 V					
09/29/2015 9:47	80.06 V	13.53 V	682.49 V					
09/29/2015 9:48	77.44 V	13.25 V	681.27 V					
09/29/2015 9:49	80.03 V	13.39 V	686.14 V					
09/29/2015 9:50	83.11 V	13.67 V	689.59 V					
09/29/2015 9:51	82.82 V	13.81 V	694.06 V					
09/29/2015 9:52	81.79 V	13.67 V	699.13 V					
09/29/2015 9:53	79.50 V	14.23 V	704.21 V					
09/29/2015 9:54	84.50 V	14.23 V	706.44 V					
09/29/2015 9:55	81.52 V	14.23 V	706.44 V					
09/29/2015 9:56	83.45 V	14.23 V	705.02 V					
09/29/2015 9:57	79.21 V	14.23 V	702.58 V					
09/29/2015 9:58	84.96 V	13.95 V	701.16 V					
09/29/2015 9:59	80.41 V	13.95 V	698.93 V					
09/29/2015 10:00	80.73 V	13.67 V	696.70 V					
09/29/2015 10:01	78.80 V	13.81 V	698.73 V					
09/29/2015 10:02	80.34 V	13.95 V	693.45 V					
09/29/2015 10:03	79.87 V	13.67 V	694.06 V					
09/29/2015 10:04	80.04 V	13.67 V	691.82 V					
09/29/2015 10:05	77.98 V	13.67 V	685.94 V					
09/29/2015 10:06	76.98 V	13.67 V	681.47 V					
09/29/2015 10:07	78.72 V	13.67 V	676.80 V					
09/29/2015 10:08	74.01 V	13.25 V	670.92 V					
09/29/2015 10:09	79.28 V	13.25 V	666.04 V					
09/29/2015 10:10	77.09 V	13.11 V	663.20 V					
09/29/2015 10:11	75.14 V	12.83 V	655.89 V					
Average:	79.72	13.62	686.61					
Maximum:	84.96	14.23	706.44					
Minimum:	74.01	12.83	655.89					

Unit Name: OCSD P2 Unit 1

Report Start Date/Time : Tue 09/29/2015 10:12

Report End Date/Time : Tue 09/29/2015 10:41

DATE/TIME	NOx Raw (ppmvd)	NOx @15%O2 (ppmvd)	NOx Lbs/Hr	O2 (%)	Stack Flow (dscfm)	CO Raw (ppmvd)	CO @15%O2 (ppmvd)	CO Lbs/Hr
09/29/2015 10:12	53.41 V	31.47 V	3.05 V	10.89 V	7969.40 V	483.90 V	285.15 V	16.82 V
09/29/2015 10:13	54.00 V	31.82 V	3.08 V	10.89 V	7945.45 V	483.80 V	285.09 V	16.76 V
09/29/2015 10:14	54.94 V	32.29 V	3.10 V	10.86 V	7878.39 V	482.50 V	283.61 V	16.58 V
09/29/2015 10:15	53.44 V	31.33 V	3.01 V	10.84 V	7850.35 V	479.00 V	280.86 V	16.40 V
09/29/2015 10:16	53.76 V	31.51 V	3.03 V	10.84 V	7860.70 V	481.80 V	282.43 V	16.52 V
09/29/2015 10:17	54.77 V	32.03 V	3.10 V	10.81 V	7904.09 V	482.90 V	282.37 V	16.65 V
09/29/2015 10:18	54.80 V	32.12 V	3.12 V	10.84 V	7933.25 V	483.80 V	283.60 V	16.74 V
09/29/2015 10:19	55.01 V	32.32 V	3.11 V	10.86 V	7896.23 V	479.70 V	281.83 V	16.52 V
09/29/2015 10:20	54.31 V	31.75 V	3.04 V	10.81 V	7810.91 V	479.30 V	280.20 V	16.33 V
09/29/2015 10:21	54.76 V	32.02 V	3.07 V	10.81 V	7808.20 V	484.40 V	283.25 V	16.49 V
09/29/2015 10:22	55.56 V	32.41 V	3.08 V	10.79 V	7725.16 V	481.10 V	280.62 V	16.21 V
09/29/2015 10:23	55.04 V	31.96 V	3.04 V	10.74 V	7704.58 V	478.30 V	277.75 V	16.07 V
09/29/2015 10:24	55.01 V	32.08 V	3.06 V	10.78 V	7768.40 V	482.10 V	281.14 V	16.33 V
09/29/2015 10:25	55.95 V	32.71 V	3.13 V	10.81 V	7796.65 V	483.20 V	282.48 V	16.43 V
09/29/2015 10:26	55.02 V	32.17 V	3.08 V	10.81 V	7798.44 V	481.70 V	281.67 V	16.38 V
09/29/2015 10:27	54.76 V	32.01 V	3.06 V	10.81 V	7794.28 V	488.60 V	285.63 V	16.61 V
09/29/2015 10:28	54.56 V	31.82 V	3.04 V	10.79 V	7764.94 V	481.10 V	280.62 V	16.29 V
09/29/2015 10:29	54.46 V	31.85 V	3.02 V	10.81 V	7741.92 V	489.10 V	286.00 V	16.51 V
09/29/2015 10:30	53.33 V	31.11 V	2.96 V	10.79 V	7734.11 V	486.60 V	283.83 V	16.41 V
09/29/2015 10:31	54.10 V	31.49 V	2.99 V	10.77 V	7702.29 V	486.30 V	283.10 V	16.33 V
09/29/2015 10:32	55.05 V	31.96 V	3.03 V	10.74 V	7662.94 V	480.40 V	278.90 V	16.05 V
09/29/2015 10:33	54.73 V	31.70 V	3.02 V	10.71 V	7703.04 V	484.80 V	280.77 V	16.29 V
09/29/2015 10:34	55.25 V	32.08 V	3.08 V	10.74 V	7780.92 V	482.80 V	280.37 V	16.38 V
09/29/2015 10:35	55.15 V	32.16 V	3.11 V	10.78 V	7855.86 V	482.50 V	281.37 V	16.53 V
09/29/2015 10:36	54.60 V	32.01 V	3.12 V	10.84 V	7956.02 V	483.50 V	283.49 V	16.78 V
09/29/2015 10:37	55.05 V	32.28 V	3.15 V	10.84 V	7975.35 V	483.70 V	283.61 V	16.82 V
09/29/2015 10:38	54.76 V	32.17 V	3.15 V	10.86 V	8016.44 V	485.90 V	285.47 V	16.99 V
09/29/2015 10:39	54.21 V	31.94 V	3.13 V	10.89 V	8041.52 V	482.40 V	284.26 V	16.92 V
09/29/2015 10:40	54.00 V	31.81 V	3.13 V	10.89 V	8073.72 V	484.80 V	285.60 V	17.07 V
09/29/2015 10:41	53.65 V	31.77 V	3.12 V	10.94 V	8099.51 V	482.80 V	285.85 V	17.05 V
Average:	54.58	31.94	3.07	10.82	7851.77	483.09	282.70	16.54
Maximum:	55.95	32.71	3.15	10.94	8099.51	489.10	286.00	17.07
Minimum:	53.33	31.11	2.96	10.71	7662.94	478.30	277.75	16.05

R-6

Unit Name: OCSD P2 Unit 1

Report Start Date/Time : Tue 09/29/2015 10:12

Report End Date/Time : Tue 09/29/2015 11:41

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)
09/29/2015 10:12	74.15 V	12.70 V	654.88 V
09/29/2015 10:13	73.59 V	12.70 V	652.85 V
09/29/2015 10:14	76.44 V	12.56 V	648.99 V
09/29/2015 10:15	71.09 V	12.28 V	648.79 V
09/29/2015 10:16	74.61 V	12.28 V	649.80 V
09/29/2015 10:17	75.43 V	12.83 V	654.27 V
09/29/2015 10:18	74.54 V	12.83 V	655.08 V
09/29/2015 10:19	73.70 V	12.70 V	650.62 V
09/29/2015 10:20	72.15 V	12.56 V	646.96 V
09/29/2015 10:21	74.79 V	12.42 V	646.76 V
09/29/2015 10:22	70.58 V	12.56 V	641.07 V
09/29/2015 10:23	73.61 V	12.28 V	642.70 V
09/29/2015 10:24	72.23 V	12.42 V	645.13 V
09/29/2015 10:25	72.23 V	12.56 V	645.74 V
09/29/2015 10:26	72.05 V	12.28 V	646.15 V
09/29/2015 10:27	72.63 V	12.56 V	645.54 V
09/29/2015 10:28	71.19 V	12.28 V	644.93 V
09/29/2015 10:29	73.25 V	12.56 V	640.87 V
09/29/2015 10:30	71.45 V	12.28 V	642.29 V
09/29/2015 10:31	74.07 V	12.28 V	640.87 V
09/29/2015 10:32	72.70 V	12.28 V	639.25 V
09/29/2015 10:33	74.60 V	12.70 V	643.71 V
09/29/2015 10:34	73.57 V	12.70 V	648.59 V
09/29/2015 10:35	73.54 V	12.28 V	652.85 V
09/29/2015 10:36	74.44 V	12.70 V	657.11 V
09/29/2015 10:37	74.57 V	12.83 V	658.53 V
09/29/2015 10:38	75.19 V	13.11 V	660.16 V
09/29/2015 10:39	75.31 V	12.83 V	660.77 V
09/29/2015 10:40	75.91 V	12.97 V	663.40 V
09/29/2015 10:41	75.68 V	12.83 V	662.39 V
09/29/2015 10:42	74.07 V	13.11 V	660.36 V
09/29/2015 10:43	73.62 V	12.56 V	660.77 V
09/29/2015 10:44	75.99 V	12.83 V	656.71 V
09/29/2015 10:45	71.48 V	12.70 V	656.10 V
09/29/2015 10:46	75.35 V	12.28 V	653.46 V
09/29/2015 10:47	75.86 V	12.56 V	650.62 V
09/29/2015 10:48	76.09 V	12.70 V	657.52 V
09/29/2015 10:49	78.78 V	13.11 V	677.82 V
09/29/2015 10:50	80.94 V	13.67 V	702.18 V
09/29/2015 10:51	84.30 V	14.37 V	713.75 V
09/29/2015 10:52	83.02 V	14.65 V	726.54 V
09/29/2015 10:53	83.47 V	15.07 V	737.70 V
09/29/2015 10:54	86.47 V	15.21 V	739.73 V
09/29/2015 10:55	84.41 V	15.21 V	739.73 V
09/29/2015 10:56	85.55 V	15.21 V	740.54 V
09/29/2015 10:57	90.39 V	15.48 V	752.93 V

Avg. ICE % Load 73.57

Avg. NatGas dscfm 12.56

Avg. Dig Gas dscfm 649.26

Unit Name: OCSD P2 Unit 1

Report Start Date/Time : Tue 09/29/2015 10:58

Report End Date/Time : Tue 09/29/2015 11:27

DATE/TIME	NOx Raw (ppmvd)	NOx @15%O2 (ppmvd)	NOx Lbs/Hr	O2 (%)	Stack Flow (dscfm)	CO Raw (ppmvd)	CO @15%O2 (ppmvd)	CO Lbs/Hr
09/29/2015 10:58	56.09 V	34.27 V	3.91 V	11.24 V	9712.24 V	487.60 V	297.89 V	20.65 V
09/29/2015 10:59	56.91 V	34.71 V	4.05 V	11.23 V	9935.02 V	484.20 V	295.35 V	20.98 V
09/29/2015 11:00	56.77 V	34.95 V	4.11 V	11.32 V	10083.78 V	484.50 V	298.23 V	21.31 V
09/29/2015 11:01	54.91 V	33.82 V	3.98 V	11.32 V	10109.08 V	496.70 V	305.90 V	21.90 V
09/29/2015 11:02	55.22 V	34.01 V	4.05 V	11.32 V	10235.37 V	488.40 V	300.79 V	21.80 V
09/29/2015 11:03	54.59 V	33.90 V	4.03 V	11.40 V	10291.27 V	492.50 V	305.87 V	22.10 V
09/29/2015 11:04	53.10 V	32.97 V	3.93 V	11.40 V	10309.02 V	501.10 V	311.13 V	22.53 V
09/29/2015 11:05	52.01 V	32.47 V	3.83 V	11.45 V	10269.31 V	500.80 V	312.67 V	22.43 V
09/29/2015 11:06	52.40 V	32.54 V	3.84 V	11.40 V	10220.10 V	503.10 V	312.37 V	22.42 V
09/29/2015 11:07	53.16 V	33.01 V	3.90 V	11.40 V	10223.20 V	508.60 V	315.78 V	22.67 V
09/29/2015 11:08	52.93 V	32.88 V	3.85 V	11.40 V	10134.29 V	504.20 V	313.22 V	22.28 V
09/29/2015 11:09	52.10 V	32.44 V	3.76 V	11.43 V	10056.57 V	505.30 V	314.65 V	22.16 V
09/29/2015 11:10	51.17 V	31.87 V	3.69 V	11.43 V	10048.00 V	507.60 V	316.16 V	22.24 V
09/29/2015 11:11	52.48 V	32.50 V	3.79 V	11.37 V	10061.04 V	503.20 V	311.61 V	22.08 V
09/29/2015 11:12	53.06 V	32.86 V	3.87 V	11.37 V	10182.72 V	498.70 V	308.83 V	22.15 V
09/29/2015 11:13	53.67 V	33.33 V	3.95 V	11.40 V	10255.65 V	496.00 V	308.04 V	22.18 V
09/29/2015 11:14	52.96 V	33.07 V	3.90 V	11.45 V	10271.84 V	505.30 V	315.48 V	22.63 V
09/29/2015 11:15	51.87 V	32.39 V	3.78 V	11.45 V	10174.16 V	510.10 V	318.56 V	22.63 V
09/29/2015 11:16	50.73 V	31.68 V	3.66 V	11.45 V	10067.54 V	513.30 V	320.56 V	22.54 V
09/29/2015 11:17	51.86 V	32.20 V	3.73 V	11.40 V	10035.57 V	509.70 V	316.47 V	22.31 V
09/29/2015 11:18	52.21 V	32.43 V	3.80 V	11.40 V	10141.46 V	503.50 V	312.70 V	22.27 V
09/29/2015 11:19	52.04 V	32.31 V	3.83 V	11.40 V	10254.90 V	509.00 V	316.03 V	22.76 V
09/29/2015 11:20	52.88 V	32.83 V	3.96 V	11.40 V	10445.61 V	509.00 V	316.03 V	23.19 V
09/29/2015 11:21	53.10 V	33.15 V	4.01 V	11.45 V	10541.99 V	503.20 V	314.17 V	23.13 V
09/29/2015 11:22	52.10 V	32.53 V	3.94 V	11.45 V	10536.92 V	509.00 V	317.79 V	23.39 V
09/29/2015 11:23	50.85 V	31.93 V	3.88 V	11.50 V	10644.84 V	513.30 V	322.26 V	23.83 V
09/29/2015 11:24	50.99 V	32.11 V	3.91 V	11.53 V	10688.31 V	508.00 V	319.87 V	23.68 V
09/29/2015 11:25	50.19 V	31.60 V	3.84 V	11.53 V	10678.07 V	522.40 V	328.94 V	24.33 V
09/29/2015 11:26	49.69 V	31.11 V	3.78 V	11.48 V	10600.47 V	517.10 V	323.79 V	23.90 V
09/29/2015 11:27	51.14 V	32.02 V	3.86 V	11.48 V	10526.66 V	513.20 V	321.35 V	23.56 V
Average:	52.77	32.80	3.88	11.41	10257.83	503.62	313.08	22.53
Maximum:	56.91	34.95	4.11	11.53	10688.31	522.40	328.94	24.33
Minimum:	49.69	31.11	3.66	11.23	9712.24	484.20	295.35	20.65

R-7

Unit Name: OCSD P2 Unit 1

Report Start Date/Time : Tue 09/29/2015 10:58

Report End Date/Time : Tue 09/29/2015 11:27

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)					
09/29/2015 10:58	84.63 V	15.76 V	768.36 V					
09/29/2015 10:59	95.10 V	16.18 V	787.23 V					
09/29/2015 11:00	90.90 V	16.18 V	791.90 V					
09/29/2015 11:01	94.15 V	16.18 V	793.53 V					
09/29/2015 11:02	94.88 V	16.74 V	802.87 V					
09/29/2015 11:03	96.51 V	16.74 V	800.43 V					
09/29/2015 11:04	94.79 V	16.60 V	802.26 V					
09/29/2015 11:05	94.07 V	16.60 V	794.54 V					
09/29/2015 11:06	98.40 V	16.32 V	795.56 V					
09/29/2015 11:07	97.55 V	16.60 V	795.35 V					
09/29/2015 11:08	89.08 V	16.18 V	788.45 V					
09/29/2015 11:09	88.18 V	16.18 V	780.33 V					
09/29/2015 11:10	92.04 V	15.90 V	779.93 V					
09/29/2015 11:11	96.92 V	16.18 V	785.20 V					
09/29/2015 11:12	90.94 V	16.60 V	794.34 V					
09/29/2015 11:13	97.04 V	16.60 V	797.79 V					
09/29/2015 11:14	96.25 V	16.60 V	794.75 V					
09/29/2015 11:15	91.95 V	16.18 V	787.44 V					
09/29/2015 11:16	91.34 V	16.18 V	778.91 V					
09/29/2015 11:17	91.26 V	16.18 V	780.94 V					
09/29/2015 11:18	93.16 V	16.32 V	789.06 V					
09/29/2015 11:19	92.31 V	16.32 V	798.40 V					
09/29/2015 11:20	98.20 V	17.02 V	812.61 V					
09/29/2015 11:21	92.91 V	17.16 V	815.45 V					
09/29/2015 11:22	98.73 V	17.16 V	815.05 V					
09/29/2015 11:23	98.38 V	17.44 V	818.50 V					
09/29/2015 11:24	98.03 V	17.16 V	819.92 V					
09/29/2015 11:25	98.93 V	17.16 V	819.11 V					
09/29/2015 11:26	91.18 V	17.02 V	817.89 V					
09/29/2015 11:27	98.77 V	17.02 V	812.00 V					
Average:	94.22	16.55	797.27					
Maximum:	98.93	17.44	819.92					
Minimum:	84.63	15.76	768.36					

Almega ENVIRONMENTAL

RATA Report 1

Unit Name: OCSD P2 Unit 1

Report Start Date/Time : Tue 09/29/2015 11:28

Report End Date/Time : Tue 09/29/2015 11:57

DATE/TIME	NOx Raw (ppmvd)	NOx @15%O2 (ppmvd)	NOx Lbs/Hr	O2 (%)	Stack Flow (dscfm)	CO Raw (ppmvd)	CO @15%O2 (ppmvd)	CO Lbs/Hr
09/29/2015 11:28	50.14 V	31.58 V	3.78 V	11.53 V	10506.75 V	513.60 V	323.48 V	23.53 V
09/29/2015 11:29	50.95 V	32.44 V	4.03 V	11.63 V	11041.92 V	509.70 V	324.49 V	24.54 V
09/29/2015 11:30	47.46 V	30.47 V	3.74 V	11.71 V	11003.37 V	532.70 V	342.00 V	25.56 V
09/29/2015 11:31	49.15 V	31.28 V	3.84 V	11.63 V	10897.18 V	521.00 V	331.60 V	24.76 V
09/29/2015 11:32	48.86 V	31.02 V	3.83 V	11.61 V	10927.89 V	522.80 V	331.94 V	24.91 V
09/29/2015 11:33	49.38 V	31.28 V	3.86 V	11.59 V	10906.65 V	514.90 V	326.13 V	24.49 V
09/29/2015 11:34	48.61 V	30.94 V	3.75 V	11.63 V	10752.46 V	526.50 V	335.10 V	24.69 V
09/29/2015 11:35	47.06 V	29.72 V	3.57 V	11.56 V	10566.57 V	531.30 V	335.53 V	24.48 V
09/29/2015 11:36	46.57 V	29.41 V	3.54 V	11.56 V	10605.84 V	523.40 V	330.54 V	24.21 V
09/29/2015 11:37	48.75 V	30.80 V	3.70 V	11.56 V	10590.22 V	518.50 V	327.53 V	23.95 V
09/29/2015 11:38	46.89 V	29.79 V	3.57 V	11.61 V	10625.99 V	522.40 V	331.86 V	24.21 V
09/29/2015 11:39	46.51 V	29.54 V	3.50 V	11.61 V	10502.49 V	533.80 V	339.01 V	24.45 V
09/29/2015 11:40	46.99 V	29.59 V	3.50 V	11.53 V	10372.97 V	524.10 V	330.01 V	23.71 V
09/29/2015 11:41	48.13 V	30.22 V	3.55 V	11.50 V	10292.38 V	522.50 V	328.04 V	23.45 V
09/29/2015 11:42	49.86 V	31.21 V	3.68 V	11.48 V	10301.12 V	511.90 V	320.45 V	23.00 V
09/29/2015 11:43	50.25 V	31.46 V	3.72 V	11.48 V	10335.41 V	519.20 V	325.02 V	23.40 V
09/29/2015 11:44	50.96 V	32.00 V	3.81 V	11.51 V	10414.95 V	515.30 V	323.61 V	23.40 V
09/29/2015 11:45	51.74 V	32.58 V	3.91 V	11.53 V	10549.77 V	518.80 V	326.67 V	23.87 V
09/29/2015 11:46	50.97 V	32.28 V	3.87 V	11.58 V	10599.80 V	512.30 V	324.40 V	23.68 V
09/29/2015 11:47	49.91 V	31.60 V	3.73 V	11.58 V	10433.43 V	526.20 V	333.20 V	23.94 V
09/29/2015 11:48	50.83 V	31.91 V	3.77 V	11.50 V	10353.39 V	515.70 V	323.77 V	23.28 V
09/29/2015 11:49	50.72 V	31.85 V	3.79 V	11.51 V	10415.45 V	511.80 V	321.41 V	23.25 V
09/29/2015 11:50	51.67 V	32.26 V	3.84 V	11.45 V	10374.86 V	514.70 V	321.35 V	23.29 V
09/29/2015 11:51	52.75 V	33.03 V	3.95 V	11.48 V	10439.11 V	511.50 V	320.28 V	23.29 V
09/29/2015 11:52	51.18 V	32.05 V	3.81 V	11.48 V	10393.00 V	515.00 V	322.47 V	23.34 V
09/29/2015 11:53	49.94 V	31.44 V	3.72 V	11.53 V	10383.31 V	514.00 V	323.56 V	23.27 V
09/29/2015 11:54	48.98 V	30.83 V	3.64 V	11.53 V	10363.21 V	515.70 V	324.63 V	23.31 V
09/29/2015 11:55	49.45 V	31.05 V	3.67 V	11.50 V	10350.76 V	519.50 V	326.16 V	23.45 V
09/29/2015 11:56	47.85 V	30.30 V	3.55 V	11.58 V	10338.02 V	521.70 V	330.35 V	23.52 V
09/29/2015 11:57	48.29 V	30.24 V	3.54 V	11.48 V	10217.08 V	517.70 V	324.16 V	23.07 V
Average:	49.36	31.14	3.73	11.55	10528.51	519.27	327.62	23.84
Maximum:	52.75	33.03	4.03	11.71	11041.92	533.80	342.00	25.56
Minimum:	46.51	29.41	3.50	11.45	10217.08	509.70	320.28	23.00

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Unit Name: OCSD P2 Unit 1

Report Start Date/Time : Tue 09/29/2015 11:28

Report End Date/Time : Tue 09/29/2015 11:57

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)					
09/29/2015 11:28	91.00 V	34.60 V	777.08 V					
09/29/2015 11:29	96.38 V	79.52 V	737.50 V					
09/29/2015 11:30	99.30 V	53.99 V	768.56 V					
09/29/2015 11:31	99.00 V	52.31 V	770.39 V					
09/29/2015 11:32	97.89 V	54.96 V	770.59 V					
09/29/2015 11:33	97.43 V	54.96 V	770.99 V					
09/29/2015 11:34	96.28 V	42.41 V	775.05 V					
09/29/2015 11:35	91.80 V	38.78 V	772.82 V					
09/29/2015 11:36	94.67 V	54.13 V	751.10 V					
09/29/2015 11:37	95.93 V	61.38 V	737.91 V					
09/29/2015 11:38	97.00 V	62.22 V	734.66 V					
09/29/2015 11:39	91.22 V	48.83 V	746.84 V					
09/29/2015 11:40	94.02 V	45.62 V	748.87 V					
09/29/2015 11:41	93.43 V	42.27 V	750.29 V					
09/29/2015 11:42	93.31 V	45.06 V	748.87 V					
09/29/2015 11:43	90.01 V	51.89 V	740.54 V					
09/29/2015 11:44	96.14 V	53.43 V	741.76 V					
09/29/2015 11:45	95.90 V	61.94 V	736.48 V					
09/29/2015 11:46	100.19 V	63.61 V	733.03 V					
09/29/2015 11:47	92.50 V	46.59 V	747.45 V					
09/29/2015 11:48	92.95 V	45.90 V	749.27 V					
09/29/2015 11:49	94.94 V	47.43 V	751.51 V					
09/29/2015 11:50	93.21 V	48.55 V	751.30 V					
09/29/2015 11:51	96.95 V	51.48 V	749.27 V					
09/29/2015 11:52	93.17 V	50.08 V	747.85 V					
09/29/2015 11:53	91.47 V	48.27 V	745.62 V					
09/29/2015 11:54	94.83 V	55.94 V	731.61 V					
09/29/2015 11:55	89.93 V	63.33 V	720.85 V					
09/29/2015 11:56	94.93 V	56.50 V	723.90 V					
09/29/2015 11:57	93.07 V	49.94 V	734.05 V					
Average:	94.63	52.20	748.87					
Maximum:	100.19	79.52	777.08					
Minimum:	89.93	34.60	720.85					

Unit Name: OCSD P2 Unit 1

Report Start Date/Time : Tue 09/29/2015 11:58

Report End Date/Time : Tue 09/29/2015 12:27

DATE/TIME	NOx Raw (ppmvd)	NOx @15%O2 (ppmvd)	NOx Lbs/Hr	O2 (%)	Stack Flow (dscfm)	CO Raw (ppmvd)	CO @15%O2 (ppmvd)	CO Lbs/Hr
09/29/2015 11:58	51.00 V	31.94 V	3.77 V	11.48 V	10302.75 V	504.60 V	316.05 V	22.67 V
09/29/2015 11:59	50.18 V	31.50 V	3.74 V	11.50 V	10400.01 V	512.20 V	321.57 V	23.23 V
09/29/2015 12:00	49.65 V	31.36 V	3.71 V	11.56 V	10414.63 V	512.20 V	323.47 V	23.26 V
09/29/2015 12:01	48.63 V	30.61 V	3.63 V	11.53 V	10415.13 V	516.80 V	325.33 V	23.47 V
09/29/2015 12:02	48.50 V	30.54 V	3.65 V	11.53 V	10489.74 V	515.60 V	324.66 V	23.59 V
09/29/2015 12:03	49.25 V	31.35 V	3.76 V	11.63 V	10633.12 V	521.00 V	331.69 V	24.16 V
09/29/2015 12:04	48.76 V	30.87 V	3.67 V	11.58 V	10484.43 V	523.10 V	331.15 V	23.92 V
09/29/2015 12:05	49.62 V	31.33 V	3.71 V	11.56 V	10436.98 V	520.30 V	328.49 V	23.68 V
09/29/2015 12:06	49.83 V	31.29 V	3.71 V	11.50 V	10386.04 V	515.30 V	323.52 V	23.34 V
09/29/2015 12:07	49.45 V	31.15 V	3.68 V	11.53 V	10376.61 V	517.40 V	325.88 V	23.41 V
09/29/2015 12:08	49.31 V	31.04 V	3.65 V	11.53 V	10334.09 V	518.80 V	326.59 V	23.38 V
09/29/2015 12:09	49.97 V	31.37 V	3.69 V	11.50 V	10290.43 V	511.10 V	320.88 V	22.94 V
09/29/2015 12:10	49.49 V	31.17 V	3.68 V	11.53 V	10374.42 V	519.10 V	326.95 V	23.48 V
09/29/2015 12:11	50.60 V	31.87 V	3.75 V	11.53 V	10346.55 V	517.50 V	325.94 V	23.35 V
09/29/2015 12:12	49.65 V	31.27 V	3.68 V	11.53 V	10328.34 V	516.10 V	325.06 V	23.25 V
09/29/2015 12:13	50.22 V	31.54 V	3.70 V	11.51 V	10287.01 V	514.90 V	323.35 V	23.10 V
09/29/2015 12:14	50.35 V	31.71 V	3.72 V	11.53 V	10308.63 V	519.90 V	327.45 V	23.37 V
09/29/2015 12:15	49.15 V	30.86 V	3.60 V	11.50 V	10225.45 V	517.00 V	324.59 V	23.05 V
09/29/2015 12:16	49.15 V	30.87 V	3.60 V	11.51 V	10215.67 V	514.20 V	322.91 V	22.91 V
09/29/2015 12:17	50.04 V	31.17 V	3.70 V	11.43 V	10318.02 V	513.20 V	319.65 V	23.09 V
09/29/2015 12:18	49.76 V	31.43 V	3.77 V	11.56 V	10554.06 V	520.60 V	328.77 V	23.96 V
09/29/2015 12:19	49.18 V	30.96 V	3.73 V	11.53 V	10589.88 V	521.40 V	328.22 V	24.08 V
09/29/2015 12:20	49.42 V	31.11 V	3.78 V	11.53 V	10659.18 V	521.40 V	328.22 V	24.24 V
09/29/2015 12:21	50.21 V	31.71 V	3.90 V	11.56 V	10820.07 V	511.40 V	322.96 V	24.13 V
09/29/2015 12:22	50.04 V	31.59 V	4.00 V	11.56 V	11140.76 V	517.00 V	326.41 V	25.12 V
09/29/2015 12:23	49.73 V	32.15 V	4.06 V	11.78 V	11375.03 V	530.30 V	342.88 V	26.31 V
09/29/2015 12:24	49.34 V	31.68 V	3.93 V	11.71 V	11112.69 V	534.10 V	342.89 V	25.88 V
09/29/2015 12:25	49.35 V	31.74 V	3.88 V	11.73 V	10950.26 V	534.00 V	343.48 V	25.50 V
09/29/2015 12:26	49.90 V	31.94 V	3.85 V	11.68 V	10772.49 V	535.80 V	342.96 V	25.17 V
09/29/2015 12:27	50.12 V	31.99 V	3.89 V	11.66 V	10831.14 V	523.40 V	334.12 V	24.72 V
Average:	49.66	31.37	3.75	11.56	10539.12	518.99	327.87	23.86
Maximum:	51.00	32.15	4.06	11.78	11375.03	535.80	343.48	26.31
Minimum:	48.50	30.54	3.60	11.43	10215.67	504.60	316.05	22.67

R 9

RATA Report 2

Unit Name: OCSD P2 Unit 1

Report Start Date/Time : Tue 09/29/2015 11:58

Report End Date/Time : Tue 09/29/2015 12:27

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)					
09/29/2015 11:58	94.30 V	55.66 V	731.41 V					
09/29/2015 11:59	94.55 V	54.96 V	738.31 V					
09/29/2015 12:00	93.17 V	46.04 V	749.07 V					
09/29/2015 12:01	91.67 V	46.31 V	751.30 V					
09/29/2015 12:02	93.64 V	60.13 V	734.66 V					
09/29/2015 12:03	92.57 V	63.33 V	731.61 V					
09/29/2015 12:04	94.28 V	50.22 V	745.82 V					
09/29/2015 12:05	95.88 V	49.52 V	745.42 V					
09/29/2015 12:06	92.36 V	49.38 V	746.23 V					
09/29/2015 12:07	94.85 V	47.29 V	746.23 V					
09/29/2015 12:08	91.14 V	45.48 V	746.23 V					
09/29/2015 12:09	93.02 V	45.06 V	745.62 V					
09/29/2015 12:10	91.95 V	54.96 V	733.64 V					
09/29/2015 12:11	94.61 V	55.10 V	731.21 V					
09/29/2015 12:12	94.16 V	54.96 V	729.99 V					
09/29/2015 12:13	91.56 V	52.03 V	733.85 V					
09/29/2015 12:14	90.10 V	47.85 V	739.94 V					
09/29/2015 12:15	92.32 V	41.99 V	745.42 V					
09/29/2015 12:16	89.76 V	39.62 V	748.26 V					
09/29/2015 12:17	87.78 V	61.38 V	727.96 V					
09/29/2015 12:18	94.07 V	65.15 V	729.18 V					
09/29/2015 12:19	95.23 V	60.40 V	742.37 V					
09/29/2015 12:20	97.03 V	54.27 V	757.80 V					
09/29/2015 12:21	94.50 V	55.94 V	765.11 V					
09/29/2015 12:22	97.14 V	97.23 V	723.90 V					
09/29/2015 12:23	101.88 V	107.14 V	705.22 V					
09/29/2015 12:24	94.69 V	101.28 V	700.55 V					
09/29/2015 12:25	91.77 V	99.74 V	688.78 V					
09/29/2015 12:26	98.52 V	100.02 V	678.63 V					
09/29/2015 12:27	96.15 V	111.04 V	667.67 V					
Average:	93.82	62.45	732.05					
Maximum:	101.88	111.04	765.11					
Minimum:	87.78	39.62	667.67					

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APPENDIX G

SCAQMD CHECKLIST FOR SOURCE TEST REPORTS

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING FORM
CHECK LIST FOR SOURCE TEST REPORTS

Please check off all the following items to verify that the information is provided in the source test report, and then send the checklist along with the source test report.

[X] Brief description of the equipment tested.

[X] Brief process description, including maximum and normal operating temperatures, pressures, throughput, etc.

[X] Operating conditions under which test was performed.

[X] Process schematic diagram showing the ports and sampling locations, including the dimensions of the ducts/stacks at the sampling locations, along with upstream and downstream locations, and distances of flow disturbances, (e.g. elbows, tees, fans, dampers) from the sampling locations (upstream and downstream).

[X] Field and laboratory data forms, strip charts and analyses.

[X] Brief description of sampling and analytical methods for each gaseous and particulate constituent measured.

[X] Calculations for volumetric flow rates and emission rates.

[X] Description of calibration and quality assurance procedures.

[X] Determination that the testing laboratory qualifies as an "independent testing laboratory" under Rule 304 (no conflict of interest).

SOURCE TEST REPORT

Relative Accuracy Test Audit of a CEMS Serving Internal Combustion Engine No. 2 for NO_X, CO, O_2, and Stack Gas Flow Rates under SCAQMD Rule 218/218.1

Facility ID: 29110

Prepared for:

Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708

Equipment Location:

Treatment Plant No. 2
22212 Brookhurst Avenue
Huntington Beach, CA 92646

Test Date: September 30, 2015

Report Date: October 16, 2015

Project No.: 9849

Prepared by:

Almega Environmental & Technical Services
10602 Walker Street
Cypress, CA 90630

Prepared by & Title:______________________________
Christopher Lovett, Project Manager

Reviewed by & Title: ______________________________
Charles Figueroa, Senior Project Manager

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1.0 EXECUTIVE SUMMARY

Key project information is provided in the summary below. Test results are summarized in Table 1-1.

Customer	Orange County Sanitation District 10844 Ellis Avenue Fountain Valley, CA 92708 Contact: Ms. Randa AbuShaban, tel. (714) 593-7413
Equipment Location	Treatment Plant No. 2 22212 Brookhurst Avenue Huntington Beach, CA 92646
Facility ID	29110
Equipment	Internal Combustion Engine No. 2 (CG2-HB) fired on natural gas and digester gas
Permit Number	Permit G27395, A/N 540709
Test Objective	Relative Accuracy Test Audit (RATA) of a CEMS serving an Internal Combustion Engine for NO_X, CO, O_2 and Stack gas flow rates under SCAQMD Rules 218/218.1
Test Requested by	Ms. Randa AbuShaban of Orange County Sanitation District
Test Date	September 30, 2015
Last Test Date	September 17, 2014
Testing Firm	Almega Environmental & Technical Services 10602 Walker Street Cypress, CA 90630 Contact: Mr. Christopher Lovett, tel. (714) 889-4000
Test Personnel	Tom Tran and Luke Barrow of Almega Environmental & Technical Services
Regulatory Agency	South Coast Air Quality Management District (SCAQMD) 21865 East Copley Drive Diamond Bar, CA 91765-4182 Contact: Eric Padilla, tel. (909) 396-2265
Measurements Stack Gas Parameters CEMS: NO_X, CO, O_2 & CO_2	 SCAQMD Methods 1.1-4.1 SCAQMD Method 100.1

TABLE 1-1. SUMMARY OF RESULTS

Facility:	**OCSD, Plant No. 2**	**Facility ID:**	**29110**
City:	**Huntington Beach, CA**	**Job No.:**	**9849**
Source:	**Engine 2**	**Test Date:**	**09/30/15**
Test:	**RATA**		

PARAMETER	UNIT	AVERAGE RM CEMS	PAGE NO.	AVERAGE FACILITY CEMS	CALC. RA (%)	ALLOWED RA (%)
NOx CONCENTRATION	ppm	34.79	6	36.95	**7.42**	**20%**
NOx CORRECTED CONCENTRATION	ppm@15%O2	23.62	7	24.81	**7.17**	**20%**
NOx MASS EMISSION RATE	lb/hr	2.74	8	2.92	**8.77**	**20%**
CO CONCENTRATION	ppm	599.3	9	647.0	**8.72**	**20%**
CO CORRECTED CONCENTRATION	ppm@15%O2	407.2	10	434.9	**7.39**	**20%**
CO MASS EMISSION RATE	lb/hr	28.72	11	31.23	**12.06**	**20%**
DRY VOLUMETRIC FLOW RATE	dscfh	648,657	12	661,895	**4.44**	**15%**
O2 CONCENTRATION	%	12.20	13	12.11	**1.62**	**10%**

The facility CEMS has to be reassessed annually per Rules 218/218.1.

2.0 INTRODUCTION

Almega Environmental & Technical Services (Almega) was retained by Orange County Sanitation District (OCSD) to conduct stationary source emissions testing on Internal Combustion Engine No. 2 at its Huntington Beach, California wastewater treatment facility (Treatment Plant No. 2). This testing consisted of an annual Relative Accuracy Test Audit (RATA) of the continuous emission monitoring system (CEMS) for oxides of nitrogen (NO_X), carbon monoxide (CO), oxygen (O_2), and stack gas flow rates. The purpose of the test was to demonstrate the CEMS satisfies site specific permit conditions as stipulated in the South Coast Air Quality Management District (SCAQMD) CEMS Certification Test Protocol Evaluation Approval Letter dated April 22, 2009. This RATA meets the CEMS requirements of SCAQMD Rules 1110.2 and 218, as well as the performance specifications of SCAQMD Rule 218.1.

Table 2-1 lists the sampling matrix employed during the test.

TABLE 2-1. SAMPLING MATRIX

Facility CEM System	Sampling Parameters (9 RATA Runs)	Measured Unit	Reference Method	RATA Criterion	Performance Specification
ICE No. 2 (CG2-HB)	NOx Concentrations	ppmv	SCAQMD 100.1	RA $\leq$ 20%	SCAQMD Rule 218/ 218.1
	NOx Corrected Conc.	ppmv@15% O_2	SCAQMD 100.1	RA $\leq$ 20%	
	NOx Mass Emissions	lb/hr	SCAQMD 100.1	RA $\leq$ 20%	
	CO Concentrations	ppmv	SCAQMD 100.1	RA $\leq$ 20%	
	CO Corrected Conc.	ppmv@15% O_2	SCAQMD 100.1	RA $\leq$ 20%	
	CO Mass Emissions	lb/hr	SCAQMD 100.1	RA $\leq$ 20%	
	O_2 Concentrations	%	SCAQMD 100.1	RA $\leq$ 10%	
	Stack Gas Flow Rates	dscfh	SCAQMD 1.1 – 4.1	RA $\leq$ 15%	

On September 30, 2015, Almega performed source testing on Engine No. 2 while the unit was operated under normal operating conditions. Sampling was performed at the exhaust stack. Nine RATA runs, 30 minutes in duration each, were conducted as specified in the reference methods.

2.1 Document Outline

This report is organized as follows. Section 1.0 is a summary of the project and test results. Section 2.0 describes the project, its objectives and approach. Section 3.0 discusses test results. Section 4.0 describes the equipment tested and applicable sampling locations. Section 5.0 describes the sampling and analysis procedures used to conduct the testing. And Section 6.0 describes Quality Assurance and Quality Control activities performed. The Appendices contain test results, calculated data, raw field data, facility process and test data, calibration records, and certification documents.

3.0 TEST RESULTS AND DISCUSSION

The testing was conducted after the arrival of Almega's test personnel and set-up of test equipment. The unit was operated by plant personnel during testing activities. The testing was conducted at normal operating conditions for the process. No unusual operating conditions were noted during the test periods.

3.1 Test Discussion

Test results were summarized in Table 1-1. Detailed test results are shown in Tables 3-1 through Table 3-8 and discussed below.

3.1.1 Relative Accuracy (RA)

The following parameters passed RA performance specifications:

- NOx Concentration (ppmv)
- NOx Concentration (ppmv @ 15% O_2)
- NOx Mass Emission Rate (lb/hr)
- CO Concentration (ppmv)
- CO Concentration (ppmv @ 15% O_2)
- CO Mass Emission Rate (lb/hr)
- Dry Volumetric Flow Rate (dscfh)
- O_2 (%)

3.1.2 Total Runs

- Total runs conducted: 9
- Total runs used: 9

3.1.3 Others

- All measured concentrations were corrected for bias zero and bias calibration drifts according to SCAQMD Method 100.1 (See Appendix D1).

- All instruments performed properly during testing and their performance specifications were within the allowable limits specified in Method 100.1 (See Appendix D1).

- A cyclonic flow check was performed prior to the sampling. No cyclonic flow was observed (See Appendix C2).

- Two conditioners were used for stack cooling purposes. The CEMS conditioner dew point was maintained below 37°F (See Appendix C2).

Testing was performed as specified in the reference methods. No modifications to proposed sampling and analysis procedures other than those noted above were required.

