

July 30, 2020

Mr. Jeff Gove, Director of Compliance and Enforcement
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105
Attn. Title V Reports
Transmitted by e-mail to compliance@baaqmd.gov

TV Tracking #: 31

1. ☐ RECEIVED IN
ENFORCEMENT: 07/30/2020

Dear Mr. Gove:

RE: Semiannual Major Facility Review (Title V) Monitoring Report for the East Bay
Municipal Utility District (EBMUD) Main Wastewater Treatment Plant
(Facility #A0591)

Attached is the semiannual monitoring report for the EBMUD Main Wastewater Treatment Plant (Facility #A0591) as required under Section I.F of the facilities Major Facility Review Permit issued November 7, 2019. The report covers the period from January 1, 2020 – June 30, 2020. No issues of non-compliance were identified.

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in this report are true, accurate and complete.

If you have any questions about this report, please call Chris Dembiczak at (510) 287-0509.

Sincerely,



Eileen M. White, P.E.

EMW:CD:bmy

Attachment

O:\WTD - Admin\Regulatory Compliance\BAAQMD\Transmittal letter July-December 2019.docx

**Major Facility Review (Title V)
Semi-Annual Monitoring Report**

for

**East Bay Municipal Utility District
Main Wastewater Treatment Plant
Facility #A0591**

Reporting Period: January 1, 2020 – June 30, 2020

Source	Monitoring Requirement	Limit	Monitoring Results
S-55 Boiler	Condition 20651 2. Shall not operate S-55 boiler when more than two of the three cogen engines S-37, S-38, or S-39 are operating 3. Boiler gross heat input 5a. NOx emission from boiler 5b. CO emission from boiler 18. Daily records of hours of operation, fuel consumption 19. Annual performance test for emission limits in 5	 20.41 MMBtu/hr 30ppm 50ppm	Condition met. See Attachment 1 for boiler and engine data. Condition met. See Attachment 2. Heat input ranged from 7.1-11.5 MMBtu/hr. See 19 for test results if annual tests run in monitoring period See Attachment 1 for hours and gas consumption. Annual performance test completed on 12/7/19.
S-37, S-38, S-39 Cogeneration Engines	Condition 20651 Emission limits – 6. NOx emissions from S-38 7. POC emissions from S-38 8. CO emissions from S-38 9. Filterable particulate emissions from S-38 10. NOx emissions from S-37 & S-39 11. CO emissions from S-37 & S-39 13. Thermal throughput per engine 14. Combined hours of operation for S-37, S-38, and S-39 15. Combined diesel consumption for S-37, S-38, and S-39	 1.25 g/hp-hr 0.6 g/hp-hr 3.0 g/hp-hr 0.085 g/hp-hr 70 ppmvd 2000 ppmvd 25 MMBtu/hr 25,316 hours in any rolling 365 day period 150,000 gallons in any rolling 365 day period	For items 6-11 see 19 for test results if annual tests run in monitoring period Condition met. See Attachment 2. Condition met. 13,871 hours in last year. See Attachment 2. Jan-Jun 2020: 6,398 hours Jul-Dec 2019: 7,473 hours Condition met. 25,720 gallons in last year. See Attachment 2. Jan-Jun 2020: 11,442 gallons Jul-Dec 2019: 14,278 gallons

Source	Monitoring Requirement	Limit	Monitoring Results
S-37, S-38, S-39 Cogeneration Engines (continued)	18. Daily records of hours of operation, fuel consumption 19. Annual performance test for emission limits in 6-11		Condition met. See Attachment 1 for records. Condition met. Annual performance tests completed 5/7/2020 for engine #1. See Attachment 3 for summary report.
S-48 Gasoline Dispensing Facility	Condition 25723 The Static Pressure Performance Test (CARB TP 201.3B) shall be successfully conducted at least once in each 12-month period.		Condition met. Completed on 9/24/19.
	Condition 21663 Annual gasoline throughput	334,000 gal per year	Condition met. 22,284 gal in last year. See Attachment 4. Jan-June 2020: 9,981 gal July-Dec 2019: 12,303 gal
S-50 Diesel Engine Back-up Generator	Condition 22830 1. Hours of operation	30 hours/year reliability-related hours	Condition met. Generator ran 0.9 hours in last 12 months. Refer to Attachment 5.
S-51 Diesel Engine Back-up Generator	Condition 22850 1. Hours of operation	50 hours/year reliability-related hours	Condition met. Generator ran 16.2 hours in last 12 months. Refer to Attachment 5.
S-53 Diesel Engine Back-up Generator	Condition 22830 1. Hours of operation	30 hours/year reliability-related hours	Condition met. Generator ran 3.7 hours in last 12 months. Refer to Attachment 5.
S-54 Diesel Engine Back-up Generator	Condition 22850 1. Hours of operation	50 hours/year reliability-related hours	Condition met. Generator did not run in last 12 months. Refer to Attachment 5.

Source	Monitoring Requirement	Limit	Monitoring Results
S-56 Turbine	Condition 24050 2. Total combined heat input 3. NOx emission limits 4. CO emission limit 5. SO2 emission limit 7. Annual turbine source test 8. Monthly NOx and CO test	389,820 MMBtu in any 12-month period 23 ppm (15-min) 34,400 lb (12-mo) 100 ppm (15-min) 92,200 lb (12-mo) 150 ppmv	Condition met. 325,873 MMBtu in last 12 months. Refer to Attachment 2. Jan-Jun 2020: 156,783 MMBtu Jul-Dec 2019: 169,090 MMBtu Emission limits met. Refer to Attachments 2 and 6. Annual mass emission: 4,903 lb Emission limits met. Refer to Attachments 2 and 6. Annual mass emission: 1,607 lb Emission limit met. Refer to Attachments 2 and 6. Condition met. Last annual test was 12/7/2019. Condition met. Monthly test results are located in Attachment 6.
S-58 Diesel Engine Back-up Generator	Condition 22850 1. Hours of operation	50 hours/year reliability-related hours	Condition met. Generator ran 0.5 hours in last 12 months. Refer to Attachment 5.
S-100 Municipal Wastewater Treatment Plant	Condition 21759 1. Total wastewater flow	120 MGD monthly dry weather average 325 MGD monthly wet weather average	Condition met. Maximum wet weather monthly flow in period was 64 MGD influent. Maximum dry weather monthly flow was 51 MGD. See Attachment 7.

Source	Monitoring Requirement	Limit	Monitoring Results
S-110 Headworks A-462 Carbon Scrubber A-463/A-464 Biotrickling Filters/Carbon Scrubbers	Condition 17335 3. Inlet and outlet H2S concentrations of carbon beds, as well as any other appropriate operating parameters shall be continuously monitored and reviewed on a daily basis to determine when carbon adsorption bed breakthrough is imminent or has been reached.		Monitoring results for inlet and outlet H2S and any noted outages are in Attachment 8. Maintenance records for scrubber are in Attachment 9.
S-170 Sludge handling A-7/A-8 Atomized Mist Scrubbers	Condition 18006 1. Monitor and record on a daily basis the activated sewage sludge throughput through S-170.		Sludge throughput is recorded in Attachment 10. Maintenance records for the scrubber are in Attachment 9.
S-172 Pre-Digestion Blend Tanks A-9 Iron Oxide A-10 Biofilter A-11 Activated Carbon	Condition 25919 1. Throughput of waste shall not exceed 2,100,000 gallons during any day. 4. POC emissions shall not exceed 2.02 lb/calendar day and 20.3 ppm total carbon on a daily basis. 6. Quarterly POC readings at outlet of A11		Condition met. See Attachment 13 for record of daily throughput. See item 6 for test results. Condition met. POC readings in this reporting period were less than 1 ppm.

Source	Monitoring Requirement	Limit	Monitoring Results
S-180 Anaerobic Digesters Note: A-194, A-195 are enclosed flares A-190, A-191, A-192, and A- 193 are older “candlestick” flares	Condition 18860 2. Monthly inspection of digesters and gas management/venting prevention 3. Sulfur content of digester gas 4. Combined digester gas flow rate to combustion sources 5. Combustion zone temperature monitoring to A-194, A-195 6. Gas flow to A-194, A-195 7. Source testing of A-194, A-195 (every 8,760 hours of use or 5 years) Emission limits for A-194, A-195 9. NOx limit 10. CO limit 11. H2S limit 12. Weekly sampling and testing of digester gas for H2S 13. Hours of flaring per day	 <200 ppmv annual average <3,400 scfm annual average >1,200F, after 15- min start-up <3,000 cfm, 1-hr average 0.12 lb/MMBtu 0.20 lb/MMBtu 0.032 lb/hour	Inspections conducted by Operations on daily rounds. Condition met. Refer to Attachment 11 for the H2S gas sampling records. Condition met. See Attachment 12 for combined digester gas flow rates. Condition met. Flares not operated in this reporting period. Condition met. Flares not operated in this reporting period. Condition met. Source test conducted 11/7/19. Conditions met. Flares not operated in this reporting period. Refer to Attachment 11. Refer to Attachment 1 for the hours of flaring per day.

Attachment Index:

1	Combustion Source Air Permit Data
2	Combustion Summaries – Boiler, Engines, Turbine, Flares
3	Annual Source Test Summaries: Engine #1
4	Gasoline Facility Throughput
5	Hours of Operation for Stand-by Emergency Generators
6	Turbine Monthly Test Results
7	Monthly Wastewater Summary
8	IPS Carbon Bed Inlet/Outlet H ₂ S Readings
9	Odor Scrubber Maintenance Records for S-170 and S-110
10	Activated Sludge Throughput for S-170
11	Digester Gas H ₂ S Sampling
12	Combined Digester Gas Combustion Volumes
13	Blend Tank Throughput Records

ATTACHMENT 1

COMBUSTION SOURCE AIR PERMIT DATA

(engines, turbine, boiler, flares)

**DAILY REPORTS
JANUARY-JUNE 2020**



January - 2020

Daily Data for Air Permit

Elmer E. Ross Power Station

Date	Run Time, Hours				KiloWatt Hours Generated				Fuel Oil Used, gal				Gas, FCI Meter, cu ft			
	Eng 1	Eng 2	Eng 3	Total	Gen. 1	Gen 2	Gen 3	Total	Eng. 1	Eng. 2	Eng. 3	Total	Eng. 1	Eng. 2	Eng. 3	Total
1st	1.0	24	0	25	150	51,681	0	51,831	19	35	0	53	2,418	832,598	0	835,016
2nd	1.0	24	0	25	539	50,992	0	51,531	53	64	0	118	8,606	814,187	0	822,794
3rd	0	24	0	24	0	51,847	0	51,847	0	40	0	40	0	834,060	0	834,060
4th	0	24	0	24	0	48,649	0	48,649	0	36	0	36	0	795,139	0	795,139
5th	0	24	0	24	0	43,381	0	43,381	0	42	0	42	0	727,446	0	727,446
6th	0.7	24	0	25	557	42,941	0	43,498	66	39	0	105	9,366	722,526	0	731,893
7th	0	24	0	24	0	51,804	0	51,804	0	34	0	34	0	845,937	0	845,937
8th	0	24	0	24	0	51,854	0	51,854	0	42	0	42	0	842,775	0	842,775
9th	0	24	0	24	0	51,877	0	51,877	0	34	0	34	0	830,646	0	830,646
10th	2.0	24	0	26	2,802	51,817	0	54,619	9	42	0	51	44,824	828,895	0	873,719
11th	0	23	0	23	0	51,752	0	51,752	0	36	0	36	0	841,042	0	841,042
12th	0	24	0	24	0	46,964	0	46,964	0	41	0	41	0	783,022	0	783,022
13th	0	20	0	20	0	38,486	0	38,486	0	38	0	38	0	653,824	0	653,824
14th	0	24	0	24	0	51,820	0	51,820	0	35	0	35	0	840,818	0	840,818
15th	0	24	0	24	0	51,618	0	51,618	0	39	0	39	0	847,527	0	847,527
16th	10	24	0	34	21,445	51,840	0	73,285	57	36	0	92	355,949	860,454	0	1,216,403
17th	24	24	0	48	51,238	51,847	0	103,085	40	39	0	79	876,981	887,409	0	1,764,390
18th	24	16	0	40	43,449	31,502	0	74,951	42	30	0	71	761,621	552,212	0	1,313,833
19th	0.6	0	0	0.6	936	0	0	936	2.1	0	0	2.1	17,930	0	0	17,930
20th	5.9	8.4	0	14	11,811	17,373	0	29,184	41	38	0	79	210,825	310,095	0	520,920
21st	24	24	0	48	50,957	51,526	0	102,483	36	33	0	69	872,376	882,115	0	1,754,491
22nd	24	24	0	48	51,308	51,807	0	103,115	43	42	0	85	863,620	872,027	0	1,735,647
23rd	24	24	0	48	51,285	51,810	0	103,095	35	31	0	67	858,996	867,781	0	1,726,778
24th	24	24	0	48	51,322	51,815	0	103,138	48	43	0	91	854,953	863,164	0	1,718,117
25th	24	24	0	48	51,332	51,806	0	103,138	37	35	0	72	854,535	862,432	0	1,716,967
26th	24	24	0	48	51,241	51,808	0	103,049	42	39	0	82	858,072	867,574	0	1,725,646
27th	24	24	0	48	47,088	49,336	0	96,424	49	35	0	84	811,627	850,372	0	1,662,000
28th	24	24	0	48	48,778	49,267	0	98,045	43	39	0	82	831,179	839,516	0	1,670,695
29th	14	13	0	27	22,138	19,143	0	41,281	21	23	0	43	400,372	346,214	0	746,585
30th	11	9	0	20	18,858	17,651	0	36,509	37	34	0	71	334,886	313,442	0	648,328
31st	24	12	0	36	46,724	26,288	0	73,011	36	24	0	60	823,890	463,535	0	1,287,425
Totals	311	653	0	964	623,958	1,362,302	0	1,986,260	755	1,119	0	1,874	10,653,026	22,678,786	0	33,331,813
Sum of Engines			964	Sum of Engines			1,986,260	Sum of Engines			1,874	Sum of Engines			33,331,813	