3.2 Test Chronology

Testing for NOx, CO, O_2, CO_2 and Flow Rate was conducted according to the following chronology:

Parameter-Measurement	Test Date & Time
NOx, CO, O_2, CO_2 and Stack Gas Flow Rates	September 30, 2015 (7:34 - 12:35)

TABLE 3-1. RELATIVE ACCURACY SUMMARY: NOx CONCENTRATION

Facility: OCSD, Plant No. 2 — Facility ID: 29110
City: Huntington Beach, CA — Job No.: 9849
Source: Engine 2 — Test Date: 09/30/15
Test: RATA

Run No.	Time (hh:mm)	Reference Method NOx ppm	Reference Method Report Page No.	Facility NOx ppm	Facility Report Page No.	Difference NOx ppm
1	7:34-8:06	34.14	D1-1	37.52	F1-1	-3.38
2	8:07-8:36	34.64	D1-1	36.45	F1-1	-1.81
3	8:37-9:06	35.40	D1-1	37.75	F1-1	-2.35
4	9:21-9:50	35.37	D1-1	37.65	F1-1	-2.28
5	9:51-10:20	33.86	D1-1	36.16	F1-1	-2.30
6	10:21-10:50	33.04	D1-1	34.43	F1-1	-1.39
7	11:06-11:35	35.11	D1-1	37.01	F1-1	-1.90
8	11:36-12:05	36.16	D1-1	38.04	F1-1	-1.88
9	12:06-12:35	35.42	D1-1	37.55	F1-1	-2.13

RM Average	CEMS Average	Difference Average (d)
34.79	36.95	-2.16

Number of Valid Runs (n):	9
Standard Deviation (Sd):	0.550
t-value (0.975):	2.306
Confidence Coefficient (cc):	0.423

Relative Accuracy Test Result: **7.42 % of RM**

<u>SCAQMD RULE 218/218.1 CRITERIA</u>

RATA Allowable Limit **≤ 20.0 % of RM**

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TABLE 3-2. RELATIVE ACCURACY SUMMARY: NOx CORRECTED CONCENTRATION

Facility: OCSD, Plant No. 2 — Facility ID: 29110
City: Huntington Beach, CA — Job No.: 9849
Source: Engine 2 — Test Date: 09/30/15
Test: RATA

		Reference Method		Facility		Difference
Run No.	Time (hh:mm)	NOx ppm@15%O2	Report Page No.	NOx ppm@15%O2	Report Page No.	NOx ppm@15%O2
1	7:34-8:06	22.01	D1-1	24.73	F1-1	-2.72
2	8:07-8:36	22.90	D1-1	24.25	F1-1	-1.35
3	8:37-9:06	23.61	D1-1	25.04	F1-1	-1.43
4	9:21-9:50	23.58	D1-1	24.85	F1-1	-1.27
5	9:51-10:20	22.95	D1-1	24.10	F1-1	-1.15
6	10:21-10:50	22.83	D1-1	23.37	F1-1	-0.54
7	11:06-11:35	24.42	D1-1	25.27	F1-1	-0.85
8	11:36-12:05	25.24	D1-1	25.94	F1-1	-0.70
9	12:06-12:35	25.03	D1-1	25.74	F1-1	-0.71

RM Average	CEMS Average	Difference Average (d)
23.62	24.81	-1.19

Number of Valid Runs (n):	9
Standard Deviation (Sd):	0.656
t-value (0.975):	2.306
Confidence Coefficient (cc):	0.504

Relative Accuracy Test Result: **7.17 % of RM**

SCAQMD RULE 218/218.1 CRITERIA

RATA Allowable Limit **≤ 20.0 % of RM**

TABLE 3-3. RELATIVE ACCURACY SUMMARY: NOx MASS EMISSION RATE

Facility: OCSD, Plant No. 2 — Facility ID: 29110
City: Huntington Beach, CA — Job No.: 9849
Source: Engine 2 — Test Date: 09/30/15
Test: RATA

Run No.	Time (hh:mm)	Reference Method NOx lb/hr	Reference Method Report Page No.	Facility NOx lb/hr	Facility Report Page No.	Difference NOx lb/hr
1	7:34-8:06	2.58	D1-1	2.77	F1-1	-0.185
2	8:07-8:36	2.64	D1-1	2.73	F1-1	-0.095
3	8:37-9:06	2.70	D1-1	2.83	F1-1	-0.132
4	9:21-9:50	2.69	D1-1	2.77	F1-1	-0.085
5	9:51-10:20	2.55	D1-1	2.74	F1-1	-0.185
6	10:21-10:50	2.52	D1-1	2.73	F1-1	-0.214
7	11:06-11:35	2.87	D1-1	3.19	F1-1	-0.319
8	11:36-12:05	3.07	D1-1	3.25	F1-1	-0.182
9	12:06-12:35	3.03	D1-1	3.28	F1-1	-0.252

RM Average	CEMS Average	Difference Average (d)
2.738	2.921	-0.183

Number of Valid Runs (n):	9
Standard Deviation (Sd):	0.074
t-value (0.975):	2.306
Confidence Coefficient (cc):	0.057

Relative Accuracy Test Result: **8.77 % of RM**

SCAQMD RULE 218/218.1 CRITERIA

RATA Allowable Limit **≤ 20.0 % of RM**

TABLE 3-4. RELATIVE ACCURACY SUMMARY: CO CONCENTRATION

Facility: OCSD, Plant No. 2 — Facility ID: 29110
City: Huntington Beach, CA — Job No.: 9849
Source: Engine 2 — Test Date: 09/30/15
Test: RATA

Run No.	Time (hh:mm)	Reference Method CO ppm	Reference Method Report Page No.	Facility CO ppm	Facility Report Page No.	Difference CO ppm
1	7:34-8:06	576.85	D1-1	616.42	F1-1	-39.57
2	8:07-8:36	586.96	D1-1	627.47	F1-1	-40.51
3	8:37-9:06	571.89	D1-1	616.72	F1-1	-44.83
4	9:21-9:50	567.75	D1-1	610.19	F1-1	-42.44
5	9:51-10:20	591.27	D1-1	641.98	F1-1	-50.71
6	10:21-10:50	630.22	D1-1	681.10	F1-1	-50.88
7	11:06-11:35	626.82	D1-1	678.38	F1-1	-51.56
8	11:36-12:05	618.76	D1-1	672.33	F1-1	-53.57
9	12:06-12:35	623.15	D1-1	678.47	F1-1	-55.32

RM Average	CEMS Average	Difference Average (d)
599.30	647.01	-47.71

Number of Valid Runs (n):	9
Standard Deviation (Sd):	5.920
t-value (0.975):	2.306
Confidence Coefficient (cc):	4.550

Relative Accuracy Test Result: **8.72 % of RM**

SCAQMD RULE 218/218.1 CRITERIA: **≤ 20.0 % of RM**

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TABLE 3-5. RELATIVE ACCURACY SUMMARY: CO CORRECTED CONCENTRATION

Facility: OCSD, Plant No. 2 — Facility ID: 29110
City: Huntington Beach, CA — Job No.: 9849
Source: Engine 2 — Test Date: 09/30/15
Test: RATA

		Reference Method		Facility		Difference
Run No.	Time (hh:mm)	CO ppm@15%O2	Report Page No.	CO ppm@15%O2	Report Page No.	CO ppm@15%O2
1	7:34-8:06	371.93	D1-1	406.67	F1-1	-34.74
2	8:07-8:36	388.10	D1-1	417.58	F1-1	-29.48
3	8:37-9:06	381.49	D1-1	409.04	F1-1	-27.55
4	9:21-9:50	378.46	D1-1	402.85	F1-1	-24.39
5	9:51-10:20	400.80	D1-1	428.31	F1-1	-27.51
6	10:21-10:50	435.48	D1-1	462.89	F1-1	-27.41
7	11:06-11:35	436.03	D1-1	463.29	F1-1	-27.26
8	11:36-12:05	431.98	D1-1	458.55	F1-1	-26.57
9	12:06-12:35	440.34	D1-1	465.17	F1-1	-24.83

RM Average	CEMS Average	Difference Average (d)
407.18	434.93	-27.75

Number of Valid Runs (n):	9
Standard Deviation (Sd):	3.032
t-value (0.975):	2.306
Confidence Coefficient (cc):	2.331

Relative Accuracy Test Result: **7.39 % of RM**

SCAQMD RULE 218/218.1 CRITERIA: **≤ 20.0 % of RM**

TABLE 3-6. RELATIVE ACCURACY SUMMARY: CO MASS EMISSION RATE

Facility: OCSD, Plant No. 2 — Facility ID: 29110
City: Huntington Beach, CA — Job No.: 9849
Source: Engine 2 — Test Date: 09/30/15
Test: RATA

Run No.	Time (hh:mm)	Reference Method CO lb/hr	Reference Method Report Page No.	Facility CO lb/hr	Facility Report Page No.	Difference CO lb/hr
1	7:34-8:06	26.588	D1-1	27.770	F1-1	-1.182
2	8:07-8:36	27.182	D1-1	28.600	F1-1	-1.418
3	8:37-9:06	26.534	D1-1	28.120	F1-1	-1.586
4	9:21-9:50	26.236	D1-1	27.280	F1-1	-1.044
5	9:51-10:20	27.156	D1-1	29.710	F1-1	-2.554
6	10:21-10:50	29.219	D1-1	32.930	F1-1	-3.711
7	11:06-11:35	31.204	D1-1	35.610	F1-1	-4.406
8	11:36-12:05	31.957	D1-1	34.940	F1-1	-2.983
9	12:06-12:35	32.430	D1-1	36.080	F1-1	-3.650

RM Average	CEMS Average	Difference Average (d)
28.723	31.227	-2.504

Number of Valid Runs (n):	9
Standard Deviation (Sd):	1.251
t-value (0.975):	2.306
Confidence Coefficient (cc):	0.962

Relative Accuracy Test Result: **12.06 % of RM**

SCAQMD RULE 218/218.1 CRITERIA **≤ 20.0 % of RM**

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TABLE 3-7. RELATIVE ACCURACY SUMMARY: DRY VOLUMETRIC FLOW RATE

Facility: OCSD, Plant No. 2 | Facility ID: 29110
City: Huntington Beach, CA | Job No.: 9657
Source: Engine 2 | Test Date: 09/30/15
Test: RATA

Run No.	Time (hh:mm)	Reference Method Dry Flow dscfh	Reference Method Report Page No.	Facility Dry Flow dscfh	Facility Report Page No.	Difference Dry Flow dscfh
1	7:34-8:06	624,644	D1-1	618,638	F1-1	6,006
2	8:07-8:36	627,611	D1-1	626,982	F1-1	629
3	8:37-9:06	628,778	D1-1	627,201	F1-1	1,577
4	9:21-9:50	626,255	D1-1	614,947	F1-1	11,308
5	9:51-10:20	622,431	D1-1	635,691	F1-1	-13,260
6	10:21-10:50	628,318	D1-1	664,619	F1-1	-36,302
7	11:06-11:35	674,643	D1-1	722,270	F1-1	-47,628
8	11:36-12:05	699,939	D1-1	715,023	F1-1	-15,084
9	12:06-12:35	705,296	D1-1	731,681	F1-1	-26,385
		RM Average		**CEMS Average**		**Difference Average (d)**
		648,657		661,895		-13,238

Number of Valid Runs (n):	9
Standard Deviation (Sd):	20,235
t-value (0.975):	2.306
Confidence Coefficient (cc):	15,554
Relative Accuracy Test Result:	**4.44 % of RM**

SCAQMD RULE 218/218.1 CRITERIA

RATA Allowable Limit **≤ 15.0 % of RM**

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TABLE 3-8. RELATIVE ACCURACY SUMMARY: O2 CONCENTRATION

Facility: OCSD, Plant No. 2 — Facility ID: 29110
City: Huntington Beach, CA — Job No.: 9849
Source: Engine 2 — Test Date: 09/30/15
Test: RATA

Run No.	Time (hh:mm)	Reference Method O2 %	Reference Method Report Page No.	Facility O2 %	Facility Report Page No.	Difference O2 %
1	7:34-8:06	11.75	D1-1	11.95	F1-1	-0.20
2	8:07-8:36	11.98	D1-1	12.03	F1-1	-0.05
3	8:37-9:06	12.06	D1-1	12.00	F1-1	0.06
4	9:21-9:50	12.05	D1-1	11.96	F1-1	0.09
5	9:51-10:20	12.20	D1-1	12.05	F1-1	0.15
6	10:21-10:50	12.36	D1-1	12.21	F1-1	0.15
7	11:06-11:35	12.42	D1-1	12.26	F1-1	0.16
8	11:36-12:05	12.45	D1-1	12.25	F1-1	0.20
9	12:06-12:35	12.55	D1-1	12.29	F1-1	0.26

RM Average	CEMS Average	Difference Average (d)
12.20	12.11	0.090

Number of Valid Runs (n):	9
Standard Deviation (Sd):	0.141
t-value (0.975):	2.306
Confidence Coefficienct (cc):	0.108

Relative Accuracy Test Result: **1.62 % of RM**

SCAQMD RULE 218/218.1 CRITERIA

RATA Allowable Limit **≤ 10.0 % of RM**

4.0 EQUIPMENT AND PROCESS DESCRIPTION

Orange County Sanitation District's wastewater treatment facility in Huntington Beach, California (Treatment Plant No. 2) operates a Central Power Generation System (CGS) to produce electrical power for the plant operations using five large digester gas-fired internal combustion (IC) engines fueled primarily by digester gas (a biogas) and supplemented by small amounts of natural gas. The process description and equipment tested are described below.

4.1 Process Description

Resource Recovery System No. 2 consists of Engine No. 2 (CG2-HB), which is fired on a mixture of digester gas and natural gas, driving a 3000 kW electrical generator, with an exhaust Heat Recovery Steam Generator (HRSG) rated at 6,010,200 Btu/hr capacity. An extractive continuous emissions monitoring system (CEMS) monitors the engine exhaust.

4.1.1 Facility Continuous Emission Monitoring System, CEMS

The CEMS is used to monitor stack gas concentrations for oxides of nitrogen (NO_X), carbon monoxide (CO) and oxygen (O_2). A continuous gas sample is extracted from the stack through a stainless steel probe, transported via a heated sample line to a conditioning system and analyzed by various parameter-specific analyzers. The CEMS includes the following analyzers:

TABLE 4-1. FACILITY CEMS UNIT ANALYZERS

Source	Parameter	Manufacturer	Model Number	Method of Detection	Analytical Range
ICE No. 2 (CG2-HB)	NOx ppmv	Thermo	42i-LS	Chemiluminescent	0-100 ppm
	O_2 %	Thermo	42i-LS	Paramagnetic	0-25%
	CO ppmv	Thermo	48i	Gas Filter Correlation	0-1000 ppm

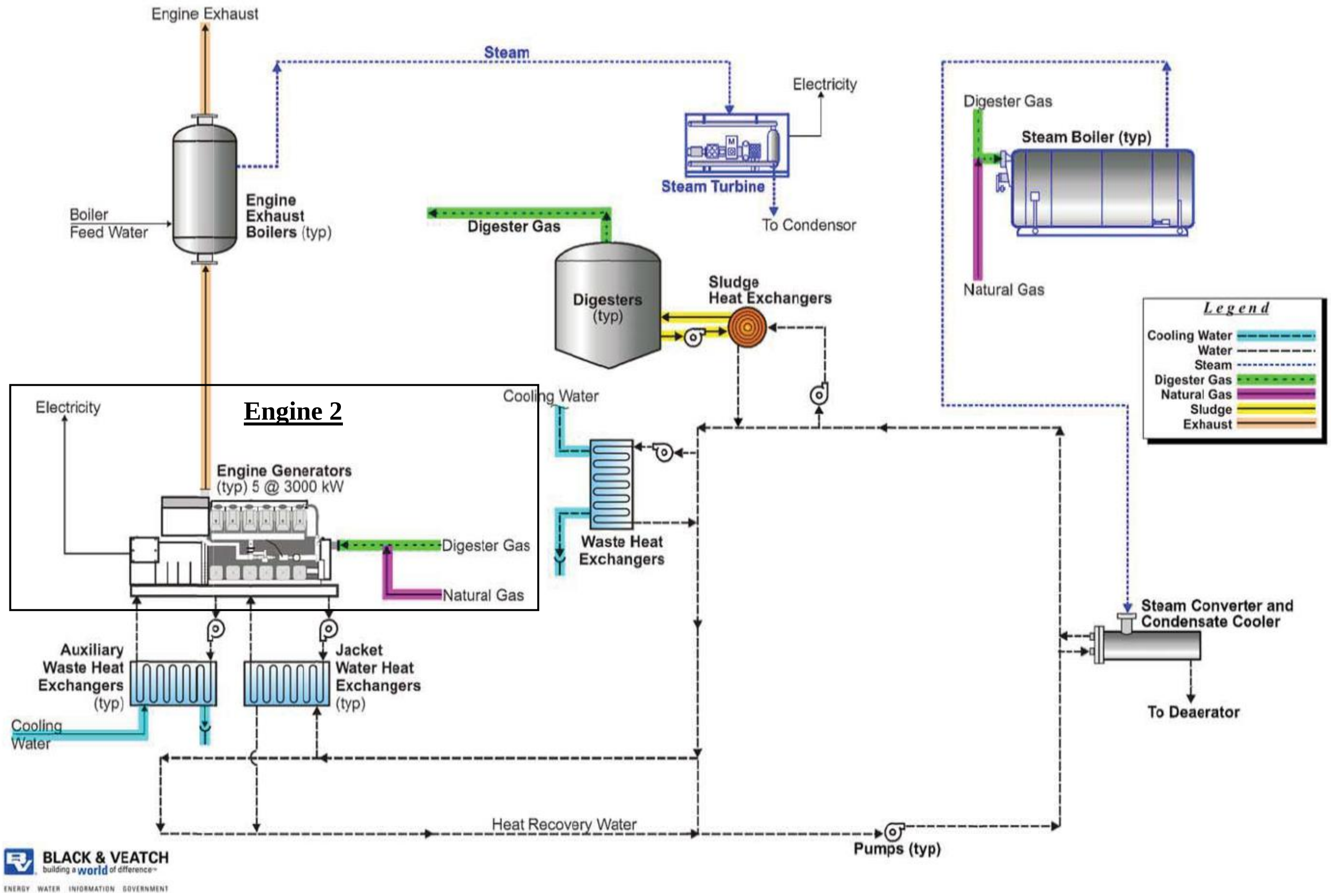
The CEMS utilizes an electronic data acquisition system (DAS) to monitor, record and report emissions data. The CEMS operation, including periodic calibration checks, is controlled electronically.

4.2 Equipment Description

The CEMS is installed on a Cooper Bessemer Model No. LSVB-16-SGC internal combustion engine, Engine No. 2, which is a four-stroke, 4166 HP, turbocharged, spark-ignited unit, utilizing pre-combustion chambers to minimize NOx emissions. The engine is directly coupled to a synchronous generator rated at 3000 kW.

A schematic of the Treatment Plant No. 2 Resource Recovery System is shown in Figure 4-1.

Figure 4-1. Treatment Plant No. 2 – Process Diagram



4.3 Operating Conditions During Test

During RATA testing, the engine was operated at normal load while burning primarily digester gas fuel and supplemented with natural gas. The following operating parameters were observed during the test period. Supporting documentation of process conditions during the testing can be found in Appendix F.

Average Engine Operating Parameters During Testing		
Engine Load	91.8	%
Natural Gas Usage	74.0	dscf/min
Digester Gas Usage	701.0	dscf/min

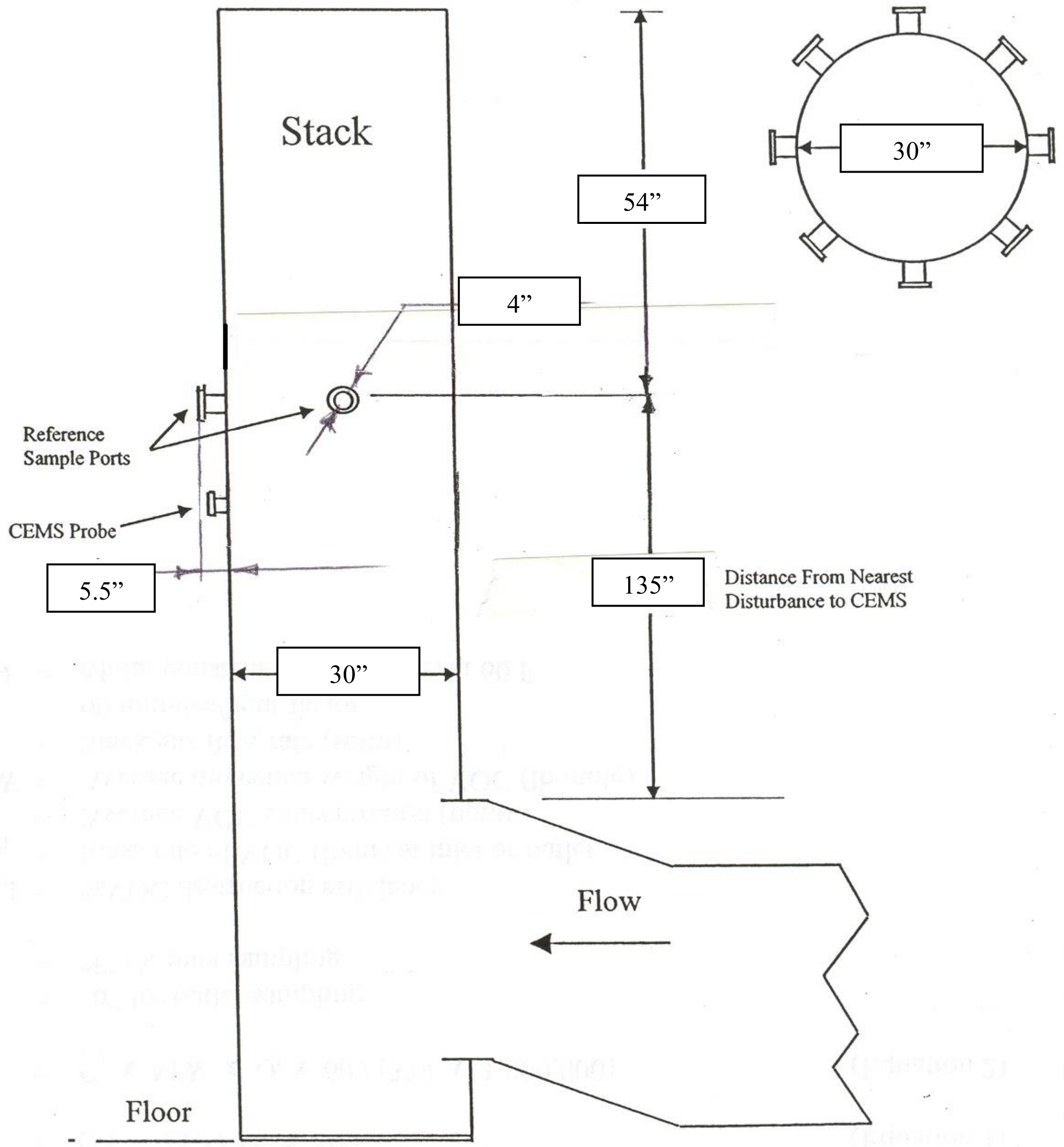
4.4 Sampling Locations

The reference method sampling locations are located on the exhaust stack. A schematic of the stack with sampling locations is shown in Figure 4-2. The reference method sampling locations meet the following specifications:

Sampling Location Configuration for Reference Method CEMS Probe:	
Upstream	135 in. (4.5 duct diameters)
Downstream	54 in. (1.8 duct diameters)
Port Length	5.5 in. (measured from outside wall)
Port Inside Diameter	4 in.
Number of Sampling ports	2 (located at 90° intervals)
Stack Diameter	30 in. (internal diameter)

The sampling location complies with the requirements of SCAQMD Method 1.1.

Figure 4-2. Stack Schematic



5.0 SAMPLING AND ANALYTICAL PROCEDURES

Test measurements were performed according to sampling and analysis procedures promulgated by the South Coast Air Quality Management District (SCAQMD), California Air Resources Board (CARB), or US Environmental Protection Agency (EPA). The sampling and analysis procedures used for this test program are summarized below. Any modifications or deviations not addressed herein are discussed in Section 3 of this report.

5.1 SCAQMD Methods 1.1-4.1 – Determination of Stack Gas Volumetric Flow Rate, Molecular Weight, and Moisture Content

The flue gas flow characteristics (i.e. flow rate, molecular weight, and moisture content) were determined according to SCAQMD Methods 1.1 through 4.1. The testing was conducted as follows:

5.1.1 SAMPLING AND VELOCITY TRAVERSE POINTS

The number and location of traverse points are determined according to SCAQMD Method 1 based on the physical dimensions of the sampling location and process parameters. In principle, the stack cross-section is divided into equal areas, each of which is represented by a “traverse point.” Generally, the number of traverse points diminishes as the flow profile at the sampling location becomes uniform. In most cases, the maximum number of sampling points is 24 for particulate testing and 16 for velocity traverses. Fewer traverse points are permitted as described in the method.

5.1.2 STACK GAS VELOCITY AND FLOW RATE

The velocity and volumetric flow rate of the stack gas was determined according to SCAQMD Method 2. In this method, the velocity head (differential pressure) and temperature are measured at the required traverse points. The stack gas differential pressure head was determined using an “S” type pitot tube and electronic micromanometer. The temperature was measured using a type “K” thermocouple and digital temperature readout.

Prior to testing, the measurement system was set-up and leak-checked. Then the velocity head and temperature are recorded at predetermined traverse points. After the last traverse was completed, the system was again leak-checked. After completion of the traverse, the static pressure in the stack was determined in the centroid of the stack. The stack gas velocity was calculated using the velocity head, and stack gas temperature, pressure and molecular weight.

QA/QC for the method included field performance checks, and periodic calibrations of test equipment including the pitot tube, differential pressure gauge, thermocouple (Tc) and Tc-readout.

5.1.3 STACK GAS MOLECULAR WEIGHT

The stack gas molecular weight (MW) was calculated based on the fraction of its major constituents including: oxygen (O_2), carbon dioxide, (CO_2), nitrogen (N_2), carbon monoxide (CO), and water (H_2O). The dry MW was calculated based on the partial fractions of O_2, CO_2, N_2, and CO. Specifically, the O_2 and CO_2 fractions were determined by CEMS, integrated sampling, or grab sampling, and the balance was assumed to be N_2 and CO. The wet MW was calculated based on the fractions of dry gas and water vapor. The dry and wet MW were calculated according to the following equations:

$$MW_{DRY} = 0.32 \times \%O_2 + 0.44 \times \%CO_2 + 0.28 \times (\%N_2 + \%CO)$$

$$MW_{WET} = 0.18 \times \%H_2O + MW_{DRY} \times (1 - \%H_2O/100)$$

where:
- MW_{DRY} = stack gas molecular weight, dry-basis
- MW_{WET} = stack gas molecular weight, wet-basis
- 0.32 = molecular weight fraction for O_2
- 0.44 = molecular weight fraction for CO_2
- 0.28 = molecular weight fraction for N_2 and CO
- 0.18 = molecular weight fraction for H_2O (water vapor)
- %X = fraction of X in stack gas, dry basis, where X = O_2, CO_2, N_2, CO
- $\%H_2O$ = fraction of water vapor in stack gas, wet-basis

5.1.4 SCAQMD METHOD 4.1- STACK GAS MOISTURE CONTENT

The stack gas moisture content was determined according to SCAQMD Method 4.1. In this method, water vapor is collected in a condenser while the dry stack gas volume is measured using a dry gas meter. The volume of water vapor was calculated from the amount of water condensed and the total gas volume was the sum of water vapor plus dry stack gas. The moisture content was determined as a fraction of the total wet stack gas volume. The following calculations were used.

$$B_{WS} = \frac{V_{W,Std}}{V_{M,Std} + V_{W,Std}}$$

$$V_{W,Std} = K_1 \times V_{H2O}$$

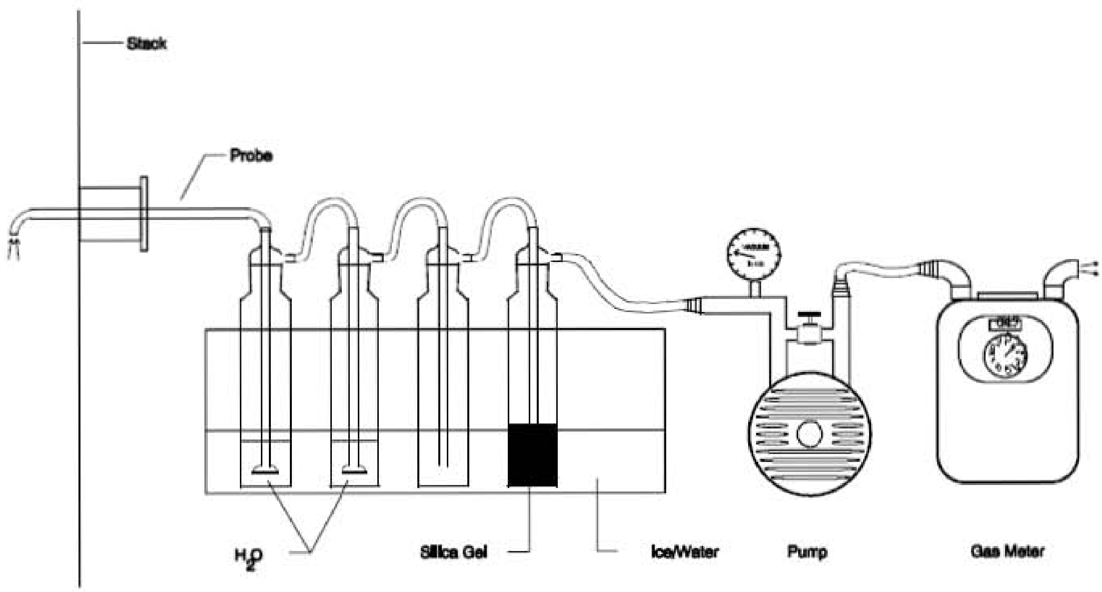
$$V_{M,Std} = T_{Std}/P_{Std} \times Y_M \times V_M \times P_M/T_M$$

where: B_{WS} = Fraction of water vapor in stack gas
$V_{W,Std}$ = Volume of water vapor (scf)
$V_{M,Std}$ = Volume of stack gas sampled (dscf)
K_1 = Unit volume of water vapor (0.04707 scf @68°F or 0.0464 scf @60°F)
T_{Std} = Standard Temperature (528°R or 520°R)
P_{Std} = Standard Pressure, 29.92 in. Hg
Y_M = Dry gas meter calibration factor
V_M = Measured volume of stack gas sampled
P_M = Dry gas meter pressure (in. Hg)
T_M = Dry gas meter temperature (°R)

Sampling for moisture content was performed as follows:

Moisture was collected in a sampling train consisting of a probe, TFE line, four impingers in an ice bath, a leak-free pump, a vacuum gauge and a dry gas meter. Figure 5-1 is a schematic of a typical moisture train. Initially, impingers #1 and #2 contain 100 ml of water, impinger #3 was empty, and impinger #4 contains a known amount (approximately 300 g) of desiccant (e.g. Silica Gel). Prior to sampling, a leak check of the sampling train was performed. Then, the sampling probe was inserted into the centroid of the stack, the initial meter readings (volume, temperatures, etc.) are recorded, the sample pump was started and the sampling rate was adjusted to the desired sampling rate (typically 0.75 dry cfm). Sampling was conducted until at least 63 dry cubic feet were collected per 90-minute moisture run (3 RATA runs). After sampling, the final meter readings were recorded and the impinger train was recovered. The change in volume and/or weight of the impinger train components was used to determine the amount of moisture condensed. The volume of water vapor and the corrected volume of dry gas sampled were used to calculate the moisture fraction as described above.

Figure 5-1. Moisture Train



5.2 SCAQMD Method 100.1 - Continuous Monitoring of Gaseous Emissions, CEMS

In this method, gaseous components of the stack gas (e.g. NO_X, SO_2, O_2, CO_2, CO) are measured continuously according to SCAQMD Method 100.1 using Almega's mobile continuous emissions monitoring system (CEMS). Figure 5-2 is a schematic of Almega's CEMS.

The CEMS extracts and conditions a representative stack gas sample and analyzes the gas using one or more analytical instruments. Typical CEMS instrumentation is described in Table 5-1. The extraction and conditioning system consists of a stainless steel heated probe, a short heated TFE sample line, a conditioning system, a TFE-diaphragm pump and a TFE transport (sample) line. The sample conditioning system, consisting of water knockout impingers and/or a thermoelectric condenser, removes moisture before the gas is delivered to the analyzers. Sample flow and delivery are controlled using a flow control panel that includes valves, pressure gauges, and flow meters (rotameters). The flow control panel allows the user to deliver sample gas to any and all instruments. Instrument readings are recorded using a real-time strip chart and an electronic data acquisition system (DAS). Other pertinent data such as calibration gas cylinder numbers and concentrations, test location, dates, times, and operator identification are also recorded on the strip chart and on the field data form.

Sampling included pretest and post-test calibration and bias checks for each sampling run. Raw concentration data were corrected for sampling system bias according to Method 100.1 using the following equation:

$$C_{CORR} = C_{MA} \times \frac{(C_i - BIAS_{ZERO})}{(BIAS_{SPAN} - BIAS_{ZERO})}$$

Where:
C_{CORR} = Concentration, corrected for drift and bias
C_i = Average measured concentration (raw value)
$BIAS_{ZERO}$ = Average instrument response during zero bias check
C_{MA} = Certified concentration of applicable span gas
$BIAS_{SPAN}$ = Average instrument response during span bias check

The following QA/QC activities were performed during testing.

- Prior to testing, each individual analyzer was calibrated (adjusted) by introducing zero, high-span and mid-span gases directly into each analyzer and by making corresponding adjustments.

- Prior to testing, calibration error, linearity and system bias checks were performed on each analyzer. Calibration error and linearity checks were performed by injecting known calibration gases directly to each instrument. System bias checks were performed by injecting calibration gases at the sampling-probe/junction or at the sampling probe tip.

- The system response time for each parameter was determined at the moment when the calibration gas for the bias check reaches 95% of its expected concentration value.

- A leak check was conducted before sampling and periodically thereafter to ensure that no leakage occurs in the entire sampling apparatus. The leak check was performed on the vacuum side by sealing the probe tip and drawing vacuum to above 20 inches of mercury. After the vacuum stabilizes, it should hold constantly at about 20 in Hg with no loss of greater than 1 in Hg for about to 5 minutes. On the pressure side, the pressure gauge indicator should drop to zero and flow to each individual rotameter also should drop to zero to indicate a successful leak check.

- Calibration gases used to span instrumentation conform to EPA Protocol 1. Certificates of analysis for calibration gases are included in the report (See Appendix E2).

- The NO_2-to-NO conversion efficiency (CE) check was performed on the NOx analyzer according to the procedure specified in Method 100.1. The result of the CE check is included in the report (See Appendix E3).

Figure 5-2. Continuous Emissions Monitoring System

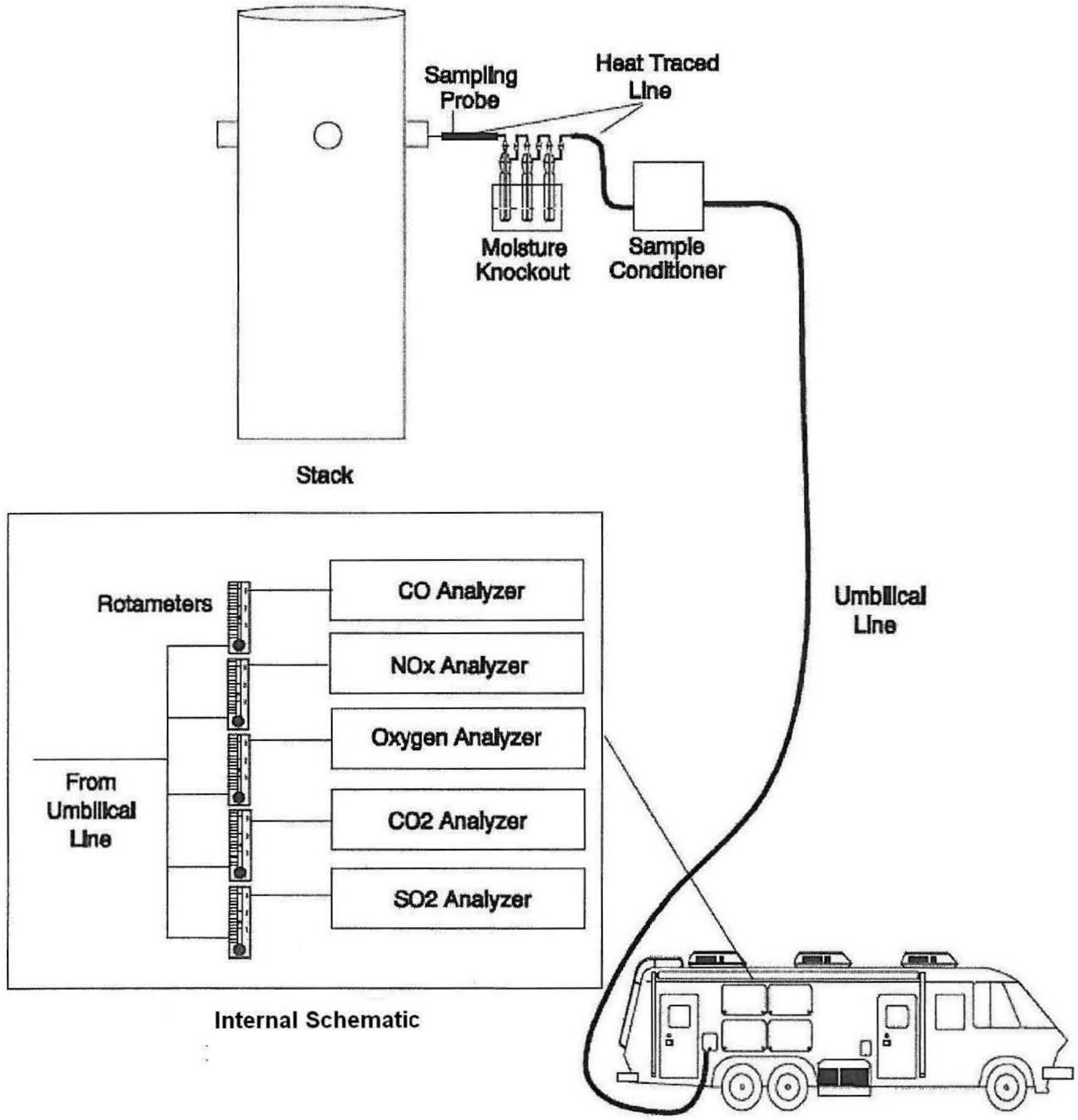


TABLE 5-1. ALMEGA CEMS – GENERAL EQUIPMENT SPECIFICATIONS

ANALYZERS

Specification	O2	CO2	NOx	CO	SO2
Manufacturer	Teledyne	Servomex	T-API	Thermo Electron	Western Research
Model	326RA	1400B	200AH	48C	921
Analytical Principle	E-Chemical Cell	NDIR	Chemiluminescent	NDIR-GCC	NDUV
Ranges	%: 0-5, -10, -25	%: 0-5, -10, -20	ppmv: 0-2.5, -10, -25, -50, -100, -250, -1,000	ppmv: 0-20, -50, -100, -200, -500, -1k, x10	ppmv: 0-10, -25, -50, -100, -200, -300
Accuracy, % of Full Scale	± 1%	± 1%	± 1%	± 1%	+ 0.5%
Repeatability, % of Full Scale	0.5%	0.5%	0.5%	0.5%	0.5%
Sensitivity, % of Full Scale	0.5%	0.5%	0.5%	0.5%	<2% of Range
Zero/Span Drift, % of Full Scale	± 1%, in 24 Hrs	± 1%, in 24 Hrs	± 1%, in 24 Hrs	± 1%, in 24 Hrs	-
Response Time	3 Seconds	<2 Seconds	1.7 Seconds	<2.0 Seconds	30 seconds
Linearity, % of Full Scale	< 1%	< 1%	< 1%	< 1%	< 1%
Output	1V DC, 5V DC	0.1V DC, 1V DC	1V DC, 10V DC	1V DC, 10V DC	0-1V DC

OTHER CEMS EQUIPMENT

Specification	Sample Conditioner		Stripchart Recorder	
System used	Primary	Back-up	System used	Primary
Manufacturer	Almega	Universal	Manufacturer	Yokogawa
Model	(in-house)	Model 1090	Model	Model HR 2400
Principle	Refrigeration	Refrigeration	Pen Response	3 sec.
Max. Inlet Temperature	>700 F	500 F	Input Voltage	user-selectable
Max. Inlet Pressure	50 psi	50 psi	Chart Speed	user-selectable
Max. Flow Rate	10 SCFH	7.0 Lpm	Chart Width	10 inches
Max. Water Concentration	50%	50%	Output	user-selectable
Outlet Dew-Point Temperature	< 37 F	35 F ± 2 F	No. of Channels	30 user-select. 30 calc'd
Dew-Point Stability		± 0.5 F	Colors	10 color, user-selectable

6.0 QUALITY ASSURANCE AND QUALITY CONTROL

Almega applies stringent quality assurance and quality control (QA/QC) procedures to ensure the validity of measurements for all test methods. The following section discusses general and project-specific QA/QC measures.

6.1 General QA/QC

Almega's QA/QC procedures follow guidelines from the “Quality Assurance Handbook for Air Pollution Measurement Systems,” Volumes I through III. And, procedures for pretest preparation and calibration of sampling equipment are followed. Standardized written procedures, calculator programs, and computer spreadsheets are used for test planning, pre-survey, equipment checklist, preliminary calculations, testing, data analysis, and reporting. Typical pretest equipment preparation and maintenance include organization of the following equipment prior to testing:

- Mobile RM CEM test van: Check fluids, fuel, mechanical conditions, verify operation of CEM instruments, sample lines and sample conditioner prior to the date of the source test.

- Sampling Equipment: Check meter boxes, pitot tubes, manometers and thermocouples to ensure in good working conditions and in proper calibrations. Pre-clean sampling trains and seal all openings prior to use.

Calibrations are performed in accordance with Chapter III of the SCAQMD Source Test Manual (March 1989). Table 6-1 shows the test equipment calibration schedules. Table 6-2 shows the test equipment maintenance schedules.

6.2 Project-Specific QA/QC

This project included specific QA/QC activities required to validate the test results. These QA/QC activities are based on the test methods discussed in Section 5 and generally acceptable test procedures. Reference Methods used for source testing are promulgated by the South Coast Air Quality Management District (SCAQMD), the California Air Resource Board (CARB), or the US Environmental Protection Agency (EPA). Any deviations from published Methods are approved in advance by the regulatory agency (i.e. SCAQMD), prior to implementation if possible. Project-specific QA/QC activities and results that may impact test results are discussed in Section 3.

TABLE 6-1. TEST EQUIPMENT CALIBRATION SCHEDULE

Equipment	Calibration Period	Standard or Method of Calibration
Thermocouples	6 Months and 2 Months	Mercury Thermometer, three point (ice, boiling water, hot oil)
Dry Gas Meters	6 Months and 2 Months	Critical orifice
Field Barometers	6 Months, Check prior to usage	Mercury Barometer
S-Type Pitot	6 Months Check prior to usage	EPA Method 2, Measure physical configuration. Reshape pitot tips or calibrate if configuration does not meet the limits.
Pressure gauges	6 Months	Five-point calibration against manometer
	2 Months	Three-point check
Temp. Meters	6 Months	Precision Potentiometer
CEM Systems	Bimonthly, or as needed	Specified by Manufacturer

TABLE 6-2. TEST EQUIPMENT MAINTENANCE

Equipment	Check For	Correction	Frequency
CEM Systems	Absence of malfunction, noise, drift, conversion efficiency for NOx analyzer	As required by the manufacture, or depending on performance	Bimonthly
Pumps	Absence of leakage, flow, proper vacuum	Replace parts, inspect, clean	300 hours of usage
Flow Devices	Levelling, zeroing, obstruction, deformation	Clean, replace, or re-calibrate	300 hours of usage
Calibration Gases	Expiration date, tank pressure	Re-certify, order new gases	2 months and prior to field testing
Regulators	Malfunction, Gauge precision	Repair or replace	3 months and prior to field testing
Gas Divider	Malfunction, precision	Repair or replace	Monthly and before field testing
Condensers	Leakage, temperature	Repair or replace	Monthly and before field testing
Heated lines	Leakage, temperature, cleanliness	Repair, replace, clean	Monthly and before field testing

APPENDICES

APPENDIX A

GENERAL CALCULATIONS AND FORMULAE

GENERAL CALCULATIONS

Standard conditions: 29.92 in. Hg, 60 °F

Gas Moisture at standard conditions (scf): $V_{WTR} = K2*V_{COND}$
$K2 = 0.04707$ @ 68 °F, 0.0464 @ 60 °F

Sample volume at standard conditions (scf):
Vmstd =K1*Vmacf*Ym*(Pbar+dH/13.6)/(Tm+460)
K1 = 17.64 @ 68 °F, 17.38 @ 60 °F

Percent of water: $\%H_2O = 100*Vmstd/(Vmstd+Vwtr)$

Dry molecular weight: $M_d = (44*\%CO_2+32*\%O_2+28*(\%N_2+\%CO))/100$

Wet molecular weight: $M_w = M_d*(1-\%H_2O/100)+18*(\%H_2O/100)$

Stack gas pressure (In. Hg): $P_{stk} = P_{bar}+P_{sta}/13.6$

Average velocity head: Ave. dP = $\{SQRT (dP)\}^2$

Stack gas velocity (fps): $V = 85.49*C_p*SQRT(dP)*SQRT((T_S+460)/(P_{STK}*M_w))$

Percent of excess air: $\%EXCA = 100*(\%O_2-0.5\%CO)/(0.264(\%N_2-(\%O_2-0.5\%CO)))$

Stack gas flow (dscfm): $Q_{STK} = 60(1-\%H_2O/100)*V*A*(528/(T_s+460))*P_{stk}/29.92$

Concentration at 3% O_2: PPM @ 3% O_2 = $PPM_{measured}*17.9/(20.9-\%O_2)$

Emissions lb/MMBtu:

lb/MMBtu = lb/hr /HI (heat input rate in MMBtu/hr)

Emissions lb/hr:
lb/hr = PPM*10^{-6}*((MW lb/lb-mole)/SV)*dscfm *60
MMBtu/hr = facility fuel usage (scfh)*HHV (1050 Btu/scf)* 10^{-6}

CALCULATIONS FOR METHOD 100.1:

Corrected PPM = $(PPM_{measured}-C_o)*C_{ma}/(C_m-C_o)$

Where: C_o = Average of initial and final bias zeros
C_m = Average of initial and final bias calibrations
C_{ma} = Certified gas value used for the bias calibration.

GENERAL CALCULATIONS – continued

CALCULATIONS FOR METHOD 100.1, continued

Calibration Error=	100*(Certified value-Analyzer response)/Analyzer range
Percent Bias=	100*(Direct Analyzer response-Bias response)/Analyzer range
System Zero/Span Drifts=	100*(Final-Initial)/Analyzer range
Linearity=	100*(Analyzer mid. gas response-Predicted value)/range

Where the Predictive Value for the mid gas is found by a straight line drawn between the span gas and zero gas calibration points which can be calculated from the straight line equation, Y=mx+b where m is the slope of the line and b is the Y-intercept. The calculation is done by a computer spreadsheet for Method 100.1.

DEFINITIONS

A:	Stack cross area, square feet
Cp:	Pitot coefficient
@H:	Orifice pressure, in. H_2O
MW:	Molecular weight
Md:	Dry molecular weight of flue gas
Mw:	Wet molecular weight of flue gas
Pbar:	Barometric pressure, in. Hg
Psta:	Static pressure, in. H_2O
Pstk:	Stack pressure, in. Hg
P:	Stack differential pressure, in. H_2O
Qstk:	Stack gas flow, scfm
Tm:	Meter temperature, °F
Ts:	Stack gas temperature, °F
Vcond:	Volume of water condensation, ml
Vm:	Meter volume, acf
Vmstd:	Sample gas at standard conditions, scf
Vwtr:	Water vapor volume, scf
Ym:	Meter correction factor
SV:	Specific molar volume, 379.5 dscf/lb-mole at 60°F, or 385.3 dscf/lb-mole at 68°F
FF:	Fuel flow rate (scf/hr)
Fd:	Dry fuel factor, for natural gas Fd=8710 dscf/MMBtu at 68°F

APPENDIX B

APPROVALS AND CERTIFICATIONS

Appendix B1

SCAQMD and CARB Testing Approvals

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

Almega
ENVIRONMENTAL
JUN 15 2015
Almega

June 10, 2015

Mr. John W. Phillips
Almega Environmental
10602 Walker Street
Cypress, CA 90630

Subject: LAP Approval Notice
Reference # 93LA0827

Dear Mr. Phillips:

We completed our review of the renewal application you submitted for approval 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 June 30, 2015, and ending June 30, 2016 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 Method 7.1
SCAQMD Method 10.1	SCAQMD Rule 1121/ 1146.2 Protocols
SCAQMD Method 100.1	SCAQMD Rule 1420/1420.1 – (Lead) Source Sampling
SCAQMD Method 25.1 (Sampling)	SCAQMD Rule 1420/1420.1 – (Lead) Ambient Sampling
SCAQMD Method 25.1 (Analysis)	SCAQMD Rule 462 Testing
SCAQMD Method 25.3 (Analysis)	ASTM D6522-00/ USEPA CTM-030
SCAQMD Methods 5.1 and 6.1	

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,

Rudy Eden

Rudy Eden, Senior Manager
Laboratory Services &
Source Test Engineering

RE:GK/gk

cc: Dipankar Sarkar

150610 LapRenewal.doc

ATTACHMENT

Conditions For Almega Environmental's LAP Approval

1) Almega shall adhere to the following requirements when conducting portable analyzer tests using CTM-030 or ASTM D6522:

   a) Deviations to CTM-030 or ASTM D6522 shall be documented in the Test Critique section of the test report;

   b) The test report shall be formatted and organized in a manner consistent with the example portable analyzer test report, dated September 24, 2011, and the District Source Test Manual, Chapter II; and,

   c) NO_2 measurements may be quantified to 10% of the NO_2 span under the following conditions:

      - Calibrations shall be conducted per Sections 7.3 and 7.6 of CTM-030 at the span, mid-span (40-60% of span), low-span (10% of span), and zero level. The low-span calibration shall satisfy the requirements in Section 4.2 of CTM-030;
      - A linearity check shall be conducted once every five days using the low-span calibration gas; and,
      - If the measured NO_2 emission is less than 10% of the NO_2 span, it shall be reported as less than 10% of the span, and added to the NO emission to determine the total NOx concentration.

State of California

Air Resources Board

Approved Independent Contractor

Almega Environmental & Technical Services

This is to certify that the company listed above has been approved by the Air Resources Board to conduct compliance testing pursuant to California Code of Regulations, Title 17, Section 91207, until June 30, 2016, for those test methods listed below:

ARB Source Test Methods:
1, 2, 3, 4, 5, 8
100 (CO, CO_2, NO_X, O_2, SO_2)

Dr. Michael T. Benjamin, Chief
Monitoring and Laboratory Division

State of California

Air Resources Board

Approved Independent Contractor

Almega Environmental & Technical Services

This is to certify that the company listed above has been approved by the Air Resources Board to conduct compliance testing pursuant to California Code of Regulations, Title 17, Section 91207, until June 30, 2010, for the test method listed below:

Visible Emissions Evaluation

Dr. Michael T. Benjamin, Chief
Monitoring and Laboratory Division

Appendix B2

Certification of No Conflict-of-Interest

Certification of No Conflict-of-Interest

Almega Environmental & Technical Services
10602 Walker Street
Cypress, CA 90630

I certify that I am responsible for the testing operations of Almega and am authorized to sign this certificate on the Company's behalf.

Almega may conduct tests as an independent tester pursuant to SCAQMD Rule 304(k). I further certify that Almega has no conflict-of-interests, and is not owned by or related in any way to the company being tested.

Company being tested:	Orange County Sanitation District
Facility ID No.:	29110
Permit No.:	Permit G27395, A/N 540709
Signature:	
Name (printed or typed):	Christopher Lovett
Title:	Project Manager
Date:	10/15/15

Appendix B3

Non-RECLAIM CEMS Final Certification

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

Almega ENVIRONMENTAL

January 14, 2010
S/T File:C06036
(Final Certification)

Terry Ahn
Orange County Sanitation District
P.O. Box 8127
Fountain Valley, CA 92728-8127

Subject: **Final Certification of Non-RECLAIM CEMS Serving IC Engine Unit 2 CG2-HB (A/N 414654)**

Dear Ms. Terry Ahn:

I have completed the evaluation of your certification report (please refer to the accompanying attachments for specific information and conditions). The evaluation was made to determine if final certification could be granted based on the monitoring requirements of the applicable protocols found in District Rules 218 and 218.1, and EPA 40CFR60 APPENDICES B and F.

This letter serves as an official notification of final certification for the CEMS at your facility serving the process equipment described in the accompanying attachment, "DISTRICT RULE 218 - EPA 40CFR60 APPENDICES B and F, NON-RECLAIM CEMS FINAL CERTIFICATION: Specific Device-Based Information and Conditions". If the CEMS information in the accompanying attachments is not accurate, please notify me as soon as possible at (909) 396-2265. Also, please remember to notify the District for direction, prior to replacement or modification of the described CEMS or the device(s) that it serves, since such modifications may change the compliance status of the affected CEMS. Again, thank you for your continued cooperation and support.