January - 2020

Daily Data for Air Permit

SD1 Flare Burners, Turbine, and Boiler

Date	Flares A-190,191,192,193		Flares A-194,195			Turbine			Boiler		Run Time Check	
	Run Time Hrs	Gas cu ft	Run Time Hrs	Gas cu ft	Peak 1-hr Flow, SCFM	Run Time Hrs	Power KWh	Gas cu ft	Run Time Hrs	Gas cu ft	Engine Hrs	Eng + Boiler Hrs
1st	19	410,322	0	0	0	24	99,788	1,580,705	24	267,187	25	49
2nd	16	274,703	0	0	0	24	99,294	1,598,877	24	264,503	25	49
3rd	22	526,178	0	0	0	24	101,643	1,621,271	24	261,039	24	48
4th	16	603,022	0	0	0	24	93,059	1,474,269	24	265,057	24	48
5th	3.2	41,847	0	0	0	24	84,159	1,374,997	24	256,732	24	48
6th	0.9	11,254	0	0	0	24	79,252	1,346,848	24	255,378	25	49
7th	15	323,472	0	0	0	24	102,025	1,649,907	24	268,552	24	48
8th	24	1,668,072	0	0	0	24	101,158	1,611,634	24	324,171	24	48
9th	23	1,256,567	0	0	0	24	99,646	1,562,202	24	439,340	24	48
10th	24	965,225	0	0	0	24	102,392	1,630,623	24	460,915	26	50
11th	23	654,160	0	0	0	24	101,804	1,624,071	24	413,470	23	47
12th	3.2	48,588	0	0	0	24	89,003	1,470,848	24	420,445	24	48
13th	15	724,793	0	0	0	24	96,429	1,586,073	24	416,552	20	44
14th	21	774,679	0	0	0	24	99,550	1,570,159	24	314,779	24	48
15th	21	744,833	0	0	0	23	95,698	1,542,392	24	355,162	24	48
16th	19	364,578	0	0	0	24	101,562	1,626,615	14	225,521	34	48
17th	18	915,704	0	0	0	17	71,877	1,111,027	8.5	59,137	48	56
18th	0	0	0	0	0	24	80,940	1,315,812	7.0	65,381	40	47
19th	0	0	0	0	0	24	96,637	1,581,622	24	471,834	0.6	25
20th	10	515,758	0	0	0	19	75,547	1,244,632	22	419,307	14	36
21st	22	1,401,076	0	0	0	9.4	33,813	569,006	13	249,290	48	61
22nd	24	2,325,201	0	0	0	7.3	29,371	471,763	17	288,758	48	65
23rd	24	1,457,370	0	0	0	24	97,928	1,579,964	0	0	48	48
24th	24	2,185,683	0	0	0	16	66,855	1,046,689	6.2	121,831	48	54
25th	24	1,556,615	0	0	0	10	37,128	598,697	14	243,317	48	62
26th	18	423,089	0	0	0	0	0	0	24	389,726	48	72
27th	13	471,050	0	0	0	11	47,064	777,770	13	178,104	48	61
28th	10	167,845	0	0	0	24	97,842	1,565,598	0	0	48	48
29th	0	0	0	0	0	24	85,454	1,377,330	11	210,816	27	38
30th	5.5	143,212	0	0	0	19	61,149	1,087,429	21	351,076	20	41
31st	12	760,577	0	0	0	16	56,306	986,340	19	238,481	36	55
Totals	471	21,715,477	0	0		626	2,484,373	40,185,171	573	8,495,863	964	1,537
					Maximum	0	Minimum					
									Maximum		72	



February - 2020

Daily Data for Air Permit

Elmer E. Ross Power Station

Date	Run Time, Hours				KiloWatt Hours Generated				Fuel Oil Used, gal				Gas, FCI Meter, cu ft			
	Eng 1	Eng 2	Eng 3	Total	Gen. 1	Gen 2	Gen 3	Total	Eng. 1	Eng. 2	Eng. 3	Total	Eng. 1	Eng. 2	Eng. 3	Total
1st	24	24	0	48	50,018	50,616	0	100,634	37	34	0	71	852,593	862,779	0	1,715,372
2nd	24	9	0	33	42,776	14,589	0	57,366	34	16	0	50	770,602	262,825	0	1,033,427
3rd	24	11	0	35	50,527	24,653	0	75,180	36	19	0	54	861,116	420,152	0	1,281,268
4th	24	24	0	48	48,213	48,823	0	97,036	33	34	0	67	826,896	837,353	0	1,664,249
5th	24	24	0	48	51,201	51,778	0	102,979	34	34	0	68	859,214	868,902	0	1,728,116
6th	24	24	0	48	51,156	51,773	0	102,929	34	31	0	66	852,060	862,327	0	1,714,387
7th	24	24	0	48	51,216	51,767	0	102,983	29	35	0	63	853,662	862,833	0	1,716,496
8th	24	24	0	48	51,227	51,839	0	103,066	39	46	0	86	848,281	858,409	0	1,706,690
9th	24	14	0	38	40,511	23,515	0	64,027	33	30	0	63	720,651	418,309	0	1,138,960
10th	24	16	0	40	47,673	35,574	0	83,247	49	27	0	76	846,518	631,670	0	1,478,188
11th	24	24	0	48	51,140	51,734	0	102,874	36	32	0	68	884,708	894,976	0	1,779,684
12th	24	24	0	48	51,187	51,809	0	102,996	35	36	0	71	857,962	868,376	0	1,726,338
13th	24	24	0	48	49,513	50,133	0	99,646	57	28	0	85	844,951	855,539	0	1,700,490
14th	24	24	0	48	51,133	51,780	0	102,913	41	37	0	78	860,158	871,049	0	1,731,207
15th	24	24	0	48	51,037	51,729	0	102,766	34	30	0	64	863,034	874,737	0	1,737,771
16th	24	20	0	44	43,676	36,022	0	79,698	37	36	0	73	774,371	638,672	0	1,413,043
17th	11	12	0	23	16,617	26,473	0	43,090	16	26	0	42	301,119	479,715	0	780,834
18th	0	24	0	24	0	51,743	0	51,743	0	36	0	36	0	896,622	0	896,622
19th	0	24	0	24	0	51,735	0	51,735	0	34	0	34	0	894,610	0	894,610
20th	6	24	0	30	11,321	51,797	0	63,118	8	36	0	44	196,436	898,732	0	1,095,168
21st	24	18	0	42	50,142	36,573	0	86,716	33	33	0	66	871,589	635,734	0	1,507,323
22nd	23	24	0	47	48,582	49,146	0	97,728	38	34	0	72	836,302	846,018	0	1,682,321
23rd	24	23	0	47	51,139	51,755	0	102,894	35	32	0	67	863,831	874,252	0	1,738,083
24th	24	24	0	48	51,260	51,812	0	103,072	36	35	0	71	870,193	879,565	0	1,749,758
25th	24	24	0	48	51,222	51,808	0	103,029	38	36	0	74	856,584	866,381	0	1,722,965
26th	24	24	0	48	51,233	51,797	0	103,030	33	35	0	68	856,334	865,750	0	1,722,084
27th	24	24	0	48	51,274	51,811	0	103,085	39	33	0	72	860,243	869,261	0	1,729,505
28th	24	24	0	48	51,227	51,780	0	103,007	35	58	0	93	859,303	868,592	0	1,727,895
29th	24	24	0	48	51,227	51,802	0	103,029	37	39	0	76	866,419	876,139	0	1,742,558
Totals	616	627	0	1,243	1,267,449	1,328,165	0	2,595,615	943	973	0	1,916	21,615,132	22,640,278	0	44,255,410
	Sum of Engines		1,243		Sum of Engines		2,595,615		Sum of Engines		1,916		Sum of Engines		44,255,410	



February - 2020

Daily Data for Air Permit

SD1 Flare Burners, Turbine, and Boiler

Date	Flares A-190,191,192,193		Flares A-194,195			Turbine			Boiler		Run Time Check	
	Run Time Hrs	Gas cu ft	Run Time Hrs	Gas cu ft	Peak 1-hr Flow, SCFM	Run Time Hrs	Power KWh	Gas cu ft	Run Time Hrs	Gas cu ft	Engine Hrs	Eng + Boiler Hrs
1st	20	1,001,424	0	0	0	14	873	873,201	11	137,616	48	59
2nd	2.1	35,963	0	0	0	24	1,453	1,453,232	14	187,772	33	47
3rd	1.4	23,188	0	0	0	24	1,492	1,492,170	12	161,220	35	47
4th	15	561,329	0	0	0	24	1,564	1,564,312	0	0	48	48
5th	24	1,543,357	0	0	0	24	1,621	1,620,906	0	0	48	48
6th	24	1,194,070	0	0	0	24	1,577	1,577,406	0	0	48	48
7th	24	1,714,482	0	0	0	24	1,583	1,582,751	0	0	48	48
8th	16	480,525	0	0	0	24	1,543	1,543,113	0	0	48	48
9th	0	0	0	0	0	24	1,373	1,372,834	10	157,984	38	48
10th	17	1,119,390	0	0	0	10	573	573,110	22	334,634	40	62
11th	24	1,800,454	0	0	0	7.6	495	494,526	16	271,939	48	64
12th	9.5	161,187	0	0	0	24	1,531	1,530,787	0	0	48	48
13th	15	826,255	0	0	0	24	1,547	1,547,015	0	0	48	48
14th	24	1,433,444	0	0	0	24	1,599	1,599,176	0	0	48	48
15th	19	569,755	0	0	0	24	1,587	1,587,103	0	0	48	48
16th	0.6	5,698	0	0	0	24	1,348	1,348,213	5.2	65,458	44	49
17th	5.7	156,524	0	0	0	24	1,408	1,407,846	24	251,914	23	47
18th	17	1,772,958	0	0	0	6.6	427	427,125	24	471,009	24	48
19th	24	2,613,020	0	0	0	0	0	0	24	553,425	24	48
20th	24	2,825,122	0	0	0	0	0	0	24	572,937	30	54
21st	18	2,223,330	0	0	0	6.9	402	401,685	17	398,369	42	59
22nd	17	1,011,580	0	0	0	11	649	648,539	13	209,281	47	60
23rd	24	906,987	0	0	0	0	0	0	24	381,931	47	71
24th	24	1,318,579	0	0	0	0.9	48	48,270	24	367,902	48	72
25th	24	2,124,213	0	0	0	0	0	0	24	393,473	48	72
26th	24	2,290,118	0	0	0	0	0	0	24	405,788	48	72
27th	24	2,551,712	0	0	0	0	0	0	24	403,769	48	72
28th	24	1,966,889	0	0	0	0	0	0	24	406,947	48	72
29th	24	1,459,744	0	0	0	0	0	0	24	414,870	48	72
Totals	510	35,691,299	0	0		392	24,693	24,693,321	384	6,548,238	1,243	1,627
Maximum					0	Minimum					Maximum	72



March - 2020

Daily Data for Air Permit

Elmer E. Ross Power Station

Date	Run Time, Hours				KiloWatt Hours Generated				Fuel Oil Used, gal				Gas, FCIMeter, cu ft			
	Eng 1	Eng 2	Eng 3	Total	Gen. 1	Gen 2	Gen 3	Total	Eng. 1	Eng. 2	Eng. 3	Total	Eng. 1	Eng. 2	Eng. 3	Total
1st	24	24	0	48	51,257	51,816	0	103,073	43	39	0	82	865,783	875,234	0	1,741,017
2nd	24	24	0	48	51,027	51,613	0	102,640	38	40	0	78	864,637	874,560	0	1,739,197
3rd	24	24	0	48	51,306	51,847	0	103,153	44	38	0	82	863,201	872,316	0	1,735,516
4th	24	24	0	48	51,140	51,741	0	102,881	40	44	0	84	856,753	866,826	0	1,723,579
5th	24	24	0	48	50,946	51,521	0	102,467	42	42	0	84	859,056	868,744	0	1,727,800
6th	24	24	0	48	51,272	51,810	0	103,082	44	38	0	82	862,948	872,011	0	1,734,959
7th	24	24	0	48	47,467	48,051	0	95,517	40	37	0	77	815,337	825,369	0	1,640,705
8th	15	9	0	24	21,603	12,262	0	33,865	41	23	0	64	399,244	226,605	0	625,849
9th	7.0	19	0	26	14,893	40,988	0	55,882	24	48	0	72	256,336	705,464	0	961,800
10th	24	24	0	48	48,206	48,728	0	96,934	41	40	0	81	835,467	844,514	0	1,679,980
11th	24	24	0	48	51,123	51,729	0	102,852	34	35	0	69	867,831	878,132	0	1,745,963
12th	24	24	0	48	51,262	51,827	0	103,089	45	45	0	90	862,058	871,555	0	1,733,614
13th	24	24	0	48	49,137	49,722	0	98,860	46	42	0	88	832,689	842,597	0	1,675,286
14th	24	24	0	48	47,429	48,080	0	95,508	38	37	0	76	830,378	841,776	0	1,672,154
15th	24	22	0	46	46,728	42,088	0	88,816	45	32	0	77	801,814	722,191	0	1,524,005
16th	24	10	0	34	47,900	23,375	0	71,275	34	44	0	78	842,765	411,268	0	1,254,033
17th	23	24	0	47	50,988	51,800	0	102,788	96	42	0	138	842,677	856,103	0	1,698,780
18th	23	24	0	47	48,366	51,865	0	100,231	46	38	0	83	809,708	868,291	0	1,677,999
19th	15	24	0	39	29,356	51,788	0	81,144	33	38	0	70	486,809	858,788	0	1,345,597
20th	5.0	24	0	29	11,329	51,792	0	63,121	27	44	0	71	184,187	841,997	0	1,026,184
21st	24	24	0	48	47,870	48,724	0	96,594	40	40	0	80	831,610	846,444	0	1,678,055
22nd	24	24	0	48	48,729	49,467	0	98,196	41	41	0	81	833,187	845,814	0	1,679,001
23rd	9	24	0	33	18,077	47,416	0	65,494	34	37	0	70	307,853	807,484	0	1,115,337
24th	24	24	0	48	51,108	51,806	0	102,914	45	43	0	87	869,204	881,062	0	1,750,266
25th	19	24	0	43	36,889	51,318	0	88,207	44	43	0	87	627,927	873,524	0	1,501,452
26th	0	24	0	24	0	51,790	0	51,790	0	42	0	42	0	863,057	0	863,057
27th	5.0	24	0	29	9,479	50,752	0	60,231	16	40	0	56	157,298	842,180	0	999,478
28th	24	8.0	0	32	46,686	13,954	0	60,640	45	22	0	66	820,031	245,094	0	1,065,125
29th	2.0	0	0	2.0	2,533	0	0	2,533	3	0	0	3	47,284	0	0	47,284
30th	20	0	0	20	40,793	0	0	40,793	34	0	0	34	710,556	0	0	710,556
31st	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	575	620	0	1,195	1,174,901	1,299,669	0	2,474,570	1,141	1,092	0	2,233	20,044,628	22,029,001	0	42,073,629
Sum of Engines			1,195	Sum of Engines			2,474,570	Sum of Engines			2,233	Sum of Engines			42,073,629	