Sincerely,

Phillip E. Padilla

P. Eric Padilla, Air Quality Engineer
Source Test Engineering Branch
(909) 396-2265 FAX (909) 396-2099
epadilla@aqmd.gov@aqmd.gov

Attachment
MG:EP

cc: Rudy Eden
Mike Garibay

840CEMS_Cert - OCSD Plant 2 Unit 2 - C06036.doc

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

Almega ENVIRONMENTAL

Source Test I.D:	**C06036**	Date:	January 14, 2010
Facility I.D:	**029110**		
Application/Permit No.:	**414654**	CEMS Certification Date:	
CEMS Rule/Regulation:	**Permit Condition 13**		**9/10/09**

DISTRICT RULE 218 - EPA 40CFR60 APPENDICES B & F
NON-RECLAIM CEMS FINAL CERTIFICATION:
Specific Device-Based Information and Conditions
(This document must be displayed on or near strip chart recorder or data handling system)

Name of Facility:	**Orange County Sanitation District**
Certification Test Date:	**9/10/09**
Test Operating Load:	**Low Operating Load (> 50% capacity)**
Equipment Description:	**IC Engine Unit 2 – 4166 HP, 3000 kW generator**
Equipment Location:	**Reclamation Plant 2, 22212 Brookhurst St, Huntington Beach, CA 92646**
Mailing Address:	**P.O. Box 8127 Fountain Valley, CA 92728-8127**

A. **The components described below comprise the "CEMS" which has been granted Final Certification or Approval and they may not be changed or modified without prior District approval. (Unauthorized modification to the components shown below may void CEMS certification, and result in non-compliance with District Rule 218, EPA 40CFR60 APPENDIX B, and/or source specific rules pertaining to CEMS monitoring and recordkeeping. Be sure the information below is correct. Contact your District Source Testing representative if there are any questions):**

Gaseous Emission Measurement Analyzer:

Gaseous Component Monitored	Make	Model No.	Serial No.	Method of Detection	Certified Range(s): **Instrument Range** (Valid Reporting Range[1])
CO (Dry)	**Thermo**	**48i**	**09010026**	**Gas Filter Correlation (GFC)**	**0-1000 ppm**
NOx/O_2 (Dry)	**Thermo**	**42i-LS**	**0904434731**	**NOx: Chemiluminescence O_2: Paramagnetic**	**NOx: 0-100 ppm O_2: 0-25%**

[1] The valid reporting range of a certified CEMS is normally 10-95% of the certified instrument range or ranges, unless additional QA testing is performed to validate measurements <10% of instrument range.

Fuel or Flue Gas Flow Measurement Analyzer

Instrument Type	Manufacturer	Model No.	Serial No.
Natural Gas: Positive Displacement Meter	**Dresser Roots**	**11M175 (Range 0 – 11,000 cfh)**	***NA – renewed annually for calibration purposes***
Digester Gas: Positive Displacement Meter	**Dresser Roots**	**16M175 (Range 0 – 16,000 cfh)**	***NA – renewed annually for calibration purposes***

Sample Condition and Calibration System

Type	Manufacturer	Model No.	Serial No.
Gas Sample Conditioning Unit	**M&C**	**ECM-2G**	***NA***

Supporting Equipment (Data Acquisition, Reduction, and Recording) Excluding RTU

Type	Manufacturer	Model No.	Serial No.
DAS	**Dell**		***NA***
PLC	**Modicon**	**M340**	***NA***

DAHS, PLC Programming Formulas and Correction Factors

Parameter	Formula
NOx Concentration	**Uncorrected, and standard correction to 15% O_2 for concentration compliance requirement (no additional factors, BAFs or constants are authorized).**
CO Concentration	**Uncorrected, and std. correction to 15% O_2 for concentration compliance requirement (no additional factors, BAFs or constants are authorized).**
Stack Flow Rate	**Based on fuel usage & standard fuel F-Factor calculation using default HHV of 1050 Btu/scf and Fd_{O2} of 8710 dscf/mmBtu for natural gas and using analysis results for digester gas (no additional factors, BAFs or constants are authorized).**
NOx Emission Rate	**Based on the product of uncorrected concentration and stack flow rate as described above (no additional factors, BAFs or constants are authorized).**

B. The CEMS described above is subject to the following conditions:

1. CEMS Operating Range
The operating range(s) selected for each gas analyzer must be such that most all measurements fall within 10-95%[2] of range full-scale. With time, these ranges may not prove adequate and the analyzer(s) must be re-ranged, or more-than-one range must be used to maintain compliance. Always consult your AQMD CEMS Engineer before modifying the process monitored and/or the CEMS itself.

2. CEMS Specific Operating Requirements
This CEMS shall be operated pursuant to the requirements of District Rules 218/218.1 and/or 40CFR60 Appendices B & F, and be subject to the following specific monitoring, reporting, and recordkeeping requirements:

PERMIT CONDITION 13:

- Monitor/record/report raw NOx concentration (ppm)
- Monitor/record/report raw O_2 concentration (%)
- Calculate/record/report NOx concentration (ppm), corrected to 15% O2
- Calculate/record/report exceedances in the permitted limit of: 36 ppmv for NOx or 2000 ppmv for CO, both corrected to 15% O_2

The Data Acquisition & Handling System/Programmable Logic Controller (DAHS/PLC) shall perform the calculations necessary to meet the above emission reporting requirements, using accepted methods.

3. *Periodic Testing, Record Keeping, Quality Assurance, and Reporting*
Orange County Sanitation District has elected to maintain this CEMS according to EPA 40CFR60 APPENDICES B & F. This includes periodic testing[3], quality assurance, reporting, and recordkeeping. Designated personnel at Orange County Sanitation District shall be instructed and be responsible regarding periodic testing dates and requirements, scheduled and unscheduled breakdown and outage procedures, and CEMS and process modifications. A comprehensive Quality Assurance Plan describing the above procedures and other contingencies as described in EPA 40CFR60 APPENDIX F, must be compiled and stored on-site for review by authorized AQMD personnel. This Quality Assurance Plan must be regularly updated with CEMS, process, and responsibility changes.

4. *On-Site Data Availability*
Orange County Sanitation District understands that CEMS emission measurements shall be available in realtime display and as a continuous record, on-site, upon request by authorized

---

[2] There are circumstances where analyzer measurements less than 10% of full-scale are acceptable. See your assigned Source Testing Engineer for details.
[3] Units must be tested annually at a minimum, or sooner if modifications to process and/or CEMS are performed, or as prescribed by the AQMD.

AQMD personnel. This also includes raw data and calculations used for realtime displays and records.

5. *RATA Protocol*
Orange County Sanitation District shall submit a periodic CEMS assessment/RATA protocol for approval if the RATA procedures differ from the previously approved CEMS certification test protocol.

6. *Notification of RATA Schedule*
Orange County Sanitation District shall notify the District at least two weeks prior to conducting all subsequent periodic CEMS assessments/RATAs. Notification is to be made to Eric Padilla, either by phone at 909-296-2265, or via e-mail at epadilla@aqmd.gov.

7. *Quality Assurance Program (QAP)*
The QAP shall automatically be updated as needed (e.g., as personnel are reassigned, or the process and/or the CEMS components are modified).

Evaluated By: Phillip E. Padilla Dated: January 14, 2010

P. Eric Padilla, Air Quality Engineer
Source Test Engineering Branch
(909) 396-2265 FAX (909) 396-2099
epadilla@aqmd.gov@aqmd.gov

840CEMS_Cert - OCSD Plant 2 Unit 2 - C06036.doc

APPENDIX C

SCAQMD METHOD 1.1-4.1 – STACK GAS FLOW RATE

Appendix C1

STACK GAS FLOW RATE – Results and Calculations

STACK GAS MOISTURE AND FLOW RATE CALCULATIONS

Facility: OCSD, Plant No. 2
City: Huntington Beach, CA

Source: Engine 2
Test: RATA

Test Date: 9/30/15

DATA ENTRY	Symbols	Units	RUN 1.0	RUN 2.0	RUN 3.0	RUN 4.0	RUN 5.0	RUN 6.0	RUN 7.0	RUN 8.0	RUN 9.0
Stack Diameter	D	in.	30	30	30	30	30	30	30	30	30
Length	L	in.		0	0	0	0	0	0	0	0
Width	W	in.		0	0	0	0	0	0	0	0
Barometric Pressure	Pbar	in. Hg.	29.87	29.87	29.87	29.87	29.87	29.87	29.87	29.87	29.87
Static Pressure	Ps	in. H2O	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30
Pitot Coefficient	Cp	none	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Meter Cal. Factor	Y	none	0.9871	0.9871	0.9871	0.9871	0.9871	0.9871	0.9871	0.9871	0.9871
Standard Temperature	Tstd	deg. F	60	60	60	60	60	60	60	60	60
Moisture Factor	K1	cu.ft./mL	.0464	.0464	.0464	.0464	.0464	.0464	.0464	.0464	.0464
PT Factor	K2	R/in.Hg	17.38	17.38	17.38	17.38	17.38	17.38	17.38	17.38	17.38
Velocity Head (dP)	(dP)	(in. H2O)	0.943	0.952	0.955	0.948	0.935	0.953	1.103	1.187	1.205
Velocity Head (Sqrt dP)	Sqrt (dP)	Sqrt(in. H2O)	0.971	0.975	0.977	0.973	0.967	0.976	1.047	1.087	1.095
Average Delta H	dH	in. H2O	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000
Gas Volume Collected	Vm	cf	68.200	68.200	68.200	68.149	68.149	68.149	68.137	68.137	68.137
Stack Gas Temperature	Ts	deg. F	557.9	557.9	558.4	559.2	559.1	560.2	560.3	560.5	560.5
Meter Temperature	Tm	deg. F	82.3	82.3	82.3	85.1	85.1	85.1	89.4	89.4	89.4
%O2 in Stack Gas	%O2	%	11.75	11.98	12.06	12.05	12.20	12.36	12.42	12.45	12.55
%CO2 in Stack Gas	%CO2	%	7.47	7.34	7.27	7.27	7.19	7.05	6.46	6.45	6.23
Total Impinger Water	Ww	g	135.0	135.0	135.0	132.9	132.9	132.9	133.3	133.3	133.3
CALCULATIONS	**Symbols**	**Units**	**RUN 1.0**	**RUN 2.0**	**RUN 3.0**	**RUN 4.0**	**RUN 5.0**	**RUN 6.0**	**RUN 7.0**	**RUN 8.0**	**RUN 9.0**
Stack Area	As	sq. ft.	4.91	4.91	4.91	4.91	4.91	4.91	4.91	4.91	4.91
Stack Gas Temperature	Ts,r	deg. R	1018	1018	1018	1019	1019	1020	1020	1021	1021
Meter Temperature	Tm,r	deg. R	542	542	542	545	545	545	549	549	549
Abs Stk Pressure	Pabs	in. Hg.	29.85	29.85	29.85	29.85	29.85	29.85	29.85	29.85	29.85
Gas Vol. @ STD	Vmstd	dscf	64.76	64.76	64.76	64.39	64.39	64.39	63.87	63.87	63.87
Vol. of Water Vapor	Vwstd	dscf	6.26	6.26	6.26	6.17	6.17	6.17	6.19	6.19	6.19
Dry Mol. Wt.	Md	lb/lb-mol.	29.66	29.65	29.65	29.65	29.64	29.62	29.53	29.53	29.50
Wet Mol. Wt.	Ms	lb/lb-mol.	28.64	28.63	28.62	28.63	28.62	28.61	28.51	28.51	28.48
Average Velocity	Vs	ft/s	76.07	76.43	76.61	76.30	75.82	76.62	82.36	85.47	86.12
Moisture Content	Bws	%	8.82	8.82	8.82	8.74	8.74	8.74	8.83	8.83	8.83
Actual Stack Gas Flow Rate	Qa	acfm	22,403	22,511	22,564	22,471	22,332	22,567	24,257	25,173	25,365
Dry Stack Gas Flow Rate	Qds	dscfm	**10,411**	**10,460**	**10,480**	**10,438**	**10,374**	**10,472**	**11,244**	**11,666**	**11,755**
Dry Stack Gas Flow Rate	Qds	dscfh	**624,644**	**627,611**	**628,778**	**626,255**	**622,431**	**628,318**	**674,643**	**699,939**	**705,296**
Wet Stack Gas Flow Rate	Qws	wscfm	**11,418**	**11,472**	**11,493**	**11,437**	**11,367**	**11,475**	**12,333**	**12,795**	**12,893**

CALCULATIONS					
Abs Stk Pressure	Pabs	Pabs=Pbar +(Ps/13.6)	Average Velocity	Vs	Vs = 85.49Cp Sqrt(dp)[Sqrt(Ts,r/(Pabs Ms))]
Gas Vol. @ STD	Vmstd	Vmstd=17.64VmY[Pbar+dH/13.6)]/Tm	Moisture Content	Bws	Bws = 100 Vwstd/(Vmstd+Vwstd)
Vol. of Water Vapor	Vwstd	Vwstd=0.04707 Vh2o	Actual Stack Gas Flow Rate	Qa	Qa = 60 Vs As
Dry Mol. Wt.	Md	Md=.44(%CO2)+.32(%O2)+.28[100-(%CO2+%O2)]	Dry Stack Gas Flow Rate	Qds	Qds=17.64 Qa[1-(Bws/100)](Pabs/Ts,r)
Wet Mol. Wt.	Ms	Ms=Md[1-(Bws/100)]+18(Bws/100)	Wet Stack Gas Flow Rate	Qws	Qws= Qds(dscfm)/(1-Bws/100)

Almega ENVIRONMENTAL

STACK GAS MOISTURE AND FLOW RATE CALCULATIONS

Facility: OCSD, Plant No. 2
City: Huntington Beach, CA

Source: Engine 2
Test: RATA

Test Date: 9/30/15

Point	RUN 1.0 dP (in. H2O)	RUN 1.0 Ts (deg F)	RUN 1.0 SQRT (dP)	RUN 1.0 Qds (dscfm)	RUN 2.0 dP (in. H2O)	RUN 2.0 Ts (deg F)	RUN 2.0 SQRT (dP)	RUN 2.0 Qds (dscfm)	RUN 3.0 dP (in. H2O)	RUN 3.0 Ts (deg F)	RUN 3.0 SQRT (dP)	RUN 3.0 Qds (dscfm)
Avg	**0.943**	**557.9**	**.9706**	**10,411**	**0.952**	**557.9**	**.9751**	**10,460**	**0.955**	**558.4**	**.9770**	**10,480**
1	0.95	549	.9747	10,500	0.94	549	.9695	10,446	0.95	549	.9747	10,503
2	0.90	558	.9487	10,175	0.91	557	.9539	10,238	0.98	558	.9899	10,620
3	0.95	560	.9747	10,443	0.96	559	.9798	10,505	0.97	560	.9849	10,556
4	1.00	561	1.0000	10,709	1.10	561	1.0488	11,234	1.00	562	1.0000	10,707
5	0.94	560	.9695	10,388	0.93	560	.9644	10,334	0.94	561	.9695	10,386
6	0.93	558	.9644	10,343	0.93	559	.9644	10,340	0.98	561	.9899	10,605
7	0.95	558	.9747	10,453	0.94	558	.9695	10,400	0.92	559	.9592	10,285
8	0.91	557	.9539	10,236	0.92	557	.9592	10,294	0.90	558	.9487	10,178
9	0.96	550	.9798	10,550	0.96	550	.9798	10,552	0.98	550	.9899	10,662
10	0.92	558	.9592	10,287	0.92	559	.9592	10,284	0.97	558	.9849	10,566
11	0.96	560	.9798	10,498	0.95	560	.9747	10,445	0.97	560	.9849	10,556
12	1.00	562	1.0000	10,704	1.00	562	1.0000	10,706	1.00	562	1.0000	10,707
13	1.00	560	1.0000	10,714	1.10	560	1.0488	11,239	1.00	561	1.0000	10,712
14	0.94	559	.9695	10,393	0.91	560	.9539	10,223	0.92	559	.9592	10,285
15	0.90	559	.9487	10,170	0.90	559	.9487	10,171	0.94	559	.9695	10,396
16	0.87	557	.9327	10,009	0.86	557	.9274	9,953	0.86	558	.9274	9,949
17												
18												
19												
20												
21												
22												
23												
24												
25												

RUN 1.0

	Orifice dH	Meter Temp. Inlet	Meter Temp. Outlet	DGM Volume	Moist. Collect.	
	2.00	**Avg:**	**82.3**	**68.200**	**135.0**	**Net:**
10	2.00	83	80	776.449	774.8	Initial
20	2.00	83	80	844.649	883.5	Final
30	2.00	84	80		705.3	Initial
40	2.00	84	80		713.2	Final
50	2.00	84	81		608.3	Initial
60	2.00	84	81		611.3	Final
70	2.00	84	81		742.8	Initial
80	2.00	85	81		758.2	Final
90	2.00	85	82			

RUN 2.0

Orifice dH	Meter Temp. Inlet	Meter Temp. Outlet	DGM Volume	Moist. Collect.	
2.00	**Avg:**	**82.3**	**68.200**	**135.0**	**Net:**
2.00	83	80	776.449	774.8	Initial
2.00	83	80	844.649	883.5	Final
2.00	84	80		705.3	Initial
2.00	84	80		713.2	Final
2.00	84	81		608.3	Initial
2.00	84	81		611.3	Final
2.00	84	81		742.8	Initial
2.00	85	81		758.2	Final
2.00	85	82			

RUN 3.0

Orifice dH	Meter Temp. Inlet	Meter Temp. Outlet	DGM Volume	Moist. Collect.	
2.00	**Avg:**	**82.3**	**68.200**	**135.0**	**Net:**
2.00	83	80	776.449	774.8	Initial
2.00	83	80	844.649	883.5	Final
2.00	84	80		705.3	Initial
2.00	84	80		713.2	Final
2.00	84	81		608.3	Initial
2.00	84	81		611.3	Final
2.00	84	81		742.8	Initial
2.00	85	81		758.2	Final
2.00	85	82			

Almega ENVIRONMENTAL

STACK GAS MOISTURE AND FLOW RATE CALCULATIONS

Facility: OCSD, Plant No. 2
City: Huntington Beach, CA

Source: Engine 2
Test: RATA

Test Date: 9/30/15

RUN 4.0

Point	dP (in. H2O)	Ts (deg F)	SQRT (dP)	Qds (dscfm)
Avg	**0.948**	**559.2**	**.9728**	**10,438**
1	0.97	550	.9849	10,615
2	0.91	560	.9539	10,231
3	0.96	561	.9798	10,503
4	1.10	563	1.0488	11,232
5	0.92	562	.9592	10,277
6	0.90	560	.9487	10,175
7	0.95	560	.9747	10,454
8	0.90	559	.9487	10,180
9	0.85	550	.9220	9,937
10	0.91	559	.9539	10,236
11	0.95	560	.9747	10,454
12	1.10	562	1.0488	11,238
13	1.00	561	1.0000	10,720
14	0.94	561	.9695	10,393
15	0.91	560	.9539	10,231
16	0.89	559	.9434	10,123
17				
18				
19				
20				
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23				
24				
25				

	Orifice dH	Meter Temp. Inlet	Meter Temp. Outlet	DGM Volume	Moist. Collect.	
	2.00	**Avg:**	**85.1**	**68.149**	**132.9**	**Net:**
10	2.00	86	83	844.865	759.0	Initial
20	2.00	86	83	913.014	863.3	Final
30	2.00	86	83		713.2	Initial
40	2.00	86	83		726.9	Final
50	2.00	86	83		611.3	Initial
60	2.00	87	83		615.2	Final
70	2.00	87	84		758.2	Initial
80	2.00	88	84		769.2	Final
90	2.00	88	85			

RUN 5.0

Point	dP (in. H2O)	Ts (deg F)	SQRT (dP)	Qds (dscfm)
Avg	**0.935**	**559.1**	**.9667**	**10,374**
1	0.95	550	.9747	10,507
2	0.93	560	.9644	10,344
3	0.97	561	.9849	10,559
4	1.00	562	1.0000	10,716
5	0.91	560	.9539	10,233
6	0.90	560	.9487	10,176
7	0.94	559	.9695	10,405
8	0.90	559	.9487	10,181
9	0.84	550	.9165	9,880
10	0.93	560	.9644	10,344
11	0.94	561	.9695	10,395
12	1.00	563	1.0000	10,711
13	1.00	561	1.0000	10,721
14	0.93	561	.9644	10,339
15	0.92	560	.9592	10,289
16	0.90	559	.9487	10,181
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22				
23				
24				
25				

	Orifice dH	Meter Temp. Inlet	Meter Temp. Outlet	DGM Volume	Moist. Collect.	
	2.00	**Avg:**	**85.1**	**68.149**	**132.9**	**Net:**
10	2.00	86	83	844.865	759.0	Initial
20	2.00	86	83	913.014	863.3	Final
30	2.00	86	83		713.2	Initial
40	2.00	86	83		726.9	Final
50	2.00	86	83		611.3	Initial
60	2.00	87	83		615.2	Final
70	2.00	87	84		758.2	Initial
80	2.00	88	84		769.2	Final
90	2.00	88	85			

RUN 6.0

Point	dP (in. H2O)	Ts (deg F)	SQRT (dP)	Qds (dscfm)
Avg	**0.953**	**560.2**	**.9761**	**10,472**
1	0.94	551	.9695	10,449
2	0.94	561	.9695	10,397
3	0.98	562	.9899	10,611
4	1.00	564	1.0000	10,708
5	0.92	563	.9592	10,276
6	0.90	562	.9487	10,169
7	0.96	561	.9798	10,507
8	0.94	560	.9695	10,402
9	0.88	550	.9381	10,115
10	0.98	560	.9899	10,621
11	0.96	561	.9798	10,507
12	1.00	563	1.0000	10,714
13	1.00	562	1.0000	10,719
14	0.92	562	.9592	10,281
15	0.98	561	.9899	10,616
16	0.95	560	.9747	10,458
17				
18				
19				
20				
21				
22				
23				
24				
25				

	Orifice dH	Meter Temp. Inlet	Meter Temp. Outlet	DGM Volume	Moist. Collect.	
	2.00	**Avg:**	**85.1**	**68.149**	**132.9**	**Net:**
10	2.00	86	83	844.865	759.0	Initial
20	2.00	86	83	913.014	863.3	Final
30	2.00	86	83		713.2	Initial
40	2.00	86	83		726.9	Final
50	2.00	86	83		611.3	Initial
60	2.00	87	83		615.2	Final
70	2.00	87	84		758.2	Initial
80	2.00	88	84		769.2	Final
90	2.00	88	85			

Almega ENVIRONMENTAL

STACK GAS MOISTURE AND FLOW RATE CALCULATIONS

Facility: OCSD, Plant No. 2
City: Huntington Beach, CA

Source: Engine 2
Test: RATA

Test Date: 09/30/15

Point	RUN 7.0 dP (in. H2O)	Ts (deg F)	SQRT (dP)	Qds (dscfm)	RUN 8.0 dP (in. H2O)	Ts (deg F)	SQRT (dP)	Qds (dscfm)	RUN 9.0 dP (in. H2O)	Ts (deg F)	SQRT (dP)	Qds (dscfm)
Avg	**1.103**	**560.3**	**1.0475**	**11,244**	**1.187**	**560.5**	**1.0869**	**11,666**	**1.205**	**560.5**	**1.0946**	**11,755**
1	0.98	553	.9899	10,665	0.99	552	.9950	10,725	0.98	551	.9899	10,681
2	1.00	561	1.0000	10,731	1.20	560	1.0954	11,761	1.10	560	1.0488	11,266
3	1.30	562	1.1402	12,230	1.30	561	1.1402	12,236	1.20	562	1.0954	11,756
4	1.30	564	1.1402	12,218	1.30	563	1.1402	12,224	1.50	564	1.2247	13,130
5	1.10	562	1.0488	11,250	1.20	562	1.0954	11,750	1.20	563	1.0954	11,750
6	1.00	562	1.0000	10,726	1.10	561	1.0488	11,255	1.10	562	1.0488	11,255
7	0.99	561	.9950	10,677	1.10	561	1.0488	11,255	1.20	561	1.0954	11,761
8	0.98	560	.9899	10,629	1.10	560	1.0488	11,261	1.20	560	1.0954	11,767
9	0.98	551	.9899	10,676	1.00	553	1.0000	10,774	1.10	552	1.0488	11,311
10	0.96	560	.9798	10,520	1.00	561	1.0000	10,731	1.00	561	1.0000	10,737
11	0.99	562	.9950	10,672	1.00	563	1.0000	10,721	1.00	563	1.0000	10,726
12	1.40	563	1.1832	12,685	1.40	564	1.1832	12,679	1.40	564	1.1832	12,685
13	1.50	562	1.2247	13,137	1.60	563	1.2649	13,561	1.70	563	1.3038	13,985
14	1.10	561	1.0488	11,255	1.30	562	1.1402	12,230	1.20	562	1.0954	11,756
15	1.10	560	1.0488	11,261	1.30	562	1.1402	12,230	1.30	560	1.1402	12,248
16	0.97	560	.9849	10,574	1.10	560	1.0488	11,261	1.10	560	1.0488	11,266
17												
18												
19												
20												
21												
22												
23												
24												
25												

RUN 7.0

	Orifice dH	Meter Temp. Inlet	Meter Temp. Outlet	DGM Volume	Moist. Collect.	
	2.00	**Avg:**	**89.4**	**68.137**	**133.3**	**Net:**
10	2.00	90	87	913.486	771.7	Initial
20	2.00	90	87	981.623	878.6	Final
30	2.00	91	87		674.2	Initial
40	2.00	91	88		686.6	Final
50	2.00	91	88		607.3	Initial
60	2.00	91	88		611.8	Final
70	2.00	92	88		704.7	Initial
80	2.00	92	88		714.2	Final
90	2.00	92	88			

RUN 8.0

	Orifice dH	Meter Temp. Inlet	Meter Temp. Outlet	DGM Volume	Moist. Collect.	
	2.00	**Avg:**	**89.4**	**68.137**	**133.3**	**Net:**
10	2.00	90	87	913.486	771.7	Initial
20	2.00	90	87	981.623	878.6	Final
30	2.00	91	87		674.2	Initial
40	2.00	91	88		686.6	Final
50	2.00	91	88		607.3	Initial
60	2.00	91	88		611.8	Final
70	2.00	92	88		704.7	Initial
80	2.00	92	88		714.2	Final
90	2.00	92	88			

RUN 9.0

	Orifice dH	Meter Temp. Inlet	Meter Temp. Outlet	DGM Volume	Moist. Collect.	
	2.00	**Avg:**	**89.4**	**68.137**	**133.3**	**Net:**
10	2.00	90	87	913.486	771.7	Initial
20	2.00	90	87	981.623	878.6	Final
30	2.00	91	87		674.2	Initial
40	2.00	91	88		686.6	Final
50	2.00	91	88		607.3	Initial
60	2.00	91	88		611.8	Final
70	2.00	92	88		704.7	Initial
80	2.00	92	88		714.2	Final
90	2.00	92	88			

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Appendix C2

STACK GAS FLOW RATE – Field Data

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SAMPLING AND VELOCITY TRAVERSE POINT DETERMINATION
SCAQMD METHOD 1.2

FACILITY: Orange County Sanitation District
CITY, STATE: Huntington Beach, CA
SAMPLING LOCATION: Plant No. 2, Engine 2
TYPE OF TESTING: RATA

NO. OF PORTS AVAILABLE: 2
NO. OF PORTS TO BE USED: 2
PORT INSIDE DIAMETER: 4 inches

DISTANCE FROM FAR WALL TO OUTSIDE OF PORT: 35.5 inches
NIPPLE LENGTH AND/OR WALL THICKNESS: 5.5 inches
DEPTH OF STACK OR DUCT, D: 30.0 inches
STACK OR DUCT WIDTH (IF RECTANGULAR), W: inches

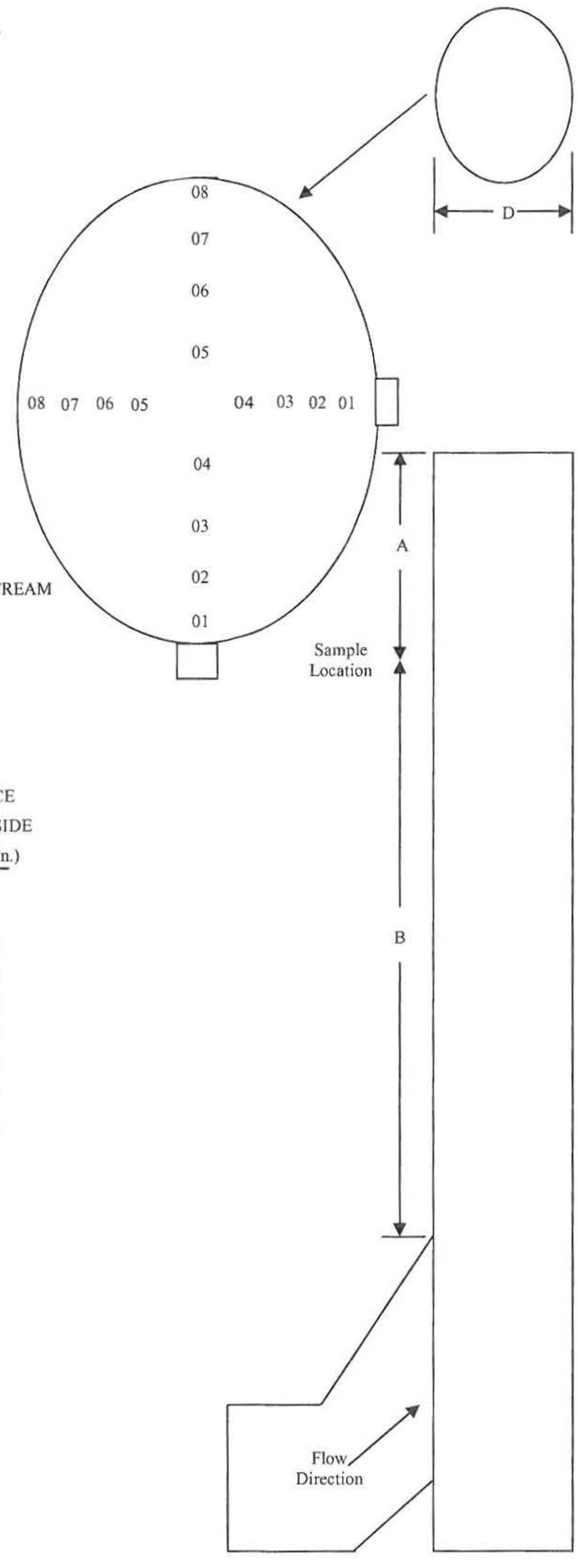
EQUIVALENT DIAMETER
De = 2*(DEPTH)*(WIDTH)/(DEPTH+WIDTH) = inches

STACK/DUCT AREA = sq.feet sq.inches

DISTANCE FROM PORT TO FLOW DISTURBANCES	UPSTREAM B	DOWNSTREAM A
# OF INCHES	135.0	54.0
# OF DIAMETERS	4.50	1.80

MINIMUM NUMBER OF TRAVERSE POINTS: 16

POINT NO.	% OF DUCT DEPTH	DISTANCE FROM INSIDE WALL (in.)	DISTANCE FROM OUTSIDE OF PORT (in.)
1	6.3	1.00	6 1/2
2	18.8	5.64	11 1/8
3	31.3	9.39	14 7/8
4	43.8	13.14	18 5/8
5	56.3	16.89	22 3/8
6	68.8	20.64	26 1/8
7	81.3	24.39	29 7/8
8	93.8	29.00	34 1/2



DRAWING NOT TO SCALE

ALMEGA ENVIRONMENTAL TECHNICAL SERVICES
10602 Walker Street
Cypress, CA 90630

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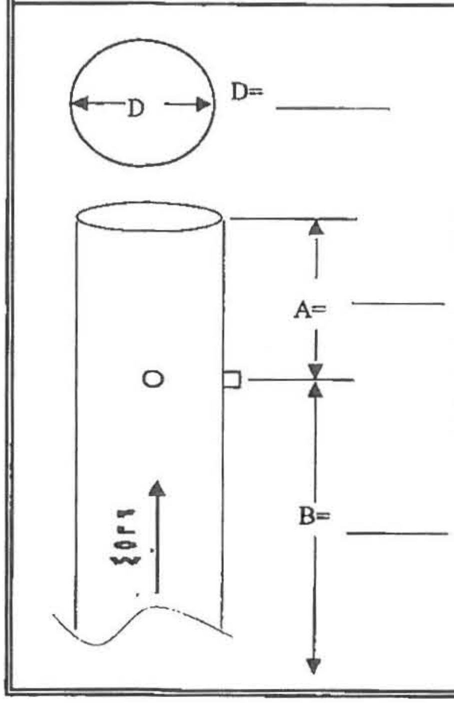
SAMPLE POINT LOCATION DATA SHEET - Round Stack

Facility:	OCSD #2
Project Number:	9849
Date:	9.15.14
Unit ID #	Eng 1→5
Inside of far wall to outside of port:	35.5
Port Distance:	5.5
Stack Diameter (D):	30"
Upstream Distance (A):	54"
Equivalent Duct Diameter (A/D):	
Downstream Distance (B):	135"
Equivalent Duct Diameter (B/D):	
Total Number of Traverse Points :	16
Number of Sampling Ports Used:	2
Port Diameter:	4"

STACK DRAWING



Sample Point No.	% of Stack Diameter	x	Stack Diameter	=	Distance from Wall	+	Port Distance	=	Distance from Sample Port
1	3.2	x	30	=	.96	+	5.5	=	6.46
2	10.5	x		=	3.15	+		=	8.65
3	19.4	x		=	5.82	+		=	11.32
4	32.3	x		=	9.69	+		=	15.19
5	67.7	x		=	20.31	+		=	25.81
6	80.6	x		=	24.18	+		=	29.68
7	89.5	x		=	26.85	+		=	32.35
8	96.8	x		=	29.04	+		=	34.54
		x		=		+		=	
		x		=		+		=	
		x		=		+		=	
		x		=		+		=	

SCAQMD METHODS 2-4

Run # :	1, 2, 3	Pitot ID :	S type	Impinger	Initial	Final	Net		Pitot Leak Check	
Date :	09/30/15	Pitot Coeff. :	.84	Water 1 :	774.8	883.5		Initial :	✓	✓
Client :	OCSD	Meter Box # :	002	Water 2 :	705.3	713.2		Final :	✓	✓
Unit :	Engine 2	Meter @ Dh :	1.987	Blank :	608.3	611.3				
Operator :	L. Barrow	Meter Y :	.9871	Sil. Gel :	742.8	758.2			Meter Box Leak Check	
Stack Dia :	30"	TC # :	83, LB	H2O Gain =					Rate	"HG
Amb. Press :	29.87	Start Time :	~~7:34~~ ~~8:08~~ 7:34	Pressure Type/Range				Initial :	.000	22"
Static Press :	-.30	Stop Time :	~~9:04~~ ~~10:38~~ 9:04	ADM 880 C		—		Final :	.000	22"

Time (Minute)	Meter Volume (acf)	Pump Vac (inch Hg)	Meter Temperatures Inlet (F)	Meter Temperatures Outlet (F)	Set Delta H (Inch H2O)	Impinger Temp. (F)	Sample Point #	Port 1 : Delta P ("H2O)	Port 1 : Stack Temp. (F)	Port 2 : Delta P ("H2O)	Port 2 : Stack Temp. (F)	Pitot ID: Cyclonic Flow ("H2O)	TE Cooler Temp. (F)
0	776.449				2.0		1	.95	549	.96	550		33
10	784.02	5	83	80	↓	53	2	.90	558	.92	558		34
20	791.63	↓	83	80		53	3	.95	560	.96	560		33
30	799.21		84	80		54	4	1.0	561	1.0	562		34
40	806.79		84	80		54	5	.94	560	1.0	560		34
50	814.35		84	81		55	6	.93	558	.94	559		34
60	821.96		84	81		56	7	.95	558	.90	559		34
70	829.52		84	81		53	8	.91	557	.87	557		34
80	837.11		85	81		53							34
90	844.649	5	85	82	2.0	54	1	.94	549	.96	550		34
							2	.91	557	.92	559		
							3	.96	559	.95	560		
							4	1.1	561	1.0	562		
							5	.93	560	1.1	560		
							6	.93	559	.91	560		
							7	.94	558	.90	559		
							8	.92	557	.86	557		
							1	.95	549	.98	550		
							2	.98	558	.97	558		
							3	.97	560	.97	560		
							4	1.0	562	1.0	562		
							5	.94	561	1.0	561		
							6	.98	561	.92	559		
							7	.92	559	.94	559		
							8	.90	558	.86	558		

Almega ENVIRONMENTAL

SCAQMD METHODS 2-4

Almega ENVIRONMENTAL

Run # :	4,5,6	Pitot ID :	s type	Impinger	Initial	Final	Net		Pitot Leak Check	
Date :	09/30/15	Pitot Coeff. :	.84	Water 1 :	759.0	863.3		Initial :	✓	✓
Client :	OCSD	Meter Box # :	002	Water 2 :	713.2	607.18	726.9	Final :	✓	✓
Unit :	Engine 2	Meter @ Dh :	1.987	Blank :	611.3	615.2				
Operator :	L. Barrow	Meter Y :	.9871	Sil. Gel :	758.2	769.2			Meter Box Leak Check	
Stack Dia :	30"	TC # :	83	H2O Gain =					Rate	"HG
Amb. Press :	29.87	Start Time :	9:21	Pressure Type/Range				Initial :	.000	22"
Static Press :	-.30	Stop Time :	10:51	ADM 880C —				Final :	.000	22"

Time (Minute)	Meter Volume (acf)	Pump Vac (inch Hg)	Meter Temperatures Inlet (F)	Outlet (F)	Set Delta H (Inch H2O)	Impinger Temp. (F)	Sample Point #	Port 1: Delta P ("H2O)	Stack Temp. (F)	Port 2: Delta P ("H2O)	Stack Temp. (F)	Pitot ID: Cyclonic Flow ("H2O)	TE Cooler Temp. (F)
0	844.865				2.0		1	.97	550	.85	550		34
10	852.40	6	86	83		53	2	.91	560	.91	559		34
20	859.98		86	83		54	3	.96	561	.95	560		35
30	867.52		86	83		54	4	1.1	563	1.1	562		35
40	875.11		86	83		55	5	.92	562	1.0	561		35
50	882.70		87	83		55	6	.90	560	.94	561		35
60	890.34		87	83		56	7	.95	560	.91	560		35
70	897.95		88	84		57	8	.90	559	.89	559		35
80	905.48		88	84		53							35
90	913.014	6	88	85	2.0	54	1	.95	550	.84	550		36
							2	.93	560	.93	560		
							3	.97	561	.94	561		
							4	1.0	562	1.0	563		
							5	.91	560	1.0	561		
							6	.90	560	.93	561		
							7	.94	559	.92	560		
							8	.90	559	.90	559		
							1	.94	551	.88	550		
							2	.94	561	.98	560		
							3	.98	562	.96	561		
							4	1.0	564	1.0	563		
							5	.92	563	1.0	562		
							6	.90	562	.92	562		
							7	.96	561	.98	561		
							8	.94	560	.93	560		

SCAQMD METHODS 2-4

Run # :	7,8,9	Pitot ID :	s type	Impinger	Initial	Final	Net
Date :	04/30/15	Pitot Coeff. :	.84	Water 1 :	771.7	878.6	
Client :	OCSD	Meter Box # :	002	Water 2 :	674.2	686.6	
Unit :	Engine 2	Meter @ Dh :	1.987	Blank :	607.3	611.8	
Operator :	L Barrow	Meter Y :	.9871	Sil. Gel :	704.7	714.2	
Stack Dia :	30"	TC # :	83	H2O Gain =			
Amb. Press :	29.87	Start Time :	11:06	Pressure Type/Range			
Static Press :	-.30	Stop Time :	12:36	ADM880C	—		

Pitot Leak Check		
Initial :	✓	✓
Final :	✓	✓

Meter Box Leak Check	Rate	"HG
Initial :	.000	23"
Final :	.000	23"

Time (Minute)	Meter Volume (acf)	Pump Vac (inch Hg)	Meter Temperatures Inlet (F)	Outlet (F)	Set Delta H (Inch H2O)	Impinger Temp. (F)	Sample Point #	Port 1 : Delta P ("H2O)	Stack Temp. (F)	Port 2 : Delta P ("H2O)	Stack Temp. (F)	Pitot ID: Cyclonic Flow ("H2O)	TE Cooler Temp. (F)
0	913.486				2.0	~~54~~ 48	1	.98	553	.98	551		35
10	921.03	5	90	87		53	2	1.0	561	.96	560		35
20	928.64		90	87		54	3	1.3	562	.99	562		36
30	936.19		91	87		54	4	1.3	564	1.4	563		36
40	943.70		91	88		55	5	1.1	562	1.5	562		36
50	951.35		91	88		56	6	1.0	562	1.1	561		36
60	958.92		91	88		57	7	.99	561	1.1	560		36
70	966.54		92	88		53	8	.98	560	.97	560		36
80	974.11		92	88		54							36
90	981.623	5	92	88	2.0	55	1	.99	552	1.0	553		36
							2	1.2	560	1.0	561		
							3	1.3	561	1.0	563		
							4	1.3	563	1.4	564		
							5	1.2	562	1.6	563		
							6	1.1	561	1.3	562		
							7	1.1	561	1.3	562		
							8	1.1	560	1.1	560		
							1	.98	551	1.1	552		
							2	1.1	560	1.0	561		
							3	1.2	562	1.0	563		
							4	1.5	564	1.4	564		
							5	1.2	563	1.7	563		
							6	1.1	562	1.2	562		
							7	1.2	561	1.3	560		
							8	1.2	560	1.1	560		

APPENDIX D

SCAQMD METHOD 100.1 – CONTINUOUS MONITORING OF GASEOUS EMISSIONS

Appendix D1

CEMS – Results and Calculations

REFERENCE METHOD DATA SUMMARY

Facility: OCSD, Plant No. 2
City: Huntington Beach, CA
Source: Engine 2
Test: RATA

Run No.	Time (hh:mm)	NOx ppm	NOx ppm@15%O2	NOx lb/hr	CO ppm	CO ppm@15%O2	CO lb/hr	Dry Flow dscfh	O2 %	CO2 %
1	7:34-8:06	34.14	22.01	2.58	576.85	371.9	26.588	624,644	11.75	7.47
2	8:07-8:36	34.64	22.90	2.64	586.96	388.1	27.182	627,611	11.98	7.34
3	8:37-9:06	35.40	23.61	2.70	571.89	381.5	26.534	628,778	12.06	7.27
4	9:21-9:50	35.37	23.58	2.69	567.75	378.5	26.236	626,255	12.05	7.27
5	9:51-10:20	33.86	22.95	2.55	591.27	400.8	27.156	622,431	12.20	7.19
6	10:21-10:50	33.04	22.83	2.52	630.22	435.5	29.219	628,318	12.36	7.05
7	11:06-11:35	35.11	24.42	2.87	626.82	436.0	31.204	674,643	12.42	6.46
8	11:36-12:05	36.16	25.24	3.07	618.76	432.0	31.957	699,939	12.45	6.45
9	12:06-12:35	35.42	25.03	3.03	623.15	440.3	32.430	705,296	12.55	6.23
	Average	**34.79**	**23.62**	**2.74**	**599.3**	**407.2**	**28.72**	**648,657**	**12.20**	**6.97**

Almega ENVIRONMENTAL

Reference Method CEMS Summary

Facility: OCSD, Plant No. 2
City: Huntington Beach, CA
Source: Engine 2
Test: RATA

Run Information			Flue Gas Composition						Pollutant 1: NOx (MW: 46 lb/lb-mole)			Pollutant 2: CO (MW: 28 lb/lb-mole)		
			Moisture	Flow Rate:		O2	CO2		dry	dry ppm		dry	dry ppm	
No.	Date	Time	%	dry scfm	dry scfh	dry %	dry %	wet %	ppm	@15%O2	lbs/hr	ppm	@15%O2	lbs/hr
1	09/30/15	7:34-8:06	8.82	10,411	624,644	11.75	7.47	6.81	34.14	22.01	2.585	576.851	371.927	26.588
2	09/30/15	8:07-8:36	8.82	10,460	627,611	11.98	7.34	6.69	34.64	22.90	2.635	586.959	388.104	27.182
3	09/18/14	8:37-9:06	8.82	10,480	628,778	12.06	7.27	6.63	35.40	23.61	2.698	571.889	381.490	26.534
4	09/18/14	9:21-9:50	8.74	10,438	626,255	12.05	7.27	6.64	35.37	23.58	2.685	567.751	378.460	26.236
5	09/18/14	9:51-10:20	8.74	10,374	622,431	12.20	7.19	6.56	33.86	22.95	2.555	591.268	400.798	27.156
6	09/18/14	10:21-10:50	8.74	10,472	628,318	12.36	7.05	6.43	33.04	22.83	2.516	630.220	435.481	29.219
7	09/18/14	11:06-11:35	8.83	11,244	674,643	12.42	6.46	5.89	35.11	24.42	2.871	626.825	436.031	31.204
8	09/18/14	11:36-12:05	8.83	11,666	699,939	12.45	6.45	5.88	36.16	25.24	3.068	618.756	431.980	31.957
9	09/18/14	12:06-12:35	8.83	11,755	705,296	12.55	6.23	5.68	35.42	25.03	3.028	623.148	440.343	32.430

* Based on Standard
Conditions of:
60 deg. F and
29.92 in. Hg

Almega ENVIRONMENTAL

Almega ENVIRONMENTAL

Facility:	OCSD, Plant No. 2	Run No.:	1
City:	Huntington Beach, CA	Test Date:	09/30/15
Source:	Engine 2	Run Time:	7:34-8:06
Test:	RATA		

TEST DATA

VARIABLE	DESCRIPTION	Pollutant 1 NOx	Pollutant 2 CO	Diluent 1 O2	Diluent 2 CO2
A	ANALYTICAL RANGE	100	1000	25	10
	Unit of Measurement	ppmd	ppmd	% dry	% dry
	CALIBRATION GAS INFORMATION				
B	Zero Gas	0.00	0.00	0.00	0.00
C	Mid Gas Concentration	45.24	453.8	12.01	4.32
	Mid Gas Cylinder S/N:	CC147621	CC39463	CC248731	CC248731
D	High Gas Concentration	89.91	899	21.99	8.749
	High Gas Cylinder S/N:	CC199782	CC259973	CC408131	CC408131
	Primary Gas Cylinder S/N:				
E	UPSCALE CALIBRATION GAS USED	45.24	453.8	12.01	4.32
	L=Low, M=Mid, H=High	M	M	M	M
	INITIAL CALIBRATION ERROR TEST				
F	Zero Gas Response	0.00	0.00	0.03	-0.01
G	Mid Gas Response	45.30	454.0	12.09	4.25
H	High Gas Reponse	89.90	896.9	21.97	8.72
	INITIAL SYSTEM CALIBRATION CHECK				
I	Zero Gas Response	0.00	0.00	0.03	0.04
J	Upscale Gas Response	45.41	452.6	12.04	4.24
	FINAL SYSTEM CALIBRATION CHECK				
K	Zero Gas Response	0.16	0.00	0.05	0.06
L	Upscale Gas Response	45.27	451.6	12.05	4.31
	FINAL CALIBRATION ERROR CHECK				
M	Zero Gas Response	0.02	0.40	0.03	0.01
N	Mid Gas Response	45.14	452.7	12.10	4.30
O	High Gas Reponse	89.65	898.2	21.95	8.70
P	AS MEASURED FLUE GAS CONCENTRATION	34.23	574.69	11.78	7.35

CALCULATIONS

						FORMULA
	AVERAGE SYSTEM CALIBRATION					
Q	Zero Response	0.08	0.00	0.04	0.05	(I+K)/2
R	Upscale Response	45.34	452.10	12.05	4.28	(J+L)/2
S	CORRECTED CONC.	34.14	576.85	11.75	7.47	E*(P-Q)/(R-Q)

QA/QC CALCULATIONS

CALIBRATION GAS SELECTION, % of Range					
Low Gas					C'*100/A
Mid Gas	45.2	45.4	48.0	43.2	C*100/A
High Gas	89.9	89.9	88.0	87.5	D*100/A
CALIBRATION ERROR, % of Range					
Initial Zero Gas Error	0.00	0.00	0.12	-0.10	(F-B)*100/A
Initial Low Gas Error					(G'-C')*100/A
Initial Mid Gas Error	0.06	0.02	0.32	-0.70	(G-C)*100/A
Initial High Gas Error	-0.01	-0.21	-0.08	-0.29	(H-D)*100/A
Final Zero Gas Error	0.02	0.04	0.12	0.10	(M-B)*100/A
Final Low Gas Error					(N'-C')*100/A
Final Mid Gas Error	-0.10	-0.11	0.36	-0.20	(N-C)*100/A
Final High Gas Error	-0.26	-0.08	-0.16	-0.49	(O-D)*100/A
LINEARITY, % of Range					
Initial	0.07	0.13	0.31	-0.51	{(G-F)-[(H-F)*C]/D}*100/A
Final	0.02	-0.09	0.39	-0.01	{(N-M)-[(O-M)*C]/D}*100/A
SAMPLING SYSTEM BIAS, % of Range					
Initial Zero Gas Bias	0.00	0.00	0.00	0.50	(I-F)*100/A
Initial Upscale Gas Bias	0.11	-0.14	-0.20	-0.10	(J-G[or G', or H]*100/A
Final Zero Gas Bias	0.14	-0.04	0.08	0.50	(K-M)*100/A
Final Upscale Gas Bias	0.13	-0.11	-0.20	0.10	(L-N[or N', or O]*100/A
CALIBRATION DRIFT, % of Range					
Zero	0.16	0.00	0.08	0.20	(K-I)*100/A
Upscale	-0.14	-0.10	0.04	0.70	(L-J)*100/A

Almega ENVIRONMENTAL

Facility:	**OCSD, Plant No. 2**	Run No.:	**2**
City:	**Huntington Beach, CA**	Test Date:	**09/30/15**
Source:	**Engine 2**	Run Time:	**8:07-8:36**
Test:	**RATA**		

TEST DATA

VARIABLE	DESCRIPTION	Pollutant 1 NOx	Pollutant 2 CO	Diluent 1 O2	Diluent 2 CO2
A	ANALYTICAL RANGE	**100**	**1000**	**25**	**10**
	Unit of Measurement	**ppmd**	**ppmd**	**% dry**	**% dry**
	CALIBRATION GAS INFORMATION				
B	Zero Gas	**0.00**	**0.00**	**0.00**	**0.00**
C	Mid Gas Concentration	**45.24**	**453.8**	**12.01**	**4.32**
	Mid Gas Cylinder S/N:	CC147621	CC39463	CC248731	CC248731
D	High Gas Concentration	**89.91**	**899**	**21.99**	**8.75**
	High Gas Cylinder S/N:	CC199782	CC259973	CC408131	CC408131
	Primary Gas Cylinder S/N:				
E	UPSCALE CALIBRATION GAS USED	**45.24**	**453.8**	**12.01**	**4.32**
	L=Low, M=Mid, H=High	**M**	**M**	**M**	**M**
	INITIAL CALIBRATION ERROR TEST				
F	Zero Gas Response	**0.00**	**0.00**	**0.03**	**-0.01**
G	Mid Gas Response	**45.30**	**454.0**	**12.09**	**4.25**
H	High Gas Reponse	**89.90**	**896.9**	**21.97**	**8.72**
	INITIAL SYSTEM CALIBRATION CHECK				
I	Zero Gas Response	**0.00**	**0.00**	**0.03**	**0.04**
J	Upscale Gas Response	**45.41**	**452.6**	**12.04**	**4.24**
	FINAL SYSTEM CALIBRATION CHECK				
K	Zero Gas Response	**0.16**	**0.00**	**0.05**	**0.06**
L	Upscale Gas Response	**45.27**	**451.6**	**12.05**	**4.31**
	FINAL CALIBRATION ERROR CHECK				
M	Zero Gas Response	**0.02**	**0.40**	**0.03**	**0.01**
N	Mid Gas Response	**45.14**	**452.7**	**12.10**	**4.30**
O	High Gas Reponse	**89.65**	**898.2**	**21.95**	**8.70**
P	AS MEASURED FLUE GAS CONCENTRATION	**34.74**	**584.76**	**12.01**	**7.23**

CALCULATIONS

VARIABLE	DESCRIPTION	NOx	CO	O2	CO2	FORMULA
	AVERAGE SYSTEM CALIBRATION					
Q	Zero Response	0.08	0.00	0.04	0.05	(I+K)/2
R	Upscale Response	45.34	452.10	12.05	4.28	(J+L)/2
S	CORRECTED CONC.	34.64	586.96	11.98	7.34	E*(P-Q)/(R-Q)

QA/QC CALCULATIONS

DESCRIPTION	NOx	CO	O2	CO2	FORMULA
CALIBRATION GAS SELECTION, % of Range					
Mid Gas	45.2	45.4	48.0	43.2	C*100/A
High Gas	89.9	89.9	88.0	87.5	D*100/A
CALIBRATION ERROR, % of Range					
Initial Zero Gas Error	0.00	0.00	0.12	-0.10	(F-B)*100/A
Initial Mid Gas Error	0.06	0.02	0.32	-0.70	(G-C)*100/A
Initial High Gas Error	-0.01	-0.21	-0.08	-0.29	(H-D)*100/A
Final Zero Gas Error	0.02	0.04	0.12	0.10	(M-B)*100/A
Final Mid Gas Error	-0.10	-0.11	0.36	-0.20	(N-C)*100/A
Final High Gas Error	-0.26	-0.08	-0.16	-0.49	(O-D)*100/A
LINEARITY, % of Range					
Initial	0.07	0.13	0.31	-0.51	{(G-F)-[(H-F)*C]/D}*100/A
Final	0.02	-0.09	0.39	-0.01	{(N-M)-[(O-M)*C]/D}*100/A
SAMPLING SYSTEM BIAS, % of Range					
Initial Zero Gas Bias	0.00	0.00	0.00	0.50	(I-F)*100/A
Initial Upscale Gas Bias	0.11	-0.14	-0.20	-0.10	(J-G[or G', or H]*100/A
Final Zero Gas Bias	0.14	-0.04	0.08	0.50	(K-M)*100/A
Final Upscale Gas Bias	0.13	-0.11	-0.20	0.10	(L-N[or N', or O]*100/A
CALIBRATION DRIFT, % of Range					
Zero	0.16	0.00	0.08	0.20	(K-I)*100/A
Upscale	-0.14	-0.10	0.04	0.70	(L-J)*100/A

Almega ENVIRONMENTAL

Facility:	**OCSD, Plant No. 2**	Run No.:	**3**
City:	**Huntington Beach, CA**	Test Date:	**09/18/14**
Source:	**Engine 2**	Run Time:	**8:37-9:06**
Test:	**RATA**		

TEST DATA

VARIABLE	DESCRIPTION	Pollutant 1 NOx	Pollutant 2 CO	Diluent 1 O2	Diluent 2 CO2
A	ANALYTICAL RANGE	**100**	**1000**	**25**	**10**
	Unit of Measurement	**ppmd**	**ppmd**	**% dry**	**% dry**
	CALIBRATION GAS INFORMATION				
B	Zero Gas	**0.00**	**0.00**	**0.00**	**0.00**
C	Mid Gas Concentration	**45.24**	**453.8**	**12.01**	**4.32**
	Mid Gas Cylinder S/N:	CC147621	CC39463	CC248731	CC248731
D	High Gas Concentration	**89.91**	**899**	**21.99**	**8.75**
	High Gas Cylinder S/N:	CC199782	CC259973	CC408131	CC408131
	Primary Gas Cylinder S/N:				
E	UPSCALE CALIBRATION GAS USED	**45.24**	**453.8**	**12.01**	**4.32**
	L=Low, M=Mid, H=High	**M**	**M**	**M**	**M**
	INITIAL CALIBRATION ERROR TEST				
F	Zero Gas Response	**0.00**	**0.00**	**0.03**	**-0.01**
G	Mid Gas Response	**45.30**	**454.0**	**12.09**	**4.25**
H	High Gas Reponse	**89.90**	**896.9**	**21.97**	**8.72**
	INITIAL SYSTEM CALIBRATION CHECK				
I	Zero Gas Response	**0.00**	**0.00**	**0.03**	**0.04**
J	Upscale Gas Response	**45.41**	**452.6**	**12.04**	**4.24**
	FINAL SYSTEM CALIBRATION CHECK				
K	Zero Gas Response	**0.16**	**0.00**	**0.05**	**0.06**
L	Upscale Gas Response	**45.27**	**451.6**	**12.05**	**4.31**
	FINAL CALIBRATION ERROR CHECK				
M	Zero Gas Response	**0.02**	**0.40**	**0.03**	**0.01**
N	Mid Gas Response	**45.14**	**452.7**	**12.10**	**4.30**
O	High Gas Reponse	**89.65**	**898.2**	**21.95**	**8.70**
P	AS MEASURED FLUE GAS CONCENTRATION	**35.50**	**569.75**	**12.09**	**7.16**

CALCULATIONS

						FORMULA
	AVERAGE SYSTEM CALIBRATION					
Q	Zero Response	0.08	0.00	0.04	0.05	(I+K)/2
R	Upscale Response	45.34	452.10	12.05	4.28	(J+L)/2
S	CORRECTED CONC.	35.40	571.89	12.06	7.27	E*(P-Q)/(R-Q)

QA/QC CALCULATIONS

CALIBRATION GAS SELECTION, % of Range					
Mid Gas	45.2	45.4	48.0	43.2	C*100/A
High Gas	89.9	89.9	88.0	87.5	D*100/A
CALIBRATION ERROR, % of Range					
Initial Zero Gas Error	0.00	0.00	0.12	-0.10	(F-B)*100/A
Initial Mid Gas Error	0.06	0.02	0.32	-0.70	(G-C)*100/A
Initial High Gas Error	-0.01	-0.21	-0.08	-0.29	(H-D)*100/A
Final Zero Gas Error	0.02	0.04	0.12	0.10	(M-B)*100/A
Final Mid Gas Error	-0.10	-0.11	0.36	-0.20	(N-C)*100/A
Final High Gas Error	-0.26	-0.08	-0.16	-0.49	(O-D)*100/A
LINEARITY, % of Range					
Initial	0.07	0.13	0.31	-0.51	{(G-F)-[(H-F)*C]/D}*100/A
Final	0.02	-0.09	0.39	-0.01	{(N-M)-[(O-M)*C]/D}*100/A
SAMPLING SYSTEM BIAS, % of Range					
Initial Zero Gas Bias	0.00	0.00	0.00	0.50	(I-F)*100/A
Initial Upscale Gas Bias	0.11	-0.14	-0.20	-0.10	(J-G[or G', or H]*100/A
Final Zero Gas Bias	0.14	-0.04	0.08	0.50	(K-M)*100/A
Final Upscale Gas Bias	0.13	-0.11	-0.20	0.10	(L-N[or N', or O]*100/A
CALIBRATION DRIFT, % of Range					
Zero	0.16	0.00	0.08	0.20	(K-I)*100/A
Upscale	-0.14	-0.10	0.04	0.70	(L-J)*100/A

Almega ENVIRONMENTAL

Facility:	OCSD, Plant No. 2	Run No.:	4
City:	Huntington Beach, CA	Test Date:	09/18/14
Source:	Engine 2	Run Time:	9:21-9:50
Test:	RATA		

TEST DATA

VARIABLE	DESCRIPTION	Pollutant 1 NOx	Pollutant 2 CO	Diluent 1 O2	Diluent 2 CO2
A	ANALYTICAL RANGE	100	1000	25	10
	Unit of Measurement	ppmd	ppmd	% dry	% dry
	CALIBRATION GAS INFORMATION				
B	Zero Gas	0.00	0.0	0.00	0.00
C	Mid Gas Concentration	45.24	453.8	12.01	4.32
	Mid Gas Cylinder S/N:	CC147621	CC39463	CC248731	CC248731
D	High Gas Concentration	89.91	899	21.99	8.75
	High Gas Cylinder S/N:	CC199782	CC259973	CC408131	CC408131
	Primary Gas Cylinder S/N:				
E	UPSCALE CALIBRATION GAS USED	45.24	453.8	12.01	4.32
	L=Low, M=Mid, H=High	M	M	M	M
	INITIAL CALIBRATION ERROR TEST				
F	Zero Gas Response	0.00	0.00	0.03	-0.01
G	Mid Gas Response	45.30	454.0	12.09	4.25
H	High Gas Reponse	89.90	896.9	21.97	8.72
	INITIAL SYSTEM CALIBRATION CHECK				
I	Zero Gas Response	0.16	0.00	0.05	0.06
J	Upscale Gas Response	45.27	451.6	12.05	4.31
	FINAL SYSTEM CALIBRATION CHECK				
K	Zero Gas Response	0.10	0.00	0.05	0.08
L	Upscale Gas Response	45.24	450.6	12.05	4.29
	FINAL CALIBRATION ERROR CHECK				
M	Zero Gas Response	0.02	0.40	0.03	0.01
N	Mid Gas Response	45.14	452.7	12.10	4.30
O	High Gas Reponse	89.65	898.2	21.95	8.70
P	AS MEASURED FLUE GAS CONCENTRATION	35.41	564.37	12.09	7.19

CALCULATIONS

						FORMULA
	AVERAGE SYSTEM CALIBRATION					
Q	Zero Response	0.13	0.00	0.05	0.07	(I+K)/2
R	Upscale Response	45.26	451.10	12.05	4.30	(J+L)/2
S	CORRECTED CONC.	35.37	567.75	12.05	7.27	E*(P-Q)/(R-Q)

QA/QC CALCULATIONS

CALIBRATION GAS SELECTION, % of Range					
Low Gas					C'*100/A
Mid Gas	45.2	45.4	48.0	43.2	C*100/A
High Gas	89.9	89.9	88.0	87.5	D*100/A
CALIBRATION ERROR, % of Range					
Initial Zero Gas Error	0.00	0.00	0.12	-0.10	(F-B)*100/A
Initial Low Gas Error					(G'-C')*100/A
Initial Mid Gas Error	0.06	0.02	0.32	-0.70	(G-C)*100/A
Initial High Gas Error	-0.01	-0.21	-0.08	-0.29	(H-D)*100/A
Final Zero Gas Error	0.02	0.04	0.12	0.10	(M-B)*100/A
Final Low Gas Error					(N'-C')*100/A
Final Mid Gas Error	-0.10	-0.11	0.36	-0.20	(N-C)*100/A
Final High Gas Error	-0.26	-0.08	-0.16	-0.49	(O-D)*100/A
LINEARITY, % of Range					
Initial	0.07	0.13	0.31	-0.51	{(G-F)-[(H-F)*C]/D}*100/A
Final	0.02	-0.09	0.39	-0.01	{(N-M)-[(O-M)*C]/D}*100/A
SAMPLING SYSTEM BIAS, % of Range					
Initial Zero Gas Bias	0.16	0.00	0.08	0.70	(I-F)*100/A
Initial Upscale Gas Bias	-0.03	-0.24	-0.16	0.60	(J-G[or G', or H]*100/A
Final Zero Gas Bias	0.08	-0.04	0.08	0.70	(K-M)*100/A
Final Upscale Gas Bias	0.10	-0.21	-0.20	-0.10	(L-N[or N', or O]*100/A
CALIBRATION DRIFT, % of Range					
Zero	-0.06	0.00	0.00	0.20	(K-I)*100/A
Upscale	-0.03	-0.10	0.00	-0.20	(L-J)*100/A

Almega ENVIRONMENTAL

Facility:	**OCSD, Plant No. 2**	Run No.:	**5**
City:	**Huntington Beach, CA**	Test Date:	**09/18/14**
Source:	**Engine 2**	Run Time:	**9:51-10:20**
Test:	**RATA**		

TEST DATA

VARIABLE	DESCRIPTION	Pollutant 1 NOx	Pollutant 2 CO	Diluent 1 O2	Diluent 2 CO2
A	ANALYTICAL RANGE	**100**	**1000**	**25**	**10**
	Unit of Measurement	**ppmd**	**ppmd**	**% dry**	**% dry**
	CALIBRATION GAS INFORMATION				
B	Zero Gas	**0.00**	**0.00**	**0.00**	**0.00**
C	Mid Gas Concentration	**45.24**	**453.8**	**12.01**	**4.32**
	Mid Gas Cylinder S/N:	CC147621	CC39463	CC248731	CC248731
D	High Gas Concentration	**89.91**	**899**	**21.99**	**8.75**
	High Gas Cylinder S/N:	CC199782	CC259973	CC408131	CC408131
	Primary Gas Cylinder S/N:				
E	UPSCALE CALIBRATION GAS USED	**45.24**	**453.8**	**12.01**	**4.32**
	L=Low, M=Mid, H=High	**M**	**M**	**M**	**M**
	INITIAL CALIBRATION ERROR TEST				
F	Zero Gas Response	**0.00**	**0.00**	**0.03**	**-0.01**
G	Mid Gas Response	**45.30**	**454.0**	**12.09**	**4.25**
H	High Gas Reponse	**89.90**	**896.9**	**21.97**	**8.72**
	INITIAL SYSTEM CALIBRATION CHECK				
I	Zero Gas Response	**0.16**	**0.00**	**0.05**	**0.06**
J	Upscale Gas Response	**45.27**	**451.6**	**12.05**	**4.31**
	FINAL SYSTEM CALIBRATION CHECK				
K	Zero Gas Response	**0.10**	**0.00**	**0.05**	**0.08**
L	Upscale Gas Response	**45.24**	**450.6**	**12.05**	**4.29**
	FINAL CALIBRATION ERROR CHECK				
M	Zero Gas Response	**0.02**	**0.40**	**0.03**	**0.01**
N	Mid Gas Response	**45.14**	**452.7**	**12.10**	**4.30**
O	High Gas Reponse	**89.65**	**898.2**	**21.95**	**8.70**
P	AS MEASURED FLUE GAS CONCENTRATION	**33.90**	**587.75**	**12.24**	**7.11**

CALCULATIONS

VARIABLE	DESCRIPTION	NOx	CO	O2	CO2	FORMULA
	AVERAGE SYSTEM CALIBRATION					
Q	Zero Response	0.13	0.00	0.05	0.07	(I+K)/2
R	Upscale Response	45.26	451.10	12.05	4.30	(J+L)/2
S	CORRECTED CONC.	33.86	591.27	12.20	7.19	E*(P-Q) (R-Q)

QA/QC CALCULATIONS

DESCRIPTION	NOx	CO	O2	CO2	FORMULA
CALIBRATION GAS SELECTION, % of Range					
Low Gas					C'*100/A
Mid Gas	45.2	45.4	48.0	43.2	C*100/A
High Gas	89.9	89.9	88.0	87.5	D*100/A
CALIBRATION ERROR, % of Range					
Initial Zero Gas Error	0.00	0.00	0.12	-0.10	(F-B)*100/A
Initial Low Gas Error					(G'-C')*100/A
Initial Mid Gas Error	0.06	0.02	0.32	-0.70	(G-C)*100/A
Initial High Gas Error	-0.01	-0.21	-0.08	-0.29	(H-D)*100/A
Final Zero Gas Error	0.02	0.04	0.12	0.10	(M-B)*100/A
Final Low Gas Error					(N'-C')*100/A
Final Mid Gas Error	-0.10	-0.11	0.36	-0.20	(N-C)*100/A
Final High Gas Error	-0.26	-0.08	-0.16	-0.49	(O-D)*100/A
LINEARITY, % of Range					
Initial	0.07	0.13	0.31	-0.51	{(G-F)-[(H-F)*C]/D}*100/A
Final	0.02	-0.09	0.39	-0.01	{(N-M)-[(O-M)*C]/D}*100/A
SAMPLING SYSTEM BIAS, % of Range					
Initial Zero Gas Bias	0.16	0.00	0.08	0.70	(I-F)*100/A
Initial Upscale Gas Bias	-0.03	-0.24	-0.16	0.60	(J-G[or G', or H]*100/A
Final Zero Gas Bias	0.08	-0.04	0.08	0.70	(K-M)*100/A
Final Upscale Gas Bias	0.10	-0.21	-0.20	-0.10	(L-N[or N', or O]*100/A
CALIBRATION DRIFT, % of Range					
Zero	-0.06	0.00	0.00	0.20	(K-I)*100/A
Upscale	-0.03	-0.10	0.00	-0.20	(L-J)*100/A

Almega ENVIRONMENTAL

Facility:	**OCSD, Plant No. 2**		Run No.:	**6**
City:	**Huntington Beach, CA**		Test Date:	**09/18/14**
Source:	**Engine 2**		Run Time:	**10:21-10:50**
Test:	**RATA**			

TEST DATA

VARIABLE	DESCRIPTION	Pollutant 1 NOx	Pollutant 2 CO	Diluent 1 O2	Diluent 2 CO2
A	ANALYTICAL RANGE	**100**	**1000**	**25**	**10**
	Unit of Measurement	**ppmd**	**ppmd**	**% dry**	**% dry**
	CALIBRATION GAS INFORMATION				
B	Zero Gas	**0.00**	**0.00**	**0.00**	**0.00**
C	Mid Gas Concentration	**45.24**	**453.8**	**12.01**	**4.32**
	Mid Gas Cylinder S/N:	CC147621	CC39463	CC248731	CC248731
D	High Gas Concentration	**89.91**	**899**	**21.99**	**8.75**
	High Gas Cylinder S/N:	CC199782	CC259973	CC408131	CC408131
	Primary Gas Cylinder S/N:				
E	UPSCALE CALIBRATION GAS USED	**45.24**	**453.8**	**12.01**	**4.32**
	L=Low, M=Mid, H=High	**M**	**M**	**M**	**M**
	INITIAL CALIBRATION ERROR TEST				
F	Zero Gas Response	**0.00**	**0.00**	**0.03**	**-0.01**
G	Mid Gas Response	**45.30**	**454.0**	**12.09**	**4.25**
H	High Gas Reponse	**89.90**	**896.9**	**21.97**	**8.72**
	INITIAL SYSTEM CALIBRATION CHECK				
I	Zero Gas Response	**0.16**	**0.00**	**0.05**	**0.06**
J	Upscale Gas Response	**45.27**	**451.6**	**12.05**	**4.31**
	FINAL SYSTEM CALIBRATION CHECK				
K	Zero Gas Response	**0.10**	**0.00**	**0.05**	**0.08**
L	Upscale Gas Response	**45.24**	**450.6**	**12.05**	**4.29**
	FINAL CALIBRATION ERROR CHECK				
M	Zero Gas Response	**0.02**	**0.40**	**0.03**	**0.01**
N	Mid Gas Response	**45.14**	**452.7**	**12.10**	**4.30**
O	High Gas Reponse	**89.65**	**898.2**	**21.95**	**8.70**
P	AS MEASURED FLUE GAS CONCENTRATION	**33.08**	**626.47**	**12.40**	**6.97**

CALCULATIONS

						FORMULA
	AVERAGE SYSTEM CALIBRATION					
Q	Zero Response	0.13	0.00	0.05	0.07	(I+K)/2
R	Upscale Response	45.26	451.10	12.05	4.30	(J+L)/2
S	CORRECTED CONC.	33.04	630.22	12.36	7.05	E*(P-Q)/(R-Q)

QA/QC CALCULATIONS

CALIBRATION GAS SELECTION, % of Range					
Low Gas					C'*100/A
Mid Gas	45.2	45.4	48.0	43.2	C*100/A
High Gas	89.9	89.9	88.0	87.5	D*100/A
CALIBRATION ERROR, % of Range					
Initial Zero Gas Error	0.00	0.00	0.12	-0.10	(F-B)*100/A
Initial Mid Gas Error	0.06	0.02	0.32	-0.70	(G-C)*100/A
Initial High Gas Error	-0.01	-0.21	-0.08	-0.29	(H-D)*100/A
Final Zero Gas Error	0.02	0.04	0.12	0.10	(M-B)*100/A
Final Mid Gas Error	-0.10	-0.11	0.36	-0.20	(N-C)*100/A
Final High Gas Error	-0.26	-0.08	-0.16	-0.49	(O-D)*100/A
LINEARITY, % of Range					
Initial	0.07	0.13	0.31	-0.51	{(G-F)-[(H-F)*C]/D}*100/A
Final	0.02	-0.09	0.39	-0.01	{(N-M)-[(O-M)*C]/D}*100/A
SAMPLING SYSTEM BIAS, % of Range					
Initial Zero Gas Bias	0.16	0.00	0.08	0.70	(I-F)*100/A
Initial Upscale Gas Bias	-0.03	-0.24	-0.16	0.60	(J-G[or G', or H]*100/A
Final Zero Gas Bias	0.08	-0.04	0.08	0.70	(K-M)*100/A
Final Upscale Gas Bias	0.10	-0.21	-0.20	-0.10	(L-N[or N', or O]*100/A
CALIBRATION DRIFT, % of Range					
Zero	-0.06	0.00	0.00	0.20	(K-I)*100/A
Upscale	-0.03	-0.10	0.00	-0.20	(L-J)*100/A

Facility:	**OCSD, Plant No. 2**	Run No.:	**7**
City:	**Huntington Beach, CA**	Test Date:	**09/18/14**
Source:	**Engine 2**	Run Time:	**11:06-11:35**
Test:	**RATA**		

TEST DATA

VARIABLE	DESCRIPTION	Pollutant 1 NOx	Pollutant 2 CO	Diluent 1 O2	Diluent 2 CO2
A	ANALYTICAL RANGE	**100**	**1000**	**25**	**10**
	Unit of Measurement	**ppmd**	**ppmd**	**% dry**	**% dry**
	CALIBRATION GAS INFORMATION				
B	Zero Gas	**0.00**	**0.00**	**0.00**	**0.00**
C	Mid Gas Concentration	**45.24**	**453.8**	**12.01**	**4.32**
	Mid Gas Cylinder S/N:	CC147621	CC39463	CC248731	CC248731
D	High Gas Concentration	**89.91**	**899**	**21.99**	**8.75**
	High Gas Cylinder S/N:	CC199782	CC259973	CC408131	CC408131
	Primary Gas Cylinder S/N:				
E	UPSCALE CALIBRATION GAS USED	**45.24**	**453.8**	**12.01**	**4.32**
	L=Low, M=Mid, H=High	**M**	**M**	**M**	**M**
	INITIAL CALIBRATION ERROR TEST				
F	Zero Gas Response	**0.00**	**0.00**	**0.03**	**-0.01**
G	Mid Gas Response	**45.30**	**454.0**	**12.09**	**4.25**
H	High Gas Reponse	**89.90**	**896.9**	**21.97**	**8.72**
	INITIAL SYSTEM CALIBRATION CHECK				
I	Zero Gas Response	**0.10**	**0.00**	**0.05**	**0.08**
J	Upscale Gas Response	**45.24**	**450.6**	**12.05**	**4.29**
	FINAL SYSTEM CALIBRATION CHECK				
K	Zero Gas Response	**0.19**	**0.20**	**0.03**	**0.06**
L	Upscale Gas Response	**44.83**	**450.6**	**12.05**	**4.19**
	FINAL CALIBRATION ERROR CHECK				
M	Zero Gas Response	**0.02**	**0.40**	**0.03**	**0.01**
N	Mid Gas Response	**45.14**	**452.7**	**12.10**	**4.30**
O	High Gas Reponse	**89.65**	**898.2**	**21.95**	**8.70**
P	AS MEASURED FLUE GAS CONCENTRATION	**34.98**	**622.37**	**12.46**	**6.30**

CALCULATIONS

						FORMULA
	AVERAGE SYSTEM CALIBRATION					
Q	Zero Response	0.15	0.10	0.04	0.07	(I+K)/2
R	Upscale Response	45.04	450.60	12.05	4.24	(J+L)/2
S	CORRECTED CONC.	35.11	626.82	12.42	6.46	E*(P-Q)/(R-Q)

QA/QC CALCULATIONS

CALIBRATION GAS SELECTION, % of Range					
Low Gas					C'*100/A
Mid Gas	45.2	45.4	48.0	43.2	C*100/A
High Gas	89.9	89.9	88.0	87.5	D*100/A
CALIBRATION ERROR, % of Range					
Initial Zero Gas Error	0.00	0.00	0.12	-0.10	(F-B)*100/A
Initial Low Gas Error					(G'-C')*100/A
Initial Mid Gas Error	0.06	0.02	0.32	-0.70	(G-C)*100/A
Initial High Gas Error	-0.01	-0.21	-0.08	-0.29	(H-D)*100/A
Final Zero Gas Error	0.02	0.04	0.12	0.10	(M-B)*100/A
Final Low Gas Error					(N'-C')*100/A
Final Mid Gas Error	-0.10	-0.11	0.36	-0.20	(N-C)*100/A
Final High Gas Error	-0.26	-0.08	-0.16	-0.49	(O-D)*100/A
LINEARITY, % of Range					
Initial	0.07	0.13	0.31	-0.51	{(G-F)-[(H-F)*C]/D}*100/A
Final	0.02	-0.09	0.39	-0.01	{(N-M)-[(O-M)*C]/D}*100/A
SAMPLING SYSTEM BIAS, % of Range					
Initial Zero Gas Bias	0.10	0.00	0.08	0.90	(I-F)*100/A
Initial Upscale Gas Bias	-0.06	-0.34	-0.16	0.40	(J-G[or G', or H]*100/A
Final Zero Gas Bias	0.17	-0.02	0.00	0.50	(K-M)*100/A
Final Upscale Gas Bias	-0.31	-0.21	-0.20	-1.10	(L-N[or N', or O]*100/A
CALIBRATION DRIFT, % of Range					
Zero	0.09	0.02	-0.08	-0.20	(K-I)*100/A
Upscale	-0.41	0.00	0.00	-1.00	(L-J)*100/A

Facility:	**OCSD, Plant No. 2**	Run No.:	**8**
City:	**Huntington Beach, CA**	Test Date:	**09/18/14**
Source:	**Engine 2**	Run Time:	**11:36-12:05**
Test:	**RATA**		

TEST DATA

VARIABLE	DESCRIPTION	Pollutant 1 NOx	Pollutant 2 CO	Diluent 1 O2	Diluent 2 CO2
A	ANALYTICAL RANGE	**100**	**1000**	**25**	**10**
	Unit of Measurement	**ppmd**	**ppmd**	**% dry**	**% dry**
	CALIBRATION GAS INFORMATION				
B	Zero Gas	**0.00**	**0.00**	**0.00**	**0.00**
C	Mid Gas Concentration	**45.24**	**453.8**	**12.01**	**4.32**
	Mid Gas Cylinder S/N:	CC147621	CC39463	CC248731	CC248731
D	High Gas Concentration	**89.91**	**899**	**21.99**	**8.75**
	High Gas Cylinder S/N:	CC199782	CC259973	CC408131	CC408131
	Primary Gas Cylinder S/N:				
E	UPSCALE CALIBRATION GAS USED	**45.24**	**453.8**	**12.01**	**4.32**
	L=Low, M=Mid, H=High	**M**	**M**	**M**	**M**
	INITIAL CALIBRATION ERROR TEST				
F	Zero Gas Response	**0.00**	**0.00**	**0.03**	**-0.01**
G	Mid Gas Response	**45.30**	**454.0**	**12.09**	**4.25**
H	High Gas Reponse	**89.90**	**896.9**	**21.97**	**8.72**
	INITIAL SYSTEM CALIBRATION CHECK				
I	Zero Gas Response	**0.10**	**0.00**	**0.05**	**0.08**
J	Upscale Gas Response	**45.24**	**450.6**	**12.05**	**4.29**
	FINAL SYSTEM CALIBRATION CHECK				
K	Zero Gas Response	**0.19**	**0.20**	**0.03**	**0.06**
L	Upscale Gas Response	**44.83**	**450.6**	**12.05**	**4.19**
	FINAL CALIBRATION ERROR CHECK				
M	Zero Gas Response	**0.02**	**0.40**	**0.03**	**0.01**
N	Mid Gas Response	**45.14**	**452.7**	**12.10**	**4.30**
O	High Gas Reponse	**89.65**	**898.2**	**21.95**	**8.70**
P	AS MEASURED FLUE GAS CONCENTRATION	**36.02**	**614.36**	**12.49**	**6.30**

CALCULATIONS

		NOx	CO	O2	CO2	FORMULA
	AVERAGE SYSTEM CALIBRATION					
Q	Zero Response	0.15	0.10	0.04	0.07	(I+K)/2
R	Upscale Response	45.04	450.60	12.05	4.24	(J+L)/2
S	CORRECTED CONC.	36.16	618.76	12.45	6.45	E*(P-Q)/(R-Q)

QA/QC CALCULATIONS

	NOx	CO	O2	CO2	Formula
CALIBRATION GAS SELECTION, % of Range					
Mid Gas	45.2	45.4	48.0	43.2	C*100/A
High Gas	89.9	89.9	88.0	87.5	D*100/A
CALIBRATION ERROR, % of Range					
Initial Zero Gas Error	0.00	0.00	0.12	-0.10	(F-B)*100/A
Initial Mid Gas Error	0.06	0.02	0.32	-0.70	(G-C)*100/A
Initial High Gas Error	-0.01	-0.21	-0.08	-0.29	(H-D)*100/A
Final Zero Gas Error	0.02	0.04	0.12	0.10	(M-B)*100/A
Final Mid Gas Error	-0.10	-0.11	0.36	-0.20	(N-C)*100/A
Final High Gas Error	-0.26	-0.08	-0.16	-0.49	(O-D)*100/A
LINEARITY, % of Range					
Initial	0.07	0.13	0.31	-0.51	{(G-F)-[(H-F)*C]/D}*100/A
Final	0.02	-0.09	0.39	-0.01	{(N-M)-[(O-M)*C]/D}*100/A
SAMPLING SYSTEM BIAS, % of Range					
Initial Zero Gas Bias	0.10	0.00	0.08	0.90	(I-F)*100/A
Initial Upscale Gas Bias	-0.06	-0.34	-0.16	0.40	(J-G[or G', or H]*100/A
Final Zero Gas Bias	0.17	-0.02	0.00	0.50	(K-M)*100/A
Final Upscale Gas Bias	-0.31	-0.21	-0.20	-1.10	(L-N[or N', or O]*100/A
CALIBRATION DRIFT, % of Range					
Zero	0.09	0.02	-0.08	-0.20	(K-I)*100/A
Upscale	-0.41	0.00	0.00	-1.00	(L-J)*100/A

Almega ENVIRONMENTAL

Facility:	OCSD, Plant No. 2	Run No.:	9
City:	Huntington Beach, CA	Test Date:	09/18/14
Source:	Engine 2	Run Time:	12:06-12:35
Test:	RATA		

TEST DATA

VARIABLE	DESCRIPTION	Pollutant 1 NOx	Pollutant 2 CO	Diluent 1 O2	Diluent 2 CO2
A	ANALYTICAL RANGE	100	1000	25	10
	Unit of Measurement	ppmd	ppmd	% dry	% dry
	CALIBRATION GAS INFORMATION				
B	Zero Gas	0.00	0.00	0.00	0.00
C	Mid Gas Concentration	45.24	453.8	12.01	4.32
	Mid Gas Cylinder S/N:	CC147621	CC39463	CC248731	CC248731
D	High Gas Concentration	89.91	899	21.99	8.75
	High Gas Cylinder S/N:	CC199782	CC259973	CC408131	CC408131
	Primary Gas Cylinder S/N:				
E	UPSCALE CALIBRATION GAS USED	45.24	453.8	12.01	4.32
	L=Low, M=Mid, H=High	M	M	M	M
	INITIAL CALIBRATION ERROR TEST				
F	Zero Gas Response	0.00	0.00	0.03	-0.01
G	Mid Gas Response	45.30	454.0	12.09	4.25
H	High Gas Reponse	89.90	896.9	21.97	8.72
	INITIAL SYSTEM CALIBRATION CHECK				
I	Zero Gas Response	0.10	0.00	0.05	0.08
J	Upscale Gas Response	45.24	450.6	12.05	4.29
	FINAL SYSTEM CALIBRATION CHECK				
K	Zero Gas Response	0.19	0.20	0.03	0.06
L	Upscale Gas Response	44.83	450.6	12.05	4.19
	FINAL CALIBRATION ERROR CHECK				
M	Zero Gas Response	0.02	0.40	0.03	0.01
N	Mid Gas Response	45.14	452.7	12.10	4.30
O	High Gas Reponse	89.65	898.2	21.95	8.70
P	AS MEASURED FLUE GAS CONCENTRATION	35.29	618.72	12.59	6.09

CALCULATIONS

VARIABLE	DESCRIPTION	NOx	CO	O2	CO2	FORMULA
	AVERAGE SYSTEM CALIBRATION					
Q	Zero Response	0.15	0.10	0.04	0.07	(I+K)/2
R	Upscale Response	45.04	450.60	12.05	4.24	(J+L)/2
S	CORRECTED CONC.	35.42	623.15	12.55	6.23	E*(P-Q)/(R-Q)

QA/QC CALCULATIONS

DESCRIPTION	NOx	CO	O2	CO2	FORMULA
CALIBRATION GAS SELECTION, % of Range					
Low Gas					C'*100/A
Mid Gas	45.2	45.4	48.0	43.2	C*100/A
High Gas	89.9	89.9	88.0	87.5	D*100/A
CALIBRATION ERROR, % of Range					
Initial Zero Gas Error	0.00	0.00	0.12	-0.10	(F-B)*100/A
Initial Low Gas Error					(G'-C')*100/A
Initial Mid Gas Error	0.06	0.02	0.32	-0.70	(G-C)*100/A
Initial High Gas Error	-0.01	-0.21	-0.08	-0.29	(H-D)*100/A
Final Zero Gas Error	0.02	0.04	0.12	0.10	(M-B)*100/A
Final Low Gas Error					(N'-C')*100/A
Final Mid Gas Error	-0.10	-0.11	0.36	-0.20	(N-C)*100/A
Final High Gas Error	-0.26	-0.08	-0.16	-0.49	(O-D)*100/A
LINEARITY, % of Range					
Initial	0.07	0.13	0.31	-0.51	{(G-F)-[(H-F)*C]/D}*100/A
Final	0.02	-0.09	0.39	-0.01	{(N-M)-[(O-M)*C]/D}*100/A
SAMPLING SYSTEM BIAS, % of Range					
Initial Zero Gas Bias	0.10	0.00	0.08	0.90	(I-F)*100/A
Initial Upscale Gas Bias	-0.06	-0.34	-0.16	0.40	(J-G[or G', or H]*100/A
Final Zero Gas Bias	0.17	-0.02	0.00	0.50	(K-M)*100/A
Final Upscale Gas Bias	-0.31	-0.21	-0.20	-1.10	(L-N[or N', or O]*100/A
CALIBRATION DRIFT, % of Range					
Zero	0.09	0.02	-0.08	-0.20	(K-I)*100/A
Upscale	-0.41	0.00	0.00	-1.00	(L-J)*100/A

Almega ENVIRONMENTAL

AETS CEMS Data -- Run-by-Run Basis

#	RUN 1.0 Time	NOx	CO	O2	CO2	#	RUN 2.0 Time	NOx	CO	O2	CO2
#	AVG	34.23	574.69	11.78	7.35	#	AVG	34.74	584.76	12.01	7.23
1	7:34:01	35.92	543.40	11.27	7.62	1	8:07:01	34.09	583.60	12.02	7.19
2	7:35:01	35.31	535.60	11.34	7.63	2	8:08:01	34.26	576.90	12.01	7.19
3	7:36:01	34.11	544.30	11.43	7.62	3	8:09:01	34.70	576.80	11.95	7.21
4	7:37:01	34.63	545.50	11.50	7.59	4	8:10:01	35.13	578.70	11.92	7.25
5	7:38:01	33.48	548.70	11.59	7.51	5	8:11:01	34.70	578.60	11.95	7.26
6	7:39:01	33.17	561.10	11.60	7.49	6	8:12:01	35.15	578.30	11.95	7.26
7	7:40:01	33.34	560.60	11.59	7.49	7	8:13:01	34.10	586.50	11.98	7.26
8	7:41:01	32.95	560.10	11.63	7.48	8	8:14:01	33.89	598.00	12.02	7.24
9	7:42:01	36.20	534.90	11.58	7.53	9	8:15:01	33.72	589.50	12.08	7.18
10	7:43:01	34.48	536.80	11.72	7.45	10	8:16:01	33.41	599.00	12.05	7.19
11	7:44:01	33.58	557.20	11.76	7.41	11	8:17:01	33.78	604.20	12.02	7.21
12	7:45:01	32.40	574.40	11.81	7.36	12	8:18:01	33.73	606.40	12.01	7.21
13	7:46:02	32.19	586.00	11.83	7.35	13	8:19:01	33.78	609.50	12.01	7.22
14	7:47:01	33.59	584.20	11.86	7.33	14	8:20:01	33.91	608.40	12.00	7.23
15	7:48:01	35.23	593.80	11.89	7.32	15	8:21:01	34.00	611.70	12.00	7.23
16	7:49:01	35.48	591.80	11.90	7.33	16	8:22:01	34.36	601.60	12.02	7.23
17	7:50:01	34.32	591.00	12.12	7.15	17	8:23:01	34.58	595.30	12.01	7.23
18	7:51:01	34.84	579.50	11.98	7.19	18	8:24:01	35.24	583.20	11.99	7.25
19	7:52:01	34.78	593.00	11.94	7.21	19	8:25:01	35.29	576.40	12.00	7.26
20	7:53:01	34.80	598.70	11.92	7.25	20	8:26:01	34.94	582.30	12.01	7.26
21	7:54:01	34.37	593.90	11.93	7.28	21	8:27:01	35.10	571.70	12.08	7.21
22	7:55:01	33.83	605.50	11.96	7.28	22	8:28:01	35.00	576.00	12.05	7.22
23	7:56:01	34.36	594.70	11.93	7.28	23	8:29:01	34.87	573.80	12.07	7.22
24	8:00:01	33.94	592.40	11.92	7.21	24	8:30:01	34.60	577.50	12.07	7.23
25	8:01:01	33.85	595.20	11.90	7.21	25	8:31:01	35.14	580.50	12.00	7.24
26	8:02:01	34.04	594.50	11.95	7.16	26	8:32:01	35.46	574.90	11.99	7.27
27	8:03:01	34.19	587.40	11.97	7.14	27	8:33:01	35.15	575.70	12.05	7.25
28	8:04:01	34.75	587.00	11.86	7.21	28	8:34:01	34.62	577.90	12.05	7.23
29	8:05:01	34.79	585.30	11.89	7.23	29	8:35:01	37.59	558.50	11.96	7.24
30	8:06:01	34.06	584.20	11.96	7.22	30	8:36:01	37.76	551.40	12.04	7.19

Almega Environmental

AETS CEMS Data -- Run-by-Run Basis

#	Time	NOx	CO	O2	CO2
	RUN 3.0				
#	AVG	35.50	569.75	12.09	7.16
1	8:37:01	36.24	564.40	12.10	7.14
2	8:38:01	36.09	562.80	12.09	7.17
3	8:39:01	36.16	564.40	12.05	7.17
4	8:40:01	36.28	566.00	12.00	7.21
5	8:41:01	35.65	568.80	12.01	7.21
6	8:42:01	35.82	563.70	12.05	7.21
7	8:43:01	35.89	567.20	12.02	7.22
8	8:44:01	35.53	556.80	12.16	7.14
9	8:45:01	35.19	558.30	12.11	7.12
10	8:46:01	35.47	562.90	12.06	7.17
11	8:47:01	35.97	565.70	12.02	7.19
12	8:48:01	35.99	558.70	12.07	7.18
13	8:49:01	35.08	553.60	12.17	7.08
14	8:50:01	35.84	564.30	12.02	7.15
15	8:51:01	35.54	562.60	12.04	7.18
16	8:52:01	35.09	569.20	12.11	7.17
17	8:53:01	34.10	581.90	12.11	7.13
18	8:54:01	33.35	602.60	12.15	7.13
19	8:55:01	33.97	600.20	12.13	7.14
20	8:56:01	34.14	593.40	12.25	7.08
21	8:57:01	34.80	579.80	12.11	7.11
22	8:58:01	35.19	582.40	12.09	7.17
23	8:59:01	34.98	582.60	12.08	7.18
24	9:00:01	35.73	573.60	12.06	7.21
25	9:01:01	36.15	562.90	12.12	7.19
26	9:02:01	35.42	564.70	12.16	7.14
27	9:03:01	35.68	568.40	12.12	7.13
28	9:04:01	35.92	569.00	12.08	7.14
29	9:05:01	36.37	565.10	12.08	7.16
30	9:06:01	37.22	556.40	12.09	7.17

#	Time	NOx	CO	O2	CO2
	RUN 4.0				
#	AVG	35.41	564.37	12.09	7.19
1	9:21:01	32.93	632.00	12.02	7.14
2	9:22:01	33.69	622.80	12.04	7.17
3	9:23:01	35.00	591.80	12.04	7.21
4	9:24:01	34.96	583.80	12.03	7.21
5	9:25:01	35.19	574.80	12.04	7.23
6	9:26:01	34.46	564.40	12.23	7.08
7	9:27:01	35.74	558.10	12.06	7.20
8	9:28:01	35.63	565.80	12.04	7.20
9	9:29:01	35.80	563.50	12.03	7.20
10	9:30:01	35.63	564.10	12.04	7.22
11	9:31:01	35.77	561.30	12.05	7.23
12	9:32:01	36.26	552.70	12.05	7.23
13	9:33:01	36.45	552.80	12.07	7.22
14	9:34:01	35.90	559.60	12.07	7.22
15	9:35:01	34.86	562.30	12.23	7.14
16	9:36:01	35.64	559.60	12.11	7.16
17	9:37:01	35.14	566.70	12.06	7.21
18	9:38:01	35.18	574.00	12.05	7.25
19	9:39:01	34.68	575.30	12.05	7.25
20	9:40:01	35.17	574.70	12.06	7.25
21	9:41:01	35.95	562.00	12.03	7.25
22	9:42:01	35.76	558.60	12.08	7.24
23	9:43:01	35.23	553.50	12.20	7.17
24	9:44:01	35.84	547.00	12.10	7.17
25	9:45:01	35.62	552.90	12.12	7.17
26	9:46:01	35.67	545.80	12.24	7.10
27	9:47:01	36.87	522.70	12.23	7.03
28	9:48:01	36.37	532.40	12.08	7.14
29	9:49:01	35.49	545.90	12.12	7.19
30	9:50:01	35.37	550.30	12.10	7.19

Almega Environmental

AETS CEMS Data -- Run-by-Run Basis

	RUN 5.0				
	Time	NOx	CO	O2	CO2
#	AVG	33.90	587.75	12.24	7.11
1	9:51:01	35.13	559.90	12.08	7.19
2	9:52:01	35.77	560.20	12.09	7.19
3	9:53:01	34.77	549.70	12.30	7.08
4	9:54:01	34.50	561.60	12.18	7.13
5	9:55:01	33.96	577.00	12.16	7.17
6	9:56:01	34.14	582.70	12.09	7.22
7	9:57:01	34.53	574.50	12.10	7.23
8	9:58:01	34.83	574.10	12.08	7.23
9	9:59:01	35.15	576.90	12.09	7.22
10	10:00:01	35.33	567.80	12.11	7.20
11	10:01:01	35.61	560.50	12.13	7.17
12	10:02:01	35.35	560.20	12.16	7.15
13	10:03:01	34.84	559.60	12.27	7.10
14	10:04:01	35.25	551.30	12.18	7.14
15	10:05:01	35.13	555.60	12.18	7.16
16	10:06:01	35.75	555.50	12.13	7.17
17	10:07:01	34.24	576.40	12.18	7.16
18	10:08:01	33.59	588.50	12.25	7.12
19	10:09:01	33.43	600.20	12.24	7.09
20	10:10:01	32.48	610.70	12.30	7.09
21	10:11:01	31.05	634.10	12.36	7.05
22	10:12:01	30.71	634.10	12.50	6.93
23	10:13:01	32.00	617.40	12.44	6.92
24	10:14:01	32.97	612.90	12.29	7.01
25	10:15:01	33.15	623.00	12.29	7.03
26	10:16:01	32.46	623.50	12.31	7.03
27	10:17:01	31.71	643.70	12.37	7.03
28	10:18:01	32.32	628.00	12.40	7.01
29	10:19:01	33.54	612.50	12.40	7.00
30	10:20:01	33.39	600.40	12.42	6.97