March - 2020

Daily Data for Air Permit

SD1 Flare Burners, Turbine, and Boiler

Date	Flares A-190,191,192,193		Flares A-194,195			Turbine			Boiler		Run Time Check		
	Run Time Hrs	Gas cu ft	Run Time Hrs	Gas cu ft	Peak 1-hr Flow, SCFM	Run Time Hrs	Power KWh	Gas cu ft	Run Time Hrs	Gas cu ft	Engine Hrs	Eng + Boiler Hrs	
1st	23	624,641	0	0	0	0	0	0	24	383,306	48	72	
2nd	23	759,678	0	0	0	13	50,525	882,531	10	161,335	48	58	
3rd	24	1,493,162	0	0	0	24	95,732	1,577,259	0	0	48	48	
4th	24	923,424	0	0	0	24	96,103	1,558,647	0	0	48	48	
5th	19	745,344	0	0	0	24	97,637	1,574,690	0	0	48	48	
6th	24	1,150,735	0	0	0	24	98,162	1,592,700	0	0	48	48	
7th	17	456,977	0	0	0	24	95,177	1,521,257	0	0	48	48	
8th	6.9	78,488	0	0	0	23	85,174	1,399,232	14	239,387	24	38	
9th	16	356,001	0	0	0	24	97,325	1,650,968	17	205,143	26	43	
10th	13	109,561	0	0	0	24	94,322	1,555,090	0	0	48	48	
11th	15	441,967	0	0	0	24	96,733	1,600,368	0	0	48	48	
12th	24	1,048,417	0	0	0	24	98,094	1,593,880	0	0	48	48	
13th	18	617,349	0	0	0	24	93,229	1,501,158	0	0	48	48	
14th	20	1,306,626	0	0	0	18	67,857	1,125,981	6.0	92,958	48	54	
15th	6.8	185,916	0	0	0	24	88,997	1,449,229	3.3	37,783	46	49	
16th	9	147,663	0	0	0	24	95,600	1,587,332	13	145,345	34	47	
17th	24	1,824,241	0	0	0	24	100,229	1,629,560	0	0	47	47	
18th	23	1,004,014	0	0	0	24	99,560	1,600,925	1.3	14,432	47	48	
19th	24	1,984,831	0	0	0	24	99,264	1,582,707	10	94,234	39	49	
20th	24	1,150,813	0	0	0	24	96,525	1,508,563	19	165,523	29	48	
21st	13	907,320	0	0	0	16	60,770	998,811	8.1	87,074	48	56	
22nd	11	453,868	0	0	0	18	61,505	1,031,519	6.3	67,731	48	54	
23rd	13	259,583	0	0	0	24	90,262	1,491,983	1.9	19,972	33	35	
24th	14	354,348	0	0	0	24	99,321	1,619,020	0	0	48	48	
25th	12	462,918	0	0	0	24	100,184	1,623,595	6.2	61,327	43	49	
26th	24	1,505,680	0	0	0	24	100,655	1,631,732	24	227,266	24	48	
27th	19	710,807	0	0	0	24	98,168	1,551,703	19	176,866	29	48	
28th	0.8	8,208	0	0	0	24	90,283	1,449,859	17	193,868	32	49	
29th	6.2	47,573	0	0	0	24	86,789	1,448,457	24	414,830	2	26	
30th	9.4	179,176	0	0	0	24	92,490	1,559,402	24	287,810	20	44	
31st	24	717,382	0	0	0	24	97,410	1,621,667	24	460,655	0	24	
Totals	522	22,016,711	0	0		688	2,724,083	44,519,822	273	3,536,842	1,195	1,468	
Maximum					0	Minimum					Maximum		72



April - 2020

Daily Data for Air Permit

Elmer E. Ross Power Station

Date	Run Time, Hours				KiloWatt Hours Generated				Fuel Oil Used, gal				Gas, FCI Meter, cu ft			
	Eng 1	Eng 2	Eng 3	Total	Gen. 1	Gen 2	Gen 3	Total	Eng. 1	Eng. 2	Eng. 3	Total	Eng. 1	Eng. 2	Eng. 3	Total
1st	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2nd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3rd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4th	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5th	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6th	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7th	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8th	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9th	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10th	1	8	0	9	2,934	16,556	0	19,491	12	12	0	24	51,199	288,859	0	340,058
11th	24	24	0	48	47,337	48,038	0	95,375	46	34	0	81	838,924	851,338	0	1,690,262
12th	24	17	0	41	38,989	26,613	0	65,602	43	33	0	76	724,826	494,756	0	1,219,582
13th	17	14	0	31	32,894	28,977	0	61,870	33	26	0	59	579,753	510,710	0	1,090,462
14th	24	24	0	48	50,054	50,668	0	100,722	40	34	0	74	855,538	866,028	0	1,721,566
15th	23	23	0	46	48,315	48,933	0	97,248	37	40	0	77	843,309	854,097	0	1,697,406
16th	24	24	0	48	46,550	47,140	0	93,690	40	38	0	78	825,651	836,115	0	1,661,766
17th	24	24	0	48	46,692	47,280	0	93,972	37	36	0	72	822,653	833,017	0	1,655,671
18th	24	24	0	48	48,887	49,453	0	98,340	37	34	0	71	844,550	854,330	0	1,698,880
19th	5	3	0	8	7,267	4,126	0	11,393	0	7	0	7	137,482	78,064	0	215,546
20th	12	0	0	12	23,613	0	0	23,613	34	0	0	34	448,843	0	0	448,843
21st	24	10	0	34	47,323	21,773	0	69,096	36	22	0	58	846,004	389,248	0	1,235,252
22nd	24	24	0	48	51,228	51,804	0	103,031	39	37	0	76	878,142	888,020	0	1,766,162
23rd	24	24	0	48	46,741	47,310	0	94,051	34	34	0	68	832,967	843,119	0	1,676,086
24th	24	24	0	48	50,504	51,079	0	101,583	38	39	0	77	873,637	883,588	0	1,757,225
25th	24	24	0	48	46,549	47,547	0	94,096	40	38	0	78	840,222	858,233	0	1,698,455
26th	24	2	0	26	38,170	1,616	0	39,786	38	3	0	42	756,019	32,001	0	788,019
27th	24	0	0	24	46,917	3,829	0	50,747	37	0	0	37	869,057	70,932	0	939,989
28th	24	24	0	48	47,363	47,929	0	95,292	40	41	0	81	840,631	850,690	0	1,691,321
29th	24	24	0	48	47,674	48,289	0	95,963	39	38	0	77	837,713	848,527	0	1,686,240
30th	24	24	0	48	49,563	50,118	0	99,681	38	36	0	75	855,925	865,509	0	1,721,434
Totals	442	365	0	807	865,562	739,079	0	1,604,641	739	581	0	1,320	15,403,042	12,997,181	0	28,400,224
Sum of Engines			807	Sum of Engines			1,604,641	Sum of Engines			1,320	Sum of Engines			28,400,224	



May - 2020

Daily Data for Air Permit

Elmer E. Ross Power Station

Date	Run Time, Hours				KiloWatt Hours Generated				Fuel Oil Used, gal				Gas, FCI Meter, cu ft			
	Eng 1	Eng 2	Eng 3	Total	Gen. 1	Gen 2	Gen 3	Total	Eng. 1	Eng. 2	Eng. 3	Total	Eng. 1	Eng. 2	Eng. 3	Total
1st	24	24	0	48	50,732	51,250	0	101,982	41	34	0	75	868,431	877,304	0	1,745,735
2nd	22	21	0	43	36,898	35,502	0	72,400	36	48	0	85	672,822	647,376	0	1,320,198
3rd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4th	11	0	0	11	23,139	366	0	23,504	40	4	0	45	423,434	6,691	0	430,125
5th	24	23	0	47	44,812	45,380	0	90,192	58	43	0	101	817,787	828,157	0	1,645,944
6th	24	19	0	43	50,115	39,730	0	89,845	39	36	0	74	880,194	697,786	0	1,577,980
7th	24	24	0	48	51,142	51,777	0	102,919	40	41	0	82	887,619	898,631	0	1,786,250
8th	24	24	0	48	50,551	51,134	0	101,685	44	40	0	84	872,599	882,650	0	1,755,249
9th	22	22	0	44	39,225	38,652	0	77,877	38	52	0	89	707,196	696,854	0	1,404,050
10th	0	12	0	12	0	25,716	0	25,716	0	27	0	27	0	432,432	0	432,432
11th	8	24	0	32	17,345	46,472	0	63,817	19	53	0	72	304,928	817,002	0	1,121,930
12th	24	24	0	48	51,270	51,851	0	103,121	40	35	0	75	891,592	901,685	0	1,793,277
13th	24	24	0	48	50,863	51,498	0	102,361	39	41	0	80	885,906	896,980	0	1,782,885
14th	24	24	0	48	44,885	45,503	0	90,388	38	41	0	79	824,856	836,211	0	1,661,067
15th	24	24	0	48	49,084	49,711	0	98,794	80	37	0	118	881,706	892,974	0	1,774,679
16th	24	24	0	48	51,197	51,795	0	102,992	40	36	0	76	904,323	914,882	0	1,819,205
17th	24	9	0	33	43,399	12,997	0	56,395	40	25	0	65	815,387	244,184	0	1,059,571
18th	24	0	0	24	44,374	0	0	44,374	28	0	0	28	828,763	0	0	828,763
19th	21	8	0	29	38,072	17,062	0	55,134	69	24	0	93	701,281	314,271	0	1,015,553
20th	16	20	0	36	31,563	41,755	0	73,318	33	38	0	71	561,879	743,314	0	1,305,194
21st	24	20	0	44	45,413	37,810	0	83,223	46	45	0	91	818,597	681,543	0	1,500,139
22nd	23	16	0	39	48,862	34,203	0	83,064	35	35	0	70	883,610	618,524	0	1,502,134
23rd	20	24	0	44	38,775	49,398	0	88,172	44	39	0	82	689,673	878,625	0	1,568,297
24th	24	18	0	42	43,135	29,729	0	72,863	44	30	0	75	804,934	554,763	0	1,359,697
25th	24	0	0	24	40,744	0	0	40,744	35	0	0	35	810,427	0	0	810,427
26th	24	0	0	24	42,288	0	0	42,288	47	0	0	47	824,474	0	0	824,474
27th	19	2	0	21	34,077	5,643	0	39,720	46	37	0	84	649,467	107,554	0	757,021
28th	24	24	0	48	50,436	50,998	0	101,434	39	19	0	58	886,356	896,226	0	1,782,582
29th	24	24	0	48	51,215	51,800	0	103,015	43	36	0	79	879,020	889,063	0	1,768,083
30th	24	24	0	48	48,559	49,154	0	97,713	39	42	0	80	855,813	866,304	0	1,722,117
31st	24	12	0	36	43,409	17,064	0	60,473	41	24	0	65	818,556	321,775	0	1,140,332
Totals	642	514	0	1,156	1,255,578	1,033,948	0	2,289,526	1,221	963	0	2,184	22,651,631	18,343,759	0	40,995,391
Sum of Engines			1,156	Sum of Engines			2,289,526	Sum of Engines			2,184	Sum of Engines			40,995,391	