	RUN 6.0				
	Time	NOx	CO	O2	CO2
#	AVG	33.08	626.47	12.40	6.97
1	10:21:01	32.16	618.80	12.41	6.95
2	10:22:01	31.62	645.20	12.36	7.00
3	10:23:01	31.93	637.40	12.37	7.01
4	10:24:01	31.95	643.10	12.41	6.96
5	10:25:01	31.50	660.60	12.39	6.96
6	10:26:01	30.84	668.20	12.56	6.86
7	10:27:01	31.22	661.90	12.49	6.86
8	10:28:01	32.40	663.50	12.47	6.91
9	10:29:01	33.04	641.30	12.50	6.91
10	10:30:01	33.64	644.20	12.39	6.94
11	10:31:01	33.39	653.10	12.45	6.94
12	10:32:01	32.92	650.40	12.48	6.90
13	10:33:01	32.02	668.60	12.45	6.93
14	10:34:01	31.52	675.90	12.44	6.94
15	10:35:01	30.99	679.30	12.46	6.94
16	10:36:01	31.45	663.40	12.47	6.95
17	10:37:01	31.90	630.50	12.46	6.95
18	10:38:01	32.35	633.70	12.41	6.96
19	10:39:01	31.93	632.30	12.44	6.93
20	10:40:01	30.78	649.60	12.51	6.86
21	10:41:02	32.22	629.10	12.45	6.91
22	10:42:01	33.03	609.50	12.37	6.99
23	10:43:01	33.53	598.30	12.40	7.03
24	10:44:01	34.62	574.30	12.24	7.10
25	10:45:01	35.52	573.30	12.22	7.15
26	10:46:01	35.79	567.40	12.27	7.11
27	10:47:01	36.17	565.90	12.27	7.10
28	10:48:01	36.82	559.20	12.35	7.02
29	10:49:01	38.11	542.70	12.32	7.00
30	10:50:01	37.18	553.40	12.23	7.00

AETS CEMS Data -- Run-by-Run Basis

	RUN 7.0				
	Time	NOx	CO	O2	CO2
#	AVG	34.98	622.37	12.46	6.30
1	11:06:01	34.89	645.30	12.25	6.39
2	11:07:01	34.60	653.70	12.30	6.40
3	11:08:01	34.91	644.70	12.31	6.42
4	11:09:01	34.96	639.80	12.35	6.40
5	11:10:01	35.20	634.50	12.36	6.40
6	11:11:01	34.84	620.80	12.47	6.32
7	11:12:01	35.14	612.40	12.46	6.27
8	11:13:01	34.62	617.40	12.49	6.26
9	11:14:01	34.77	615.40	12.48	6.26
10	11:15:01	35.40	618.60	12.45	6.28
11	11:16:01	35.74	615.90	12.42	6.29
12	11:17:01	35.94	609.50	12.47	6.31
13	11:18:01	35.47	609.10	12.49	6.31
14	11:19:01	34.24	621.50	12.50	6.31
15	11:20:01	34.03	625.00	12.53	6.27
16	11:21:01	34.01	632.40	12.52	6.28
17	11:22:01	33.69	635.40	12.52	6.27
18	11:23:01	33.16	634.90	12.54	6.27
19	11:24:01	33.62	632.60	12.52	6.29
20	11:25:01	35.82	616.10	12.48	6.30
21	11:26:01	35.71	610.10	12.55	6.25
22	11:27:01	36.61	600.30	12.44	6.30
23	11:28:01	36.41	602.80	12.48	6.30
24	11:29:01	36.76	601.60	12.48	6.29
25	11:30:01	36.74	598.80	12.52	6.24
26	11:31:01	36.47	604.20	12.44	6.27
27	11:32:01	34.53	621.10	12.49	6.29
28	11:33:01	34.06	630.90	12.46	6.28
29	11:34:01	33.57	630.00	12.49	6.30
30	11:35:01	33.57	636.20	12.49	6.29

	RUN 8.0				
	Time	NOx	CO	O2	CO2
#	AVG	36.02	614.36	12.49	6.30
1	11:36:01	33.53	629.70	12.54	6.26
2	11:37:01	33.95	634.00	12.54	6.28
3	11:38:01	34.39	627.90	12.59	6.27
4	11:39:01	34.38	623.10	12.52	6.26
5	11:40:01	34.94	625.70	12.44	6.29
6	11:41:01	36.76	612.90	12.40	6.36
7	11:42:01	37.11	603.90	12.38	6.36
8	11:43:01	37.46	602.30	12.41	6.37
9	11:44:01	37.51	600.10	12.51	6.29
10	11:45:01	37.54	599.90	12.50	6.28
11	11:46:01	38.01	592.80	12.47	6.29
12	11:47:01	36.92	608.70	12.47	6.29
13	11:48:01	36.33	620.00	12.44	6.33
14	11:49:01	35.54	624.80	12.50	6.31
15	11:50:01	35.17	628.50	12.52	6.29
16	11:51:01	35.38	616.70	12.49	6.30
17	11:52:01	35.79	615.80	12.48	6.32
18	11:53:01	35.56	607.70	12.54	6.29
19	11:54:01	36.51	600.40	12.50	6.28
20	11:55:01	37.01	599.40	12.45	6.30
21	11:56:01	36.51	597.90	12.57	6.24
22	11:57:01	36.82	601.10	12.46	6.27
23	11:58:01	36.90	611.20	12.41	6.34
24	11:59:01	36.86	610.20	12.42	6.36
25	12:00:01	36.59	613.50	12.44	6.36
26	12:01:01	36.20	620.80	12.48	6.35
27	12:02:01	35.60	617.60	12.61	6.25
28	12:03:01	34.82	618.50	12.61	6.18
29	12:04:01	35.04	633.00	12.48	6.25
30	12:05:01	35.48	632.60	12.50	6.29

Almega ENVIRONMENTAL

AETS CEMS Data -- Run-by-Run Basis

#	Time	NOx	CO	O2	CO2
	RUN 9.0				
#	AVG	35.29	618.72	12.59	6.09
1	12:06:01	34.95	637.00	12.51	6.27
2	12:07:01	35.10	637.60	12.56	6.22
3	12:08:01	35.29	633.70	12.52	6.20
4	12:09:01	34.76	627.20	12.59	6.19
5	12:10:01	35.26	617.00	12.62	6.20
6	12:11:01	35.74	605.40	12.58	6.20
7	12:12:01	35.34	613.50	12.57	6.23
8	12:13:01	34.32	614.20	12.75	6.07
9	12:14:01	34.47	624.70	12.52	6.21
10	12:15:01	33.55	640.10	12.52	6.26
11	12:16:01	35.80	623.70	12.58	5.97
12	12:17:01	35.68	619.70	12.56	5.76
13	12:18:01	36.19	619.50	12.56	5.78
14	12:19:01	36.23	614.10	12.63	5.75
15	12:20:01	35.57	606.20	12.75	5.68
16	12:21:01	35.80	603.00	12.63	5.70
17	12:22:01	36.20	614.50	12.62	5.73
18	12:23:01	38.24	592.10	12.58	5.76
19	12:24:01	36.86	614.60	12.50	6.17
20	12:25:01	38.37	589.80	12.48	6.27
21	12:26:01	35.64	601.30	12.65	6.19
22	12:27:01	35.22	612.60	12.59	6.19
23	12:28:01	35.47	624.70	12.54	6.22
24	12:29:01	35.44	623.40	12.54	6.24
25	12:30:01	34.33	631.00	12.55	6.26
26	12:31:01	34.01	630.60	12.59	6.24
27	12:32:01	33.68	632.10	12.59	6.22
28	12:33:01	33.37	635.30	12.70	6.16
29	12:34:01	33.32	610.30	12.77	6.08
30	12:35:01	34.55	612.60	12.57	6.16

Appendix D2

CEMS – Strip Chart

9849_OCSD_Plant 2_Engine 2_RATA

D2-1

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MANUAL
01 22.1002% 02 4.45CO2% 03 454.000 ppm 04 45.29NOXppm mid
mid NOX mode

0.0 200.0 400.0 600.0 800.0 1000.0
03CH CO ppm

MANUAL Sep.30.15 06:56
01 22.0002% 02 8.74CO2% 03 900.100 ppm 04 89.62NOXppm high NO mode

MANUAL Sep.30.15 06:51
01 21.9802% 02 8.72CO2% 03 897.200 ppm 04 89.90NOXppm high
high NOX mode

0 10 20 30 40 50 60 70 80 90 100

MANUAL Sep.30.15 06:47
01 0.0302% 02 -0.01CO2% 03 0.000 ppm 04 0.00NOXppm Ø No mode

MANUAL Sep.30.15 06:44
01 0.0302% 02 -0.01CO2% 03 0.000 ppm 04 0.00NOXppm Ø
Ø NOX mode

ALMEGA ENV.
10602 Walker St
Cypress CA 90630
714 889 4000

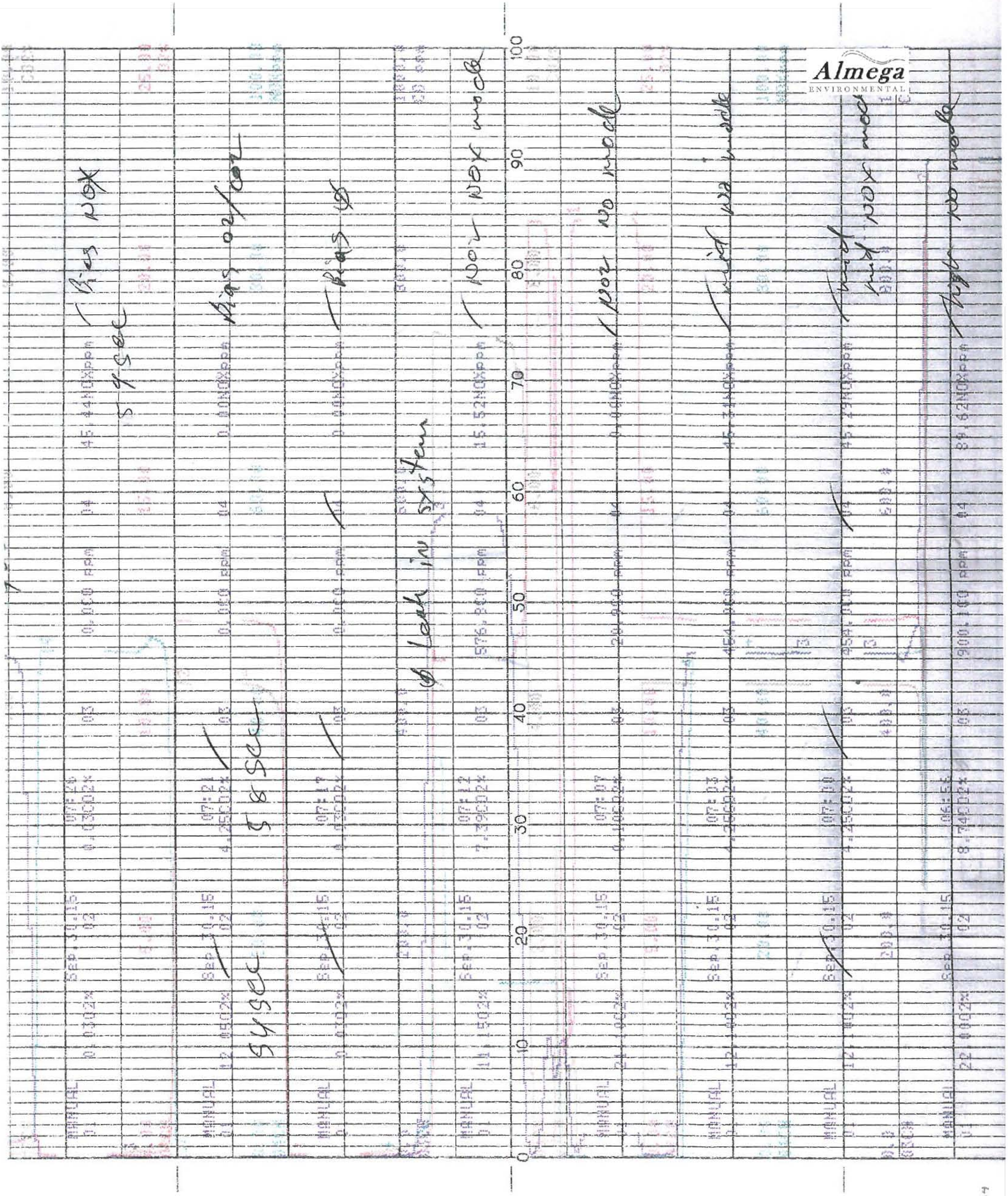
Almega ENVIRONMENTAL

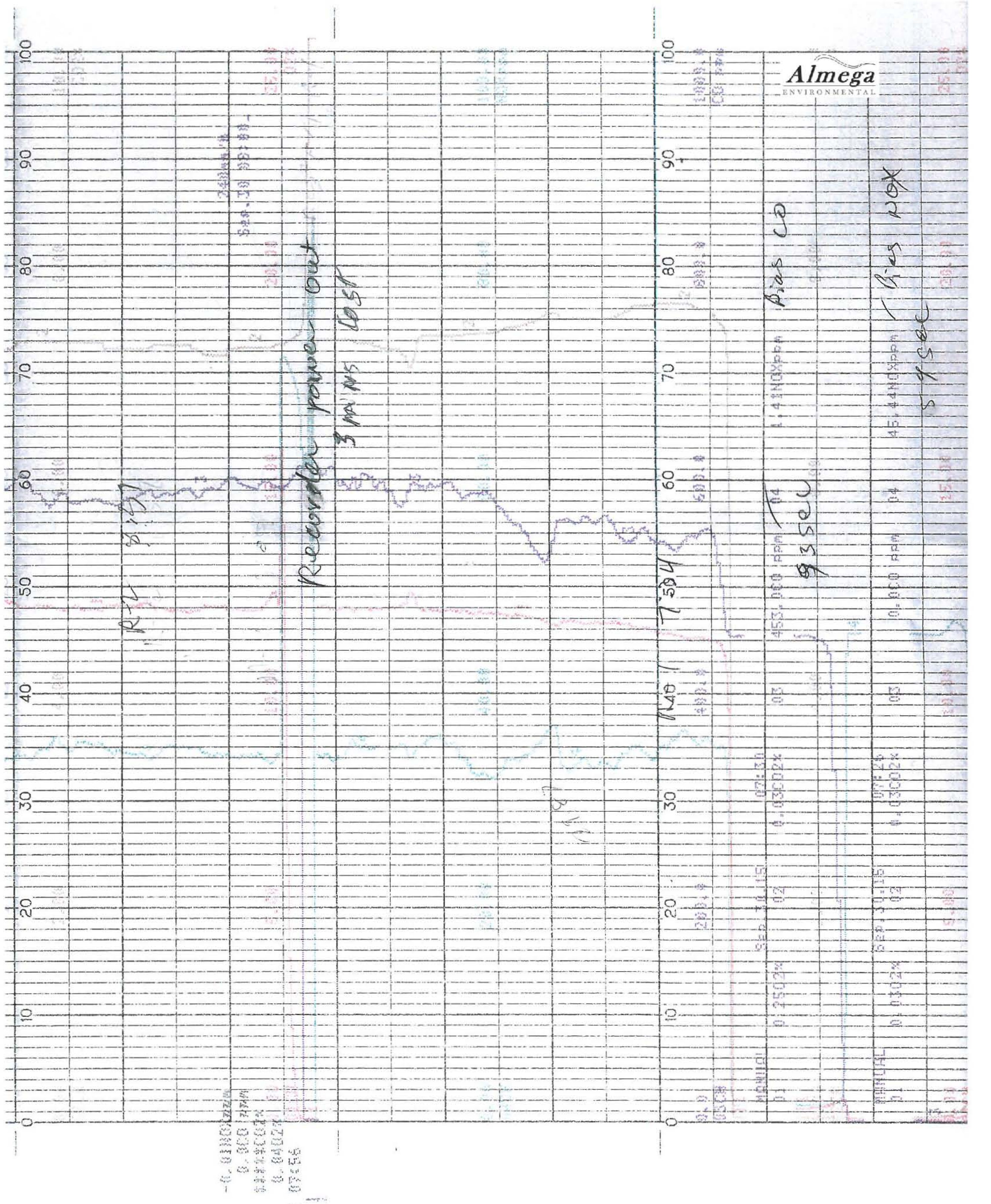
Project No.	9849	Date:	09/30/15
Facility:	Orange County Sanitation District	Location:	Huntington Beach, CA
Unit:	Plant 2 - Engine 2	Test Team:	T.Tr./L.B.
Test:	NOx, CO, O2 & Flow RATAs - Rule 218/218.1		

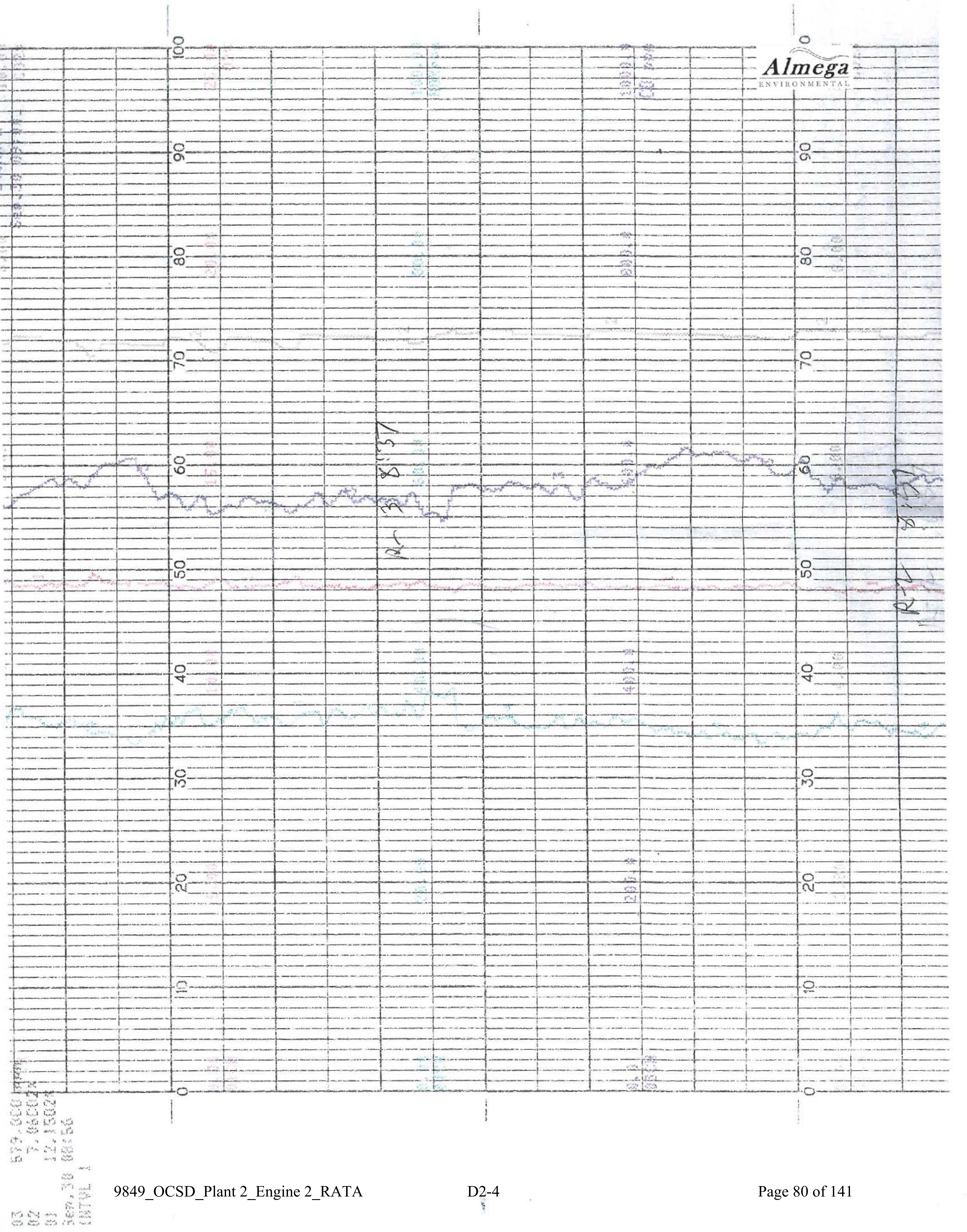
Cal Gas Information

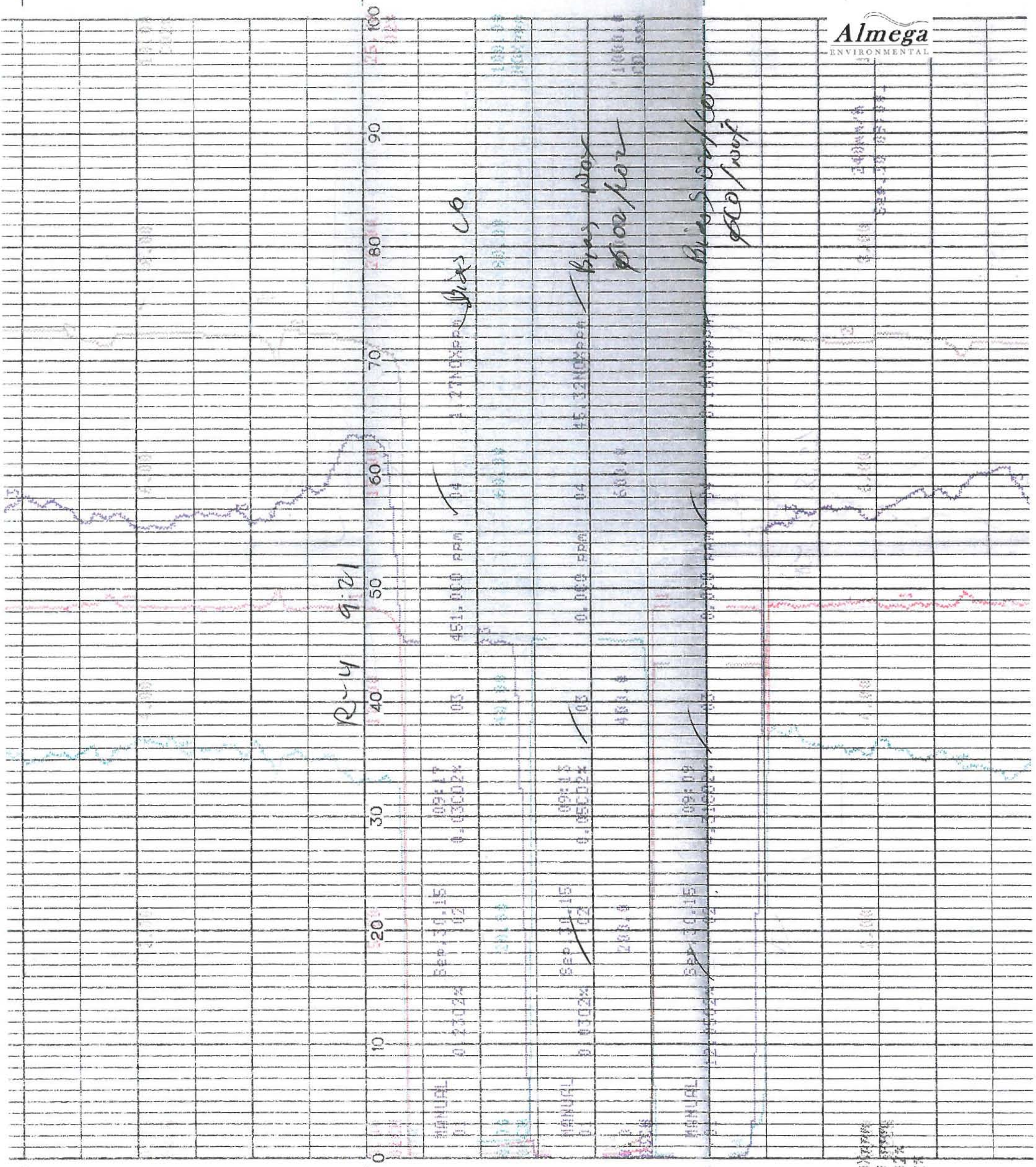
Type	Range	Conc.	Unit	Cyl. #	Exp. Date
O2 (M)	25	12.01	%	CC248731	08/05/23
O2 (H)	25	21.99	%	CC408131	10/21/22
CO2 (M)	10	4.32	%	CC248731	08/05/23
CO2 (H)	10	8.749	%	CC408131	10/21/22
NOx (M)	100	45.24	PPM	CC147621	06/14/17
NOx (H)	100	89.91	PPM	CC199782	06/07/21
CO (M)	1000	453.8	PPM	CC39463	12/02/22
CO (H)	1000	899	PPM	CC259973	04/19/20
NOx Converter Check					
NO2	-	16.46	PPM	CC502676	04/03/17

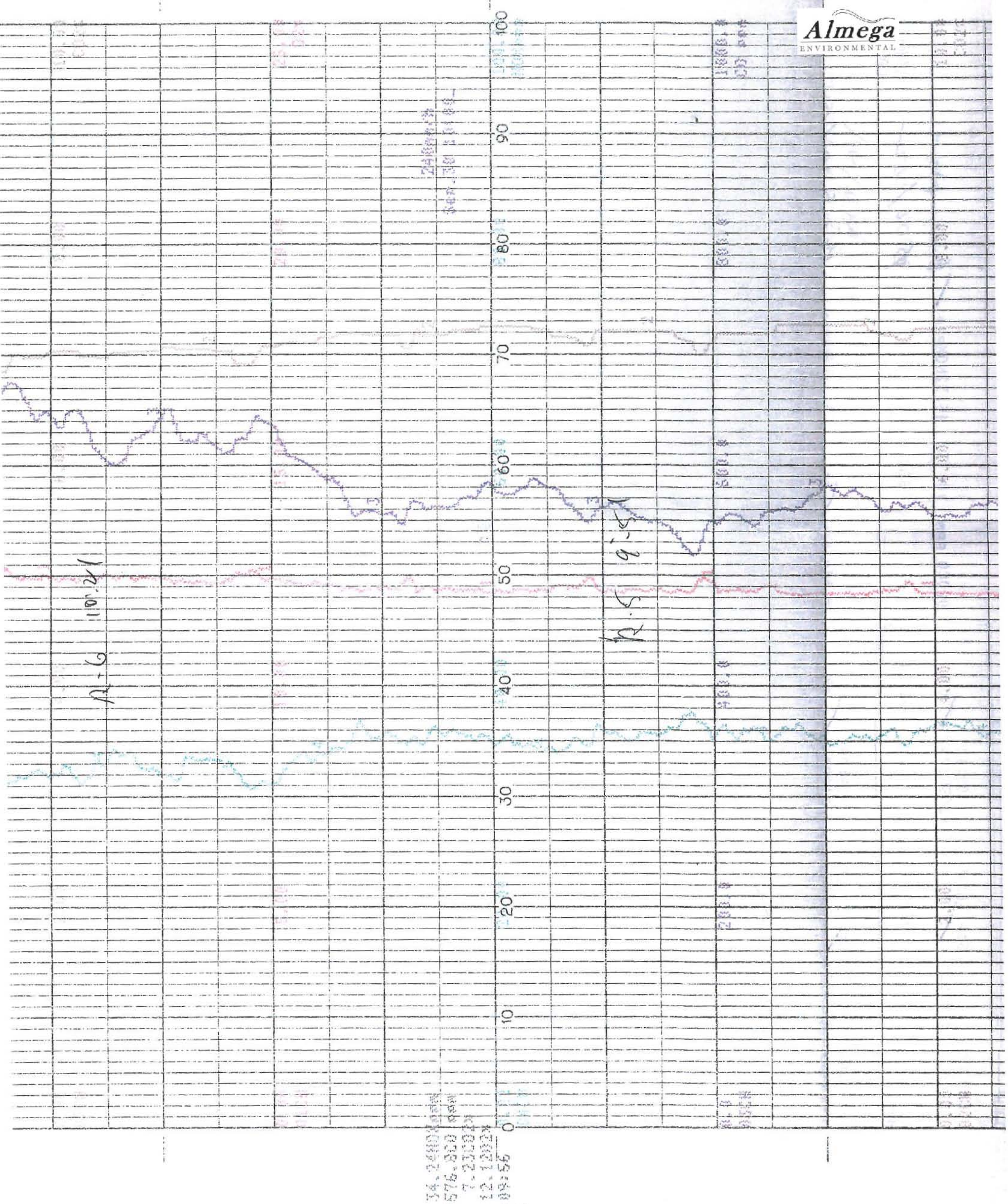
Almega ENVIRONMENTAL

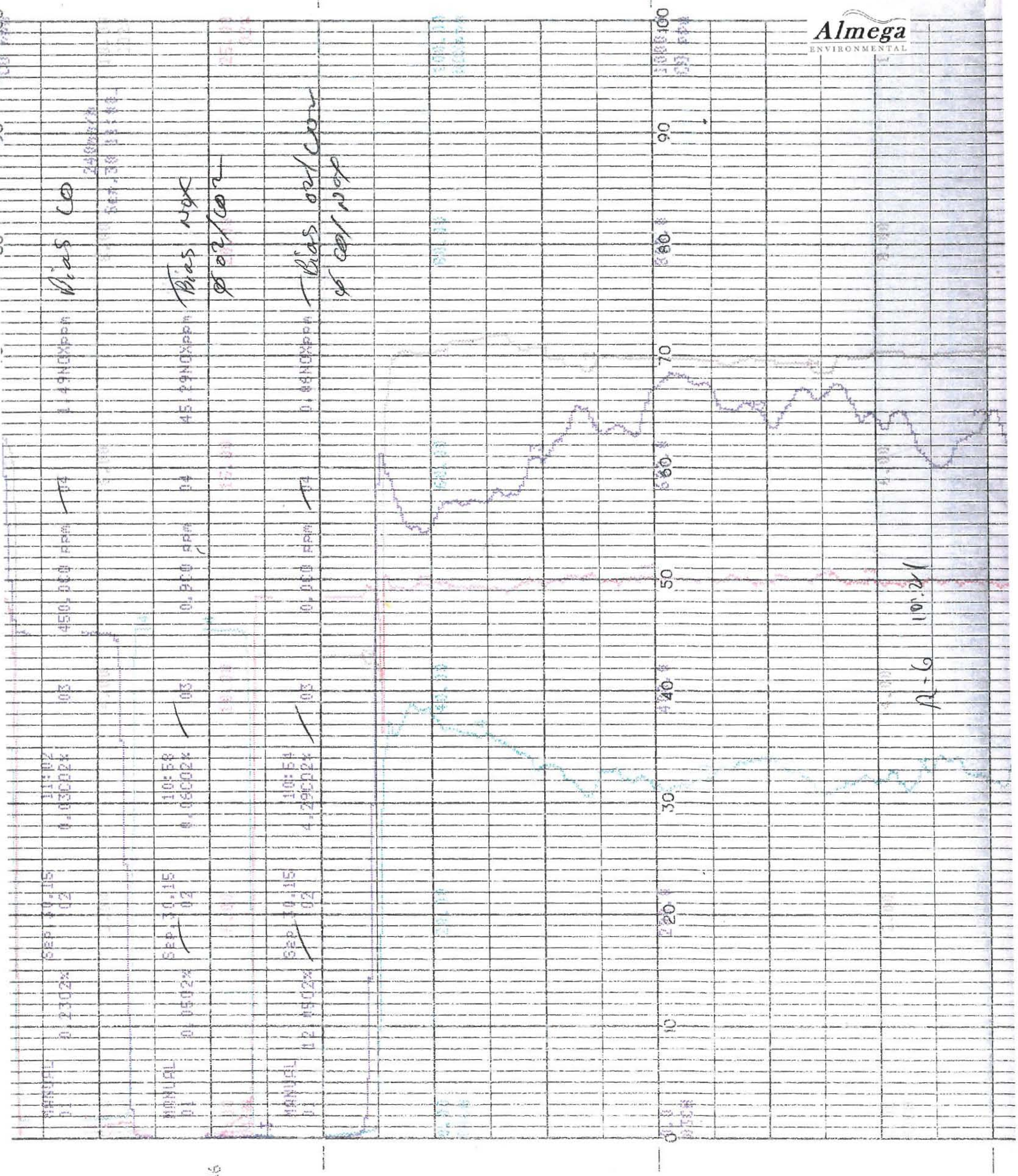


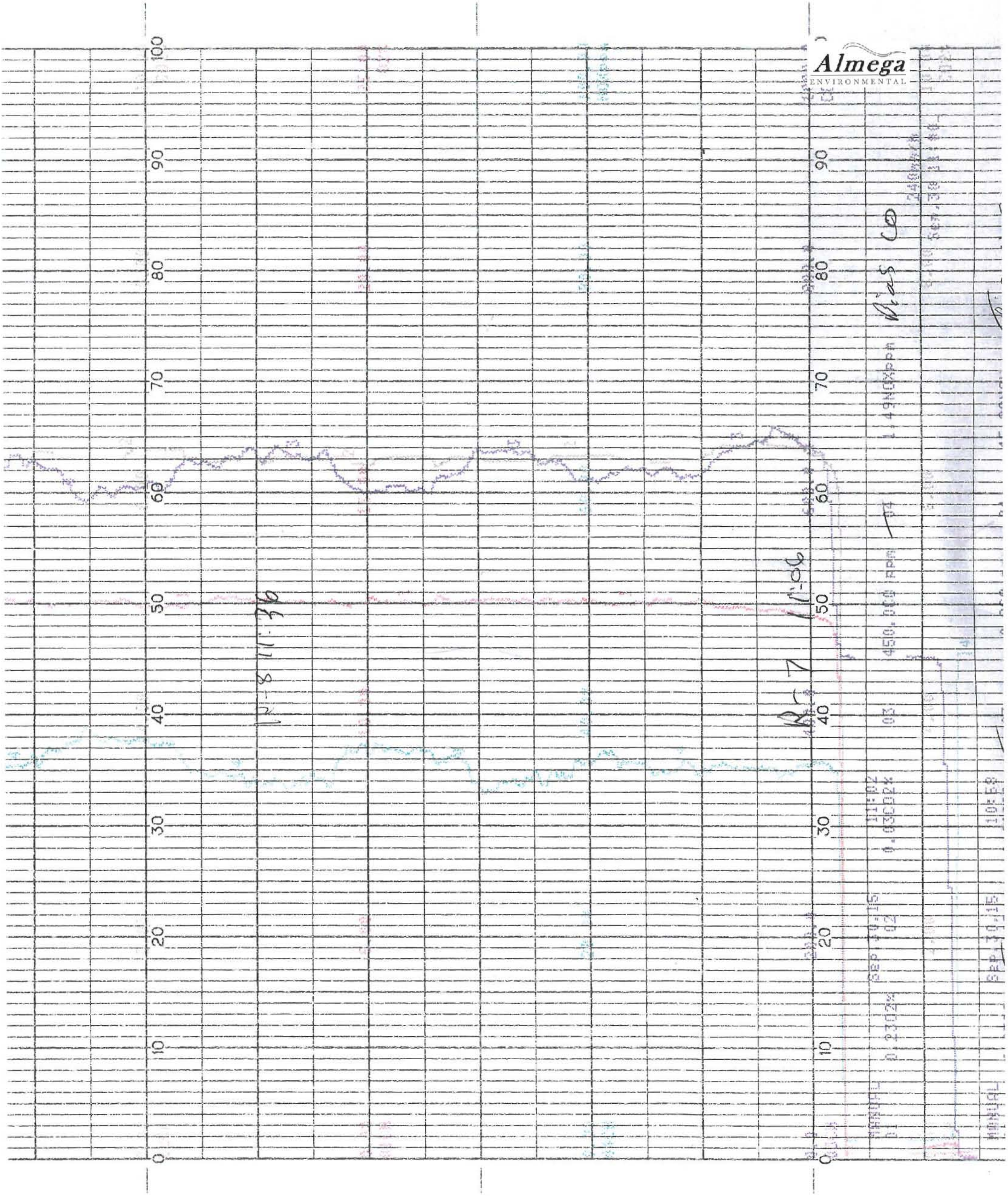

Recorder power out
3 mins lost
Bias CO
Bias NOX

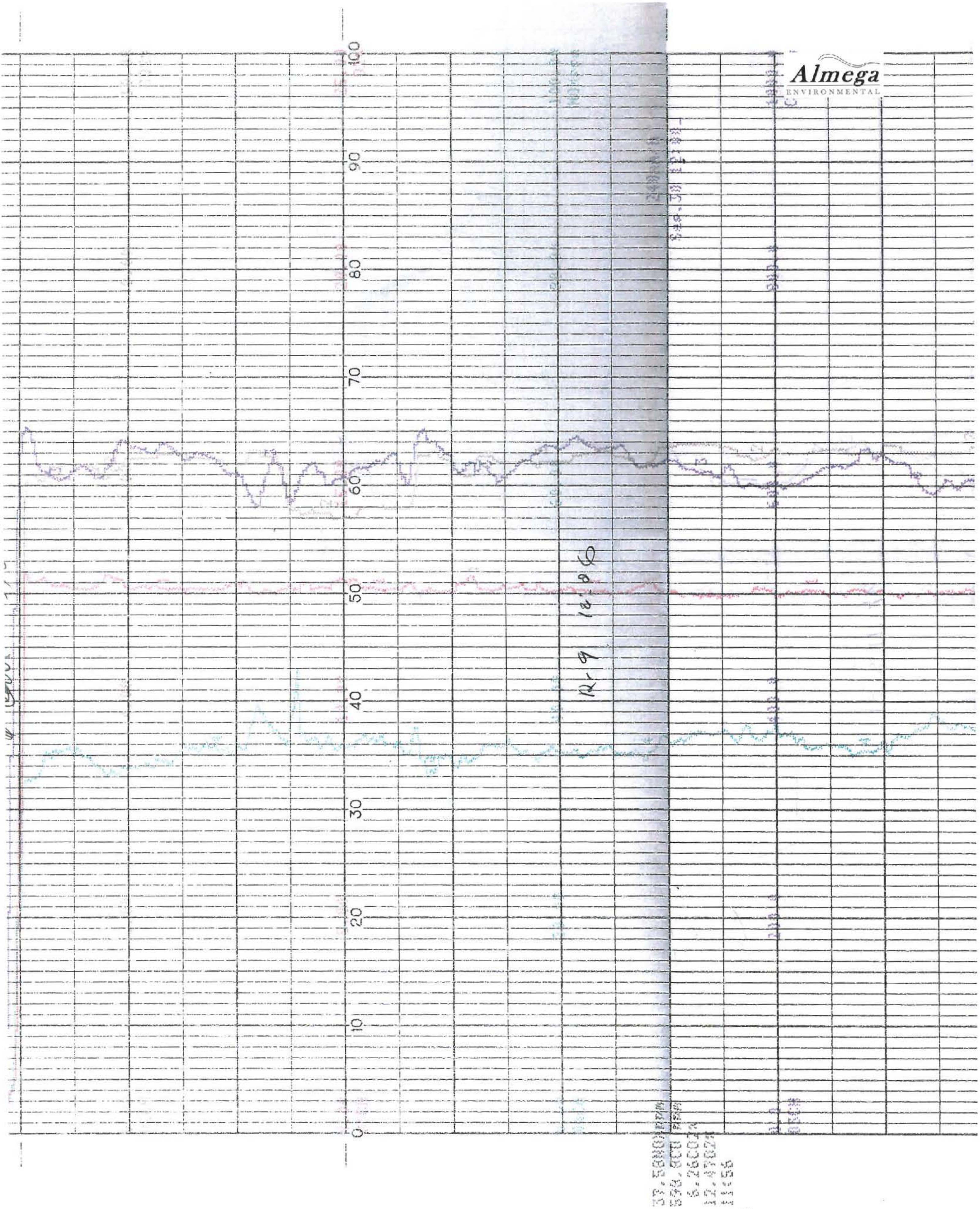


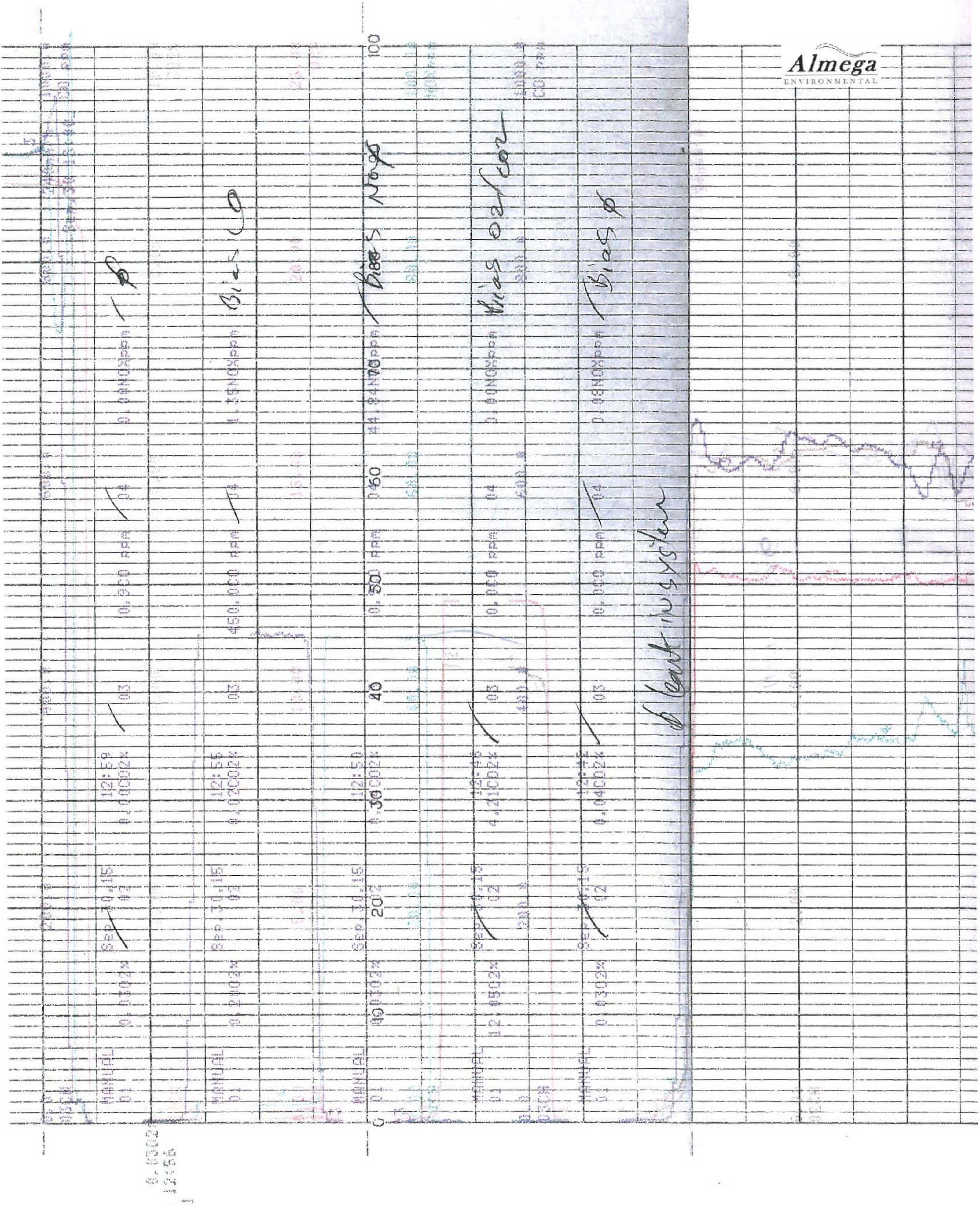



R-6 10:41
R-5 9:51
0
10
20
30
40
50
60
70
80
90
100
34.24NOx ppm
576.8CO ppm
7.23CO2%
12.12O2%
09:56
240mm/h
Sep.30 10:00

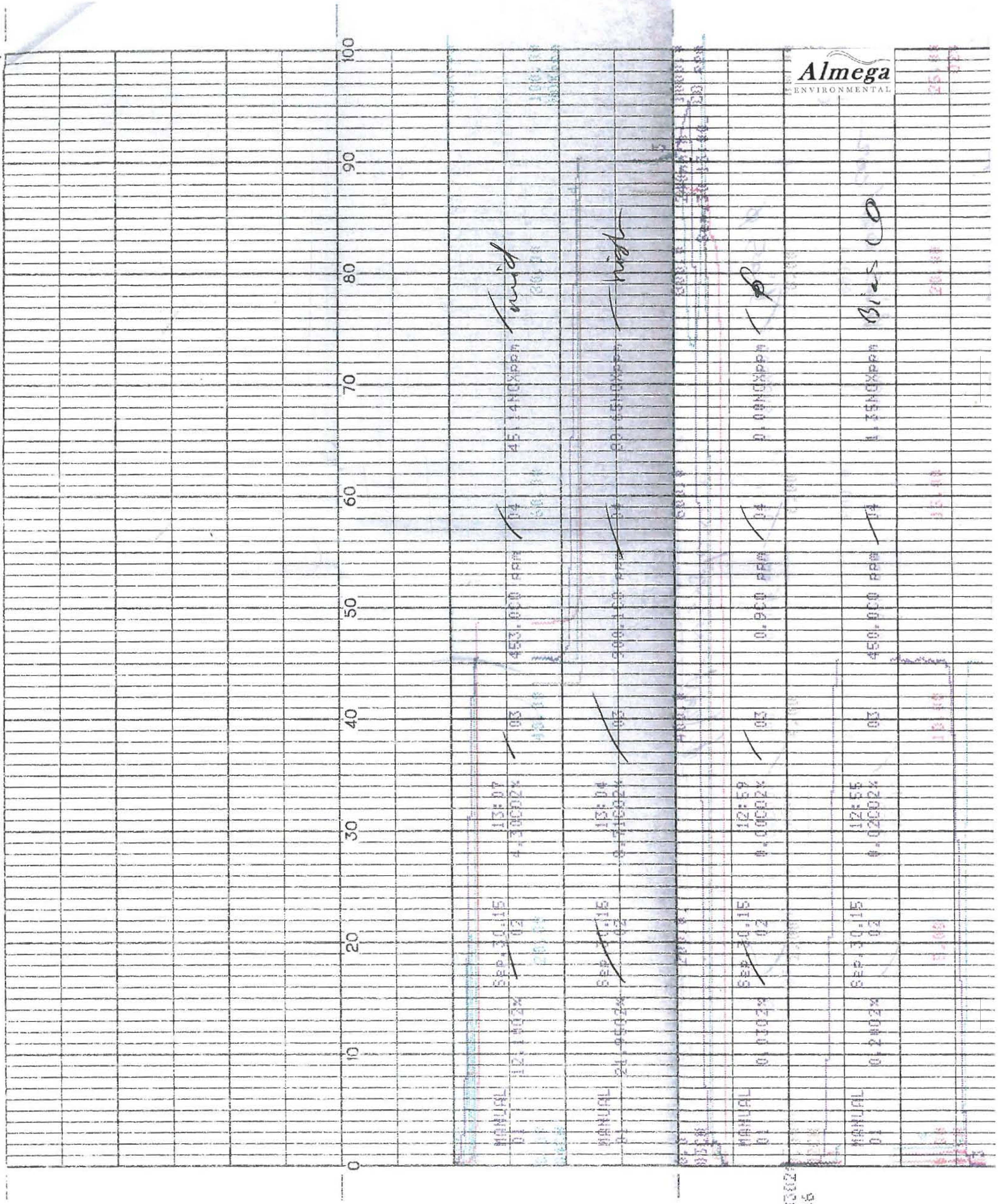

0
10
20
30
40
50
60
70
80
90
100


Almega
ENVIRONMENTAL
100
90
80
70
60
50
40
30
20
10
0
R-8 11:36
R-7 11:06
Bias CO
SEP 30 10:15
MANUAL
450.000 RPM
1.49NOXppm


Almega
ENVIRONMENTAL
100
90
80
70
60
50
40
30
20
10
0
R-9 12:06


Bias CO
Bias NOx
Bias O2/CO2
Bias
Back in system

Almega ENVIRONMENTAL



Appendix D3

CEMS –DAS One-Minute Data

Datalogger Printout

Almega ENVIRONMENTAL

Client	OCSD
Location	Huntington Beach
Unit	ICE 1
Date/Time	9/30/2015
Job Number	9849