May - 2020

Daily Data for Air Permit

SD1 Flare Burners, Turbine, and Boiler

Date	Flares A-190,191,192,193		Flares A-194,195			Turbine			Boiler		Run Time Check	
	Run Time Hrs	Gas cu ft	Run Time Hrs	Gas cu ft	Peak 1-hr Flow, SCFM	Run Time Hrs	Power KWh	Gas cu ft	Run Time Hrs	Gas cu ft	Engine Hrs	Eng + Boiler Hrs
1st	10	60,438	0	0	0	24	93,110	1,500,178	0	0	48	48
2nd	3	21,460	0	0	0	24	83,670	1,370,743	4	67,525	43	47
3rd	15	111,999	0	0	0	23	90,434	1,475,554	24	465,534	0	24
4th	10	127,717	0	0	0	24	95,027	1,588,780	13	279,815	11	24
5th	2.5	22,031	0	0	0	24	91,164	1,497,416	0	0	47	47
6th	22	649,020	0	0	0	24	91,230	1,535,682	0	0	43	43
7th	23	573,165	0	0	0	24	92,665	1,543,063	0	0	48	48
8th	19	656,219	0	0	0	24	90,342	1,496,918	0	0	48	48
9th	2.3	21,922	0	0	0	24	87,942	1,456,447	3	60,039	44	47
10th	5.5	64,254	0	0	0	24	91,396	1,528,352	24	327,263	12	36
11th	13	162,357	0	0	0	23	81,036	1,392,187	9	77,665	32	41
12th	24	1,844,506	0	0	0	0	0	0	24	267,527	48	72
13th	21	1,393,457	0	0	0	9	33,813	573,754	15	169,301	48	63
14th	2	9,669	0	0	0	24	89,649	1,550,516	0	0	48	48
15th	11	111,884	0	0	0	24	95,684	1,695,758	0	0	48	48
16th	24	314,367	0	0	0	24	95,043	1,663,489	0	0	48	48
17th	1.3	6,064	0	0	0	24	85,244	1,506,657	16	183,506	33	49
18th	5.3	35,335	0	0	0	24	88,500	1,571,600	24	227,346	24	48
19th	5.8	60,596	0	0	0	24	81,863	1,473,153	16	160,043	29	45
20th	12	169,597	0	0	0	24	90,177	1,561,747	9	87,407	36	45
21st	2	17,697	0	0	0	24	91,369	1,548,707	5	45,388	44	49
22nd	10	65,190	0	0	0	24	93,461	1,639,764	7	95,846	39	46
23rd	13	291,972	0	0	0	24	93,724	1,615,941	4	76,377	44	48
24th	5	52,937	0	0	0	24	84,986	1,499,583	8	72,419	42	50
25th	3	21,511	0	0	0	24	74,380	1,399,014	24	208,811	24	48
26th	2	12,153	0	0	0	24	72,838	1,385,332	24	193,884	24	48
27th	10	80,812	0	0	0	24	86,026	1,555,786	21	185,567	21	42
28th	22	721,135	0	0	0	24	96,183	1,669,499	0	0	48	48
29th	24	709,970	0	0	0	24	94,871	1,606,284	0	0	48	48
30th	16	346,040	0	0	0	24	91,796	1,582,551	0	0	48	48
31st	3	18,146	0	0	0	24	80,588	1,456,421	13	111,029	36	49
Totals	340	8,753,619	0	0		703	2,608,209	44,940,875	287	3,362,291	1,156	1,443
					Maximum	0	Minimum					
									Maximum		72	



June - 2020

Daily Data for Air Permit

Elmer E. Ross Power Station

Date	Run Time, Hours				KiloWatt Hours Generated				Fuel Oil Used, gal				Gas, FCI Meter, cu ft				
	Eng 1	Eng 2	Eng 3	Total	Gen. 1	Gen 2	Gen 3	Total	Eng. 1	Eng. 2	Eng. 3	Total	Eng. 1	Eng. 2	Eng. 3	Total	
1st	10	9	0	19	20,748	18,811	0	39,559	31	27	0	58	376,832	341,639	0	718,472	
2nd	24	24	0	48	44,422	45,004	0	89,427	41	39	0	80	815,049	825,733	0	1,640,782	
3rd	24	24	0	48	45,567	46,486	0	92,053	44	39	0	84	814,529	830,947	0	1,645,476	
4th	24	24	0	48	42,878	43,464	0	86,342	35	36	0	71	769,937	780,442	0	1,550,379	
5th	24	24	0	48	51,324	51,809	0	103,133	42	40	0	82	877,340	885,627	0	1,762,967	
6th	24	24	0	48	49,488	49,956	0	99,444	42	39	0	81	846,423	854,435	0	1,700,858	
7th	23	18	0	41	35,551	28,314	0	63,865	40	41	0	82	655,859	522,354	0	1,178,214	
8th	10	0	0	10	22,582	0	0	22,582	23	0	0	23	411,902	0	0	411,902	
9th	24	0	0	24	47,497	0	0	47,497	40	0	0	40	879,405	0	0	879,405	
10th	24	0	0	24	50,408	268	0	50,675	43	25	0	68	908,863	4,825	0	913,687	
11th	24	1	0	25	51,131	0	0	51,131	33	0	0	33	895,795	0	0	895,795	
12th	24	12	0	36	46,045	21,548	0	67,593	47	23	0	69	826,274	386,672	0	1,212,945	
13th	24	24	0	48	44,942	45,534	0	90,475	40	36	0	76	799,103	809,629	0	1,608,732	
14th	2	22	0	24	1,828	42,220	0	44,048	6	48	0	54	32,733	756,027	0	788,760	
15th	0	8	0	8	0	25,718	0	25,718	0	24	0	24	0	434,431	0	434,431	
16th	10	24	0	34	18,251	47,168	0	65,419	42	33	0	75	318,956	824,309	0	1,143,264	
17th	24	24	0	48	48,637	49,233	0	97,869	42	40	0	83	845,562	855,924	0	1,701,485	
18th	24	24	0	48	47,201	47,744	0	94,944	39	40	0	79	817,653	827,064	0	1,644,717	
19th	24	24	0	48	41,499	42,098	0	83,597	41	40	0	81	758,595	769,529	0	1,528,124	
20th	24	24	0	48	43,509	41,382	0	84,891	40	36	0	76	786,301	747,868	0	1,534,169	
21st	24	3	0	27	47,673	0	0	47,673	38	0	0	38	845,135	0	0	845,135	
22nd	24	0	0	24	36,112	0	0	36,112	52	0	0	52	686,763	0	0	686,763	
23rd	24	15	0	39	46,740	30,408	0	77,148	43	33	0	76	815,406	530,480	0	1,345,886	
24th	15	24	0	39	23,429	43,527	0	66,956	26	40	0	66	411,813	765,070	0	1,176,882	
25th	8	24	0	32	17,288	49,027	0	66,315	39	37	0	76	290,095	822,656	0	1,112,751	
26th	24	14	0	38	48,431	27,205	0	75,636	39	26	0	65	831,260	466,950	0	1,298,209	
27th	11	9	0	20	17,781	20,552	0	38,332	34	35	0	69	297,797	344,211	0	642,008	
28th	0	23	0	23	0	46,763	0	46,763	0	39	0	39	0	769,173	0	769,173	
29th	11	7	0	18	24,222	8,502	0	32,724	22	27	0	49	435,693	152,940	0	588,633	
30th	24	24	0	48	50,863	51,482	0	102,344	39	32	0	71	885,037	895,809	0	1,780,846	
Totals	556	477	0	1,033	1,066,046	924,221	0	1,990,267	1,041	874	0	1,915	18,936,108	16,204,743	0	35,140,851	
Sum of Engines			1,033	Sum of Engines			1,990,267	Sum of Engines			1,915	Sum of Engines			35,140,851		



June - 2020

Daily Data for Air Permit

SD1 Flare Burners, Turbine, and Boiler

Date	Flares A-190,191,192,193		Flares A-194,195			Turbine			Boiler		Run Time Check	
	Run Time Hrs	Gas cu ft	Run Time Hrs	Gas cu ft	Peak 1-hr Flow, SCFM	Run Time Hrs	Power KWh	Gas cu ft	Run Time Hrs	Gas cu ft	Engine Hrs	Eng + Boiler Hrs
1st	18	534,814	0	0	0	24	91,355	1,613,596	10	110,710	19	29
2nd	0.7	5,022	0	0	0	24	84,727	1,482,407	0	0	48	48
3rd	12	145,606	0	0	0	24	84,026	1,453,709	0	0	48	48
4th	8	163,369	0	0	0	24	78,694	1,340,032	0	0	48	48
5th	24	518,431	0	0	0	24	95,330	1,602,236	0	0	48	48
6th	10	84,450	0	0	0	24	92,349	1,500,135	0	0	48	48
7th	0	1,514	0	0	0	24	75,028	1,291,472	7	75,192	41	48
8th	4	34,838	0	0	0	24	91,996	1,553,018	24	374,641	10	34
9th	0	0	0	0	0	24	82,394	1,406,924	24	310,223	24	48
10th	6	32,241	0	0	0	24	89,160	1,540,674	24	312,420	24	48
11th	7	50,913	0	0	0	24	88,982	1,507,187	24	317,025	25	49
12th	3	53,418	0	0	0	22	76,543	1,315,787	13	179,201	36	49
13th	0	5,204	0	0	0	24	80,245	1,379,287	0	0	48	48
14th	7	40,147	0	0	0	24	82,781	1,422,016	23	201,583	24	47
15th	7	96,473	0	0	0	24	92,237	1,562,429	12	210,095	8	20
16th	3	61,951	0	0	0	24	87,380	1,498,391	0	0	34	34
17th	11	127,905	0	0	0	24	88,077	1,501,333	0	0	48	48
18th	0	0	0	0	0	24	78,170	1,356,708	0	0	48	48
19th	0.9	5,181	0	0	0	24	78,667	1,339,671	0	0	48	48
20th	0	0	0	0	0	24	84,698	1,471,749	1.4	18,170	48	49
21st	5	21,248	0	0	0	24	81,840	1,453,263	24	297,107	27	51
22nd	1	5,260	0	0	0	24	69,726	1,263,589	24	227,368	24	48
23rd	11	88,802	0	0	0	24	86,385	1,514,075	9	102,932	39	48
24th	2	7,848	0	0	0	24	82,396	1,419,304	3	29,151	39	42
25th	5	54,014	0	0	0	24	88,822	1,495,990	16	132,873	32	48
26th	1.1	9,057	0	0	0	24	90,368	1,498,573	0	0	38	38
27th	7	476,771	0	0	0	18	65,918	1,127,637	11	114,694	20	31
28th	4	25,959	0	0	0	24	81,431	1,428,908	24	156,949	23	47
29th	8	72,399	0	0	0	24	87,119	1,549,023	24	177,892	18	42
30th	0.6	4,097	0	0	0	24	93,435	1,603,143	0	0	48	48
Totals	166	2,726,933	0	0		712	2,530,279	43,492,262	298	3,348,225	1,033	1,331
					Maximum	0	Minimum					
									Maximum		51	

Attachment 2 - Combustion Device Summaries

EBMUD Main Wastewater Plant

January 1 - June 30, 2020

Engine Thermal Throughput - Thermal Mass Meter, Common Engine Digester Gas Line

Turbine Operation			Data Source	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Semi-annual Totals	Limits
Run Time	Total	hrs	metered	626	392	688	716	703	712	3,838	389,820 MMBTU HHV per 12-Month period
Digester Gas	Total	cu ft	metered	40,185,171	24,693,321	44,519,822	45,115,633	44,940,875	43,492,262	242,947,083	
Thermal	Total	MMBTU		26,667	16,614	29,275	28,855	27,333	28,039	156,783	
Throughput ³	Total	MMBTU/hr		42.6	42.4	42.6	40.3	38.9	39.4	x	
Nitrogen Oxide ⁴	Max	ppm	sampled	5.9	5.0	5.6	5.0	6.7	4.7	x	23 ppm at any time
Carbon Monoxide ⁴	Max	ppm	sampled	3.7	1.8	5.3	1.6	6.2	0.7	x	
Sulfur Dioxide ⁴	Max	ppm	sampled	4.0	3.5	5.0	6.2	8.1	1.1	x	
Nitrogen Oxide	Total	lbs	calc'd	Based on last annual source test mass load rate (0.61 lbs/hr) x run time (4,199+3,838hrs)-->						4,903	34,400 lbs per 12-Month period
Carbon Monoxide	Total	lbs	calc'd	Based on last annual source test mass flow rate (0.2 lbs/hr) x run time (4,199+3,838hrs)---->						1,607	
Engine Operation											25,316 hr/365 days 150,000 gal/365 days 25 MMBTU/hr 25 MMBTU/hr 25 MMBTU/hr 20.41 MMBTU/hr 3,000 scfm
Run Time	Eng #1	hrs	metered	311	616	575	442	642	556	3,142	
	Eng #2	hrs	metered	653	627	620	365	514	477	3,256	
	Eng #3	hrs	metered	-	-	-	-	-	-	-	
	Total	hrs	sum	964	1,243	1,195	807	1,156	1,033	6,398	
Diesel Fuel ¹	Eng #1	gal	calc'd	755	943	1,141	739	1,221	1,041	5,840	
	Eng #2	gal	calc'd	1,119	973	1,092	581	963	874	5,602	
	Eng #3	gal	calc'd	-	-	-	-	-	-	-	
	Total	gal	sum	1,874	1,916	2,233	1,320	2,184	1,915	11,442	
Digester Gas ²	Eng #1	cu ft	metered	10,653,026	21,615,132	20,044,628	15,403,042	22,651,631	18,936,108	109,303,569	
	Eng #2	cu ft	metered	22,678,786	22,640,278	22,029,001	12,997,181	18,343,759	16,204,743	114,893,749	
	Eng #3	cu ft	metered	-	-	-	-	-	-	-	
	Total	cu ft	sum	33,331,813	44,255,410	42,073,629	28,400,224	40,995,391	35,140,851	224,197,317	
Thermal Throughput ³	Eng #1	MMBTU/hr		23.1	23.8	23.2	22.5	21.7	22.2	x	
	Eng #2	MMBTU/hr		23.3	24.5	23.6	23.0	22.0	22.2	x	
	Eng #3	MMBTU/hr		-	-	-	-	-	-	x	
Natural Gas	Total	cu ft	metered	-	-	-	-	-	-	-	
Boiler Operation											
Run Time	Boiler	hrs	metered	573	384	273	360	287	298	2,173	
Digester Gas	Boiler	cu ft	metered	8,495,863	6,548,238	3,536,842	6,106,558	3,362,291	3,348,225	31,398,018	
Thermal Thruput ³	Boiler	MMBTU/hr		9.8	11.5	8.5	10.9	7.1	7.2	x	
Flare Operation (A-190,191,192,193)											
Run Time	Flares	hrs	metered	471	510	522	367	340	166	2,376	
Digester Gas	Flares	cu ft	metered	21,715,477	35,691,299	22,016,711	12,950,586	8,753,619	2,726,933	103,854,624	
Thermal Thruput ³	Flares	MMBTU/hr		30.6	47.1	27.7	22.6	15.6	10.6	x	
Flare Operation (A-194,195)											
Run Time	Flares	hrs	metered	-	-	-	-	-	-	-	
Digester Gas	Flares	cu ft	metered	-	-	-	-	-	-	-	
Thermal Thruput ³	Flares	MMBTU/hr		-	-	-	-	-	-	x	
Max Total Flow	Flares	scfm	metered	-	-	-	-	-	-	x	
Digester Gas HHV	Grab	BTU/scf	sampled	664	673	658	640	608	645	x	

(1) Diesel use per engine (gal) = diesel withdrawn from common storage tank daily (gal) x ratio of fuel used per engine (single day tank level / sum of all day tanks)

(2) Digester gas usage (cf) = DCS/PI flow data from common engine line meter (scfm) x minutes of gas flow x (engine hours/sum of engine hours)

(3) Thermal Throughput calculations use High Heat Value of the monthly Digester Gas Sample combined with Diesel High Heat Value of 138,690 BTU/gal or Natural Gas HHV of 1020 BTU/scf as applicable.