Date	Time	O2%	CO2%	CO ppm	NOXppm	
9/30/2015	6:42:01	0.05	-0.02	0.4	0	
9/30/2015	6:43:01	0.03	-0.02	0	0	
9/30/2015	6:44:01	0.03	-0.01	0	0	zero
9/30/2015	6:45:01	0.03	-0.01	0	0	zero nox mode
9/30/2015	6:46:01	0.03	-0.01	0	0	
9/30/2015	6:47:01	0.03	-0.01	0	0	zero no mode
9/30/2015	6:48:01	14.58	5.39	40.3	20.95	
9/30/2015	6:49:01	21.95	8.62	775.9	85.84	
9/30/2015	6:50:01	21.97	8.67	901.3	89.68	
9/30/2015	6:51:01	21.97	8.72	896.9	89.9	high
9/30/2015	6:52:01	21.98	8.72	899.7	89.85	high nox mode
9/30/2015	6:53:01	21.98	8.73	901.4	89.72	
9/30/2015	6:54:01	21.98	8.73	900.4	89.64	
9/30/2015	6:55:01	21.99	8.73	900.3	89.58	
9/30/2015	6:56:01	21.98	8.73	899.9	89.61	high no mode
9/30/2015	6:57:01	16.84	5.73	774.2	58.68	
9/30/2015	6:58:01	12.16	4.24	460.2	45.34	
9/30/2015	6:59:01	12.11	4.25	453.1	45.3	
9/30/2015	7:00:01	12.09	4.25	454	45.3	mid
9/30/2015	7:01:01	12.09	4.25	454.1	45.3	mid nox mode
9/30/2015	7:02:01	12.09	4.25	453.9	45.29	
9/30/2015	7:03:01	12.09	4.25	453.7	45.3	mid no mode
9/30/2015	7:04:01	12.09	4.25	454	45.3	
9/30/2015	7:05:01	12.1	4.26	332.2	19.69	
9/30/2015	7:06:01	12.12	4.26	6.3	0	
9/30/2015	7:07:01	12.38	4.04	1.1	0	NO2 no mode
9/30/2015	7:08:01	20.9	0.13	12.6	0	
9/30/2015	7:09:01	5.77	0.76	60	0.62	
9/30/2015	7:10:01	19.56	0.49	79	15.42	
9/30/2015	7:11:01	17.01	3.21	32.3	15.56	
9/30/2015	7:12:01	11.32	7.27	464.5	15.54	NO2 nox mode
9/30/2015	7:13:01	11.17	7.39	574.3	26.3	
9/30/2015	7:14:01	2.17	0.96	337.7	8.65	
9/30/2015	7:15:01	0.05	0.1	6.6	0.47	
9/30/2015	7:16:01	0.03	0.06	0.2	0	
9/30/2015	7:17:01	0.03	0.04	0	0	bias zero
9/30/2015	7:18:01	0.03	0.03	0	0	
9/30/2015	7:19:01	2.61	0.98	0.2	0	
9/30/2015	7:20:01	11.89	4.14	0	0	

Datalogger Printout

Almega ENVIRONMENTAL

Client OCSD
Location Huntington Beach
Unit ICE 1
Date/Time 9/30/2015
Job Number 9849

Date	Time	O2%	CO2%	CO ppm	NOXppm	
9/30/2015	7:21:01	12.04	4.24	0	0	bias O2/CO2
9/30/2015	7:22:01	12.05	4.26	0	0.63	
9/30/2015	7:23:02	2.68	0.98	0	33.4	
9/30/2015	7:24:01	0.07	0.08	0	46.22	
9/30/2015	7:25:01	0.03	0.04	0	45.35	
9/30/2015	7:26:01	0.03	0.03	0.2	45.41	bias nox
9/30/2015	7:27:01	0.03	0.03	0	45.27	
9/30/2015	7:28:01	0.41	0.03	193.6	6.07	
9/30/2015	7:29:01	0.33	0.03	447	1.49	
9/30/2015	7:30:01	0.28	0.03	452.6	1.44	bias CO
9/30/2015	7:31:01	0.25	0.2	452.5	1.48	
9/30/2015	7:32:01	10.25	7.19	495.1	31.47	
9/30/2015	7:33:01	11.24	7.57	549.8	35.31	
9/30/2015	7:34:01	11.27	7.62	543.4	35.92	R 1
9/30/2015	7:35:01	11.34	7.63	535.6	35.31	
9/30/2015	7:36:01	11.43	7.62	544.3	34.11	
9/30/2015	7:37:01	11.5	7.59	545.5	34.63	
9/30/2015	7:38:01	11.59	7.51	548.7	33.48	
9/30/2015	7:39:01	11.6	7.49	561.1	33.17	
9/30/2015	7:40:01	11.59	7.49	560.6	33.34	
9/30/2015	7:41:01	11.63	7.48	560.1	32.95	
9/30/2015	7:42:01	11.58	7.53	534.9	36.2	
9/30/2015	7:43:01	11.72	7.45	536.8	34.48	
9/30/2015	7:44:01	11.76	7.41	557.2	33.58	
9/30/2015	7:45:01	11.81	7.36	574.4	32.4	
9/30/2015	7:46:02	11.83	7.35	586	32.19	
9/30/2015	7:47:01	11.86	7.33	584.2	33.59	
9/30/2015	7:48:01	11.89	7.32	593.8	35.23	
9/30/2015	7:49:01	11.9	7.33	591.8	35.48	
9/30/2015	7:50:01	12.12	7.15	591	34.32	
9/30/2015	7:51:01	11.98	7.19	579.5	34.84	
9/30/2015	7:52:01	11.94	7.21	593	34.78	
9/30/2015	7:53:01	11.92	7.25	598.7	34.8	
9/30/2015	7:54:01	11.93	7.28	593.9	34.37	
9/30/2015	7:55:01	11.96	7.28	605.5	33.83	
9/30/2015	7:56:01	11.93	7.28	594.7	34.36	
9/30/2015	7:57:01	0.62	133.36	50.3	50.26	Offline
9/30/2015	7:58:01	2.94	7.29	600.3	69.34	Offline
9/30/2015	7:59:01	12.75	7.23	592	39.88	Offline

Datalogger Printout

Almega ENVIRONMENTAL

Client OCSD
Location Huntington Beach
Unit ICE 1
Date/Time 9/30/2015
Job Number 9849

Date	Time	O2%	CO2%	CO ppm	NOXppm	
9/30/2015	8:00:01	11.92	7.21	592.4	33.94	
9/30/2015	8:01:01	11.9	7.21	595.2	33.85	
9/30/2015	8:02:01	11.95	7.16	594.5	34.04	
9/30/2015	8:03:01	11.97	7.14	587.4	34.19	
9/30/2015	8:04:01	11.86	7.21	587	34.75	
9/30/2015	8:05:01	11.89	7.23	585.3	34.79	
9/30/2015	8:06:01	11.96	7.22	584.2	34.06	
9/30/2015	8:07:01	12.02	7.19	583.6	34.09	**R 2**
9/30/2015	8:08:01	12.01	7.19	576.9	34.26	
9/30/2015	8:09:01	11.95	7.21	576.8	34.7	
9/30/2015	8:10:01	11.92	7.25	578.7	35.13	
9/30/2015	8:11:01	11.95	7.26	578.6	34.7	
9/30/2015	8:12:01	11.95	7.26	578.3	35.15	
9/30/2015	8:13:01	11.98	7.26	586.5	34.1	
9/30/2015	8:14:01	12.02	7.24	598	33.89	
9/30/2015	8:15:01	12.08	7.18	589.5	33.72	
9/30/2015	8:16:01	12.05	7.19	599	33.41	
9/30/2015	8:17:01	12.02	7.21	604.2	33.78	
9/30/2015	8:18:01	12.01	7.21	606.4	33.73	
9/30/2015	8:19:01	12.01	7.22	609.5	33.78	
9/30/2015	8:20:01	12	7.23	608.4	33.91	
9/30/2015	8:21:01	12	7.23	611.7	34	
9/30/2015	8:22:01	12.02	7.23	601.6	34.36	
9/30/2015	8:23:01	12.01	7.23	595.3	34.58	
9/30/2015	8:24:01	11.99	7.25	583.2	35.24	
9/30/2015	8:25:01	12	7.26	576.4	35.29	
9/30/2015	8:26:01	12.01	7.26	582.3	34.94	
9/30/2015	8:27:01	12.08	7.21	571.7	35.1	
9/30/2015	8:28:01	12.05	7.22	576	35	
9/30/2015	8:29:01	12.07	7.22	573.8	34.87	
9/30/2015	8:30:01	12.07	7.23	577.5	34.6	
9/30/2015	8:31:01	12	7.24	580.5	35.14	
9/30/2015	8:32:01	11.99	7.27	574.9	35.46	
9/30/2015	8:33:01	12.05	7.25	575.7	35.15	
9/30/2015	8:34:01	12.05	7.23	577.9	34.62	
9/30/2015	8:35:01	11.96	7.24	558.5	37.59	
9/30/2015	8:36:01	12.04	7.19	551.4	37.76	
9/30/2015	8:37:01	12.1	7.14	564.4	36.24	**R 3**
9/30/2015	8:38:01	12.09	7.17	562.8	36.09	
9/30/2015	8:39:01	12.05	7.17	564.4	36.16	

Datalogger Printout

Almega ENVIRONMENTAL

Client	OCSD
Location	Huntington Beach
Unit	ICE 1
Date/Time	9/30/2015
Job Number	9849

Date	Time	O2%	CO2%	CO ppm	NOXppm	
9/30/2015	8:40:01	12	7.21	566	36.28	
9/30/2015	8:41:01	12.01	7.21	568.8	35.65	
9/30/2015	8:42:01	12.05	7.21	563.7	35.82	
9/30/2015	8:43:01	12.02	7.22	567.2	35.89	
9/30/2015	8:44:01	12.16	7.14	556.8	35.53	
9/30/2015	8:45:01	12.11	7.12	558.3	35.19	
9/30/2015	8:46:01	12.06	7.17	562.9	35.47	
9/30/2015	8:47:01	12.02	7.19	565.7	35.97	
9/30/2015	8:48:01	12.07	7.18	558.7	35.99	
9/30/2015	8:49:01	12.17	7.08	553.6	35.08	
9/30/2015	8:50:01	12.02	7.15	564.3	35.84	
9/30/2015	8:51:01	12.04	7.18	562.6	35.54	
9/30/2015	8:52:01	12.11	7.17	569.2	35.09	
9/30/2015	8:53:01	12.11	7.13	581.9	34.1	
9/30/2015	8:54:01	12.15	7.13	602.6	33.35	
9/30/2015	8:55:01	12.13	7.14	600.2	33.97	
9/30/2015	8:56:01	12.25	7.08	593.4	34.14	
9/30/2015	8:57:01	12.11	7.11	579.8	34.8	
9/30/2015	8:58:01	12.09	7.17	582.4	35.19	
9/30/2015	8:59:01	12.08	7.18	582.6	34.98	
9/30/2015	9:00:01	12.06	7.21	573.6	35.73	
9/30/2015	9:01:01	12.12	7.19	562.9	36.15	
9/30/2015	9:02:01	12.16	7.14	564.7	35.42	
9/30/2015	9:03:01	12.12	7.13	568.4	35.68	
9/30/2015	9:04:01	12.08	7.14	569	35.92	
9/30/2015	9:05:01	12.08	7.16	565.1	36.37	
9/30/2015	9:06:01	12.09	7.17	556.4	37.22	
9/30/2015	9:07:01	11.48	6.22	551.3	31.74	
9/30/2015	9:08:01	12	4.31	167	2.48	
9/30/2015	9:09:01	12.05	4.31	0	0.16	bias O2/CO2
9/30/2015	9:10:01	12.05	4.3	0	0.13	zero CO/nox
9/30/2015	9:11:01	2.23	0.82	0	34.98	
9/30/2015	9:12:01	0.09	0.11	0	45.18	
9/30/2015	9:13:01	0.05	0.06	0	45.27	bias nox
9/30/2015	9:14:01	0.03	0.05	0	45.08	zero O2/CO2
9/30/2015	9:15:01	0.29	0.03	196.5	6.47	
9/30/2015	9:16:01	0.28	0.03	449.8	1.39	
9/30/2015	9:17:01	0.23	0.03	451.6	1.33	bias CO
9/30/2015	9:18:01	0.23	0.03	451.5	1.28	

Datalogger Printout

Almega ENVIRONMENTAL

Client	OCSD
Location	Huntington Beach
Unit	ICE 1
Date/Time	9/30/2015
Job Number	9849

Date	Time	O2%	CO2%	CO ppm	NOXppm	
9/30/2015	9:19:01	8.81	5.67	500.1	23.8	
9/30/2015	9:20:01	11.95	7.08	623	33.03	
9/30/2015	9:21:01	12.02	7.14	632	32.93	R 4
9/30/2015	9:22:01	12.04	7.17	622.8	33.69	
9/30/2015	9:23:01	12.04	7.21	591.8	35	
9/30/2015	9:24:01	12.03	7.21	583.8	34.96	
9/30/2015	9:25:01	12.04	7.23	574.8	35.19	
9/30/2015	9:26:01	12.23	7.08	564.4	34.46	
9/30/2015	9:27:01	12.06	7.2	558.1	35.74	
9/30/2015	9:28:01	12.04	7.2	565.8	35.63	
9/30/2015	9:29:01	12.03	7.2	563.5	35.8	
9/30/2015	9:30:01	12.04	7.22	564.1	35.63	
9/30/2015	9:31:01	12.05	7.23	561.3	35.77	
9/30/2015	9:32:01	12.05	7.23	552.7	36.26	
9/30/2015	9:33:01	12.07	7.22	552.8	36.45	
9/30/2015	9:34:01	12.07	7.22	559.6	35.9	
9/30/2015	9:35:01	12.23	7.14	562.3	34.86	
9/30/2015	9:36:01	12.11	7.16	559.6	35.64	
9/30/2015	9:37:01	12.06	7.21	566.7	35.14	
9/30/2015	9:38:01	12.05	7.25	574	35.18	
9/30/2015	9:39:01	12.05	7.25	575.3	34.68	
9/30/2015	9:40:01	12.06	7.25	574.7	35.17	
9/30/2015	9:41:01	12.03	7.25	562	35.95	
9/30/2015	9:42:01	12.08	7.24	558.6	35.76	
9/30/2015	9:43:01	12.2	7.17	553.5	35.23	
9/30/2015	9:44:01	12.1	7.17	547	35.84	
9/30/2015	9:45:01	12.12	7.17	552.9	35.62	
9/30/2015	9:46:01	12.24	7.1	545.8	35.67	
9/30/2015	9:47:01	12.23	7.03	522.7	36.87	
9/30/2015	9:48:01	12.08	7.14	532.4	36.37	
9/30/2015	9:49:01	12.12	7.19	545.9	35.49	
9/30/2015	9:50:01	12.1	7.19	550.3	35.37	
9/30/2015	9:51:01	12.08	7.19	559.9	35.13	R 5
9/30/2015	9:52:01	12.09	7.19	560.2	35.77	
9/30/2015	9:53:01	12.3	7.08	549.7	34.77	
9/30/2015	9:54:01	12.18	7.13	561.6	34.5	
9/30/2015	9:55:01	12.16	7.17	577	33.96	
9/30/2015	9:56:01	12.09	7.22	582.7	34.14	
9/30/2015	9:57:01	12.1	7.23	574.5	34.53	
9/30/2015	9:58:01	12.08	7.23	574.1	34.83	

Datalogger Printout

Almega ENVIRONMENTAL

Client	OCSD
Location	Huntington Beach
Unit	ICE 1
Date/Time	9/30/2015
Job Number	9849

Date	Time	O2%	CO2%	CO ppm	NOXppm	
9/30/2015	9:59:01	12.09	7.22	576.9	35.15	
9/30/2015	10:00:01	12.11	7.2	567.8	35.33	
9/30/2015	10:01:01	12.13	7.17	560.5	35.61	
9/30/2015	10:02:01	12.16	7.15	560.2	35.35	
9/30/2015	10:03:01	12.27	7.1	559.6	34.84	
9/30/2015	10:04:01	12.18	7.14	551.3	35.25	
9/30/2015	10:05:01	12.18	7.16	555.6	35.13	
9/30/2015	10:06:01	12.13	7.17	555.5	35.75	
9/30/2015	10:07:01	12.18	7.16	576.4	34.24	
9/30/2015	10:08:01	12.25	7.12	588.5	33.59	
9/30/2015	10:09:01	12.24	7.09	600.2	33.43	
9/30/2015	10:10:01	12.3	7.09	610.7	32.48	
9/30/2015	10:11:01	12.36	7.05	634.1	31.05	
9/30/2015	10:12:01	12.5	6.93	634.1	30.71	
9/30/2015	10:13:01	12.44	6.92	617.4	32	
9/30/2015	10:14:01	12.29	7.01	612.9	32.97	
9/30/2015	10:15:01	12.29	7.03	623	33.15	
9/30/2015	10:16:01	12.31	7.03	623.5	32.46	
9/30/2015	10:17:01	12.37	7.03	643.7	31.71	
9/30/2015	10:18:01	12.4	7.01	628	32.32	
9/30/2015	10:19:01	12.4	7	612.5	33.54	
9/30/2015	10:20:01	12.42	6.97	600.4	33.39	
9/30/2015	10:21:01	12.41	6.95	618.8	32.16	**R 6**
9/30/2015	10:22:01	12.36	7	645.2	31.62	
9/30/2015	10:23:01	12.37	7.01	637.4	31.93	
9/30/2015	10:24:01	12.41	6.96	643.1	31.95	
9/30/2015	10:25:01	12.39	6.96	660.6	31.5	
9/30/2015	10:26:01	12.56	6.86	668.2	30.84	
9/30/2015	10:27:01	12.49	6.86	661.9	31.22	
9/30/2015	10:28:01	12.47	6.91	663.5	32.4	
9/30/2015	10:29:01	12.5	6.91	641.3	33.04	
9/30/2015	10:30:01	12.39	6.94	644.2	33.64	
9/30/2015	10:31:01	12.45	6.94	653.1	33.39	
9/30/2015	10:32:01	12.48	6.9	650.4	32.92	
9/30/2015	10:33:01	12.45	6.93	668.6	32.02	
9/30/2015	10:34:01	12.44	6.94	675.9	31.52	
9/30/2015	10:35:01	12.46	6.94	679.3	30.99	
9/30/2015	10:36:01	12.47	6.95	663.4	31.45	
9/30/2015	10:37:01	12.46	6.95	630.5	31.9	
9/30/2015	10:38:01	12.41	6.96	633.7	32.35	

Datalogger Printout

Almega ENVIRONMENTAL

Client	OCSD
Location	Huntington Beach
Unit	ICE 1
Date/Time	9/30/2015
Job Number	9849

Date	Time	O2%	CO2%	CO ppm	NOXppm	
9/30/2015	10:39:01	12.44	6.93	632.3	31.93	
9/30/2015	10:40:01	12.51	6.86	649.6	30.78	
9/30/2015	10:41:02	12.45	6.91	629.1	32.22	
9/30/2015	10:42:01	12.37	6.99	609.5	33.03	
9/30/2015	10:43:01	12.4	7.03	598.3	33.53	
9/30/2015	10:44:01	12.24	7.1	574.3	34.62	
9/30/2015	10:45:01	12.22	7.15	573.3	35.52	
9/30/2015	10:46:01	12.27	7.11	567.4	35.79	
9/30/2015	10:47:01	12.27	7.1	565.9	36.17	
9/30/2015	10:48:01	12.35	7.02	559.2	36.82	
9/30/2015	10:49:01	12.32	7	542.7	38.11	
9/30/2015	10:50:01	12.23	7	553.4	37.18	
9/30/2015	10:51:01	11.74	5.82	591.6	29.53	
9/30/2015	10:52:01	12.17	4.24	182.4	0.67	
9/30/2015	10:53:01	12.05	4.29	1	0.21	
9/30/2015	10:54:01	12.05	4.29	0	0.1	**bias O2/CO2**
9/30/2015	10:55:01	12.05	4.29	0.1	0.03	**zero CO/nox**
9/30/2015	10:56:01	3.1	1.11	0.1	29.84	
9/30/2015	10:57:01	0.09	0.12	0	45.23	
9/30/2015	10:58:01	0.05	0.08	0.2	45.24	**bias nox**
9/30/2015	10:59:01	0.03	0.05	0.2	45.24	**zero O2/CO2**
9/30/2015	11:00:01	0.26	0.04	192.3	8.16	
9/30/2015	11:01:01	0.26	0.04	448.5	1.59	
9/30/2015	11:02:01	0.23	0.04	450.6	1.52	**bias CO**
9/30/2015	11:03:01	0.83	0.67	451	2.8	
9/30/2015	11:04:01	11.63	6.16	557.4	34.08	
9/30/2015	11:05:01	12.18	6.33	637.6	35.39	
9/30/2015	11:06:01	12.25	6.39	645.3	34.89	**R 7**
9/30/2015	11:07:01	12.3	6.4	653.7	34.6	
9/30/2015	11:08:01	12.31	6.42	644.7	34.91	
9/30/2015	11:09:01	12.35	6.4	639.8	34.96	
9/30/2015	11:10:01	12.36	6.4	634.5	35.2	
9/30/2015	11:11:01	12.47	6.32	620.8	34.84	
9/30/2015	11:12:01	12.46	6.27	612.4	35.14	
9/30/2015	11:13:01	12.49	6.26	617.4	34.62	
9/30/2015	11:14:01	12.48	6.26	615.4	34.77	
9/30/2015	11:15:01	12.45	6.28	618.6	35.4	
9/30/2015	11:16:01	12.42	6.29	615.9	35.74	
9/30/2015	11:17:01	12.47	6.31	609.5	35.94	

Datalogger Printout

Almega ENVIRONMENTAL

Client	OCSD
Location	Huntington Beach
Unit	ICE 1
Date/Time	9/30/2015
Job Number	9849

Date	Time	O2%	CO2%	CO ppm	NOXppm	
9/30/2015	11:18:01	12.49	6.31	609.1	35.47	
9/30/2015	11:19:01	12.5	6.31	621.5	34.24	
9/30/2015	11:20:01	12.53	6.27	625	34.03	
9/30/2015	11:21:01	12.52	6.28	632.4	34.01	
9/30/2015	11:22:01	12.52	6.27	635.4	33.69	
9/30/2015	11:23:01	12.54	6.27	634.9	33.16	
9/30/2015	11:24:01	12.52	6.29	632.6	33.62	
9/30/2015	11:25:01	12.48	6.3	616.1	35.82	
9/30/2015	11:26:01	12.55	6.25	610.1	35.71	
9/30/2015	11:27:01	12.44	6.3	600.3	36.61	
9/30/2015	11:28:01	12.48	6.3	602.8	36.41	
9/30/2015	11:29:01	12.48	6.29	601.6	36.76	
9/30/2015	11:30:01	12.52	6.24	598.8	36.74	
9/30/2015	11:31:01	12.44	6.27	604.2	36.47	
9/30/2015	11:32:01	12.49	6.29	621.1	34.53	
9/30/2015	11:33:01	12.46	6.28	630.9	34.06	
9/30/2015	11:34:01	12.49	6.3	630	33.57	
9/30/2015	11:35:01	12.49	6.29	636.2	33.57	
9/30/2015	11:36:01	12.54	6.26	629.7	33.53	**R 8**
9/30/2015	11:37:01	12.54	6.28	634	33.95	
9/30/2015	11:38:01	12.59	6.27	627.9	34.39	
9/30/2015	11:39:01	12.52	6.26	623.1	34.38	
9/30/2015	11:40:01	12.44	6.29	625.7	34.94	
9/30/2015	11:41:01	12.4	6.36	612.9	36.76	
9/30/2015	11:42:01	12.38	6.36	603.9	37.11	
9/30/2015	11:43:01	12.41	6.37	602.3	37.46	
9/30/2015	11:44:01	12.51	6.29	600.1	37.51	
9/30/2015	11:45:01	12.5	6.28	599.9	37.54	
9/30/2015	11:46:01	12.47	6.29	592.8	38.01	
9/30/2015	11:47:01	12.47	6.29	608.7	36.92	
9/30/2015	11:48:01	12.44	6.33	620	36.33	
9/30/2015	11:49:01	12.5	6.31	624.8	35.54	
9/30/2015	11:50:01	12.52	6.29	628.5	35.17	
9/30/2015	11:51:01	12.49	6.3	616.7	35.38	
9/30/2015	11:52:01	12.48	6.32	615.8	35.79	
9/30/2015	11:53:01	12.54	6.29	607.7	35.56	
9/30/2015	11:54:01	12.5	6.28	600.4	36.51	
9/30/2015	11:55:01	12.45	6.3	599.4	37.01	
9/30/2015	11:56:01	12.57	6.24	597.9	36.51	
9/30/2015	11:57:01	12.46	6.27	601.1	36.82	

Datalogger Printout

Almega Environmental

Client	OCSD
Location	Huntington Beach
Unit	ICE 1
Date/Time	9/30/2015
Job Number	9849

Date	Time	O2%	CO2%	CO ppm	NOXppm	
9/30/2015	11:58:01	12.41	6.34	611.2	36.9	
9/30/2015	11:59:01	12.42	6.36	610.2	36.86	
9/30/2015	12:00:01	12.44	6.36	613.5	36.59	
9/30/2015	12:01:01	12.48	6.35	620.8	36.2	
9/30/2015	12:02:01	12.61	6.25	617.6	35.6	
9/30/2015	12:03:01	12.61	6.18	618.5	34.82	
9/30/2015	12:04:01	12.48	6.25	633	35.04	
9/30/2015	12:05:01	12.5	6.29	632.6	35.48	
9/30/2015	12:06:01	12.51	6.27	637	34.95	**R 9**
9/30/2015	12:07:01	12.56	6.22	637.6	35.1	
9/30/2015	12:08:01	12.52	6.2	633.7	35.29	
9/30/2015	12:09:01	12.59	6.19	627.2	34.76	
9/30/2015	12:10:01	12.62	6.2	617	35.26	
9/30/2015	12:11:01	12.58	6.2	605.4	35.74	
9/30/2015	12:12:01	12.57	6.23	613.5	35.34	
9/30/2015	12:13:01	12.75	6.07	614.2	34.32	
9/30/2015	12:14:01	12.52	6.21	624.7	34.47	
9/30/2015	12:15:01	12.52	6.26	640.1	33.55	
9/30/2015	12:16:01	12.58	5.97	623.7	35.8	
9/30/2015	12:17:01	12.56	5.76	619.7	35.68	
9/30/2015	12:18:01	12.56	5.78	619.5	36.19	
9/30/2015	12:19:01	12.63	5.75	614.1	36.23	
9/30/2015	12:20:01	12.75	5.68	606.2	35.57	
9/30/2015	12:21:01	12.63	5.7	603	35.8	
9/30/2015	12:22:01	12.62	5.73	614.5	36.2	
9/30/2015	12:23:01	12.58	5.76	592.1	38.24	
9/30/2015	12:24:01	12.5	6.17	614.6	36.86	
9/30/2015	12:25:01	12.48	6.27	589.8	38.37	
9/30/2015	12:26:01	12.65	6.19	601.3	35.64	
9/30/2015	12:27:01	12.59	6.19	612.6	35.22	
9/30/2015	12:28:01	12.54	6.22	624.7	35.47	
9/30/2015	12:29:01	12.54	6.24	623.4	35.44	
9/30/2015	12:30:01	12.55	6.26	631	34.33	
9/30/2015	12:31:01	12.59	6.24	630.6	34.01	
9/30/2015	12:32:01	12.59	6.22	632.1	33.68	
9/30/2015	12:33:01	12.7	6.16	635.3	33.37	
9/30/2015	12:34:01	12.77	6.08	610.3	33.32	
9/30/2015	12:35:01	12.57	6.16	612.6	34.55	
9/30/2015	12:36:01	12.59	6.17	608.3	35.17	
9/30/2015	12:37:01	12.66	6.13	606.2	34.9	

Datalogger Printout

Almega Environmental

Client	OCSD
Location	Huntington Beach
Unit	ICE 1
Date/Time	9/30/2015
Job Number	9849

Date	Time	O2%	CO2%	CO ppm	NOXppm	
9/30/2015	12:38:01	12.75	6.05	628.7	32.83	
9/30/2015	12:39:01	5.74	2.38	528.7	16.86	
9/30/2015	12:40:01	0.67	0.16	42.2	2.56	
9/30/2015	12:41:01	0.21	0.09	0.9	0.34	
9/30/2015	12:42:01	0.03	0.06	0.2	0.19	bias zero
9/30/2015	12:43:01	0.03	0.05	0	0.09	
9/30/2015	12:44:01	3.39	1.37	0	0.03	
9/30/2015	12:45:01	11.98	4.11	0.2	0.01	
9/30/2015	12:46:01	12.05	4.19	0.2	0	bias O2/CO2
9/30/2015	12:47:01	12.05	4.22	0.2	0	
9/30/2015	12:48:01	2.68	0.94	0.1	3.85	
9/30/2015	12:49:01	0.07	0.1	0.4	44.58	
9/30/2015	12:50:01	0.05	0.06	0.2	44.83	bias nox
9/30/2015	12:51:01	0.03	0.04	0.2	44.8	
9/30/2015	12:52:01	0.25	0.03	176.8	8.98	
9/30/2015	12:53:01	0.26	0.03	447.8	1.49	
9/30/2015	12:54:01	0.23	0.03	451.3	1.47	
9/30/2015	12:55:01	0.23	0.02	450.6	1.44	bias CO
9/30/2015	12:56:01	0.15	0.02	443.2	1.28	
9/30/2015	12:57:01	0.03	0.01	86.9	0.1	
9/30/2015	12:58:01	0.03	0.01	0.4	0.02	zero
9/30/2015	12:59:01	0.03	0	0.2	0	
9/30/2015	13:00:01	14.13	0.24	9.5	0.93	
9/30/2015	13:01:02	21.72	8.37	360.7	98.26	
9/30/2015	13:02:01	21.89	8.69	925	84.31	
9/30/2015	13:03:01	21.95	8.7	899.9	89.92	
9/30/2015	13:04:01	21.95	8.7	898.2	89.65	high
9/30/2015	13:05:01	16.13	5.92	811.2	66.99	
9/30/2015	13:06:01	12.16	4.3	461.1	44.99	
9/30/2015	13:07:01	12.1	4.3	452.7	45.14	mid
9/30/2015	13:08:01	5.98	2.02	408.4	29.41	
9/30/2015	13:09:01	0.03	0.01	33.5	50.04	
9/30/2015	13:10:01	0.03	0.01	0.8	323.82	
9/30/2015	13:11:01	0.03	0.01	1.3	323.82	

APPENDIX E

QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC)

Appendix E1

Test Equipment Calibration Data

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Semi-Annual Field Dry Gas Meter Calibration* Calibration Date. 8/7/2015

DRY GAS METER CALIBRATION FACTOR Y	ORIFICE CALIBRATION FACTOR dH@
Yds = 0.9871	dH@ = 1.987

Orifice Series: 33-73
Serial Number: AE_1/AE_2
Cal Type: Semi-Annual

Calibrated by: MC
(signature): Matt Ch...
Reviewed by: Sun...

DGM INLET Initial (°F)	DGM INLET Final (°F)	DGM OUTLET Initial (°F)	DGM OUTLET Final (°F)	Meter Reading Initial (cu.ft.)	Meter Reading Final (cu.ft.)	Orifice Reading Initial (in.H2O)	Orifice Reading Final (in H2O)	$(Y_{tm,max} - Y_{tm,min}) <$ 0.010 **	0.98 < $(Y_{tm,i}/Y_{tm})$ 1.02	Average Coeff (Y) (0.95<Y<1.05)	$dH@_{i,avg}$ < (dH@ ± 0.15)
76.0	76.0	76.0	76.0	828.305	834.155	0.150	0.150				
76.0	76.0	76.0	76.0	834.155	840.010	0.150	0.150	0.0013	0.999	0.986	2.049
76.0	76 0	76.0	76.0	840.010	845.868	0.150	0.150	PASS	PASS	PASS	PASS
76.0	77.0	77.0	77.0	847.300	853.420	0.840	0.840				
77.0	77.0	77.0	77.0	853.420	859.540	0.840	0.840	0 0025	0.997	0.984	1.941
77.0	78.0	77.0	77.0	859.540	865.650	0.840	0.840	PASS	PASS	PASS	PASS
78.0	80.0	77.0	77.0	867.700	873.245	2.100	2.100				
80.0	81.0	77.0	77.0	873.245	878.815	2.100	2.100	0.0045	1.000	0.987	1.997
81.0	82.0	77.0	77.0	878.815	884.365	2.100	2.100	PASS	PASS	PASS	PASS
83.0	86.0	77.0	78.0	889.000	895.555	3.900	3.900				
86.0	87.0	78.0	78.0	895.555	902.100	3.900	3.900	0.0056	1.003	0.990	1.962
87.0	87.0	78.0	78.0	902.100	908.636	3.900	3.900	PASS	PASS	PASS	PASS

DGM ID. MB-002
Serial #. 2241676

Calibration Interval:
Semi-Annual: x
Bi-monthly:
Other

Standard Temperature (deg F)
Tstd = 60

Barometric Pressure (in.Hg)
Initial: 29.89
Final: 29.88
$Pbar_{avg}$: 29.89

Orifice Series No.	Run Time (min)	CRITICAL ORIFICE: Orifice K-factor	Tested Vacuum (in.Hg)	Ambient Temp. (°F)	Corrected Flowrate Q'rm (SCFM)	Corrected Volume (cu.ft.)	DRY GAS METER: Orifice dH (in.H2O)	AVG Temp (°F)	NET Volume (cu.ft.)	Corrected Flowrate Q'fm (SCFM)	Corrected Volume (SCF)	CALCULATIONS: Coefficient $Y_{fm,i}$ (0.95 < $Y_{fm,i}$ < 1.05)	Orifice $dH@_i$ (in.H2O)
33	28	0.1549	26.50	76.0	0.2000	5.600	0.150	76 00	5.850	0.203	5.674	0.9870	2.049
33	28	0.1549	26.50	76.0	0.200	5.600	0.150	76 00	5.855	0.203	5.679	0.9861	2 049
33	28	0.1549	26.50	76.0	0.200	5.600	0.150	76 00	5.858	0.203	5.682	0.9856	2.049
52	12	0.3769	22.50	76.0	0.487	5.840	0.840	76 75	6.120	0.495	5.938	0 9835	1 942
52	12	0.3769	22.50	76.0	0.487	5.840	0.840	77.00	6.120	0.495	5.935	0.9840	1.941
52	12	0.3769	22.50	76.0	0.487	5.840	0.840	77.25	6.110	0.494	5.923	0.9860	1.940
63	7	0.5890	20.50	77.0	0.760	5.319	2 100	78.00	5.545	0.769	5.384	0.9879	1.999
63	7	0.5890	20.50	77.0	0.760	5.319	2.100	78.75	5.570	0.772	5.401	0.9848	1.996
63	7	0.5890	20.50	77.0	0.760	5.319	2.100	79.25	5.550	0.768	5.376	0.9893	1.995
73	6	0.8109	18 00	77.0	1 046	6.276	3.900	81.00	6.555	1.060	6.357	0.9873	1.965
73	6	0.8109	18.00	77.0	1.046	6.276	3.900	82.25	6.545	1.055	6.333	0.9911	1.961
73	6	0.8109	18.00	77 0	1.046	6.276	3.900	82.50	6.536	1.054	6 321	0.9929	1.960

* Critical Orifice used.

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Bi-Monthly Field Dry Gas Meter Calibration*

Calibration Date: 10/7/2015

Orifice Series: 52,63
Serial Number: AE_1/AE_2
Cal Type: Bi-Monthly

Calibrated by: DJ
(signature):
Reviewed by:

SEMI TO BI CHECK		DRY GAS METER CALIBRATION FACTOR	ORIFICE CALIBRATION FACTOR
(+2% of Y)	(-2% of Y)	Y	dH@
1.0068	0.9674		
PASS		Yds = 0.9675	dH@ = 1.975

DRY GAS METER READINGS								QUALITY CONTROL CHECKS			
DGM INLET		DGM OUTLET		Meter Reading		Orifice Reading		$(Y_{fm,max} - Y_{fm,min}) <$ 0.010 **	0.98 < $(Y_{fm,i}/Y_{fm})$ 1.02	Average Coeff. $Y_{fm,i}$	$dH@_{i,avg}$ < (dH@ ± 0.15)
Initial (°F)	Final (°F)	Initial (°F)	Final (°F)	Initial (cu.ft.)	Final (cu.ft.)	Initial (in.H2O)	Final (in.H2O)				
74.0	74.0	74.0	74.0	416.467	422.685	0.850	0.850				
74.0	76.0	74.0	75.0	422.685	428.911	0.850	0.850	0.0032	0.997	0.965	1.962
75.0	77.0	75.0	75.0	428.911	435.120	0.850	0.850	PASS	PASS	PASS	PASS
79.0	80.0	76.0	76.0	452.990	458.620	2.100	2.100				
80.0	81.0	76.0	77.0	458.620	464.255	2.100	2.100	0.0098	1.003	0.970	1.989
81.0	81.0	77.0	77.0	464.255	469.950	2.100	2.100	PASS	PASS	PASS	PASS

DGM ID: MB-002
Serial #:
Semi A Yfm: 0.9871

Calibration Interval:
Bi-monthly: x

Standard Temperature (deg.F)
Tstd = 60

Barometric Pressure (in.Hg)
Pbar: 30.00

Orifice Series No.	Run Time (min)	CRITICAL ORIFICE: Orifice K-factor	Tested Vacuum (in.Hg)	Ambient Temp. (°F)	Corrected Flowrate Q'm (SCFM)	Corrected Volume (cu.ft.)	DRY GAS METER: Orifice dH (in.H2O)	AVG Temp. (°F)	NET Volume (cu.ft.)	Corrected Flowrate Q'fm (SCFM)	Corrected Volume (SCF)	CALCULATIONS: Coefficient $Y_{fm,i}$ (0.95 < $Y_{fm,i}$ < 1.05)	Orifice $dH@_i$ (in.H2O)
52	12	0.3769	23.0	75.0	0.489	5.868	0.850	74.00	6.218	0.507	6.087	0.9639	1.964
52	12	0.3769	23.0	75.0	0.489	5.868	0.850	74.75	6.226	0.507	6.087	0.9640	1.961
52	12	0.3769	23.0	76.0	0.489	5.862	0.850	75.50	6.209	0.505	6.062	0.9671	1.962
63	7	0.5890	21.0	76.0	0.763	5.344	2.100	77.75	5.630	0.784	5.490	0.9734	1.989
63	7	0.5890	21.0	77.0	0.763	5.339	2.100	78.50	5.635	0.784	5.487	0.9730	1.990
63	7	0.5890	21.0	77.0	0.763	5.339	2.100	79.00	5.695	0.792	5.541	0.9636	1.988

* Critical Orifice used.

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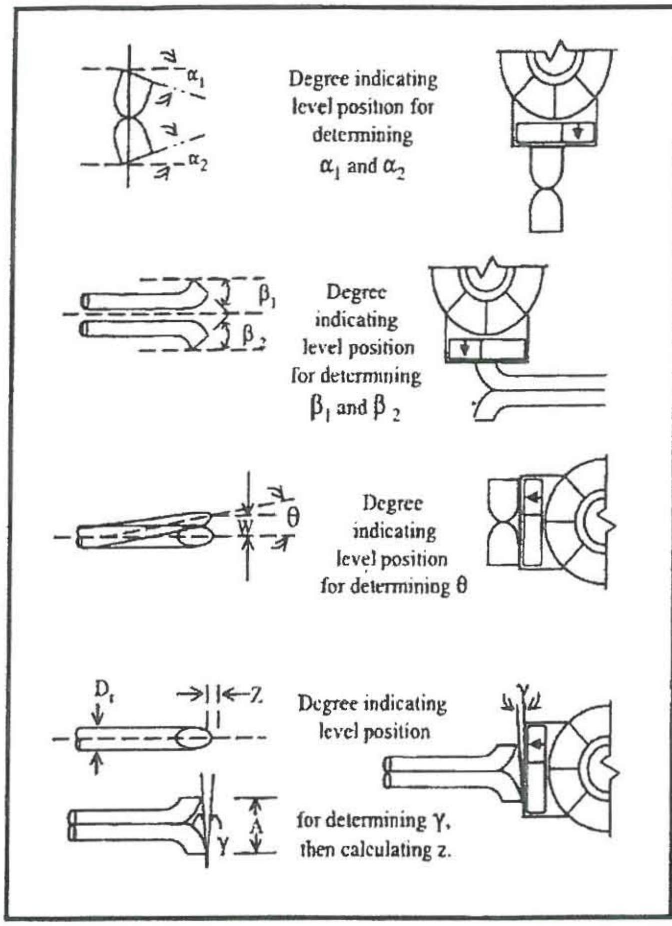
TYPE S PITOT TUBE SEMIANNUAL INSPECTION SHEET

CAL DATE: 7/2/2015

NEXT DUE DATE: 12/31/2015

PITOT ID: PT-83



Parameter	Values	Allowable Range
Level and Perpendicular?	Yes OR No	Yes
Obstruction?	Yes OR No	No
Damaged?	Yes OR No	No
$\alpha 1$	1	$-10^\circ \leq \alpha 1 \leq +10^\circ$
$\alpha 2$	-1	$-10^\circ \leq \alpha 2 \leq +10^\circ$
$\beta 1$	1	$-5^\circ \leq \beta 1 \leq +5^\circ$
$\beta 2$	1	$-5^\circ \leq \beta 2 \leq +5^\circ$
γ	2	NA
θ	2	NA
$Z = A (\tan \gamma)$	0.022	≤ 0.125 in.
$W = A (\tan \theta)$	0.022	≤ 0.031 in.
Dt	0.248	$0.188 \leq Dt \leq 0.375$
A	0.640	NA
A/2/(Dt)	1.29	$1.05 \leq PA/Dt \leq 1.5$

Certification:

I certify that this pitot tube meets or exceeds all specifications, criteria and/or applicable design features and is hereby assigned a pitot tube calibration factor Cp of 0.84.

Certified By: [signature] **Date:** 7/2/2015

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ALMEGA ENVIRONMENTAL AND TECHNICAL SERVICES
10602 WALKER STREET
CYPRESS, CA 90630

STACK TEMPERATURE SENSOR SEMI-ANNUAL CALIBRATION

TEMPERATURE SENSOR I.D:	83	REF. IMMERSION GLASS THERMOMETER ID: : 1, 2 & 3
READ OUT I.D:	TRO-2	ICE BATH: YES
PITOT TUBE I.D:	S-83	BOILING WATER: YES
PITOT TUBE LENGTH:	113 inch	HOT OIL: YES
DATE:	9/24/2015	CALIBRATED BY: LB

ICE BATH			
REF. IN HG. GLASS THERMOMETER TEMPERATURE (^{O}F)	FIELD METER TEMPERATURE (^{O}F)	ABSOLUTE DIFFERENCE TEMPERATURE (^{O}F)	% DIFFERENCE (%)
35.0	35.0	0.0	0.0
35.0	35.0	0.0	0.0
34.0	34.0	0.0	0.0

BOILING WATER			
REF. IN HG. GLASS THERMOMETER TEMPERATURE (^{O}F)	FIELD METER TEMPERATURE (^{O}F)	ABSOLUTE DIFFERENCE TEMPERATURE (^{O}F)	% DIFFERENCE (%)
212.0	211.0	1.0	0.5
213.0	212.0	1.0	0.5
214.0	213.0	1.0	0.5

HOT OIL			
REF. IN HG. GLASS THERMOMETER TEMPERATURE (^{O}F)	FIELD METER TEMPERATURE (^{O}F)	ABSOLUTE DIFFERENCE TEMPERATURE (^{O}F)	% DIFFERENCE (%)
446.0	446.0	0.0	0.0
448.0	448.0	0.0	0.0
448.0	447.0	1.0	0.2

NOTE:
MAXIMUM TOLERANCE BETWEEN ANY TWO MEASUREMENT IS 1.5%.
TAKE READING EVERY ONE MINUTE.

REF. ICE BATH THERMOMETER: -30 - 120 (F)
REF. BOILING WATER THERMOMETER: 20 - 500 (F)
REF. HOT OIL THERMOMETER: 20 - 500 (F)

ALMEGA ENVIRONMENTAL AND TECHNICAL SERVICES
10602 WALKER STREET
CYPRESS, CA 90630

STACK TEMPERATURE SENSOR BI-MONTHLY CALIBRATION

TEMPERATURE SENSOR I.D:	83	REF. IMMERSION GLASS THERMOMETER ID:	: 1, 2 & 3
READ OUT I.D:	TRO-1	ICE BATH: YES	
PITOT TUBE I.D:	83	BOILING WATER: YES	
PITOT TUBE LENGTH:	113'	HOT OIL: YES	
DATE:	8/17/2015	CALIBRATED BY: LB	L. B.

ICE BATH			
REF. IN HG. GLASS THERMOMETER TEMPERATURE (^{O}F)	FIELD METER TEMPERATURE (^{O}F)	ABSOLUTE DIFFERENCE TEMPERATURE (^{O}F)	% DIFFERENCE (%)
34.0	33.5	0.5	1.5

BOILING WATER			
REF. IN HG. GLASS THERMOMETER TEMPERATURE (^{O}F)	FIELD METER TEMPERATURE (^{O}F)	ABSOLUTE DIFFERENCE TEMPERATURE (^{O}F)	% DIFFERENCE (%)
213.0	215.0	2.0	0.9

HOT OIL			
REF. IN HG. GLASS THERMOMETER TEMPERATURE (^{O}F)	FIELD METER TEMPERATURE (^{O}F)	ABSOLUTE DIFFERENCE TEMPERATURE (^{O}F)	% DIFFERENCE (%)
415.0	414.0	1.0	0.2

NOTE:
MAXIMUM TOLERANCE BETWEEN ANY TWO MEASUREMENT IS 1.5%.
TAKE READING EVERY ONE MINUTE.

REF. ICE BATH THERMOMETER: -30 - 120 (F)
REF. BOILING WATER THERMOMETER: 20 - 500 (F)
REF. HOT OIL THERMOMETER: 20 - 500 (F)

Almega ENVIRONMENTAL

DICK MUNNS COMPANY
LIQUID & GAS FLOW CALIBRATION

ISO 17025 IAS ACCREDITED CL-122

CERTIFICATE OF CALIBRATION

CUSTOMER:	ALMEGA ENVIRONMENTAL	**CALIBRATION DATE:**	07/13/2015
PO NUMBER:		**CALIBRATION DUE:**	07/13/2016
INST. MANUFACTURER:	SHORTRIDGE	**PROCEDURE:**	NAVAIR-17-20MP-03
INST. DESCRIPTION:	AIR FLOW TESTER	**CALIBRATION FLUID:**	AIR @ 70F
MODEL NUMBER:	ADM-880C	**STANDARD(S) USED:**	A321 DUE 2-2016
SERIAL NUMBER:	M10327	**NIST TRACE #' S:**	1236086968
RATED UNCERTAINTY:	+/- 3% RD. + 5 FPM	**AMBIENT CONDITIONS:**	764 mmHGA, 43% RH, 74F
UNCERTAINTY GIVEN:	+/- .17% RD.; K=2	**CERTIFICATE FILE #:**	460189.2015A

NOTES: AS RECEIVED / AS LEFT WITHIN SPECS.