(4) Monthly turbine exhaust check - ppm corrected to 15% O2

2020 CARB Annual Data, Engines, Flares, Boiler with mmbTU

ATTACHMENT 3

ANNUAL SOURCE TEST RESULTS

- Engine #1 (S-37), 5/7/20 by Blue Sky Environmental

TABLE #1

EBMUD
Engine #1 (S-37)
2,083 kW

RUN	1	2	3	AVERAGE	LIMITS
Test Date	5/7/20	5/7/20	5/7/20		
Test Time	0838-0908	0938-1008	1023-1053		
Standard Temp., °F	70	70	70		
Generator kW	2,116	2,092	2,042	2,083	
Engine kW	2,227	2,202	2,149	2,193	
Engine BHp	2,985	2,951	2,880	2,939	
Fuel Flow Rate, DSCFM (nat gas)	0.0	0.0	0.0	0.0	
Fuel Flow Rate, DSCFM (dig gas)	614.1	572.7	573.2	586.7	
WOBBE Btu/cf	619	619	618	619	
Gas Fd-Factor @ 68°F, DSCFM	9,223	9,223	9,225	9,223	
Flow Rate, DSCFM (Method 19)	8,325	7,855	7,851	8,011	
Oxygen, O ₂ , %	12.1	12.2	12.2	12.1	
NO _x , ppm	36.6	36.8	35.2	36.2	70
NO_x, ppm @ 15% O₂	24.4	24.9	23.8	24.4	
NO _x , lbs/hr (M19)	2.17	2.06	1.97	2.07	
NO _x , lbs/day	52.15	49.54	47.39	49.69	
NO _x , g/Bhp-hr	0.33	0.32	0.31	0.32	
CO, ppm	455.7	488.2	481.1	475.0	2000
CO, ppm @ 15% O₂	304.4	329.9	325.0	319.7	
CO, lbs/hr (M19)	16.48	16.66	16.41	16.52	
CO, lbs/day	395.59	399.84	393.79	396.40	
CO, g/Bhp-hr	2.51	2.56	2.58	2.55	

WHERE,

ppm = Parts Per Million Concentration
 Lbs/hr = Pound Per Hour Emission Rate
 Tstd. = Standard Temp. (°R = °F+460)
 MW = Molecular Weight
 DSCFM = Dry Standard Cubic Feet Per Minute
 NO_x = Oxides of Nitrogen as NO₂ (MW = 46)
 CO = Carbon Monoxide (MW = 28)

CALCULATIONS,

PPM @ 15% O₂ = ppm * 5.9 / (20.9 - %O₂)
 Lbs/hr = ppm x 8.223 E-05 x DSCFM x MW / Tstd. °R
 Lbs/day = Lbs/hr * 24
 g/Bhp-hr = Lbs/hr * 453.6 / BHp
 Engine Bhp = Engine kW * 1.34
 Engine kW = Generator kW / 0.95

Attachment 4
Gasoline Facility Throughput (S-48)

SD-1 GASOLINE DISPENSING FACILITY
Maintenance Center (4,000 Gal)
As of June 30, 2020

MONTH	GALLONS RECEIVED	RECEIVED YR-TO-DATE	GALLONS ISSUED	ISSUED YR-TO-DATE	COMMENTS
JAN 19	2925	2925	2063	2063	
FEB 19	1800	4725	1574	3637	
MAR 19	1556	6281	1757	5394	
APR 19	1400	7681	1532	6926	
MAY 19	1500	9181	1545	8471	
JUN 19	800	9981	1104	9575	
JUL 19					
AUG 19					
SEP 19					
OCT 19					
NOV 19					
DEC 19					
Total					

ATTACHMENT 5

Hours of Operation for Stand-by Emergency Generators

January 1, 2020 – June 30, 2020

Source	Location	Hours Meter Begin	Hours Meter End	Emergency Use Hours	Reliability-related Hours	Limit on reliability-related Hours
S-50	North of PGS	138.2	139.0	0	0.8	30
S-51	Dechlorination	716.2	725.5	5.3	4.0	50
S-53	West of Admin Bldg	105.9	109.6	3.0	0.7	30
S-54	East Bayshore RWP	36	36	0	0	50
S-58	North of Maintenance	17.5	17.5	0	0	50

July 1, 2019 – December 31, 2019

Source	Location	Hours Meter Begin	Hours Meter End	Emergency Use Hours	Reliability-related Hours	Limit on reliability-related Hours
S-50	North of PGS	138.1	138.2	0	0.1	30
S-51	Dechlorination	709.3	716.2	0.7	6.2	50
S-53	West of Admin Bldg	105.9	105.9	0	0	30
S-54	East Bayshore RWP	36	36	0	0	50
S-58	North of Maintenance	17.0	17.5	0	0.5	50

July1, 2019 – June 30, 2020 (last 12 months total)

Source	Location	Hours Meter Begin	Hours Meter End	Emergency Use Hours	Reliability- related Hours	Limit on reliability- related Hours
S-50	North of PGS	138.1	139.0	0	0.9	30
S-51	Dechlorination	709.3	725.5	6.0	10.2	50
S-53	West of Admin Bldg	105.9	109.6	3.0	0.7	30
S-54	East Bayshore RWP	36	36	0	0	50
S-58	North of Maintenance	17.0	17.5	0	0.5	50

ATTACHMENT 6

TURBINE MONTHLY TEST RESULTS

TABLE # 1

**EBMUD-JAN
DG TURBINE #1 (S-56)
4235 kW**

RUN	1	LIMITS
Test Date	1/16/20	
Test Time	1605-1620	
Turbine kW	4,235	
Fuel Flow Rate, DSCFM	1,126	
Oxygen, O ₂ , %	16.3	
NO _x , ppm	4.6	23
NO_x, ppm @ 15% O₂	5.9	
CO, ppm	2.9	100
CO, ppm @ 15% O₂	3.7	
SO ₂ , ppm	3.1	150
SO₂, ppm @ 15% O₂	4.0	

WHERE,

ppm = Parts Per Million Concentration

NO_x = Oxides of Nitrogen as NO₂ (MW = 46)

CO = Carbon Monoxide (MW = 28)

SO₂ = Sulfur Dioxide (MW= 64)**CALCULATIONS,**

$$\text{PPM @ 15\% O}_2 = \text{ppm} * 5.9 / (20.9 - \% \text{O}_2)$$

TABLE # 1

**EBMUD-FEB
DG TURBINE #1 (S-56)
4200 kW**

RUN	1	LIMITS
Test Date	2/13/20	
Test Time	1225-1240	
Turbine kW	4,200	
Fuel Flow Rate, DSCFM	1,141	
Oxygen, O ₂ , %	16.4	
NOx, ppm	3.8	23
NOx, ppm @ 15% O₂	5.0	
CO, ppm	1.4	100
CO, ppm @ 15% O₂	1.8	
SO ₂ , ppm	2.7	150
SO₂, ppm @ 15% O₂	3.5	

WHERE,

ppm = Parts Per Million Concentration

NOx = Oxides of Nitrogen as NO₂ (MW = 46)

CO = Carbon Monoxide (MW = 28)

SO₂ = Sulfur Dioxide (MW= 64)**CALCULATIONS,**

$$\text{PPM @ 15\% O}_2 = \text{ppm} * 5.9 / (20.9 - \% \text{O}_2)$$

TABLE # 1

EBMUD-MAR
DG TURBINE #1 (S-56)
4156 kW

RUN	1	LIMITS
Test Date	3/18/20	
Test Time	0905-0920	
Turbine kW	4,156	
Fuel Flow Rate, DSCFM	1,108	
Oxygen, O ₂ , %	16.3	
NO _x , ppm	4.4	23
NO_x, ppm @ 15% O₂	5.6	
CO, ppm	4.1	100
CO, ppm @ 15% O₂	5.3	
SO ₂ , ppm	3.9	150
SO₂, ppm @ 15% O₂	5.0	

WHERE,

ppm = Parts Per Million Concentration

NO_x = Oxides of Nitrogen as NO₂ (MW = 46)

CO = Carbon Monoxide (MW = 28)

SO₂ = Sulfur Dioxide (MW= 64)**CALCULATIONS,**

$$\text{PPM @ 15\% O}_2 = \text{ppm} * 5.9 / (20.9 - \% \text{O}_2)$$

TABLE # 1

EBMUD-APRIL 2020
DG TURBINE #1 (S-56)
3849 kW

RUN	1	LIMITS
Test Date	4/21/20	
Test Time	1402-1416	
PGS-2 Turbine kW	3,849	
PGS-2 Fuel Flow Rate, DSCFM	1,097	
Oxygen, O ₂ , %	16.5	
NO _x , ppm	3.8	23
NO_x, ppm @ 15% O₂	5.0	
CO, ppm	1.2	100
CO, ppm @ 15% O₂	1.6	
SO ₂ , ppm	4.6	150
SO₂, ppm @ 15% O₂	6.2	

WHERE,

ppm = Parts Per Million Concentration

NO_x = Oxides of Nitrogen as NO₂ (MW = 46)

CO = Carbon Monoxide (MW = 28)

SO₂ = Sulfur Dioxide (MW= 64)**CALCULATIONS,**

$$\text{PPM @ 15\% O}_2 = \text{ppm} * 5.9 / (20.9 - \% \text{O}_2)$$

TABLE # 1

**EBMUD-MAY
DG TURBINE #1 (S-56)
3943 kW**

RUN	1	LIMITS
Test Date	5/22/20	
Test Time	1134-1149	
Turbine kW	3,943	
Fuel Flow Rate, DSCFM	1,161	
Oxygen, O ₂ , %	16.4	
NOx, ppm	5.1	23
NOx, ppm @ 15% O₂	6.7	
CO, ppm	4.7	100
CO, ppm @ 15% O₂	6.2	
SO ₂ , ppm	6.2	150
SO₂, ppm @ 15% O₂	8.1	

WHERE,

ppm = Parts Per Million Concentration

NOx = Oxides of Nitrogen as NO₂ (MW = 46)

CO = Carbon Monoxide (MW = 28)

SO₂ = Sulfur Dioxide (MW= 64)**CALCULATIONS,**

$$\text{PPM @ 15\% O}_2 = \text{ppm} * 5.9 / (20.9 - \% \text{O}_2)$$

TABLE # 1

EBMUD-JUNE 2020
DG TURBINE #1 (S-56)
3200 kW

RUN	1	LIMITS
Test Date	6/24/20	
Test Time	0735-0750	
PGS-2 Turbine kW	3,200	
PGS-2 Fuel Flow Rate, DSCFM	1,097	
Oxygen, O ₂ , %	16.8	
NO _x , ppm	3.2	23
NO_x, ppm @ 15% O₂	4.7	
CO, ppm	0.5	100
CO, ppm @ 15% O₂	0.7	
SO ₂ , ppm	0.8	150
SO₂, ppm @ 15% O₂	1.1	

WHERE,

ppm = Parts Per Million Concentration

NO_x = Oxides of Nitrogen as NO₂ (MW = 46)

CO = Carbon Monoxide (MW = 28)

SO₂ = Sulfur Dioxide (MW= 64)**CALCULATIONS,**

$$\text{PPM @ 15\% O}_2 = \text{ppm} * 5.9 / (20.9 - \% \text{O}_2)$$

ATTACHMENT 7

MAIN WASTEWATER TREATMENT PLANT FLOWS

East Bay Municipal Utility District

MONTHLY WASTEWATER MONITORING SUMMARY JUNE 2020

STATION: WWTP INFLUENT - INF-001

STATION: WWTP EFFLUENT - EFF-001

FLOWS & CONVENTIONAL POLLUTANTS (R2-2015-0018)

INFLUENT (MGD)				EFFLUENT (MGD)				CBOD					TSS					Oil and Grease			
3-mo				3-mo				Inf	Eff				Inf	Eff				Eff	Eff		
Max	Min	Dry		Max	Min	Dry		(INF-001)	mg/L	Max	# excs/	# of	%	(INF-001)	mg/L	Max	# excs/	# of	%	mg/L	mg/L
Mo.	Daily	Daily	Season	Mo.	Daily	Daily	Season	Month	Month	Week	Mo.	Week	Removal	Month	Month	Week	Mo.	Week	Month	Month	Daily
Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Max
Limits: 120								25		40			Min 85	30		45			Min 85	10 20	
Jan	64	118	55	55	112	45		361	10	13	0/1	0/4	97%	482	15	21	0/1	0/4	98%	< 3.1 < 3.1	
Feb	55	61	49	49	53	47		495	8	12	0/1	0/5	98%	787	9	10	0/1	0/5	99%		
Mar	57	80	51	50	73	46		336	8	10	0/1	0/4	98%	345	9	11	0/1	0/4	97%		
Apr	56	87	48	50	78	45		371	9	12	0/1	0/4	98%	408	10	10	0/1	0/4	98%		
May	51	59	46	46	59	43		402	14	15	0/1	0/5	97%	404	13	16	0/1	0/5	96.9%		
Jun	50	56	42	45	48	41		421	10	15	0/1	0/4	98%	471	13	17	0/1	0/4	97%		
Jul																					
Aug																				< 3.0 < 3.0	
Sep																					
Oct																					
Nov																					
Dec																					
Avg	56	77	49	49	71	45		398	10	13			98%	483	11	14			98%	< 3.1 < 3.1	
Max	64	118	55	55	112	47		495	14	15			98%	787	15	21			99%	< 3.1 < 3.1	
Min	50	56	42	45	48	41		336	8	10			97%	345	9	10			97%	< 3.0 < 3.0	
Exc/Analyses											0/6	0/26	0/6				0/6	0/26	0/6	0/2	0/2

Exc / Analyses = number of exceedances / number of analyses

ATTACHMENT 8 -- IPS Scrubber Inlet and Outlet H2S Readings, ppm

pg 1 of 4

(A-462 is Fine Screen Room Scrubber, A-463,A-464 are Course Screen Room/IPS Scrubbers)

	Coarse Scrubber		Fine Scrubber		Coarse Scrubber		Fine Scrubber	
	Inlet Avg	Outlet Avg	Inlet Avg	Outlet Avg	Inlet Max	Outlet Max	Inlet Max	Outlet Max
01-Jan-20	1.6	0.0	-	0.0	3.7	0.0	-	0.0
02-Jan-20	1.9	0.0	-	0.0	3.5	0.0	-	0.0
03-Jan-20	1.9	0.0	-	0.0	3.9	0.0	-	0.0
04-Jan-20	2.6	0.0	-	0.0	3.8	0.0	-	0.0
05-Jan-20	1.6	0.0	-	0.0	3.6	0.0	-	0.0
06-Jan-20	2.1	0.0	-	0.0	4.1	0.0	-	0.0
07-Jan-20	1.3	0.0	-	0.0	3.2	0.0	-	0.0
08-Jan-20	1.9	0.0	0.0	0.0	3.6	0.0	0.0	0.0
09-Jan-20	1.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0
10-Jan-20	1.2	0.0	0.0	0.0	2.3	0.0	0.0	0.0
11-Jan-20	2.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0
12-Jan-20	1.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0
13-Jan-20	0.8	0.0	0.0	0.0	1.8	0.0	0.0	0.0
14-Jan-20	1.8	0.0	0.0	0.0	3.9	0.0	0.0	0.0
15-Jan-20	2.4	0.0	0.0	0.0	3.4	0.0	0.0	0.0
16-Jan-20	1.4	0.0	0.0	0.0	3.7	0.0	0.0	0.0
17-Jan-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Jan-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-Jan-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-Jan-20	0.1	0.0	0.0	0.0	1.6	1.6	0.0	0.0
21-Jan-20	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0
22-Jan-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23-Jan-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-Jan-20	0.3	0.0	0.0	0.0	3.1	0.0	11.8	0.0
25-Jan-20	0.8	0.0	0.0	0.0	1.6	0.0	0.0	0.0
26-Jan-20	0.1	0.0	0.0	0.0	1.6	0.0	0.0	0.0
27-Jan-20	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0
28-Jan-20	1.7	0.0	0.0	0.0	7.4	0.0	0.0	0.0
29-Jan-20	0.1	0.0	0.0	0.0	2.1	0.0	0.0	0.0
30-Jan-20	0.1	0.0	0.0	0.0	1.6	0.0	0.0	0.0
31-Jan-20	0.3	0.0	0.0	0.0	1.6	0.0	0.0	0.0
Sensor failed after power glitch, replaced 01-08-20								
Monthly Avg	1.0	0.0	0.0	0.0				
Monthly Max					7.4	1.6	11.8	0.0

	Coarse Scrubber		Fine Scrubber		Coarse Scrubber		Fine Scrubber	
	Inlet Avg	Outlet Avg	Inlet Avg	Outlet Avg	Inlet Max	Outlet Max	Inlet Max	Outlet Max
01-Feb-20	0.7	0.0	0.0	0.0	1.8	0.0	0.0	0.0
02-Feb-20	0.3	0.0	0.0	0.0	1.7	0.0	0.0	0.0
03-Feb-20	0.1	0.0	0.0	0.0	1.7	0.0	0.0	0.0
04-Feb-20	0.2	0.0	0.0	0.0	1.7	0.0	0.0	0.4
05-Feb-20	0.1	0.0	0.0	0.0	6.4	0.0	0.0	0.0
06-Feb-20	0.2	0.0	0.0	0.0	1.7	0.0	0.0	0.0
07-Feb-20	0.6	0.0	0.0	0.0	1.6	0.0	0.0	0.0
08-Feb-20	0.4	0.0	0.0	0.0	1.7	0.0	0.0	0.0
09-Feb-20	0.5	0.0	0.0	0.0	1.7	0.0	0.0	0.0
10-Feb-20	0.4	0.0	0.0	0.0	1.7	0.0	0.0	0.0
11-Feb-20	0.8	0.0	0.0	0.0	2.8	0.0	3.1	0.0
12-Feb-20	1.2	0.0	0.0	0.0	2.4	0.0	0.0	0.0
13-Feb-20	0.7	0.0	0.0	0.0	1.7	0.0	0.0	0.0
14-Feb-20	1.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0
15-Feb-20	1.4	0.0	0.0	0.0	2.9	0.0	0.0	0.0
16-Feb-20	0.6	0.0	0.0	0.0	1.6	0.0	0.0	0.0
17-Feb-20	0.6	0.0	0.0	0.0	1.6	0.0	0.0	0.0
18-Feb-20	0.9	0.0	0.0	0.0	2.1	0.0	0.0	0.0
19-Feb-20	1.2	0.0	0.0	0.0	5.7	0.0	0.0	0.0
20-Feb-20	0.9	0.0	0.0	0.0	1.7	0.0	0.0	0.0
21-Feb-20	0.8	0.0	0.0	0.0	2.0	0.0	0.0	0.0
22-Feb-20	0.7	0.0	0.0	0.0	1.8	0.0	0.0	0.0
23-Feb-20	0.7	0.0	0.0	0.0	2.3	0.0	0.0	0.0
24-Feb-20	0.5	0.0	0.0	0.0	1.6	0.0	0.0	0.0
25-Feb-20	1.1	0.0	0.0	0.0	1.9	0.0	0.0	0.0
26-Feb-20	0.9	0.0	0.0	0.0	2.1	0.0	0.0	0.0
27-Feb-20	1.0	0.0	0.0	0.0	1.7	0.0	1.5	0.0
28-Feb-20	0.8	0.0	0.0	0.0	6.5	0.0	0.0	0.0
29-Feb-20	0.9	0.0	0.0	0.0	2.7	0.0	0.0	0.0
Monthly Avg	0.7	0.0	0.0	0.0				
Monthly Max					6.5	0.0	3.1	0.4

ATTACHMENT 8 -- IPS Scrubber Inlet and Outlet H2S Readings, ppm

pg 2 of 4

	Coarse Scrubber		Fine Scrubber		Coarse Scrubber		Fine Scrubber	
	Inlet Avg	Outlet Avg	Inlet Avg	Outlet Avg	Inlet Max	Outlet Max	Inlet Max	Outlet Max
01-Mar-20	1.1	0.0	0.0	0.0	4.4	0.0	0.0	0.0
02-Mar-20	1.3	0.0	0.0	0.0	3.2	0.0	0.0	0.0
03-Mar-20	2.0	0.0	0.0	0.0	6.2	0.0	0.0	0.0
04-Mar-20	0.6	0.0	0.0	0.0	2.6	0.0	0.0	0.0
05-Mar-20	0.2	0.0	0.0	0.0	2.2	0.0	0.0	0.0
06-Mar-20	1.4	0.0	0.0	0.0	4.3	0.0	0.0	0.0
07-Mar-20	1.8	0.0	0.0	0.0	14.3	0.0	8.7	0.0
08-Mar-20	1.2	0.0	0.0	0.0	5.8	0.0	0.0	0.0
09-Mar-20	0.5	0.0	0.0	0.0	2.1	0.0	0.0	0.0
10-Mar-20	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0
11-Mar-20	0.2	0.0	0.0	0.0	3.7	0.0	0.0	0.0
12-Mar-20	1.3	0.0	0.0	0.0	6.9	0.0	0.0	0.0
13-Mar-20	0.4	0.0	0.0	0.0	1.7	0.0	0.0	0.0
14-Mar-20	1.3	0.0	0.0	0.0	7.6	0.0	0.0	0.0
15-Mar-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16-Mar-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17-Mar-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Mar-20	0.0	0.0	0.0	0.0	3.7	0.0	0.0	0.0
19-Mar-20	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
20-Mar-20	0.6	0.0	0.0	0.0	3.6	0.0	0.0	0.0
21-Mar-20	0.5	0.0	0.0	0.0	8.5	0.0	0.0	0.0
22-Mar-20	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0
23-Mar-20	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0
24-Mar-20	0.2	0.0	0.0	0.0	22.9	0.0	0.0	0.0
25-Mar-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26-Mar-20	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0
27-Mar-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28-Mar-20	0.2	0.0	0.0	0.0	1.7	0.0	0.0	0.0
29-Mar-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Mar-20	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
31-Mar-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Monthly Avg 0.5 0.0 0.0 0.0
Monthly Max 22.9 0.0 8.7 0.0

	Coarse Scrubber		Fine Scrubber		Coarse Scrubber		Fine Scrubber	
	Inlet Avg	Outlet Avg	Inlet Avg	Outlet Avg	Inlet Max	Outlet Max	Inlet Max	Outlet Max
01-Apr-20	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0
02-Apr-20	0.7	0.0	0.0	0.0	9.6	0.0	0.0	0.0
03-Apr-20	0.0	0.0	0.0	0.0	6.1	0.0	0.0	0.0
04-Apr-20	0.8	0.0	0.0	0.0	2.3	0.0	0.0	0.0
05-Apr-20	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0
06-Apr-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
07-Apr-20	0.0	0.0	0.0	0.0	24.5	0.0	0.0	0.0
08-Apr-20	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0
09-Apr-20	0.0	0.0	0.0	0.0	3.1	0.0	0.0	0.0
10-Apr-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11-Apr-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-Apr-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13-Apr-20	0.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0
14-Apr-20	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0
15-Apr-20	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0
16-Apr-20	0.1	0.0	0.0	0.0	3.4	0.0	0.0	0.0
17-Apr-20	0.1	0.0	0.0	0.0	1.7	0.0	2.2	0.0
18-Apr-20	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0
19-Apr-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-Apr-20	0.2	0.0	0.0	0.0	2.9	0.0	0.0	0.0
21-Apr-20	0.3	0.0	0.0	0.0	18.5	0.0	0.0	0.0
22-Apr-20	1.4	0.0	0.0	0.0	6.7	0.0	0.0	0.0
23-Apr-20	0.6	0.0	0.0	0.0	2.9	0.0	0.0	0.0
24-Apr-20	0.9	0.0	0.0	0.0	5.3	0.0	1.5	0.0
25-Apr-20	0.2	0.0	0.0	0.0	1.8	0.0	0.0	0.0
26-Apr-20	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0
27-Apr-20	1.8	0.0	0.0	0.0	6.8	0.0	0.0	0.0
28-Apr-20	0.6	0.0	0.0	0.0	13.8	0.0	7.3	0.0
29-Apr-20	0.5	0.0	0.0	0.0	3.2	0.0	0.0	0.0
30-Apr-20	1.6	0.0	0.0	0.0	10.3	0.0	0.0	0.0

Monthly Avg 0.3 0.0 0.0 0.0
Monthly Max 24.5 0.0 7.3 0.0

ATTACHMENT 8 -- IPS Scrubber Inlet and Outlet H2S Readings, ppm

pg 3 of 4

	Coarse Scrubber		Fine Scrubber		Coarse Scrubber		Fine Scrubber	
	Inlet Avg	Outlet Avg	Inlet Avg	Outlet Avg	Inlet Max	Outlet Max	Inlet Max	Outlet Max
01-May-20	2.6	0.0	0.0	0.0	13.6	0.0	0.0	0.0
02-May-20	0.6	0.0	0.0	0.0	4.0	0.0	0.0	0.0
03-May-20	0.2	0.0	0.0	0.0	3.1	0.0	0.0	0.0
04-May-20	1.7	0.0	0.0	0.0	10.5	0.0	1.5	0.0
05-May-20	1.3	0.0	0.0	0.0	16.3	0.0	1.9	0.0
06-May-20	0.9	0.0	0.0	0.0	4.2	0.0	0.0	0.0
07-May-20	2.8	0.0	0.0	0.0	13.7	0.0	0.0	0.0
08-May-20	1.8	0.0	0.0	0.0	6.2	0.0	2.4	0.0
09-May-20	3.9	0.0	0.0	0.0	11.3	0.0	0.0	0.0
10-May-20	0.8	0.0	0.0	0.0	3.8	0.0	2.8	0.0
11-May-20	2.8	0.0	0.0	0.0	9.5	0.0	0.0	0.0
12-May-20	1.8	0.0	0.0	0.0	6.4	0.0	0.0	0.0
13-May-20	0.7	-	0.0	0.0	4.6	-	0.0	0.0
14-May-20	2.6	-	0.0	0.0	12.2	-	0.0	0.0
15-May-20	1.9	-	0.0	0.0	9.7	-	0.0	0.0
16-May-20	2.7	-	0.0	0.0	5.2	-	0.0	0.0
17-May-20	1.7	-	0.0	0.0	4.8	-	0.0	0.0
18-May-20	1.4	-	0.0	0.0	9.1	-	0.0	0.0
19-May-20	0.7	-	0.0	0.0	5.5	-	0.0	0.0
20-May-20	1.6	-	0.0	0.0	4.9	-	0.0	5.0
21-May-20	1.0	0.0	0.0	0.0	6.6	0.1	0.0	0.0
22-May-20	1.7	0.0	0.0	0.0	6.2	0.0	2.0	0.0
23-May-20	2.1	0.0	0.0	0.0	8.4	0.0	0.0	0.0
24-May-20	0.4	0.0	0.0	0.0	1.6	0.0	0.0	0.0
25-May-20	1.5	0.0	0.0	0.0	4.7	0.0	0.0	0.0
26-May-20	2.9	0.0	0.0	0.0	9.0	0.0	0.0	0.0
27-May-20	1.5	0.0	0.0	0.0	8.4	0.0	0.0	0.0
28-May-20	3.6	0.0	0.0	0.0	16.1	0.0	0.0	0.0
29-May-20	4.0	0.0	0.0	0.0	16.7	0.0	0.0	0.0
30-May-20	3.9	0.0	0.0	0.0	13.3	0.0	0.0	0.0
31-May-20	2.0	0.0	0.0	0.0	5.5	0.0	0.0	0.0