RUN 1			RUN 2			RUN 3		
UUT INDICATED "H2O	DM.STD. ACTUAL "H2O	% RD. ERROR	UUT INDICATED "H2O	DM.STD. ACTUAL "H2O	% RD. ERROR	UUT INDICATED "H2O	DM.STD. ACTUAL "H2O	% RD. ERROR
0.0000	0.00000	0.000	0.0000	0.00000	0.000	0.0000	0.00000	0.000
0.0010	0.00102	2.000	0.0010	0.00101	1.000	0.0010	0.00102	2.000
0.0025	0.00252	0.800	0.0025	0.00252	0.800	0.0025	0.00252	0.800
0.0050	0.00505	1.000	0.0050	0.00507	1.400	0.0050	0.00506	1.200
0.0100	0.01009	0.900	0.0100	0.01008	0.800	0.0100	0.01010	1.000
0.0500	0.05015	0.300	0.0500	0.05012	0.240	0.0500	0.05011	0.220
0.5000	0.50033	0.066	0.5000	0.50025	0.050	0.5000	0.50028	0.056
1.0000	1.00530	0.530	1.0000	1.00041	0.041	1.0000	1.00045	0.045
2.5000	2.50099	0.040	2.5000	2.50097	0.039	2.5000	2.50089	0.036
5.0000	5.00174	0.035	5.0000	5.00122	0.024	5.0000	5.00115	0.023
7.5000	7.50185	0.025	7.5000	7.50179	0.024	7.5000	7.50153	0.020
10.0000	10.00256	0.026	10.0000	10.00255	0.025	10.0000	10.00224	0.022
	AVERAGE =	0.477		AVERAGE =	0.370		AVERAGE =	0.452

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

Dick Munns Company • 10572 Calle Lee #130 • Los Alamitos, CA 90720
Phone (714) 827-1215 • Fax (714) 827-0823

Date: 7-13-2015 Approved By: [signature] Calibration Technician: JA

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Appendix E2

CEMS Calibration Gas Certificates

Airgas

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CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
11711 S. Alameda Street
Los Angeles , CA 90059
(323) 568-2208 Fax (323) 567-3686
www.airgas.com

Part Number:	E03NI69E15A3832	Reference Number:	48-124459216-1
Cylinder Number:	CC408131	Cylinder Volume:	151.4 CF
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32014	Valve Outlet:	590
Gas Code:	CO2,O2,BALN	Certification Date:	Oct 21, 2014

Expiration Date: Oct 21, 2022

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
CARBON DIOXIDE	8.750 %	8.749 %	G1	+/- 0.6% NIST Traceable	10/21/2014
OXYGEN	22.00 %	21.99 %	G1	+/- 0.4% NIST Traceable	10/21/2014
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	12061353	CC360995	11.002 % CARBON DIOXIDE/NITROGEN	+/- 0.6%	Jan 11, 2018
NTRM	09061417	CC273563	22.53 % OXYGEN/NITROGEN	+/- 0.4%	Mar 08, 2019

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
SIEMENS 6E CO2	NDIR	Oct 13, 2014
SIEMENS OXYMAT 6	PARAMAGNETIC	Oct 13, 2014

Triad Data Available Upon Request

Approved for Release

PRAXAIR

Almega ENVIRONMENTAL

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

DocNumber: 000082722

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

PRAXAIR WHSE SIGNAL HILL
2677 SIGNAL PARKWAY
SIGNAL HILL CA 907550

Praxair Order Number: 32010813
Customer P. O. Number: 05655758
Customer Reference Number:

Fill Date: 7/30/2015
Part Number: NI CD4 3O1E-AS
Lot Number: 109521109
Cylinder Style & Outlet: AS CGA 590
Cylinder Pressure & Volume: 2000 psig 140 cu. ft

Certified Concentration:

Expiration Date: 8/5/2023
Cylinder Number: CC248731

NIST Traceable
Analytical Uncertainty:

4.32	%	CARBON DIOXIDE	± 0.7 %
12.01	%	OXYGEN	± 0.4 %
	Balance	NITROGEN	

Certifcation Information: Certification Date: 8/5/2015 Term: 96 Months Expiration Date: 8/5/2023

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.

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: 4.3 %
Certified Concentration: 4.32 %
Instrument Used: Horiba VIA-510 S/N 2807014
Analytical Method: NDIR
Last Multipoint Calibration: 7/13/2015

Reference Standard Type: GMIS
Ref Std Cylinder #: SA17695
Ref Std Conc: 9.87%
Ref Std Traceable to SRM #: 1674b
SRM Sample #: 7-H-07
SRM Cylinder #: FF10631

First Analysis Data: Date: 8/5/2015

Z: 0	R: 9.87	C: 4.32	Conc: 4.32
R: 9.87	Z: 0	C: 4.32	Conc: 4.32
Z: 0	C: 4.32	R: 9.87	Conc: 4.32

UOM: % Mean Test Assay: 4.32 %

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 %

2. Component: OXYGEN

Requested Concentration: 12 %
Certified Concentration: 12.01 %
Instrument Used: OXYMAT 5E
Analytical Method: PARAMAGNETIC
Last Multipoint Calibration: 7/24/2015

Reference Standard Type: GMIS
Ref Std Cylinder #: SA16022
Ref Std Conc: 19.90%
Ref Std Traceable to SRM #: 2659a
SRM Sample #: 71-E-19
SRM Cylinder #: FF22331

First Analysis Data: Date: 8/5/2015

Z: 0	R: 19.9	C: 12.01	Conc: 12.01
R: 19.9	Z: 0	C: 12.01	Conc: 12.01
Z: 0	C: 12.01	R: 19.9	Conc: 12.01

UOM: % Mean Test Assay: 12.01 %

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: Ying Yu

Certified by: Jack Fu (nm)
Jack Fu

AIR LIQUIDE | Air Liquide America Specialty Gases LLC

Intertek

COMPLIANCE CLASS

Dual-Analyzed Calibration Standard

Almega ENVIRONMENTAL

8832 DICE ROAD, SANTA FE SPRINGS, CA 90670-2516 Phone: 800-323-2212 Fax: 562-464-5262

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A52012

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
8832 DICE ROAD
SANTA FE SPRINGS, CA 90670-2516

P.O. No.: RECERT
Document # : 45861199-001

Customer
ALMEGA ENVIRONMENTAL & TECHNICAL SE

WEDNESDAY DELIVERY ONLY U
5251 MC FADDEN AVE.
HUNTINGTON BEACH CA 92649
US

ANALYTICAL INFORMATION Gas Type : CO,BALN

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number:	CC259973	**Certification Date:**	18Apr2012	**Exp. Date:**	19Apr2020
Cylinder Pressure*:**	1700 PSIG	**Prev Certification Date:**	07Apr2009	**Batch No:**	SBO0052655

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
CARBON MONOXIDE	899	PPM	+/- 2%	NIST and VSL
NITROGEN		BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol procedures , September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1681	15Jun2015	KAL004633	970.0 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//001785245	09Apr2012	FTIR

Special Notes: The expiration date has been extended without re-assay per EPA 600/R-12/531.

APPROVED BY: MT
Thuan Tran

Airgas

Almega ENVIRONMENTAL

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
11711 S. Alameda Street
Los Angeles , CA 90059
323-568-2208 Fax: 323-567-3686
www.airgas.com

Part Number:	E02NI99E15A0499	Reference Number:	48-124465925-1
Cylinder Number:	CC39463	Cylinder Volume:	144.3 CF
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32014	Valve Outlet:	350
Gas Code:	CO,BALN	Certification Date:	Dec 02, 2014

Expiration Date: Dec 02, 2022

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
CARBON MONOXIDE	450.0 PPM	453.8 PPM	G1	+/- 0.8% NIST Traceable	12/02/2014
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	12062425	CC366875	487.1 PPM CARBON MONOXIDE/NITROGEN	+/- 0.6%	Jun 22, 2018

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AMP0900118 CO	FTIR	Nov 21, 2014

Triad Data Available Upon Request

Approved for Release

Airgas

Almega ENVIRONMENTAL

Airgas Specialty Gases
11711 S. Alameda Street
Los Angeles, CA 90059
(323) 568-2208 Fax: (323) 567-3666
www.airgas.com

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E02NI99E15AC0D7	Reference Number:	48-124438647-2
Cylinder Number:	CC147621	Cylinder Volume:	144.3 CF
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32014	Valve Outlet:	660
Gas Code:	NO,BALN	Certification Date:	Jun 14, 2014

Expiration Date: Jun 14, 2017

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	45.00 PPM	45.24 PPM	G1	+/- 1.0% NIST Traceable	06/07/2014, 06/14/2014
NITRIC OXIDE	45.00 PPM	45.03 PPM	G1	+/- 1.0% NIST Traceable	06/07/2014, 06/14/2014
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	13061227	CC403919	49.40 PPM NITRIC OXIDE/NITROGEN	+/- 0.8%	Nov 19, 2019
PRM	12328	680179	10.01 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Oct 15, 2014
GMIS	1211201301	CC501041	4.950 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Dec 11, 2016

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	May 27, 2014
Nicolet 6700 AHR0801551 NO2	FTIR	May 21, 2014

Triad Data Available Upon Request

Notes:

Approved for Release

Airgas

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

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E02NI99E15A3576	Reference Number:	48-124376725-6
Cylinder Number:	CC199782	Cylinder Volume:	144.3 Cubic Feet
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32013	Valve Outlet:	660
Gas Code:	NO,BALN	Certification Date:	Jun 07, 2013

Expiration Date: Jun 07, 2021

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

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

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	90.00 PPM	89.91 PPM	G1	+/- 0.9% NIST Traceable	05/31/2013, 06/07/2013
NITRIC OXIDE	90.00 PPM	89.88 PPM	G1	+/- 0.9% NIST Traceable	05/31/2013, 06/07/2013
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	11060532	CC331845	101.2 PPM NITRIC OXIDE/NITROGEN	+/- 0.6%	Feb 16, 2017
PRM	12312	680179	10.01 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Feb 14, 2012
GMIS	124208889129	CC323206	4.835 PPM NITROGEN DIOXIDE/NITROGEN	+/-2.0%	Oct 11, 2013

The SRM or PRM 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 AMP0900118 NO	FTIR	May 09, 2013
Nicolet 6700 AMP0900118 NO2	FTIR	May 20, 2013

Triad Data Available Upon Request

Notes:

Approved for Release

Airgas

Almega ENVIRONMENTAL

Airgas Specialty Gases
11711 S. Alameda Street
Los Angeles, CA 90059
(323) 568-2208 Fax: (323) 567-3686
www.airgas.com

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E02NI99E15W4BQ4	Reference Number:	48-124424353-1
Cylinder Number:	CC502676	Cylinder Volume:	CF
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	
PGVP Number:	B32014	Valve Outlet:	660
Gas Code:	NO2,BALN	Certification Date:	Mar 27, 2014

Expiration Date: Apr 03, 2017

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
NITROGEN DIOXIDE	16.50 PPM	16.46 PPM	G1	+/- 2.0% NIST Traceable	03/27/2014, 04/03/2014
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
GMIS	1211201301	CC500610	14.91 PPM NITROGEN DIOXIDE/NITROGEN	+/- 1.6%	Dec 11, 2016
PRM	12329	726612	25.02 PPM NITROGEN DIOXIDE/NITROGEN	+/- 1.5%	Oct 15, 2014

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 NO2	FTIR	Mar 13, 2014

Triad Data Available Upon Request

Permanent Notes:OXYGEN ADDED TO MAINTAIN STABILITY

Notes:

Approved for Release

Appendix E3

Other QA/QC

Facility: OCSD, Plant No. 2
City: Huntington Beach, CA
Source: Engine 2
Test: RATA
Test Date: 09/30/15

NO_2-to-NO CONVERTER EFFICIENCY CALCULATION

NO2 CONCENTRATION (Co):	16.46
AUDIT GAS WITH NO MODE (C1):	0.00
AUDIT GAS WITH NOx MODE (C2):	15.54

CALCULATIONS:

D1=|C2-C1|=	15.54
D2=|Co-C2|=	**0.92**

% CONVERTER EFFICIENCY: %CE=D1*100/Co= 94.4

Acceptance Criteria*	(Yes/No)
D2 < 1 ppm:	yes
% Converter Efficiency > 90% :	yes

STATUS: PASS

* NO2-to-NO Conversion Efficiency must be greater than 90%

Notes: Stripchart and DAS can be found in Appendix D2 and D3 respectively.
NOx analyzer was calibrated on a 0-100ppm range, while the NO_2 calibration gas used was below 20% of this range (16.46ppm). Converter efficiency value is still considered valid.

NOx Converter, QA/QC Check

Almega ENVIRONMENTAL

Facility:	**OCSD, Plant No. 2**		**Run No.: 1**
City:	**Huntington Beach, CA**		**Test Date:9/30/2015**
Source:	**Engine 2**		**Test: NOx Converter Check**
Test:	**RATA**		

TEST DATA

VARIABLE	DESCRIPTION	Pollutant 1 NOx
A	ANALYTICAL RANGE	**100**
	Unit of Measurement	**ppmd**
	CALIBRATION GAS INFORMATION	
B	Zero Gas	**0.00**
C	Mid Gas Concentration	**45.03**
	Mid Gas Cylinder S/N:	CC147621
D	High Gas Concentration	**89.88**
	High Gas Cylinder S/N:	CC199782
	Primary Gas Cylinder S/N:	
E	UPSCALE CALIBRATION GAS USED	**45.03**
	L=Low, M=Mid, H=High	**M**
	INITIAL CALIBRATION ERROR TEST	
F	Zero Gas Response	**0.00**
G	Mid Gas Response	**45.30**
H	High Gas Reponse	**89.61**

QA/QC CALCULATIONS

CALIBRATION GAS SELECTION, % of Range		
Mid Gas	45.0	C*100/A
High Gas	89.9	D*100/A
CALIBRATION ERROR, % of Range		
Initial Zero Gas Error	0.00	(F-B)*100/A
Initial Mid Gas Error	0.27	(G-C)*100/A
Initial High Gas Error	-0.27	(H-D)*100/A
LINEARITY, % of Range		
Initial	0.41	{(G-F)-[(H-F)*C]/D}*100/A

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APPENDIX F

FACILITY CEMS DATA

Appendix F1

FACILITY CEMS – Results and Calculations

Almega Environmental

Facility CEMS Data Summary

Facility: OCSD, Plant No. 2
City: Huntington Beach, CA
Source: Engine 2
Test: RATA
Date: 9/30/2015

Run No.	Time (hh:mm)	NOx ppm	NOx ppm@15%O2	NOx lb/hr	CO ppm	CO ppm@15%O2	CO lb/hr	Dry Flow dscfh	O2 %
1	7:34-8:06	37.52	24.73	2.77	616.42	406.67	27.77	618,638	11.95
2	8:07-8:36	36.45	24.25	2.73	627.47	417.58	28.60	626,982	12.03
3	8:37-9:06	37.75	25.04	2.83	616.72	409.04	28.12	627,201	12.00
4	9:21-9:50	37.65	24.85	2.77	610.19	402.85	27.28	614,947	11.96
5	9:51-10:20	36.16	24.10	2.74	641.98	428.31	29.71	635,691	12.05
6	10:21-10:50	34.43	23.37	2.73	681.10	462.89	32.93	664,619	12.21
7	11:06-11:35	37.01	25.27	3.19	678.38	463.29	35.61	722,270	12.26
8	11:36-12:05	38.04	25.94	3.25	672.33	458.55	34.94	715,023	12.25
9	12:06-12:35	37.55	25.74	3.28	678.47	465.17	36.08	731,681	12.29
Average:		36.95	24.81	2.92	647.01	434.93	31.23	661,895	12.11

Facility Process Data

Facility: OCSD, Plant No. 2
City: Huntington Beach, CA
Source: Engine 2
Test: RATA
Date: 9/30/2015

Run No.	Load %	Nat Gas Flow dscfm	Dig Gas Flow dscfm
1	87.59	14.65	756.85
2	87.96	16.56	757.41
3	88.00	24.39	747.62
4	87.18	24.58	735.55
5	88.70	25.37	752.21
6	90.49	56.86	734.71
7	100.21	159.87	621.65
8	97.22	158.35	616.44
9	98.90	184.98	586.38
Average:	91.81	73.96	700.98

Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 7:34

Report End Date/Time : Wed 09/30/2015 8:06

DATE/TIME	O2 (%)	NOx Raw (ppmvd)	CO Raw (ppmvd)	Stack Flow (dscfm)	NOx Lbs/Hr	CO Lbs/Hr	CO @15%O2 (ppmvd)	NOx @15%O2 (ppmvd)
09/30/2015 7:34	11.68 V	40.02 V	562.30 V	9039.54 V	2.59 V	22.17 V	359.63 V	25.60 V
09/30/2015 7:35	11.72 V	39.17 V	571.60 V	9197.06 V	2.58 V	22.93 V	367.37 V	25.18 V
09/30/2015 7:36	11.68 V	39.87 V	574.40 V	9360.48 V	2.68 V	23.45 V	367.37 V	25.50 V
09/30/2015 7:37	11.80 V	39.32 V	579.70 V	9405.36 V	2.65 V	23.78 V	375.75 V	25.49 V
09/30/2015 7:38	11.80 V	38.45 V	591.60 V	9413.56 V	2.60 V	24.29 V	383.46 V	24.92 V
09/30/2015 7:39	11.77 V	38.40 V	595.10 V	9514.49 V	2.62 V	24.69 V	384.67 V	24.82 V
09/30/2015 7:40	11.82 V	37.98 V	592.30 V	9809.38 V	2.67 V	25.34 V	384.97 V	24.69 V
09/30/2015 7:41	11.68 V	42.55 V	556.00 V	10047.44 V	3.07 V	24.36 V	355.60 V	27.21 V
09/30/2015 7:42	11.86 V	40.69 V	575.80 V	10231.71 V	2.99 V	25.69 V	375.90 V	26.56 V
09/30/2015 7:43	11.87 V	38.91 V	594.30 V	10347.43 V	2.89 V	26.82 V	388.20 V	25.42 V
09/30/2015 7:44	11.97 V	38.16 V	612.30 V	10436.12 V	2.86 V	27.87 V	404.43 V	25.21 V
09/30/2015 7:45	11.97 V	37.87 V	622.90 V	10519.39 V	2.86 V	28.57 V	411.32 V	25.01 V
09/30/2015 7:46	11.99 V	37.91 V	615.20 V	10522.25 V	2.86 V	28.23 V	407.49 V	25.11 V
09/30/2015 7:47	11.99 V	36.96 V	633.80 V	10539.01 V	2.79 V	29.13 V	419.81 V	24.48 V
09/30/2015 7:48	11.99 V	37.03 V	632.00 V	10500.46 V	2.79 V	28.94 V	418.50 V	24.52 V
09/30/2015 7:49	12.02 V	36.50 V	638.60 V	10598.65 V	2.77 V	29.52 V	424.30 V	24.25 V
09/30/2015 7:50	12.02 V	36.89 V	628.40 V	10584.54 V	2.80 V	29.01 V	417.52 V	24.51 V
09/30/2015 7:51	12.02 V	36.33 V	638.20 V	10546.16 V	2.75 V	29.35 V	423.91 V	24.13 V
09/30/2015 7:52	12.04 V	36.16 V	644.20 V	10663.18 V	2.77 V	29.96 V	428.86 V	24.07 V
09/30/2015 7:53	12.06 V	36.60 V	630.20 V	10736.77 V	2.82 V	29.51 V	420.73 V	24.44 V
09/30/2015 7:54	12.04 V	34.94 V	649.40 V	10589.81 V	2.65 V	29.99 V	432.32 V	23.26 V
09/30/2015 7:55	12.02 V	35.81 V	641.80 V	10630.77 V	2.73 V	29.75 V	426.30 V	23.79 V
09/30/2015 7:56	12.04 V	35.68 V	642.90 V	10657.17 V	2.73 V	29.88 V	427.88 V	23.75 V
09/30/2015 7:57	12.02 V	36.12 V	637.20 V	10701.59 V	2.77 V	29.74 V	423.37 V	24.00 V
09/30/2015 7:58	12.06 V	36.70 V	633.00 V	10703.59 V	2.82 V	29.55 V	422.48 V	24.49 V
09/30/2015 7:59	12.06 V	36.54 V	633.50 V	10755.46 V	2.82 V	29.71 V	422.93 V	24.39 V
09/30/2015 8:00	12.09 V	36.61 V	639.00 V	10685.28 V	2.81 V	29.78 V	427.81 V	24.51 V
09/30/2015 8:01	12.06 V	36.47 V	634.50 V	10646.91 V	2.78 V	29.46 V	423.48 V	24.34 V
09/30/2015 8:02	12.06 V	36.44 V	634.10 V	10600.47 V	2.77 V	29.31 V	423.33 V	24.33 V
09/30/2015 8:03	12.04 V	36.99 V	629.20 V	10603.04 V	2.81 V	29.09 V	418.88 V	24.63 V
09/30/2015 8:04	12.02 V	36.81 V	624.90 V	10587.57 V	2.79 V	28.85 V	415.08 V	24.45 V
09/30/2015 8:05	12.09 V	36.61 V	621.00 V	10579.14 V	2.78 V	28.65 V	415.76 V	24.51 V
09/30/2015 8:06	12.04 V	36.64 V	632.30 V	10496.94 V	2.76 V	28.94 V	420.82 V	24.39 V
Average:	11.95	37.52	616.42	10310.63	2.77	27.77	406.67	24.73
Maximum:	12.09	42.55	649.40	10755.46	3.07	29.99	432.32	27.21
Minimum:	11.68	34.94	556.00	9039.54	2.58	22.17	355.60	23.26

R-1

Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 7:34

Report End Date/Time : Wed 09/30/2015 8:06

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)					
09/30/2015 7:34	79.32 V	12.42 V	685.73 V					
09/30/2015 7:35	81.73 V	12.83 V	693.85 V					
09/30/2015 7:36	81.60 V	12.97 V	709.89 V					
09/30/2015 7:37	76.75 V	13.25 V	703.19 V					
09/30/2015 7:38	83.95 V	13.39 V	703.60 V					
09/30/2015 7:39	83.60 V	13.67 V	712.94 V					
09/30/2015 7:40	87.74 V	13.39 V	732.02 V					
09/30/2015 7:41	84.91 V	14.51 V	761.05 V					
09/30/2015 7:42	89.28 V	14.37 V	759.42 V					
09/30/2015 7:43	84.40 V	14.93 V	766.93 V					
09/30/2015 7:44	95.19 V	14.79 V	765.11 V					
09/30/2015 7:45	90.31 V	14.93 V	771.40 V					
09/30/2015 7:46	84.74 V	14.93 V	769.17 V					
09/30/2015 7:47	86.78 V	15.21 V	769.98 V					
09/30/2015 7:48	93.80 V	14.93 V	767.75 V					
09/30/2015 7:49	84.95 V	15.21 V	772.01 V					
09/30/2015 7:50	89.16 V	14.93 V	771.40 V					
09/30/2015 7:51	90.17 V	14.79 V	768.96 V					
09/30/2015 7:52	89.64 V	15.35 V	775.05 V					
09/30/2015 7:53	94.91 V	15.35 V	778.30 V					
09/30/2015 7:54	84.56 V	15.21 V	769.78 V					
09/30/2015 7:55	91.85 V	15.21 V	774.65 V					
09/30/2015 7:56	86.24 V	15.21 V	775.05 V					
09/30/2015 7:57	92.11 V	15.35 V	779.52 V					
09/30/2015 7:58	88.28 V	15.21 V	776.27 V					
09/30/2015 7:59	91.89 V	15.21 V	779.93 V					
09/30/2015 8:00	92.41 V	15.21 V	772.42 V					
09/30/2015 8:01	88.56 V	15.35 V	771.81 V					
09/30/2015 8:02	85.25 V	15.07 V	768.56 V					
09/30/2015 8:03	86.47 V	15.07 V	770.99 V					
09/30/2015 8:04	91.41 V	15.21 V	771.40 V					
09/30/2015 8:05	88.37 V	15.21 V	764.50 V					
09/30/2015 8:06	90.22 V	14.93 V	763.48 V					
Average:	87.59	14.65	756.85					
Maximum:	95.19	15.35	779.93					
Minimum:	76.75	12.42	685.73					

Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 8:07

Report End Date/Time : Wed 09/30/2015 8:36

DATE/TIME	O2 (%)	NOx Raw (ppmvd)	CO Raw (ppmvd)	Stack Flow (dscfm)	NOx Lbs/Hr	CO Lbs/Hr	CO @15%O2 (ppmvd)	NOx @15%O2 (ppmvd)
09/30/2015 8:07	12.02 V	36.47 V	620.00 V	10453.76 V	2.73 V	28.26 V	411.82 V	24.22 V
09/30/2015 8:08	12.04 V	36.40 V	620.40 V	10442.53 V	2.73 V	28.25 V	412.90 V	24.23 V
09/30/2015 8:09	11.99 V	36.78 V	617.60 V	10484.55 V	2.77 V	28.24 V	409.08 V	24.36 V
09/30/2015 8:10	12.04 V	36.37 V	617.20 V	10499.95 V	2.74 V	28.26 V	410.77 V	24.21 V
09/30/2015 8:11	12.02 V	37.77 V	611.30 V	10452.51 V	2.83 V	27.86 V	406.16 V	25.10 V
09/30/2015 8:12	12.06 V	36.43 V	627.00 V	10551.32 V	2.76 V	28.85 V	418.59 V	24.32 V
09/30/2015 8:13	12.04 V	35.47 V	639.20 V	10548.62 V	2.68 V	29.40 V	425.53 V	23.61 V
09/30/2015 8:14	12.06 V	35.75 V	641.10 V	10567.32 V	2.71 V	29.54 V	427.88 V	23.86 V
09/30/2015 8:15	12.09 V	35.36 V	646.90 V	10561.90 V	2.68 V	29.80 V	433.10 V	23.67 V
09/30/2015 8:16	12.06 V	35.39 V	648.60 V	10593.83 V	2.69 V	29.96 V	433.01 V	23.63 V
09/30/2015 8:17	12.12 V	35.46 V	651.10 V	10635.91 V	2.70 V	30.20 V	437.28 V	23.82 V
09/30/2015 8:18	12.09 V	35.32 V	650.20 V	10561.92 V	2.68 V	29.95 V	435.19 V	23.64 V
09/30/2015 8:19	12.09 V	35.53 V	648.00 V	10578.83 V	2.70 V	29.89 V	433.84 V	23.79 V
09/30/2015 8:20	12.09 V	35.32 V	654.30 V	10665.62 V	2.70 V	30.43 V	438.06 V	23.65 V
09/30/2015 8:21	12.06 V	35.61 V	641.50 V	10524.79 V	2.69 V	29.44 V	428.27 V	23.77 V
09/30/2015 8:22	12.06 V	35.64 V	637.20 V	10516.04 V	2.69 V	29.22 V	425.40 V	23.79 V
09/30/2015 8:23	12.04 V	36.64 V	621.80 V	10456.36 V	2.75 V	28.35 V	413.83 V	24.39 V
09/30/2015 8:24	12.02 V	36.75 V	619.00 V	10367.96 V	2.73 V	27.99 V	411.16 V	24.41 V
09/30/2015 8:25	12.04 V	36.23 V	627.80 V	10426.54 V	2.71 V	28.55 V	417.94 V	24.12 V
09/30/2015 8:26	11.97 V	37.03 V	618.00 V	10376.75 V	2.76 V	27.97 V	408.20 V	24.46 V
09/30/2015 8:27	12.06 V	36.47 V	627.00 V	10548.33 V	2.76 V	28.84 V	418.47 V	24.34 V
09/30/2015 8:28	12.04 V	37.09 V	618.50 V	10439.83 V	2.78 V	28.16 V	411.64 V	24.69 V
09/30/2015 8:29	12.04 V	36.23 V	624.20 V	10409.69 V	2.70 V	28.34 V	415.55 V	24.12 V
09/30/2015 8:30	12.02 V	36.29 V	626.00 V	10402.68 V	2.71 V	28.40 V	415.92 V	24.11 V
09/30/2015 8:31	11.99 V	36.89 V	617.60 V	10391.88 V	2.75 V	27.99 V	408.96 V	24.43 V
09/30/2015 8:32	12.02 V	37.07 V	619.30 V	10216.15 V	2.72 V	27.59 V	411.36 V	24.62 V
09/30/2015 8:33	12.02 V	36.22 V	626.60 V	10061.67 V	2.61 V	27.49 V	416.21 V	24.06 V
09/30/2015 8:34	11.92 V	38.19 V	588.40 V	10173.28 V	2.79 V	26.10 V	386.48 V	25.08 V
09/30/2015 8:35	11.94 V	39.15 V	595.60 V	10205.50 V	2.87 V	26.51 V	392.30 V	25.79 V
09/30/2015 8:36	11.99 V	38.05 V	622.80 V	10374.92 V	2.83 V	28.18 V	412.52 V	25.20 V
Average:	12.03	36.45	627.47	10449.70	2.73	28.60	417.58	24.25
Maximum:	12.12	39.15	654.30	10665.62	2.87	30.43	438.06	25.79
Minimum:	11.92	35.32	588.40	10061.67	2.61	26.10	386.48	23.61

R-2

Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 8:07

Report End Date/Time : Wed 09/30/2015 8:36

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)					
09/30/2015 8:07	88.86 V	14.51 V	762.47 V					
09/30/2015 8:08	86.22 V	14.79 V	759.63 V					
09/30/2015 8:09	85.46 V	14.93 V	766.33 V					
09/30/2015 8:10	84.77 V	15.07 V	763.48 V					
09/30/2015 8:11	91.76 V	15.07 V	761.25 V					
09/30/2015 8:12	84.13 V	14.93 V	765.11 V					
09/30/2015 8:13	89.58 V	14.93 V	767.14 V					
09/30/2015 8:14	83.60 V	14.93 V	766.53 V					
09/30/2015 8:15	93.68 V	14.79 V	763.89 V					
09/30/2015 8:16	94.68 V	14.51 V	768.96 V					
09/30/2015 8:17	87.67 V	14.79 V	766.93 V					
09/30/2015 8:18	90.06 V	14.93 V	763.89 V					
09/30/2015 8:19	82.87 V	15.07 V	764.70 V					
09/30/2015 8:20	91.62 V	14.93 V	771.40 V					
09/30/2015 8:21	88.17 V	15.21 V	762.67 V					
09/30/2015 8:22	87.29 V	14.93 V	762.47 V					
09/30/2015 8:23	92.42 V	14.93 V	760.44 V					
09/30/2015 8:24	89.56 V	14.79 V	755.57 V					
09/30/2015 8:25	87.75 V	14.79 V	758.21 V					
09/30/2015 8:26	83.68 V	14.65 V	760.84 V					
09/30/2015 8:27	86.98 V	14.93 V	765.11 V					
09/30/2015 8:28	84.77 V	14.79 V	759.42 V					
09/30/2015 8:29	87.05 V	14.51 V	757.39 V					
09/30/2015 8:30	88.62 V	14.51 V	758.41 V					
09/30/2015 8:31	88.21 V	14.51 V	760.24 V					
09/30/2015 8:32	86.23 V	14.51 V	744.60 V					
09/30/2015 8:33	87.60 V	16.74 V	729.38 V					
09/30/2015 8:34	89.96 V	35.15 V	716.59 V					
09/30/2015 8:35	85.55 V	31.95 V	722.07 V					
09/30/2015 8:36	89.91 V	27.76 V	737.30 V					
Average:	87.96	16.56	757.41					
Maximum:	94.68	35.15	771.40					
Minimum:	82.87	14.51	716.59					

Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 8:37

Report End Date/Time : Wed 09/30/2015 9:06

DATE/TIME	O2 (%)	NOx Raw (ppmvd)	CO Raw (ppmvd)	Stack Flow (dscfm)	NOx Lbs/Hr	CO Lbs/Hr	CO @15%O2 (ppmvd)	NOx @15%O2 (ppmvd)
09/30/2015 8:37	12.02 V	38.15 V	609.40 V	10304.83 V	2.82 V	27.39 V	404.67 V	25.33 V
09/30/2015 8:38	11.97 V	37.60 V	613.40 V	10224.19 V	2.76 V	27.35 V	405.04 V	24.83 V
09/30/2015 8:39	11.95 V	37.54 V	612.60 V	10224.29 V	2.75 V	27.31 V	403.61 V	24.73 V
09/30/2015 8:40	11.99 V	37.98 V	613.90 V	10305.56 V	2.81 V	27.59 V	406.51 V	25.15 V
09/30/2015 8:41	11.97 V	38.63 V	603.40 V	10175.42 V	2.82 V	26.78 V	398.55 V	25.52 V
09/30/2015 8:42	11.97 V	38.01 V	610.90 V	10268.67 V	2.80 V	27.36 V	403.39 V	25.10 V
09/30/2015 8:43	11.97 V	38.30 V	605.60 V	10214.35 V	2.81 V	26.98 V	399.89 V	25.29 V
09/30/2015 8:44	11.99 V	37.43 V	616.90 V	10285.99 V	2.76 V	27.67 V	408.61 V	24.79 V
09/30/2015 8:45	11.97 V	37.88 V	611.30 V	10258.12 V	2.79 V	27.35 V	403.77 V	25.02 V
09/30/2015 8:46	11.97 V	38.35 V	615.20 V	10328.08 V	2.84 V	27.71 V	406.23 V	25.32 V
09/30/2015 8:47	11.97 V	38.38 V	605.60 V	10361.13 V	2.85 V	27.36 V	400.00 V	25.35 V
09/30/2015 8:48	11.99 V	38.77 V	605.90 V	10342.33 V	2.88 V	27.33 V	401.33 V	25.68 V
09/30/2015 8:49	11.95 V	37.74 V	616.00 V	10437.53 V	2.82 V	28.04 V	405.85 V	24.87 V
09/30/2015 8:50	12.02 V	38.56 V	608.80 V	10536.05 V	2.91 V	27.97 V	404.38 V	25.61 V
09/30/2015 8:51	12.02 V	37.92 V	615.90 V	10613.19 V	2.89 V	28.51 V	409.21 V	25.20 V
09/30/2015 8:52	12.04 V	36.72 V	631.60 V	10674.10 V	2.81 V	29.40 V	420.47 V	24.45 V
09/30/2015 8:53	12.09 V	35.18 V	657.80 V	10764.34 V	2.72 V	30.88 V	440.52 V	23.56 V
09/30/2015 8:54	12.06 V	36.01 V	646.50 V	10780.61 V	2.78 V	30.39 V	431.49 V	24.03 V
09/30/2015 8:55	12.12 V	36.36 V	640.70 V	10778.00 V	2.81 V	30.11 V	430.29 V	24.42 V
09/30/2015 8:56	12.06 V	36.72 V	631.40 V	10685.92 V	2.81 V	29.42 V	421.53 V	24.52 V
09/30/2015 8:57	12.04 V	37.46 V	623.50 V	10592.01 V	2.85 V	28.80 V	415.08 V	24.94 V
09/30/2015 8:58	12.04 V	36.92 V	624.30 V	10556.83 V	2.80 V	28.74 V	415.61 V	24.58 V
09/30/2015 8:59	12.02 V	37.46 V	615.60 V	10566.43 V	2.84 V	28.37 V	408.78 V	24.88 V
09/30/2015 9:00	11.99 V	38.41 V	606.70 V	10485.32 V	2.89 V	27.74 V	401.74 V	25.43 V
09/30/2015 9:01	12.02 V	37.40 V	618.10 V	10473.32 V	2.81 V	28.23 V	410.68 V	24.85 V
09/30/2015 9:02	11.97 V	37.64 V	618.30 V	10429.09 V	2.82 V	28.12 V	408.39 V	24.86 V
09/30/2015 9:03	11.99 V	37.77 V	614.50 V	10418.63 V	2.82 V	27.92 V	406.91 V	25.01 V
09/30/2015 9:04	12.02 V	38.31 V	611.30 V	10526.51 V	2.89 V	28.06 V	406.16 V	25.45 V
09/30/2015 9:05	11.99 V	39.61 V	596.50 V	10515.58 V	2.99 V	27.35 V	395.10 V	26.24 V
09/30/2015 9:06	12.00 V	39.43 V	599.90 V	10474.08 V	2.96 V	27.40 V	397.46 V	26.12 V
Average:	12.00	37.75	616.72	10453.35	2.83	28.12	409.04	25.04
Maximum:	12.12	39.61	657.80	10780.61	2.99	30.88	440.52	26.24
Minimum:	11.95	35.18	596.50	10175.42	2.72	26.78	395.10	23.56

R-3

Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 8:37

Report End Date/Time : Wed 09/30/2015 9:06

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)					
09/30/2015 8:37	89.62 V	20.65 V	741.56 V					
09/30/2015 8:38	85.44 V	19.95 V	740.95 V					
09/30/2015 8:39	87.04 V	21.90 V	739.53 V					
09/30/2015 8:40	88.84 V	23.16 V	739.73 V					
09/30/2015 8:41	82.85 V	18.41 V	739.53 V					
09/30/2015 8:42	86.53 V	23.16 V	739.12 V					
09/30/2015 8:43	83.29 V	20.37 V	739.53 V					
09/30/2015 8:44	83.38 V	21.48 V	740.75 V					
09/30/2015 8:45	86.81 V	23.16 V	738.11 V					
09/30/2015 8:46	85.36 V	28.32 V	735.27 V					
09/30/2015 8:47	88.92 V	29.85 V	735.06 V					
09/30/2015 8:48	87.93 V	28.88 V	733.03 V					
09/30/2015 8:49	90.56 V	35.15 V	734.25 V					
09/30/2015 8:50	91.42 V	21.34 V	757.60 V					
09/30/2015 8:51	89.18 V	25.67 V	756.18 V					
09/30/2015 8:52	89.18 V	22.88 V	763.69 V					
09/30/2015 8:53	87.78 V	23.86 V	764.09 V					
09/30/2015 8:54	91.32 V	26.92 V	763.08 V					
09/30/2015 8:55	88.03 V	24.83 V	761.25 V					
09/30/2015 8:56	85.38 V	24.41 V	759.83 V					
09/30/2015 8:57	89.98 V	22.46 V	758.21 V					
09/30/2015 8:58	89.20 V	22.46 V	755.57 V					
09/30/2015 8:59	89.14 V	25.53 V	753.33 V					
09/30/2015 9:00	86.56 V	24.13 V	751.71 V					
09/30/2015 9:01	87.36 V	23.44 V	749.27 V					
09/30/2015 9:02	91.32 V	25.25 V	747.65 V					
09/30/2015 9:03	91.04 V	24.41 V	746.23 V					
09/30/2015 9:04	86.79 V	29.30 V	743.79 V					
09/30/2015 9:05	90.22 V	31.81 V	741.36 V					
09/30/2015 9:06	89.55 V	18.69 V	759.22 V					
Average:	88.00	24.39	747.62					
Maximum:	91.42	35.15	764.09					
Minimum:	82.85	18.41	733.03					

Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 9:21

Report End Date/Time : Wed 09/30/2015 9:50

DATE/TIME	O2 (%)	NOx Raw (ppmvd)	CO Raw (ppmvd)	Stack Flow (dscfm)	NOx Lbs/Hr	CO Lbs/Hr	CO @15%O2 (ppmvd)	NOx @15%O2 (ppmvd)
09/30/2015 9:21	12.11 V	34.49 V	668.00 V	10571.72 V	2.61 V	30.80 V	448.50 V	23.16 V
09/30/2015 9:22	12.06 V	35.99 V	634.10 V	10482.39 V	2.71 V	28.99 V	423.33 V	24.03 V
09/30/2015 9:23	12.04 V	36.51 V	625.20 V	10418.54 V	2.73 V	28.41 V	416.21 V	24.31 V
09/30/2015 9:24	11.99 V	37.03 V	617.30 V	10324.90 V	2.74 V	27.79 V	408.88 V	24.53 V
09/30/2015 9:25	12.02 V	37.00 V	619.60 V	10275.33 V	2.73 V	27.76 V	411.56 V	24.58 V
09/30/2015 9:26	11.97 V	37.28 V	609.20 V	10249.50 V	2.74 V	27.23 V	402.38 V	24.62 V
09/30/2015 9:27	11.99 V	37.50 V	611.30 V	10306.69 V	2.77 V	27.48 V	404.90 V	24.84 V
09/30/2015 9:28	11.92 V	38.01 V	605.60 V	10236.49 V	2.79 V	27.03 V	397.67 V	24.96 V
09/30/2015 9:29	11.95 V	37.80 V	604.40 V	10255.03 V	2.78 V	27.03 V	398.21 V	24.91 V
09/30/2015 9:30	11.99 V	37.73 V	604.40 V	10248.34 V	2.77 V	27.01 V	400.33 V	24.99 V
09/30/2015 9:31	11.92 V	38.41 V	600.30 V	10207.13 V	2.81 V	26.72 V	394.19 V	25.22 V
09/30/2015 9:32	11.94 V	38.52 V	597.90 V	10288.50 V	2.84 V	26.83 V	393.82 V	25.37 V
09/30/2015 9:33	11.99 V	38.70 V	598.80 V	10306.99 V	2.86 V	26.91 V	396.62 V	25.63 V
09/30/2015 9:34	11.97 V	37.77 V	610.90 V	10272.21 V	2.78 V	27.37 V	403.39 V	24.94 V
09/30/2015 9:35	11.94 V	37.21 V	622.20 V	10357.44 V	2.76 V	28.10 V	409.82 V	24.51 V
09/30/2015 9:36	11.99 V	37.67 V	610.20 V	10268.69 V	2.77 V	27.33 V	404.06 V	24.94 V
09/30/2015 9:37	11.97 V	37.32 V	615.50 V	10269.66 V	2.75 V	27.57 V	406.54 V	24.65 V
09/30/2015 9:38	11.99 V	37.17 V	614.80 V	10284.12 V	2.74 V	27.57 V	407.22 V	24.62 V
09/30/2015 9:39	11.99 V	36.33 V	623.50 V	10225.58 V	2.66 V	27.80 V	412.98 V	24.06 V
09/30/2015 9:40	11.95 V	36.86 V	616.20 V	10218.38 V	2.70 V	27.46 V	405.98 V	24.29 V
09/30/2015 9:41	11.97 V	38.48 V	600.20 V	10281.71 V	2.84 V	26.91 V	396.44 V	25.42 V
09/30/2015 9:42	11.95 V	37.98 V	607.70 V	10187.36 V	2.77 V	27.00 V	400.38 V	25.02 V
09/30/2015 9:43	11.89 V	37.98 V	600.90 V	10162.70 V	2.77 V	26.63 V	393.60 V	24.88 V
09/30/2015 9:44	11.97 V	37.98 V	601.30 V	10166.26 V	2.77 V	26.66 V	397.16 V	25.09 V
09/30/2015 9:45	11.89 V	37.98 V	600.60 V	10045.56 V	2.74 V	26.31 V	393.40 V	24.88 V
09/30/2015 9:46	11.87 V	38.16 V	601.60 V	10090.41 V	2.76 V	26.47 V	392.96 V	24.93 V
09/30/2015 9:47	11.89 V	40.16 V	581.60 V	10129.32 V	2.92 V	25.69 V	380.95 V	26.31 V
09/30/2015 9:48	11.87 V	39.11 V	596.40 V	10071.79 V	2.82 V	26.20 V	389.67 V	25.55 V
09/30/2015 9:49	11.92 V	38.08 V	603.00 V	10123.89 V	2.76 V	26.62 V	396.07 V	25.01 V
09/30/2015 9:50	11.97 V	38.15 V	603.00 V	10146.85 V	2.78 V	26.68 V	398.29 V	25.20 V
Average:	11.96	37.65	610.19	10249.12	2.77	27.28	402.85	24.85
Maximum:	12.11	40.16	668.00	10571.72	2.92	30.80	448.50	26.31
Minimum:	11.87	34.49	581.60	10045.56	2.61	25.69	380.95	23.16

Ru 4

RATA Report 2

Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 9:21

Report End Date/Time : Wed 09/30/2015 9:50

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)					
09/30/2015 9:21	90.28 V	21.76 V	751.10 V					
09/30/2015 9:22	83.72 V	24.41 V	744.60 V					
09/30/2015 9:23	86.14 V	24.83 V	741.36 V					
09/30/2015 9:24	94.41 V	23.30 V	740.75 V					
09/30/2015 9:25	82.73 V	20.65 V	739.12 V					
09/30/2015 9:26	89.17 V	25.39 V	733.85 V					
09/30/2015 9:27	89.30 V	26.09 V	734.86 V					
09/30/2015 9:28	86.64 V	27.34 V	734.25 V					
09/30/2015 9:29	85.73 V	28.74 V	730.80 V					
09/30/2015 9:30	82.97 V	25.25 V	731.82 V					
09/30/2015 9:31	82.86 V	27.34 V	732.02 V					
09/30/2015 9:32	86.44 V	31.95 V	728.36 V					
09/30/2015 9:33	86.63 V	26.23 V	734.66 V					
09/30/2015 9:34	87.46 V	19.81 V	744.81 V					
09/30/2015 9:35	84.80 V	25.39 V	744.20 V					
09/30/2015 9:36	86.39 V	17.30 V	746.43 V					
09/30/2015 9:37	88.46 V	16.04 V	750.49 V					
09/30/2015 9:38	90.43 V	15.62 V	750.09 V					
09/30/2015 9:39	87.42 V	23.44 V	733.03 V					
09/30/2015 9:40	85.75 V	25.39 V	733.44 V					
09/30/2015 9:41	87.38 V	25.39 V	736.28 V					
09/30/2015 9:42	87.36 V	19.67 V	740.34 V					
09/30/2015 9:43	85.03 V	27.20 V	730.80 V					
09/30/2015 9:44	86.44 V	25.39 V	727.55 V					
09/30/2015 9:45	88.67 V	28.46 V	719.84 V					
09/30/2015 9:46	88.99 V	35.15 V	714.56 V					
09/30/2015 9:47	89.29 V	31.53 V	721.26 V					
09/30/2015 9:48	83.85 V	21.34 V	735.27 V					
09/30/2015 9:49	92.08 V	23.30 V	732.02 V					
09/30/2015 9:50	88.67 V	23.86 V	728.57 V					
Average:	87.18	24.58	735.55					
Maximum:	94.41	35.15	751.10					
Minimum:	82.73	15.62	714.56					

Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 9:51

Report End Date/Time : Wed 09/30/2015 10:20

DATE/TIME	O2 (%)	NOx Raw (ppmvd)	CO Raw (ppmvd)	Stack Flow (dscfm)	NOx Lbs/Hr	CO Lbs/Hr	CO @15%O2 (ppmvd)	NOx @15%O2 (ppmvd)
09/30/2015 9:51	11.94 V	37.49 V	609.70 V	10150.69 V	2.73 V	26.99 V	401.59 V	24.69 V
09/30/2015 9:52	11.92 V	37.84 V	607.70 V	10156.41 V	2.76 V	26.92 V	399.05 V	24.85 V
09/30/2015 9:53	11.99 V	37.39 V	609.10 V	10270.15 V	2.75 V	27.28 V	403.45 V	24.77 V
09/30/2015 9:54	12.04 V	37.03 V	617.60 V	10240.16 V	2.72 V	27.58 V	411.15 V	24.65 V
09/30/2015 9:55	11.99 V	35.92 V	633.40 V	10168.04 V	2.62 V	28.09 V	419.54 V	23.79 V
09/30/2015 9:56	11.94 V	35.82 V	634.20 V	10187.18 V	2.62 V	28.17 V	417.73 V	23.59 V
09/30/2015 9:57	11.97 V	36.51 V	620.40 V	10183.24 V	2.67 V	27.55 V	409.78 V	24.12 V
09/30/2015 9:58	12.02 V	37.17 V	619.70 V	10195.45 V	2.72 V	27.55 V	411.74 V	24.70 V
09/30/2015 9:59	11.94 V	37.43 V	620.10 V	10133.16 V	2.72 V	27.40 V	408.44 V	24.65 V
09/30/2015 10:00	11.97 V	37.77 V	617.30 V	10238.55 V	2.77 V	27.56 V	407.73 V	24.95 V
09/30/2015 10:01	11.97 V	37.98 V	608.00 V	10261.85 V	2.79 V	27.21 V	401.59 V	25.09 V
09/30/2015 10:02	11.99 V	38.27 V	607.70 V	10240.03 V	2.81 V	27.14 V	402.41 V	25.34 V
09/30/2015 10:03	11.95 V	37.28 V	613.40 V	10247.83 V	2.74 V	27.41 V	404.14 V	24.56 V
09/30/2015 10:04	11.92 V	37.07 V	614.60 V	10248.69 V	2.72 V	27.47 V	403.80 V	24.36 V
09/30/2015 10:05	11.99 V	37.61 V	611.30 V	10365.63 V	2.80 V	27.63 V	404.90 V	24.91 V
09/30/2015 10:06	11.97 V	38.12 V	599.30 V	10430.57 V	2.85 V	27.26 V	395.84 V	25.18 V
09/30/2015 10:07	12.02 V	36.57 V	632.40 V	10698.43 V	2.81 V	29.50 V	420.06 V	24.29 V
09/30/2015 10:08	12.06 V	36.23 V	644.80 V	10823.74 V	2.81 V	30.44 V	430.48 V	24.19 V
09/30/2015 10:09	12.11 V	35.57 V	655.40 V	10973.61 V	2.80 V	31.36 V	440.04 V	23.88 V
09/30/2015 10:10	12.11 V	35.32 V	658.40 V	10965.05 V	2.78 V	31.48 V	442.06 V	23.71 V
09/30/2015 10:11	12.19 V	33.57 V	691.90 V	11054.65 V	2.66 V	33.35 V	468.68 V	22.74 V
09/30/2015 10:12	12.19 V	33.28 V	700.80 V	11049.43 V	2.64 V	33.77 V	474.71 V	22.54 V
09/30/2015 10:13	12.17 V	33.93 V	688.80 V	11055.39 V	2.69 V	33.21 V	465.25 V	22.92 V
09/30/2015 10:14	12.14 V	34.87 V	666.90 V	11062.04 V	2.77 V	32.17 V	449.30 V	23.49 V
09/30/2015 10:15	12.16 V	35.19 V	677.30 V	11093.19 V	2.80 V	32.77 V	457.35 V	23.76 V
09/30/2015 10:16	12.17 V	35.36 V	671.80 V	11021.19 V	2.79 V	32.29 V	453.76 V	23.88 V
09/30/2015 10:17	12.21 V	33.49 V	704.30 V	11079.35 V	2.66 V	34.03 V	478.04 V	22.73 V
09/30/2015 10:18	12.19 V	34.17 V	688.10 V	11099.48 V	2.72 V	33.31 V	466.24 V	23.15 V
09/30/2015 10:19	12.14 V	34.90 V	677.30 V	11052.17 V	2.77 V	32.64 V	456.17 V	23.51 V
09/30/2015 10:20	12.16 V	35.51 V	657.80 V	11100.20 V	2.83 V	31.84 V	444.18 V	23.98 V
Average:	12.05	36.16	641.98	10594.85	2.74	29.71	428.31	24.10
Maximum:	12.21	38.27	704.30	11100.20	2.85	34.03	478.04	25.34
Minimum:	11.92	33.28	599.30	10133.16	2.62	26.92	395.84	22.54