Sensor failed 05-12-20, replaced 05-21-20

Monthly Avg 1.9 0.0 0.0 0.0
Monthly Max 16.7 0.1 2.8 5.0

	Coarse Scrubber		Fine Scrubber		Coarse Scrubber		Fine Scrubber	
	Inlet Avg	Outlet Avg	Inlet Avg	Outlet Avg	Inlet Max	Outlet Max	Inlet Max	Outlet Max
01-Jun-20	2.5	0.0	0.0	0.0	6.7	0.0	0.0	0.0
02-Jun-20	3.5	0.0	0.0	0.0	12.0	0.0	0.0	0.0
03-Jun-20	2.0	0.0	0.0	0.0	7.5	0.0	0.0	0.0
04-Jun-20	2.8	0.0	0.0	0.0	6.6	0.0	0.0	0.0
05-Jun-20	2.9	0.0	0.0	0.0	10.4	0.0	0.0	0.0
06-Jun-20	2.7	0.0	0.0	0.0	7.6	0.0	0.0	0.0
07-Jun-20	2.1	0.0	0.0	0.0	7.4	0.0	0.0	0.0
08-Jun-20	2.2	0.0	0.0	0.0	20.0	0.0	0.0	0.0
09-Jun-20	3.8	0.0	0.0	0.0	14.7	0.0	0.0	0.0
10-Jun-20	3.4	0.0	0.0	0.0	8.7	0.0	0.0	0.0
11-Jun-20	2.5	0.0	0.0	0.0	23.5	0.0	0.0	0.0
12-Jun-20	2.4	0.0	0.0	0.0	22.0	0.0	0.0	0.0
13-Jun-20	2.7	0.0	0.0	0.0	7.7	0.0	0.0	0.0
14-Jun-20	2.4	0.0	0.0	0.0	6.6	0.0	1.6	0.0
15-Jun-20	2.7	0.0	0.0	0.0	9.8	0.0	0.0	0.0
16-Jun-20	4.3	0.0	0.0	0.0	17.5	0.0	0.0	0.0
17-Jun-20	3.0	0.0	0.0	0.0	14.6	0.0	0.0	0.0
18-Jun-20	1.9	0.0	0.0	0.0	4.7	0.0	0.0	0.0
19-Jun-20	1.2	0.0	0.0	0.0	6.7	0.0	0.0	0.0
20-Jun-20	1.8	0.0	0.0	0.0	6.2	0.0	0.0	0.0
21-Jun-20	2.4	0.0	0.0	0.0	6.9	0.0	0.0	0.0
22-Jun-20	2.4	0.0	0.0	0.0	11.0	0.0	0.0	0.0
23-Jun-20	2.8	0.0	0.0	0.0	9.4	0.0	0.0	0.0
24-Jun-20	2.4	0.0	0.0	0.0	17.3	0.0	0.0	0.0
25-Jun-20	5.0	0.0	0.0	0.0	23.2	0.0	0.0	0.0
26-Jun-20	3.2	0.0	0.0	0.0	11.4	0.0	0.0	0.0
27-Jun-20	1.5	0.0	0.0	0.0	15.9	0.0	0.0	0.0
28-Jun-20	3.3	0.0	0.0	0.0	11.2	0.0	0.0	0.0
29-Jun-20	2.3	0.0	0.0	0.0	14.3	0.0	1.5	0.0
30-Jun-20	3.4	0.0	0.0	0.0	16.0	0.0	0.0	0.0

Monthly Avg 2.7 0.0 0.0 0.0
Monthly Max 23.5 0.0 1.6 0.0

ATTACHMENT 8 -- IPS Scrubber Inlet and Outlet H2S Readings - Related Outages

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Influent Pump Station Odor Scrubber Outage Table

Start	Finish	Duration	Reason
17-Jan-20 06:56	17-Jan-20 15:03	8:07	Unknown, no mention in log, outage duration of work hours, Fine Screen system only (A-462)
23-Apr-20 09:50	23-Apr-20 10:16	0:26	Power failure multiple locations at IPS including EF-10, exhaust fan to A-463 and A-464 temporarily offline
01-Jun-20 01:54	01-Jun-20 02:09	0:15	Power surge to EF-10, exhaust fan to A-463 and A-464 temporarily offline
	Total Down Time	<u>8:48</u>	

ATTACHMENT 9 - ODOR SCRUBBER MAINTENANCE RECORDS - S-170, S-110

Headworks Odor Scrubber Maintenance Work Orders Jan - Jun 2020

Area	Wonum	Description	Assetnum	Dept	Status	Type	Report Date	Reported By
W-12	2020000292	Oxygen sensor for the rag bin room O2 sensor is in alarm. won't reset and is reading 3 - 4	W-12-MISC-000-00	PO	COMP	BD	1/30/2020	JMOUNT
W-12	2020000286	Coarse screen room supply fan both fan belts crumbled. No supply air to the room, thanks.	W-12-FAN-SF6-00	PO	DONE	BD	1/30/2020	JCOHEN
W-12	2020013383	New bio-filter #2 has leak inside nutrient metering panel. on discharge side of metering pump	W-12-MISC-000-00	PO	DONE	CM	2/21/2020	JMOUNT
W-12	2020027248	IPS supply fans 04 and 05 to main gallery have loose fan belts.	W-12-MISC-000-00	PO	DONE	CM	3/25/2020	JCOHEN
W-12	2020056476	Motor Room Supply Fan #4 belt squealing	W-12-FAN-SF4-00	PO	DONE	CM	5/11/2020	RHELMERS
W-12	2020056524	Coarse screen room H2S sensor has a BAD signal since 5/12	W-12-INS-000-00	PO	COMP	BD	5/16/2020	SZUBRZYC
W-12	2020070064	3 drops per minute leak at filter coming from the top bolt; may need filter replacement	W-12-PMP-003-12	PO	DONE	BD	6/7/2020	SZUBRZYC
W-12	2020070141	there is a leak in the nutrient supply line, has small hole	W-12-IRR-TNK-101	PO	DONE	CM	6/15/2020	JMOUNT
W-12	2020070142	2 water solenoid for wash water is not working, water is not shutting off	W-12-SCG-WCP-002	PO	DONE	CM	6/15/2020	JMOUNT
W-12	2020070223	Dilution water for Biofilter 1 @ 10 gpm, normally 2 gpm. Suspect soleniod w-12-msl-ocs-01 malfuncio	W-12-MSL-OCS-01	PO	DONE	CM	6/24/2020	JCOHEN
W-12	2020070258	Unable to get fan to start, reset breaker but EF #9 did not start	W-12-FAN-EF-9	PO	APPR	BD	6/29/2020	TTRINTA

*2020070258 - EF10 in operation, throughput not affected.

Thickening/Dewatering Odor Scrubber Maintenance Work Orders Jan - Jun 2020

Area	Wonum	Description	Assetnum	Dept	Status	Type	Report Date	Reported By
W-25	2020000125	foul air leak on C-5 cake discharge chute down spout area Please seal up an air leak on C-5. The leak seems to be on the cake discharge side.	W-25-DSL-CTF-0C5-CPO	COMP	COMP	CM	1/15/2020	JASONLEE
W-30	2020000243	Dewatering odor scrubber water leaking through the tower.	W-30-TKS-301-00	PO	DONE	CM	1/27/2020	HTON
W-25	2020000264	DWB Odor Scrubber not operational. Repair as necessary	W-25-MISC-000-00	PO	DONE	BD	1/28/2020	MSCHMITZ
W-30	2020000257	Dewatering odor scrubber fan belt is broken. Needed for compliance	W-30-TKS-301-00	PO	DONE	CM	1/28/2020	HTON
W-30	2020013316	There's a slow leak in the PVC connection for the "King" meter on odor scrubber #2 (for thickening).	W-30-TKS-301-00	PO	DONE	CM	2/11/2020	LDUAN
W-25	2020013348	Discharge duct on Main Supply Fan 1 falling apart The duct on the discharge side of Main Supply Fan 1 is falling apart. It is coming apart at the seams and has several spots that have rusted through.	W-25-FAN-SF1-01	PO	DONE	CM	2/18/2020	ZTHIEME
W-30	2020013403	Inline exhaust fan #1 making loud noises despite being grased.	W-30-FAN-ILE-01	PO	DONE	CM	2/24/2020	HTON
W-30	2020013407	Hypo dripping on pvc connection for twas odor scrubber.	W-30-TKS-301-00	PO	DONE	CM	2/24/2020	HTON
W-25	2020041366	1 Water leak near DWB Foul Air Scrubber One of the 1 Water lines behind the Dewatering foul air scrubber has a pin hole leak in corroded pipe.	W-25-MISC-000-00	PO	DONE	CM	4/2/2020	ZTHIEME
W-30	2020069986	Pressure gauge on odor scrubber leaking hypo.	W-30-TKS-301-00	PO	DONE	CM	6/1/2020	HTON
W-30	2020070065	Odor scrubber leaking hypo at the pressure gauge.	W-30-TKS-301-00	PO	DONE	CM	6/7/2020	HTON
W-25	2020070200	The wind sock on top of the building that we use to add us in odor control and investigations is torn and close to failure. Please replace	W-25-MISC-000-00	PO	DONE	CM	6/22/2020	MSCHMITZ
W-30	2020070213	Drive belts broken on scrubber fan 1.	W-30-FAN-301-00	PO	DONE	BD	6/24/2020	ZTHIEME

ATTACHMENT 10 -- S-170 Waste Activated Sludge Throughput

2020 January - June Gravity Belt Thickener Summary Flow Table

Note: Kgal=1,000 gallons

Daily Flows	January	February	March	April	May	June
	Kgal	Kgal	Kgal	Kgal	Kgal	Kgal
1st	1,385	1,666	1,237	1,049	1,072	1,248
2nd	1,253	1,373	1,225	1,202	1,257	1,323
3rd	1,345	1,567	1,204	1,140	1,314	1,243
4th	1,175	1,469	1,417	1,578	1,424	1,382
5th	1,330	1,544	1,429	1,388	1,431	1,111
6th	1,240	1,656	1,373	1,214	1,576	1,214
7th	1,289	1,448	1,681	1,238	630	1,027
8th	1,410	1,373	1,539	1,254	1,352	1,166
9th	1,253	1,464	1,537	1,302	1,319	1,105
10th	1,290	1,533	1,680	1,312	1,506	909
11th	1,250	1,507	1,683	1,432	1,754	938
12th	1,359	1,440	1,774	1,320	1,402	888
13th	1,524	1,369	1,666	1,260	1,606	864
14th	1,431	1,237	1,736	1,318	1,492	885
15th	1,407	1,293	1,660	1,298	1,477	906
16th	1,678	1,349	1,902	1,210	1,529	931
17th	1,460	1,360	2,065	1,406	1,412	878
18th	1,791	1,239	1,857	1,440	1,339	843
19th	1,929	1,123	1,893	1,337	1,363	876
20th	1,931	1,042	1,590	1,381	1,437	821
21st	1,753	946	1,171	1,364	1,455	867
22nd	1,188	911	1,192	1,325	1,378	942
23rd	1,486	913	1,418	1,321	1,406	924
24th	1,340	669	1,177	1,352	1,331	961
25th	1,480	493	1,195	1,281	1,325	849
26th	1,736	478	1,098	1,356	1,341	822
27th	1,469	416	1,268	1,501	1,312	1,022
28th	1,538	1,184	1,457	1,392	1,191	1,127
29th	1,131	1,115	1,223	1,276	1,167	926
30th	1,087		1,304	1,246	1,254	806
31st	1,649		1,309		1,246	
Monthly Total	44,587	35,176	45,956	39,490	42,097	29,804
Semi-Annual Total	237,110					

Gravity Belt Thickener and Dewatering Centrifuge Odor Scrubber Outage Table

Start	Finish	Duration	Reason
28-Jan-20 08:00	28-Jan-20 09:50	1:50	DWB scrubber off-line for belt change
25-Feb-20 08:30	25-Feb-20 08:47	0:17	THK scrubber off-line for maintenance
11-May-20 06:45	11-May-20 07:01	0:16	THK scrubber off-line for maintenance to check belts
24-Jun-20 08:10	24-Jun-20 10:15	2:05	THK scrubber off-line for belt change
Total Down Time		4:28	