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Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 9:51

Report End Date/Time : Wed 09/30/2015 10:20

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)					
09/30/2015 9:51	89.01 V	26.37 V	726.94 V					
09/30/2015 9:52	91.78 V	27.34 V	728.16 V					
09/30/2015 9:53	89.53 V	22.88 V	737.30 V					
09/30/2015 9:54	87.47 V	18.69 V	737.91 V					
09/30/2015 9:55	85.55 V	15.48 V	741.56 V					
09/30/2015 9:56	84.29 V	18.41 V	742.57 V					
09/30/2015 9:57	86.55 V	23.30 V	732.22 V					
09/30/2015 9:58	87.25 V	24.83 V	726.13 V					
09/30/2015 9:59	87.05 V	28.18 V	722.68 V					
09/30/2015 10:00	82.10 V	32.78 V	721.06 V					
09/30/2015 10:01	87.58 V	34.88 V	719.43 V					
09/30/2015 10:02	89.40 V	21.48 V	737.50 V					
09/30/2015 10:03	85.23 V	24.13 V	737.70 V					
09/30/2015 10:04	90.89 V	25.39 V	737.91 V					
09/30/2015 10:05	88.44 V	25.95 V	739.53 V					
09/30/2015 10:06	90.85 V	24.69 V	748.66 V					
09/30/2015 10:07	88.26 V	27.76 V	759.42 V					
09/30/2015 10:08	95.35 V	25.39 V	768.56 V					
09/30/2015 10:09	94.37 V	28.32 V	770.39 V					
09/30/2015 10:10	87.10 V	23.16 V	778.10 V					
09/30/2015 10:11	95.54 V	22.04 V	779.32 V					
09/30/2015 10:12	91.99 V	20.93 V	780.74 V					
09/30/2015 10:13	92.04 V	25.53 V	776.07 V					
09/30/2015 10:14	90.44 V	30.27 V	770.99 V					
09/30/2015 10:15	93.35 V	32.92 V	767.14 V					
09/30/2015 10:16	83.75 V	22.46 V	778.51 V					
09/30/2015 10:17	82.39 V	21.90 V	779.72 V					
09/30/2015 10:18	83.29 V	24.69 V	778.10 V					
09/30/2015 10:19	87.14 V	28.46 V	773.43 V					
09/30/2015 10:20	93.12 V	32.36 V	768.56 V					
Average:	88.70	25.37	752.21					
Maximum:	95.54	34.88	780.74					
Minimum:	82.10	15.48	719.43					

Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 10:21

Report End Date/Time : Wed 09/30/2015 10:50

DATE/TIME	O2 (%)	NOx Raw (ppmvd)	CO Raw (ppmvd)	Stack Flow (dscfm)	NOx Lbs/Hr	CO Lbs/Hr	CO @15%O2 (ppmvd)	NOx @15%O2 (ppmvd)
09/30/2015 10:21	12.21 V	34.56 V	674.20 V	11101.86 V	2.75 V	32.64 V	457.74 V	23.46 V
09/30/2015 10:22	12.24 V	32.68 V	705.80 V	11135.76 V	2.61 V	34.27 V	480.58 V	22.25 V
09/30/2015 10:23	12.21 V	33.66 V	685.20 V	11148.55 V	2.69 V	33.31 V	465.21 V	22.85 V
09/30/2015 10:24	12.24 V	33.10 V	702.60 V	11188.13 V	2.66 V	34.28 V	478.40 V	22.54 V
09/30/2015 10:25	12.32 V	33.17 V	716.20 V	11223.38 V	2.67 V	35.05 V	492.21 V	22.80 V
09/30/2015 10:26	12.29 V	32.64 V	728.80 V	11228.43 V	2.63 V	35.69 V	499.27 V	22.36 V
09/30/2015 10:27	12.31 V	32.34 V	729.50 V	11267.97 V	2.61 V	35.85 V	501.20 V	22.22 V
09/30/2015 10:28	12.29 V	33.20 V	719.60 V	11201.17 V	2.67 V	35.15 V	492.96 V	22.74 V
09/30/2015 10:29	12.26 V	34.03 V	697.30 V	11173.86 V	2.73 V	33.98 V	476.17 V	23.24 V
09/30/2015 10:30	12.34 V	34.35 V	703.60 V	11306.47 V	2.79 V	34.69 V	484.82 V	23.67 V
09/30/2015 10:31	12.34 V	34.21 V	703.90 V	11269.07 V	2.76 V	34.59 V	485.02 V	23.57 V
09/30/2015 10:32	12.38 V	34.03 V	715.60 V	11322.45 V	2.76 V	35.33 V	495.55 V	23.57 V
09/30/2015 10:33	12.34 V	32.64 V	726.10 V	11245.67 V	2.63 V	35.61 V	500.32 V	22.49 V
09/30/2015 10:34	12.38 V	32.40 V	737.70 V	11278.27 V	2.62 V	36.28 V	510.85 V	22.44 V
09/30/2015 10:35	12.29 V	31.75 V	723.70 V	11174.51 V	2.54 V	35.27 V	495.77 V	21.75 V
09/30/2015 10:36	12.24 V	33.27 V	686.30 V	11188.26 V	2.67 V	33.48 V	467.44 V	22.66 V
09/30/2015 10:37	12.24 V	33.10 V	695.90 V	11208.45 V	2.66 V	34.01 V	473.84 V	22.54 V
09/30/2015 10:38	12.24 V	33.80 V	686.00 V	11133.39 V	2.70 V	33.31 V	467.10 V	23.01 V
09/30/2015 10:39	12.31 V	31.98 V	717.90 V	11184.66 V	2.57 V	35.02 V	493.09 V	21.97 V
09/30/2015 10:40	12.21 V	33.17 V	686.30 V	10927.02 V	2.60 V	32.70 V	465.82 V	22.51 V
09/30/2015 10:41	12.16 V	34.42 V	664.10 V	10734.64 V	2.65 V	31.09 V	448.43 V	23.24 V
09/30/2015 10:42	12.06 V	34.03 V	657.10 V	10580.33 V	2.58 V	30.32 V	438.56 V	22.71 V
09/30/2015 10:43	12.04 V	35.57 V	633.40 V	10549.01 V	2.69 V	29.14 V	421.55 V	23.67 V
09/30/2015 10:44	12.03 V	36.26 V	626.20 V	10558.16 V	2.75 V	28.83 V	416.64 V	24.13 V
09/30/2015 10:45	12.04 V	36.85 V	621.40 V	10575.29 V	2.79 V	28.66 V	413.57 V	24.53 V
09/30/2015 10:46	12.04 V	37.21 V	621.20 V	10624.31 V	2.84 V	28.78 V	413.55 V	24.77 V
09/30/2015 10:47	11.99 V	37.61 V	615.20 V	10751.45 V	2.90 V	28.84 V	407.49 V	24.91 V
09/30/2015 10:48	11.99 V	39.36 V	598.20 V	10848.39 V	3.06 V	28.30 V	396.12 V	26.06 V
09/30/2015 10:49	12.02 V	38.98 V	606.00 V	11186.54 V	3.13 V	29.56 V	402.41 V	25.88 V
09/30/2015 10:50	12.31 V	38.66 V	647.90 V	11994.29 V	3.33 V	33.89 V	445.14 V	26.56 V
Average:	12.21	34.43	681.10	11076.99	2.73	32.93	462.89	23.37
Maximum:	12.38	39.36	737.70	11994.29	3.33	36.28	510.85	26.56
Minimum:	11.99	31.75	598.20	10549.01	2.54	28.30	396.12	21.75

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Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 10:21

Report End Date/Time : Wed 09/30/2015 11:50

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)					
09/30/2015 10:21	85.05 V	21.90 V	781.14 V					
09/30/2015 10:22	85.32 V	23.99 V	777.90 V					
09/30/2015 10:23	92.54 V	28.04 V	774.65 V					
09/30/2015 10:24	85.50 V	30.13 V	771.81 V					
09/30/2015 10:25	91.56 V	23.02 V	778.30 V					
09/30/2015 10:26	86.87 V	26.37 V	775.87 V					
09/30/2015 10:27	85.16 V	28.18 V	773.43 V					
09/30/2015 10:28	95.82 V	24.13 V	777.49 V					
09/30/2015 10:29	92.14 V	25.39 V	776.07 V					
09/30/2015 10:30	79.73 V	28.18 V	773.84 V					
09/30/2015 10:31	94.94 V	23.99 V	777.90 V					
09/30/2015 10:32	80.56 V	22.74 V	779.72 V					
09/30/2015 10:33	74.31 V	19.81 V	782.97 V					
09/30/2015 10:34	87.46 V	16.88 V	786.02 V					
09/30/2015 10:35	91.70 V	19.67 V	782.77 V					
09/30/2015 10:36	84.37 V	28.74 V	773.84 V					
09/30/2015 10:37	85.54 V	31.81 V	770.59 V					
09/30/2015 10:38	88.74 V	30.41 V	767.34 V					
09/30/2015 10:39	94.80 V	28.60 V	766.93 V					
09/30/2015 10:40	88.17 V	24.13 V	764.90 V					
09/30/2015 10:41	87.74 V	18.41 V	764.09 V					
09/30/2015 10:42	88.59 V	18.41 V	761.86 V					
09/30/2015 10:43	90.06 V	20.23 V	758.81 V					
09/30/2015 10:44	85.18 V	28.32 V	746.63 V					
09/30/2015 10:45	92.03 V	29.85 V	745.21 V					
09/30/2015 10:46	91.22 V	32.36 V	744.60 V					
09/30/2015 10:47	96.89 V	41.29 V	743.79 V					
09/30/2015 10:48	89.44 V	46.45 V	742.98 V					
09/30/2015 10:49	88.45 V	62.64 V	739.94 V					
09/30/2015 10:50	99.47 V	113.14 V	688.78 V					
09/30/2015 10:51	91.18 V	123.18 V	679.04 V					
09/30/2015 10:52	98.81 V	160.56 V	620.17 V					
09/30/2015 10:53	99.94 V	156.24 V	613.87 V					
09/30/2015 10:54	106.15 V	157.36 V	613.26 V					
09/30/2015 10:55	92.31 V	156.24 V	612.65 V					
09/30/2015 10:56	97.83 V	156.24 V	611.64 V					
09/30/2015 10:57	100.54 V	168.66 V	607.38 V					
09/30/2015 10:58	92.70 V	165.17 V	610.62 V					
Average:	90.49	56.86	734.71					
Maximum:	106.15	168.66	786.02					
Minimum:	74.31	16.88	607.38					

Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 11:06

Report End Date/Time : Wed 09/30/2015 11:35

DATE/TIME	O2 (%)	NOx Raw (ppmvd)	CO Raw (ppmvd)	Stack Flow (dscfm)	NOx Lbs/Hr	CO Lbs/Hr	CO @15%O2 (ppmvd)	NOx @15%O2 (ppmvd)
09/30/2015 11:06	12.31 V	36.17 V	701.80 V	11920.53 V	3.09 V	36.48 V	482.17 V	24.85 V
09/30/2015 11:07	12.26 V	36.65 V	689.10 V	12027.94 V	3.16 V	36.14 V	470.70 V	25.03 V
09/30/2015 11:08	12.29 V	36.79 V	688.70 V	11934.73 V	3.15 V	35.84 V	471.79 V	25.20 V
09/30/2015 11:09	12.26 V	37.10 V	681.30 V	11917.74 V	3.17 V	35.41 V	465.24 V	25.33 V
09/30/2015 11:10	12.23 V	37.35 V	669.70 V	11800.85 V	3.16 V	34.46 V	455.87 V	25.42 V
09/30/2015 11:11	12.21 V	37.47 V	675.20 V	11857.14 V	3.19 V	34.91 V	458.42 V	25.44 V
09/30/2015 11:12	12.26 V	36.82 V	676.80 V	11923.29 V	3.15 V	35.19 V	462.17 V	25.14 V
09/30/2015 11:13	12.26 V	36.79 V	674.10 V	11983.45 V	3.16 V	35.23 V	460.32 V	25.12 V
09/30/2015 11:14	12.23 V	37.78 V	675.80 V	12034.57 V	3.26 V	35.47 V	460.02 V	25.72 V
09/30/2015 11:15	12.21 V	36.82 V	669.70 V	12015.54 V	3.17 V	35.09 V	454.56 V	24.99 V
09/30/2015 11:16	12.24 V	38.37 V	660.50 V	12089.35 V	3.33 V	34.82 V	449.74 V	26.13 V
09/30/2015 11:17	12.26 V	37.74 V	667.10 V	12139.14 V	3.29 V	35.31 V	455.54 V	25.77 V
09/30/2015 11:18	12.26 V	36.61 V	681.70 V	12213.34 V	3.21 V	36.31 V	465.65 V	25.01 V
09/30/2015 11:19	12.34 V	36.92 V	683.10 V	12305.22 V	3.26 V	36.66 V	470.55 V	25.43 V
09/30/2015 11:20	12.31 V	36.23 V	691.20 V	12226.69 V	3.18 V	36.85 V	474.89 V	24.89 V
09/30/2015 11:21	12.31 V	35.54 V	690.80 V	12215.80 V	3.11 V	36.80 V	474.61 V	24.42 V
09/30/2015 11:22	12.31 V	35.54 V	695.80 V	12185.52 V	3.11 V	36.97 V	477.91 V	24.41 V
09/30/2015 11:23	12.26 V	35.00 V	685.30 V	12058.65 V	3.03 V	36.04 V	468.11 V	23.91 V
09/30/2015 11:24	12.21 V	37.49 V	674.20 V	11919.69 V	3.20 V	35.05 V	457.74 V	25.45 V
09/30/2015 11:25	12.24 V	37.73 V	675.40 V	11852.58 V	3.21 V	34.91 V	460.01 V	25.70 V
09/30/2015 11:26	12.17 V	38.31 V	655.30 V	11802.14 V	3.24 V	33.73 V	442.62 V	25.88 V
09/30/2015 11:27	12.21 V	37.98 V	666.10 V	11924.88 V	3.25 V	34.64 V	452.11 V	25.78 V
09/30/2015 11:28	12.21 V	38.73 V	657.70 V	11937.52 V	3.32 V	34.24 V	446.54 V	26.30 V
09/30/2015 11:29	12.24 V	38.80 V	663.10 V	12020.27 V	3.34 V	34.76 V	451.51 V	26.42 V
09/30/2015 11:30	12.21 V	38.48 V	665.10 V	12049.69 V	3.33 V	34.95 V	451.43 V	26.12 V
09/30/2015 11:31	12.34 V	38.01 V	685.30 V	12225.39 V	3.33 V	36.54 V	472.21 V	26.19 V
09/30/2015 11:32	12.29 V	35.82 V	683.50 V	12167.71 V	3.13 V	36.27 V	468.23 V	24.54 V
09/30/2015 11:33	12.29 V	36.20 V	686.00 V	12121.27 V	3.15 V	36.26 V	469.95 V	24.80 V
09/30/2015 11:34	12.29 V	35.05 V	696.30 V	12185.98 V	3.06 V	37.00 V	477.00 V	24.01 V
09/30/2015 11:35	12.31 V	36.09 V	685.70 V	12078.49 V	3.13 V	36.12 V	470.97 V	24.79 V
Average:	12.26	37.01	678.38	12037.84	3.19	35.61	463.29	25.27
Maximum:	12.34	38.80	701.80	12305.22	3.34	37.00	482.17	26.42
Minimum:	12.17	35.00	655.30	11800.85	3.03	33.73	442.62	23.91

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Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 11:06

Report End Date/Time : Wed 09/30/2015 11:35

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)					
09/30/2015 11:06	90.66 V	143.83 V	633.77 V					
09/30/2015 11:07	99.36 V	163.22 V	615.29 V					
09/30/2015 11:08	106.40 V	160.70 V	610.02 V					
09/30/2015 11:09	87.43 V	162.66 V	608.39 V					
09/30/2015 11:10	94.48 V	158.19 V	609.81 V					
09/30/2015 11:11	97.50 V	162.52 V	609.20 V					
09/30/2015 11:12	104.48 V	162.66 V	608.80 V					
09/30/2015 11:13	103.55 V	163.49 V	611.84 V					
09/30/2015 11:14	94.45 V	162.52 V	619.96 V					
09/30/2015 11:15	99.21 V	158.33 V	627.88 V					
09/30/2015 11:16	101.49 V	158.19 V	630.72 V					
09/30/2015 11:17	107.06 V	158.61 V	631.13 V					
09/30/2015 11:18	105.63 V	161.68 V	631.33 V					
09/30/2015 11:19	106.36 V	161.54 V	630.72 V					
09/30/2015 11:20	92.40 V	158.33 V	632.55 V					
09/30/2015 11:21	98.13 V	155.96 V	635.59 V					
09/30/2015 11:22	108.54 V	152.75 V	638.84 V					
09/30/2015 11:23	96.94 V	152.06 V	635.59 V					
09/30/2015 11:24	100.41 V	162.10 V	614.48 V					
09/30/2015 11:25	103.76 V	158.47 V	612.65 V					
09/30/2015 11:26	97.55 V	161.54 V	611.23 V					
09/30/2015 11:27	95.68 V	164.75 V	610.83 V					
09/30/2015 11:28	109.55 V	165.17 V	610.83 V					
09/30/2015 11:29	107.44 V	166.98 V	611.44 V					
09/30/2015 11:30	98.74 V	167.54 V	615.50 V					
09/30/2015 11:31	102.44 V	160.56 V	626.26 V					
09/30/2015 11:32	98.23 V	160.29 V	627.68 V					
09/30/2015 11:33	101.05 V	158.19 V	627.68 V					
09/30/2015 11:34	97.57 V	160.98 V	627.88 V					
09/30/2015 11:35	99.68 V	152.33 V	631.74 V					
Average:	100.21	159.87	621.65					
Maximum:	109.55	167.54	638.84					
Minimum:	87.43	143.83	608.39					

Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 11:36

Report End Date/Time : Wed 09/30/2015 12:05

DATE/TIME	O2 (%)	NOx Raw (ppmvd)	CO Raw (ppmvd)	Stack Flow (dscfm)	NOx Lbs/Hr	CO Lbs/Hr	CO @15%O2 (ppmvd)	NOx @15%O2 (ppmvd)
09/30/2015 11:36	12.31 V	35.26 V	692.70 V	12089.43 V	3.06 V	36.52 V	475.92 V	24.23 V
09/30/2015 11:37	12.29 V	36.68 V	695.50 V	12011.83 V	3.16 V	36.43 V	476.32 V	25.12 V
09/30/2015 11:38	12.26 V	36.41 V	690.80 V	12022.26 V	3.14 V	36.22 V	471.73 V	24.86 V
09/30/2015 11:39	12.26 V	36.69 V	677.20 V	11913.41 V	3.13 V	35.18 V	462.57 V	25.06 V
09/30/2015 11:40	12.17 V	38.38 V	657.80 V	11838.79 V	3.26 V	33.96 V	444.43 V	25.93 V
09/30/2015 11:41	12.21 V	38.86 V	656.10 V	11863.52 V	3.31 V	33.94 V	445.33 V	26.38 V
09/30/2015 11:42	12.21 V	39.74 V	653.00 V	11843.62 V	3.38 V	33.73 V	443.35 V	26.98 V
09/30/2015 11:43	12.21 V	39.92 V	659.90 V	11880.09 V	3.40 V	34.19 V	447.91 V	27.10 V
09/30/2015 11:44	12.21 V	39.70 V	664.30 V	11971.87 V	3.41 V	34.68 V	451.02 V	26.95 V
09/30/2015 11:45	12.21 V	40.55 V	648.00 V	12074.77 V	3.51 V	34.12 V	440.08 V	27.54 V
09/30/2015 11:46	12.26 V	39.43 V	667.60 V	12018.88 V	3.40 V	34.99 V	455.88 V	26.93 V
09/30/2015 11:47	12.26 V	38.12 V	672.20 V	12095.04 V	3.31 V	35.46 V	459.03 V	26.03 V
09/30/2015 11:48	12.29 V	38.38 V	677.30 V	12018.81 V	3.31 V	35.50 V	463.99 V	26.29 V
09/30/2015 11:49	12.29 V	36.85 V	681.50 V	12030.50 V	3.18 V	35.75 V	466.73 V	25.24 V
09/30/2015 11:50	12.24 V	37.46 V	678.60 V	12016.18 V	3.23 V	35.56 V	462.06 V	25.51 V
09/30/2015 11:51	12.23 V	37.91 V	674.20 V	12008.73 V	3.26 V	35.31 V	458.93 V	25.81 V
09/30/2015 11:52	12.26 V	37.61 V	666.60 V	11978.15 V	3.23 V	34.82 V	455.20 V	25.68 V
09/30/2015 11:53	12.21 V	38.19 V	664.20 V	11783.16 V	3.23 V	34.13 V	450.82 V	25.92 V
09/30/2015 11:54	12.21 V	38.30 V	657.40 V	11866.05 V	3.26 V	34.02 V	446.34 V	26.00 V
09/30/2015 11:55	12.26 V	38.66 V	662.00 V	11855.13 V	3.29 V	34.22 V	452.06 V	26.40 V
09/30/2015 11:56	12.26 V	39.14 V	653.20 V	11803.80 V	3.31 V	33.62 V	446.05 V	26.73 V
09/30/2015 11:57	12.24 V	38.63 V	665.20 V	11738.97 V	3.25 V	34.05 V	452.94 V	26.30 V
09/30/2015 11:58	12.21 V	38.11 V	665.20 V	11742.02 V	3.21 V	34.06 V	451.50 V	25.87 V
09/30/2015 11:59	12.21 V	38.27 V	670.10 V	11708.27 V	3.21 V	34.21 V	454.96 V	25.98 V
09/30/2015 12:00	12.26 V	37.60 V	676.60 V	11869.26 V	3.20 V	35.02 V	462.16 V	25.68 V
09/30/2015 12:01	12.29 V	38.02 V	673.10 V	11928.74 V	3.25 V	35.01 V	460.97 V	26.04 V
09/30/2015 12:02	12.29 V	37.21 V	694.40 V	11865.96 V	3.17 V	35.93 V	475.70 V	25.49 V
09/30/2015 12:03	12.29 V	36.86 V	694.40 V	11880.79 V	3.14 V	35.98 V	475.56 V	25.24 V
09/30/2015 12:04	12.29 V	37.50 V	687.40 V	11838.44 V	3.18 V	35.49 V	470.77 V	25.68 V
09/30/2015 12:05	12.31 V	36.72 V	693.40 V	11955.18 V	3.15 V	36.15 V	476.26 V	25.22 V
Average:	12.25	38.04	672.33	11917.05	3.25	34.94	458.55	25.94
Maximum:	12.31	40.55	695.50	12095.04	3.51	36.52	476.32	27.54
Minimum:	12.17	35.26	648.00	11708.27	3.06	33.62	440.08	24.23

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Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 11:36

Report End Date/Time : Wed 09/30/2015 12:05

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)					
09/30/2015 11:36	102.22 V	150.66 V	634.98 V					
09/30/2015 11:37	86.79 V	148.15 V	636.20 V					
09/30/2015 11:38	97.17 V	159.73 V	620.77 V					
09/30/2015 11:39	102.81 V	157.91 V	615.50 V					
09/30/2015 11:40	97.06 V	161.68 V	613.47 V					
09/30/2015 11:41	98.82 V	160.70 V	612.86 V					
09/30/2015 11:42	99.96 V	160.15 V	612.05 V					
09/30/2015 11:43	91.43 V	161.96 V	612.05 V					
09/30/2015 11:44	101.68 V	165.73 V	612.45 V					
09/30/2015 11:45	102.44 V	170.75 V	611.64 V					
09/30/2015 11:46	95.71 V	160.70 V	618.95 V					
09/30/2015 11:47	100.40 V	158.75 V	627.68 V					
09/30/2015 11:48	93.35 V	154.71 V	625.85 V					
09/30/2015 11:49	91.72 V	156.52 V	624.02 V					
09/30/2015 11:50	103.50 V	160.15 V	622.20 V					
09/30/2015 11:51	99.55 V	160.84 V	620.77 V					
09/30/2015 11:52	96.14 V	159.87 V	617.32 V					
09/30/2015 11:53	90.89 V	158.05 V	611.23 V					
09/30/2015 11:54	100.61 V	164.05 V	607.38 V					
09/30/2015 11:55	107.65 V	163.22 V	602.91 V					
09/30/2015 11:56	100.44 V	152.61 V	616.31 V					
09/30/2015 11:57	92.17 V	151.22 V	616.31 V					
09/30/2015 11:58	97.65 V	153.17 V	616.11 V					
09/30/2015 11:59	102.11 V	151.36 V	616.31 V					
09/30/2015 12:00	94.40 V	155.54 V	616.11 V					
09/30/2015 12:01	99.01 V	157.08 V	615.70 V					
09/30/2015 12:02	92.74 V	154.85 V	614.48 V					
09/30/2015 12:03	94.09 V	156.80 V	612.65 V					
09/30/2015 12:04	91.34 V	159.03 V	605.96 V					
09/30/2015 12:05	92.85 V	164.61 V	602.91 V					
Average:	97.22	158.35	616.44					
Maximum:	107.65	170.75	636.20					
Minimum:	86.79	148.15	602.91					

Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 12:06

Report End Date/Time : Wed 09/30/2015 12:35

DATE/TIME	O2 (%)	NOx Raw (ppmvd)	CO Raw (ppmvd)	Stack Flow (dscfm)	NOx Lbs/Hr	CO Lbs/Hr	CO @15%O2 (ppmvd)	NOx @15%O2 (ppmvd)
09/30/2015 12:06	12.26 V	37.03 V	692.40 V	11970.25 V	3.18 V	36.14 V	472.82 V	25.29 V
09/30/2015 12:07	12.29 V	36.82 V	690.50 V	11991.04 V	3.17 V	36.11 V	472.89 V	25.22 V
09/30/2015 12:08	12.29 V	36.85 V	688.10 V	12015.12 V	3.18 V	36.05 V	471.38 V	25.24 V
09/30/2015 12:09	12.26 V	36.86 V	679.20 V	11992.39 V	3.17 V	35.52 V	463.94 V	25.18 V
09/30/2015 12:10	12.24 V	37.43 V	666.50 V	11939.25 V	3.20 V	34.70 V	453.82 V	25.49 V
09/30/2015 12:11	12.24 V	37.54 V	676.60 V	12101.15 V	3.26 V	35.71 V	460.70 V	25.56 V
09/30/2015 12:12	12.29 V	36.65 V	687.80 V	12151.09 V	3.19 V	36.45 V	471.18 V	25.11 V
09/30/2015 12:13	12.29 V	36.30 V	690.10 V	12136.29 V	3.16 V	36.52 V	472.62 V	24.86 V
09/30/2015 12:14	12.34 V	34.62 V	694.40 V	12052.84 V	2.99 V	36.50 V	478.48 V	23.86 V
09/30/2015 12:15	12.29 V	39.24 V	661.60 V	12290.90 V	3.46 V	35.46 V	453.10 V	26.87 V
09/30/2015 12:16	12.36 V	37.39 V	682.80 V	12278.54 V	3.29 V	36.56 V	471.86 V	25.84 V
09/30/2015 12:17	12.31 V	38.41 V	673.10 V	12221.34 V	3.37 V	35.87 V	462.45 V	26.39 V
09/30/2015 12:18	12.34 V	38.48 V	673.80 V	12214.52 V	3.37 V	35.89 V	464.15 V	26.51 V
09/30/2015 12:19	12.31 V	38.09 V	673.40 V	12209.22 V	3.33 V	35.85 V	462.66 V	26.17 V
09/30/2015 12:20	12.34 V	38.38 V	666.90 V	12132.04 V	3.34 V	35.28 V	459.39 V	26.44 V
09/30/2015 12:21	12.31 V	38.31 V	676.80 V	12143.96 V	3.34 V	35.84 V	464.86 V	26.31 V
09/30/2015 12:22	12.29 V	47.80 V	638.50 V	12080.65 V	4.14 V	33.64 V	437.28 V	32.74 V
09/30/2015 12:23	12.26 V	38.42 V	676.90 V	12181.33 V	3.36 V	35.96 V	462.37 V	26.24 V
09/30/2015 12:24	12.14 V	40.26 V	640.40 V	12071.34 V	3.49 V	33.71 V	431.20 V	27.11 V
09/30/2015 12:25	12.31 V	38.66 V	670.50 V	12295.60 V	3.41 V	35.95 V	460.66 V	26.56 V
09/30/2015 12:26	12.31 V	37.67 V	680.70 V	12323.99 V	3.33 V	36.58 V	467.54 V	25.87 V
09/30/2015 12:27	12.29 V	37.06 V	682.80 V	12274.31 V	3.26 V	36.55 V	467.62 V	25.38 V
09/30/2015 12:28	12.31 V	36.83 V	682.50 V	12286.90 V	3.25 V	36.57 V	468.91 V	25.30 V
09/30/2015 12:29	12.34 V	36.54 V	687.10 V	12354.84 V	3.24 V	37.02 V	473.45 V	25.18 V
09/30/2015 12:30	12.32 V	35.61 V	688.50 V	12321.52 V	3.15 V	36.99 V	473.17 V	24.47 V
09/30/2015 12:31	12.36 V	35.79 V	690.10 V	12387.29 V	3.18 V	37.28 V	476.91 V	24.73 V
09/30/2015 12:32	12.31 V	35.11 V	700.90 V	12349.00 V	3.11 V	37.75 V	481.55 V	24.12 V
09/30/2015 12:33	12.31 V	35.29 V	690.50 V	12354.61 V	3.13 V	37.20 V	474.41 V	24.25 V
09/30/2015 12:34	12.29 V	35.89 V	681.10 V	12358.55 V	3.18 V	36.71 V	466.45 V	24.58 V
09/30/2015 12:35	12.26 V	37.04 V	669.70 V	12360.80 V	3.28 V	36.10 V	457.32 V	25.29 V
Average:	12.29	37.55	678.47	12194.69	3.28	36.08	465.17	25.74
Maximum:	12.36	47.80	700.90	12387.29	4.14	37.75	481.55	32.74
Minimum:	12.14	34.62	638.50	11939.25	2.99	33.64	431.20	23.86

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Unit Name: OCSD P2 Unit 2

Report Start Date/Time : Wed 09/30/2015 12:02

Report End Date/Time : Wed 09/30/2015 12:35

DATE/TIME	ICE % Load	Natural Gas Flow (dscfm)	Digester Gas Flow (dscfm)					
09/30/2015 12:02	92.74 V	154.85 V	614.48 V					
09/30/2015 12:03	94.09 V	156.80 V	612.65 V					
09/30/2015 12:04	91.34 V	159.03 V	605.96 V					
09/30/2015 12:05	92.85 V	164.61 V	602.91 V					
09/30/2015 12:06	92.08 V	168.80 V	602.30 V					
09/30/2015 12:07	94.42 V	166.28 V	605.35 V					
09/30/2015 12:08	98.10 V	156.80 V	622.20 V					
09/30/2015 12:09	102.39 V	157.22 V	622.40 V					
09/30/2015 12:10	94.46 V	156.66 V	622.20 V					
09/30/2015 12:11	99.98 V	167.26 V	616.92 V					
09/30/2015 12:12	104.53 V	166.56 V	616.31 V					
09/30/2015 12:13	95.40 V	156.52 V	631.74 V					
09/30/2015 12:14	96.66 V	151.08 V	629.10 V					
09/30/2015 12:15	99.52 V	270.77 V	458.17 V					
09/30/2015 12:16	107.38 V	269.38 V	451.47 V					
09/30/2015 12:17	99.91 V	270.77 V	450.25 V					
09/30/2015 12:18	99.54 V	268.40 V	451.27 V					
09/30/2015 12:19	98.70 V	269.10 V	452.08 V					
09/30/2015 12:20	99.47 V	265.33 V	450.25 V					
09/30/2015 12:21	107.69 V	271.47 V	443.76 V					
09/30/2015 12:22	102.45 V	206.46 V	546.88 V					
09/30/2015 12:23	100.39 V	167.26 V	619.96 V					
09/30/2015 12:24	95.18 V	160.15 V	636.20 V					
09/30/2015 12:25	100.66 V	159.17 V	636.20 V					
09/30/2015 12:26	97.68 V	160.98 V	635.59 V					
09/30/2015 12:27	101.70 V	160.98 V	634.58 V					
09/30/2015 12:28	99.31 V	159.03 V	635.80 V					
09/30/2015 12:29	92.58 V	159.59 V	637.22 V					
09/30/2015 12:30	101.88 V	159.17 V	637.83 V					
09/30/2015 12:31	106.01 V	160.43 V	635.59 V					
09/30/2015 12:32	100.80 V	161.82 V	635.80 V					
09/30/2015 12:33	103.17 V	163.08 V	634.17 V					
09/30/2015 12:34	101.19 V	168.80 V	628.08 V					
09/30/2015 12:35	98.36 V	174.65 V	621.38 V					
Average:	98.90	184.98	586.38					
Maximum:	107.69	271.47	637.83					
Minimum:	91.34	151.08	443.76					

APPENDIX G

SCAQMD CHECKLIST FOR SOURCE TEST REPORTS

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING FORM
CHECK LIST FOR SOURCE TEST REPORTS

Please check off all the following items to verify that the information is provided in the source test report, and then send the checklist along with the source test report.

[X] Brief description of the equipment tested.

[X] Brief process description, including maximum and normal operating temperatures, pressures, throughput, etc.

[X] Operating conditions under which test was performed.

[X] Process schematic diagram showing the ports and sampling locations, including the dimensions of the ducts/stacks at the sampling locations, along with upstream and downstream locations, and distances of flow disturbances, (e.g. elbows, tees, fans, dampers) from the sampling locations (upstream and downstream).

[X] Field and laboratory data forms, strip charts and analyses.

[X] Brief description of sampling and analytical methods for each gaseous and particulate constituent measured.

[X] Calculations for volumetric flow rates and emission rates.

[X] Description of calibration and quality assurance procedures.

[X] Determination that the testing laboratory qualifies as an "independent testing laboratory" under Rule 304 (no conflict of interest).

SOURCE TEST REPORT

Relative Accuracy Test Audit of a CEMS Serving Internal Combustion Engine No. 5 for NO_X, CO, O_2 and Stack Gas Flow Rates under SCAQMD Rules 218/218.1

Facility ID: 29110

Prepared for:

Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708

Equipment Location:

Treatment Plant No. 2
22212 Brookhurst Avenue
Huntington Beach, CA 92646

Test Date: October 1, 2015

Report Date: October 15, 2015

Project No.: 9849

Prepared by:

Almega Environmental & Technical Services
10602 Walker Street
Cypress, CA 90630

Prepared by & Title: ______________________
Christopher Lovett, Project Manager

Reviewed by & Title: ______________________
Charles Figueroa, Senior Project Manager

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1.0 EXECUTIVE SUMMARY

Key project information is provided in the summary below. Test results are summarized in Table 1-1.

Customer	Orange County Sanitation District 10844 Ellis Avenue Fountain Valley, CA 92708 Contact: Ms. Randa AbuShaban, tel. (714) 593-7413
Equipment Location	Treatment Plant No. 2 22212 Brookhurst Avenue Huntington Beach, CA 92646
Facility ID	29110
Equipment	Internal Combustion Engine No. 5 fired (CG5-HB) on natural gas and digester gas
Permit Number	Permit G27398, A/N 540712
Test Objective	Relative Accuracy Test Audit (RATA) of a CEMS serving an Internal Combustion Engine for NO_X, CO, O_2 and Stack gas flow rates under SCAQMD Rules 218/218.1
Test Requested by	Ms. Randa AbuShaban of Orange County Sanitation District
Test Date	October 1, 2015
Last Test Date	September 19, 2014
Testing Firm	Almega Environmental & Technical Services 10602 Walker Street Cypress, CA 90630 Contact: Mr. Christopher Lovett, tel. (714) 889-4000
Test Personnel	Gregory Rubin and Luke Barrow of Almega Environmental & Technical Services
Regulatory Agency	South Coast Air Quality Management District (SCAQMD) 21865 East Copley Drive Diamond Bar, CA 91765-4182 Contact: Eric Padilla, tel. (909) 396-2265
Measurements Stack Gas Parameters CEMS: NO_X, CO, O_2 & CO_2	 SCAQMD Methods 1.1-4.1 SCAQMD Method 100.1

Almega ENVIRONMENTAL

TABLE 1-1. SUMMARY OF RESULTS

Facility: OCSD, Plant No. 2 — **Facility ID:** 29110
City: Huntington Beach, CA — **Job No.:** 9849
Source: Engine 5 — **Test Date:** 10/01/15
Test: RATA

PARAMETER	UNIT	AVERAGE RM CEMS	PAGE NO.	AVERAGE FACILITY CEMS	CALC. RA (%)	ALLOWED RA (%)
NOx CONCENTRATION	ppm	35.76	6	39.47	**11.28**	**20%**
NOx CORRECTED CONCENTRATION	ppm@15%O2	23.22	7	25.99	**12.94**	**20%**
NOx MASS EMISSION RATE	lb/hr	2.52	8	2.85	**14.05**	**20%**
CO CONCENTRATION	ppm	581.53	9	632.51	**9.06**	**20%**
CO CORRECTED CONCENTRATION	ppm@15%O2	377.62	10	416.47	**10.77**	**20%**
CO MASS EMISSION RATE	lb/hr	24.98	11	27.79	**12.47**	**20%**
DRY VOLUMETRIC FLOW RATE	dscfh	582,086	12	604,447	**4.85**	**15%**
O2 CONCENTRATION	%	11.81	13	11.94	**1.31**	**10%**

The facility CEMS has to be reassessed annually per Rules 218/218.1.

2.0 INTRODUCTION

Almega Environmental & Technical Services (Almega) was retained by Orange County Sanitation District (OCSD) to conduct stationary source emissions testing on Internal Combustion Engine No. 5 at its Huntington Beach, California wastewater treatment facility (Treatment Plant No. 2). This testing consisted of an annual Relative Accuracy Test Audit (RATA) of the continuous emission monitoring system (CEMS) for oxides of nitrogen (NO_X), carbon monoxide (CO), oxygen (O_2), and stack gas flow rates. The purpose of the test was to demonstrate the CEMS satisfies site specific permit conditions as stipulated in the South Coast Air Quality Management District (SCAQMD) CEMS Certification Test Protocol Evaluation Approval Letter dated April 22, 2009. This RATA meets the CEMS requirements of SCAQMD Rules 1110.2 and 218, as well as the performance specifications of SCAQMD Rule 218.1.

Table 2-1 lists the sampling matrix employed during the test.

TABLE 2-1. SAMPLING MATRIX

Facility CEM System	Sampling Parameters (9 RATA Runs)	Measured Unit	Reference Method	RATA Criterion	Performance Specification
ICE No. 5 (CG5-HB)	NOx Concentrations	ppmv	SCAQMD 100.1	RA $\leq$ 20%	SCAQMD Rule 218/ 218.1
	NOx Corrected Conc.	ppmv@15% O_2	SCAQMD 100.1	RA $\leq$ 20%	
	NOx Mass Emissions	lb/hr	SCAQMD 100.1	RA $\leq$ 20%	
	CO Concentrations	ppmv	SCAQMD 100.1	RA $\leq$ 20%	
	CO Corrected Conc.	ppmv@15% O_2	SCAQMD 100.1	RA $\leq$ 20%	
	CO Mass Emissions	lb/hr	SCAQMD 100.1	RA $\leq$ 20%	
	O_2 Concentrations	%	SCAQMD 100.1	RA $\leq$ 10%	
	Stack Gas Flow Rates	dscfh	SCAQMD 1.1 – 4.1	RA $\leq$ 15%	

On October 1, 2015, Almega performed source testing on Engine No. 5 while the unit was operated at its normal operating parameters. Sampling was performed at the exhaust stack. Nine RATA runs, 30 minutes in duration each, were conducted as specified in the reference methods.

2.1 Document Outline

This report is organized as follows. Section 1.0 is a summary of the project and test results. Section 2.0 describes the project, its objectives and approach. Section 3.0 discusses test results. Section 4.0 describes the equipment tested and applicable sampling locations. Section 5.0 describes the sampling and analysis procedures used to conduct the testing. And Section 6.0 describes Quality Assurance and Quality Control activities performed. The Appendices contain test results, calculated data, raw field data, facility process and test data, calibration records, and certification documents.

3.0 TEST RESULTS AND DISCUSSION

The testing was conducted after the arrival of Almega's test personnel and set-up of test equipment. The unit was operated by plant personnel during testing activities. The testing was conducted at normal operating conditions for the process. No unusual operating conditions were noted during the test periods.

3.1 Test Discussion

Test results were summarized in Table 1-1. Detailed test results are shown in Tables 3-1 through Table 3-8 and discussed below.

3.1.1 Relative Accuracy (RA)

The following parameters passed RA performance specifications:

- NOx Concentration (ppmv)
- NOx Concentration (ppmv @ 15% O_2)
- NOx Mass Emission Rate (lb/hr)
- CO Concentration (ppmv)
- CO Concentration (ppmv @ 15% O_2)
- CO Mass Emission Rate (lb/hr)
- Dry Volumetric Flow Rate (dscfh)
- O_2 (%)

3.1.2 Total Runs

- Total runs conducted: 9
- Total runs used: 9

3.1.3 Others

- All measured concentrations were corrected for bias zero and bias calibration drifts according to SCAQMD Method 100.1 (See Appendix D1).

- All instruments performed properly during testing and their performance specifications were within the allowable limits specified in Method 100.1 (See Appendix D1).

- An NO_2 to NO converter efficiency check was performed on the reference method NOx analyzer. The average converter efficiency was greater than 90% (See Appendix E3).

- A cyclonic flow check was performed prior to the sampling. No cyclonic flow was observed (See Appendix C2).

- Two conditioners were used for stack cooling purposes. The CEMS conditioner dew point was maintained below 37°F (See Appendix C2).

Testing was performed as specified in the reference methods. No modifications to proposed sampling and analysis procedures other than those noted above were required.

3.2 Test Chronology

Testing for NOx, CO, O_2, CO_2 and Flow Rate was conducted according to the following chronology:

Parameter-Measurement	Test Date & Time
NOx, CO, O_2, CO_2 and Stack Gas Flow Rates	October 1, 2015 (7:43 - 12:45)

TABLE 3-1. RELATIVE ACCURACY SUMMARY: NOx CONCENTRATION

Facility: OCSD, Plant No. 2 — Facility ID: 29110
City: Huntington Beach, CA — Job No.: 9849
Source: Engine 5 — Test Date: 10/01/15
Test: RATA

Run No.	Time (hh:mm)	Reference Method NOx ppm	Reference Method Report Page No.	Facility NOx ppm	Facility Report Page No.	Difference NOx ppm
1	7:43-8:12	34.05	D1-1	38.01	F1-1	-3.96
2	8:13-8:42	35.97	D1-1	39.79	F1-1	-3.82
3	8:43-9:12	36.47	D1-1	39.60	F1-1	-3.13
4	9:31-10:00	35.03	D1-1	38.89	F1-1	-3.86
5	10:01-10:30	35.63	D1-1	40.14	F1-1	-4.51
6	10:31-11:00	35.86	D1-1	39.73	F1-1	-3.87
7	11:16-11:45	36.38	D1-1	39.61	F1-1	-3.23
8	11:46-12:15	35.90	D1-1	39.46	F1-1	-3.56
9	12:16-12:45	36.55	D1-1	40.01	F1-1	-3.46

	RM Average	CEMS Average	Difference Average (d)
	35.76	39.47	-3.71

Number of Valid Runs (n):	9
Standard Deviation (Sd):	0.420
t-value (0.975):	2.306
Confidence Coefficient (cc):	0.323

Relative Accuracy Test Result: **11.28 % of RM**

SCAQMD RULE 218/218.1 CRITERIA

RATA Allowable Limit **≤ 20.0 % of RM**

TABLE 3-2. RELATIVE ACCURACY SUMMARY: NOx CORRECTED CONCENTRATION

Facility: OCSD, Plant No. 2 | Facility ID: 29110
City: Huntington Beach, CA | Job No.: 9849
Source: Engine 5 | Test Date: 10/01/15
Test: RATA

Run No.	Time (hh:mm)	Reference Method NOx ppm@15%O2	Reference Method Report Page No.	Facility NOx ppm@15%O2	Facility Report Page No.	Difference NOx ppm@15%O2
1	7:43-8:12	22.02	D1-1	25.02	F1-1	-3.00
2	8:13-8:42	23.27	D1-1	26.03	F1-1	-2.76
3	8:43-9:12	23.79	D1-1	26.33	F1-1	-2.54
4	9:31-10:00	22.72	D1-1	25.53	F1-1	-2.81
5	10:01-10:30	23.17	D1-1	26.56	F1-1	-3.39
6	10:31-11:00	23.51	D1-1	26.31	F1-1	-2.80
7	11:16-11:45	23.44	D1-1	25.75	F1-1	-2.31
8	11:46-12:15	23.36	D1-1	26.15	F1-1	-2.79
9	12:16-12:45	23.71	D1-1	26.21	F1-1	-2.50

RM Average	CEMS Average	Difference Average (d)
23.22	25.99	-2.77

Number of Valid Runs (n): 9
Standard Deviation (Sd): 0.312
t-value (0.975): 2.306
Confidence Coefficient (cc): 0.240

Relative Accuracy Test Result: **12.94 % of RM**

SCAQMD RULE 218/218.1 CRITERIA

RATA Allowable Limit **≤ 20.0 % of RM**

TABLE 3-3. RELATIVE ACCURACY SUMMARY: NOx MASS EMISSION RATE

Facility: OCSD, Plant No. 2 — Facility ID: 29110
City: Huntington Beach, CA — Job No.: 9849
Source: Engine 5 — Test Date: 10/01/15
Test: RATA

Run No.	Time (hh:mm)	Reference Method NOx lb/hr	Reference Method Report Page No.	Facility NOx lb/hr	Facility Report Page No.	Difference NOx lb/hr
1	7:43-8:12	2.38	D1-1	2.71	F1-1	-0.331
2	8:13-8:42	2.53	D1-1	2.85	F1-1	-0.323
3	8:43-9:12	2.57	D1-1	2.93	F1-1	-0.361
4	9:31-10:00	2.50	D1-1	2.79	F1-1	-0.286
5	10:01-10:30	2.54	D1-1	2.91	F1-1	-0.365
6	10:31-11:00	2.56	D1-1	2.93	F1-1	-0.369
7	11:16-11:45	2.54	D1-1	2.81	F1-1	-0.274
8	11:46-12:15	2.52	D1-1	2.86	F1-1	-0.341
9	12:16-12:45	2.57	D1-1	2.86	F1-1	-0.290

RM Average	CEMS Average	Difference Average (d)
2.523	2.850	-0.327

Number of Valid Runs (n):	9
Standard Deviation (Sd):	0.036
t-value (0.975):	2.306
Confidence Coefficient (cc):	0.028

Relative Accuracy Test Result: **14.05 % of RM**

SCAQMD RULE 218/218.1 CRITERIA

RATA Allowable Limit **≤ 20.0 % of RM**