ATTACHMENT 11 - DIGESTER GAS SAMPLING DATA

EBMUD Biogas H2S

January - June 2020

2020	Cogen Feed H2S (ppm)	365 Day Avg H2S (ppm)
1/1/2020	112	146
1/2/2020	106	146
1/3/2020	140	146
1/4/2020	172	145
1/5/2020	156	145
1/6/2020	148	145
1/7/2020	194	145
1/8/2020	242	145
1/9/2020	202	145
1/10/2020	230	145
1/11/2020	222	145
1/12/2020	166	145
1/13/2020	152	145
1/14/2020	170	145
1/15/2020	124	145
1/16/2020	118	145
1/17/2020	150	145
1/18/2020	110	145
1/19/2020	96	145
1/20/2020	120	145
1/21/2020	194	145
1/22/2020	216	145
1/23/2020	6	146
1/24/2020	236	145
1/25/2020	200	146
1/26/2020	156	146
1/27/2020	156	146
1/28/2020	190	146
1/29/2020	180	147
1/30/2020	162	147
1/31/2020	222	147
2/1/2020	282	148
2/2/2020	294	148
2/3/2020	150	149
2/4/2020	140	149
2/5/2020	176	149
2/6/2020	194	150
2/7/2020	196	150
2/8/2020	204	150
2/9/2020	168	151
2/10/2020	168	151
2/11/2020	166	152
2/12/2020	150	152
2/13/2020	152	152
2/14/2020	188	153
2/15/2020	196	153
2/16/2020	176	154
2/17/2020	170	154
2/18/2020	160	154
2/19/2020	192	154
2/20/2020	166	155
2/21/2020	172	154
2/22/2020	314	155
2/23/2020	244	155
2/24/2020	246	156
2/25/2020	258	156
2/26/2020	250	157
2/27/2020	230	157
2/28/2020	318	158
2/29/2020	260	158

2020	Cogen Feed H2S (ppm)	365 Day Avg H2S (ppm)
3/1/2020	286	159
3/2/2020	280	160
3/3/2020	282	160
3/4/2020	238	161
3/5/2020	244	162
3/6/2020	228	162
3/7/2020	184	162
3/8/2020	180	162
3/9/2020	218	162
3/10/2020	344	163
3/11/2020	336	163
3/12/2020	412	164
3/13/2020	274	165
3/14/2020	174	165
3/15/2020	174	165
3/16/2020	188	165
3/17/2020	340	165
3/18/2020	208	165
3/19/2020	268	165
3/20/2020	232	166
3/21/2020	194	166
3/22/2020	194	166
3/23/2020	160	166
3/24/2020	182	166
3/25/2020	184	167
3/26/2020	198	167
3/27/2020	208	168
3/28/2020	204	168
3/29/2020	304	168
3/30/2020	230	169
3/31/2020	230	169
4/1/2020	162	169
4/2/2020	168	169
4/3/2020	152	170
4/4/2020	152	170
4/5/2020	158	170
4/6/2020	154	170
4/7/2020	154	170
4/8/2020	164	170
4/9/2020	138	170
4/10/2020	178	170
4/11/2020	158	171
4/12/2020	134	171
4/13/2020	128	171
4/14/2020	162	171
4/15/2020	168	171
4/16/2020	0	171
4/17/2020	112	170
4/18/2020	118	170
4/19/2020	112	170
4/20/2020	110	170
4/21/2020	154	170
4/22/2020	176	170
4/23/2020	202	170
4/24/2020	264	170
4/25/2020	194	170
4/26/2020	112	170
4/27/2020	108	170
4/28/2020	142	170
4/29/2020	182	169
4/30/2020	164	169

2020	Cogen Feed H2S (ppm)	365 Day Avg H2S (ppm)
5/1/2020	178	169
5/2/2020	204	169
5/3/2020	166	169
5/4/2020	178	169
5/5/2020	198	169
5/6/2020	210	169
5/7/2020	206	170
5/8/2020	206	170
5/9/2020	174	170
5/10/2020	156	170
5/11/2020	132	169
5/12/2020	134	169
5/13/2020	128	169
5/14/2020	142	169
5/15/2020	174	169
5/16/2020	174	169
5/17/2020	172	169
5/18/2020	190	169
5/19/2020	194	169
5/20/2020	180	169
5/21/2020	208	169
5/22/2020	188	169
5/23/2020	160	169
5/24/2020	144	169
5/25/2020	150	169
5/26/2020	174	169
5/27/2020	164	169
5/28/2020	156	169
5/29/2020	134	169
5/30/2020	120	169
5/31/2020	112	169
6/1/2020	124	169
6/2/2020	136	169
6/3/2020	144	170
6/4/2020	140	170
6/5/2020	162	170
6/6/2020	154	170
6/7/2020	132	170
6/8/2020	126	170
6/9/2020	134	170
6/10/2020	148	170
6/11/2020	150	170
6/12/2020	140	170
6/13/2020	174	170
6/14/2020	166	170
6/15/2020	148	170
6/16/2020	142	170
6/17/2020	166	170
6/18/2020	154	170
6/19/2020	162	170
6/20/2020	148	170
6/21/2020	188	170
6/22/2020	152	171
6/23/2020	244	171
6/24/2020	166	171
6/25/2020	126	171
6/26/2020	138	171
6/27/2020	142	171
6/28/2020	164	171
6/29/2020	172	171
6/30/2020	138	172

ATTACHMENT 12

2020 January - June Blend Tank Summary Flow Table

(Sum of 1st Stage Digester feed substituted due to questionable Blend meter from Feb 2nd onward)

Daily Flows	January	February	March	April	May	June
	Kgal	Kgal	Kgal	Kgal	Kgal	Kgal
1st	670	851	566	620	644	581
2nd	655	627	752	640	630	536
3rd	685	810	792	637	510	578
4th	528	878	747	641	548	600
5th	496	959	813	535	558	630
6th	679	989	796	552	659	512
7th	719	815	700	595	557	402
8th	743	758	594	557	588	483
9th	790	645	752	596	495	543
10th	709	843	765	642	454	542
11th	666	792	724	548	507	516
12th	610	779	719	450	538	522
13th	686	849	608	539	558	490
14th	791	870	678	557	544	444
15th	777	729	551	638	621	467
16th	842	583	800	538	553	502
17th	682	602	779	563	454	655
18th	483	727	622	587	487	727
19th	483	777	628	459	459	719
20th	728	795	601	508	524	585
21st	804	712	524	586	576	625
22nd	813	646	450	624	598	530
23rd	808	595	665	543	590	709
24th	747	681	750	563	495	677
25th	639	875	643	537	449	760
26th	641	759	650	427	496	613
27th	717	799	665	527	475	747
28th	744	803	622	509	570	627
29th	554	669	534	607	588	632
30th	671		661	556	478	608
31st	863		640		488	
Monthly Total	21,423	22,216	20,789	16,881	16,691	17,562
Semi-Annual Total	115,561					

ATTACHMENT 13 - TOTAL DIGESTER GAS COMBUSTION

EBMUD Biogas to Combustion Devices January - June 2020

2020	Total Combustion, SCFM		
	Daily Max	Daily Avg	365-Day Avg
1/1/2020	2,788	2,148	2,280
1/2/2020	2,546	2,056	2,281
1/3/2020	2,653	2,252	2,281
1/4/2020	2,965	2,179	2,282
1/5/2020	2,276	1,667	2,280
1/6/2020	2,140	1,629	2,280
1/7/2020	2,577	2,144	2,280
1/8/2020	3,795	3,088	2,282
1/9/2020	3,545	2,839	2,282
1/10/2020	3,503	2,730	2,282
1/11/2020	2,898	2,453	2,283
1/12/2020	2,493	1,891	2,281
1/13/2020	3,523	2,348	2,282
1/14/2020	3,159	2,431	2,283
1/15/2020	3,643	2,424	2,283
1/16/2020	2,935	2,384	2,283
1/17/2020	4,682	2,674	2,284
1/18/2020	2,278	1,872	2,284
1/19/2020	1,712	1,439	2,282
1/20/2020	3,797	1,875	2,281
1/21/2020	3,885	2,760	2,283
1/22/2020	4,082	3,348	2,286
1/23/2020	3,945	3,308	2,290
1/24/2020	4,536	3,522	2,294
1/25/2020	4,457	2,858	2,296
1/26/2020	2,288	1,763	2,296
1/27/2020	3,501	2,145	2,296
1/28/2020	2,847	2,364	2,297
1/29/2020	2,147	1,622	2,296
1/30/2020	2,301	1,549	2,295
1/31/2020	3,657	2,273	2,296
2/1/2020	2,997	2,589	2,297
2/2/2020	2,464	1,882	2,296
2/3/2020	2,713	2,054	2,296
2/4/2020	3,284	2,632	2,298
2/5/2020	4,133	3,397	2,302
2/6/2020	3,564	3,115	2,304
2/7/2020	4,462	3,482	2,308
2/8/2020	3,049	2,591	2,310
2/9/2020	2,412	1,854	2,309
2/10/2020	4,019	2,434	2,311
2/11/2020	3,765	3,018	2,314
2/12/2020	2,864	2,374	2,314
2/13/2020	3,678	2,829	2,316
2/14/2020	3,846	3,308	2,319
2/15/2020	3,230	2,705	2,321
2/16/2020	2,651	1,967	2,321
2/17/2020	2,663	1,804	2,322
2/18/2020	3,457	2,478	2,324
2/19/2020	3,387	2,820	2,327
2/20/2020	4,165	3,120	2,331
2/21/2020	4,080	3,146	2,334
2/22/2020	3,423	2,466	2,335
2/23/2020	2,732	2,102	2,335
2/24/2020	3,947	2,420	2,337
2/25/2020	3,585	2,945	2,341
2/26/2020	3,777	3,068	2,344
2/27/2020	4,233	3,253	2,346
2/28/2020	3,747	2,848	2,347
2/29/2020	3,108	2,512	2,348

3,400 Annual Average Limit

2020	Total Combustion, SCFM		
	Daily Max	Daily Avg	365-Day Avg
3/1/2020	2,376	1,909	2,348
3/2/2020	3,238	2,460	2,350
3/3/2020	3,834	3,337	2,353
3/4/2020	3,421	2,921	2,353
3/5/2020	3,504	2,811	2,354
3/6/2020	4,201	3,110	2,355
3/7/2020	3,663	2,513	2,353
3/8/2020	2,258	1,698	2,352
3/9/2020	2,740	2,204	2,352
3/10/2020	2,614	2,323	2,353
3/11/2020	3,259	2,631	2,354
3/12/2020	3,909	3,039	2,355
3/13/2020	3,317	2,635	2,355
3/14/2020	4,654	2,915	2,356
3/15/2020	3,148	2,220	2,356
3/16/2020	3,173	2,177	2,357
3/17/2020	4,268	3,578	2,362
3/18/2020	3,868	2,984	2,363
3/19/2020	4,299	3,477	2,365
3/20/2020	3,525	2,674	2,364
3/21/2020	3,541	2,549	2,365
3/22/2020	2,975	2,245	2,363
3/23/2020	3,114	2,005	2,363
3/24/2020	3,216	2,586	2,364
3/25/2020	3,521	2,534	2,364
3/26/2020	4,380	2,936	2,363
3/27/2020	2,868	2,388	2,362
3/28/2020	2,524	1,887	2,361
3/29/2020	1,744	1,360	2,359
3/30/2020	2,598	1,901	2,360
3/31/2020	2,343	1,945	2,359
4/1/2020	2,642	2,204	2,359
4/2/2020	3,277	2,562	2,360
4/3/2020	3,493	2,850	2,362
4/4/2020	2,736	2,215	2,361
4/5/2020	2,045	1,599	2,359
4/6/2020	2,303	1,789	2,358
4/7/2020	2,667	2,290	2,358
4/8/2020	2,519	2,032	2,356
4/9/2020	2,275	1,860	2,353
4/10/2020	2,896	2,140	2,351
4/11/2020	2,761	2,269	2,351
4/12/2020	2,284	1,748	2,350
4/13/2020	3,153	2,111	2,351
4/14/2020	3,221	2,348	2,352
4/15/2020	3,174	2,461	2,353
4/16/2020	3,126	2,267	2,352
4/17/2020	2,763	2,220	2,354
4/18/2020	2,834	2,332	2,353
4/19/2020	2,005	1,522	2,351
4/20/2020	2,233	1,681	2,351
4/21/2020	3,173	2,248	2,351
4/22/2020	2,772	2,345	2,350
4/23/2020	2,783	2,199	2,349
4/24/2020	2,826	2,324	2,348
4/25/2020	3,293	2,330	2,347
4/26/2020	1,913	1,617	2,345
4/27/2020	2,556	1,897	2,345
4/28/2020	2,904	2,294	2,345
4/29/2020	3,283	2,345	2,345
4/30/2020	2,485	2,186	2,344

2020	Total Combustion, SCFM		
	Daily Max	Daily Avg	365-Day Avg
5/1/2020	2,515	2,296	2,344
5/2/2020	2,234	1,931	2,343
5/3/2020	1,874	1,426	2,341
5/4/2020	2,928	1,685	2,341
5/5/2020	2,605	2,198	2,342
5/6/2020	3,736	2,613	2,343
5/7/2020	3,362	2,710	2,342
5/8/2020	3,615	2,714	2,343
5/9/2020	2,264	2,043	2,342
5/10/2020	2,304	1,634	2,339
5/11/2020	3,462	1,913	2,339
5/12/2020	3,649	2,712	2,340
5/13/2020	3,794	2,722	2,342
5/14/2020	2,485	2,237	2,340
5/15/2020	2,885	2,488	2,338
5/16/2020	2,861	2,637	2,337
5/17/2020	2,563	1,914	2,335
5/18/2020	2,228	1,850	2,335
5/19/2020	2,578	1,882	2,335
5/20/2020	2,692	2,169	2,335
5/21/2020	2,426	2,161	2,333
5/22/2020	2,813	2,294	2,331
5/23/2020	3,321	2,467	2,331
5/24/2020	3,124	2,073	2,330
5/25/2020	2,076	1,694	2,329
5/26/2020	1,885	1,678	2,329
5/27/2020	2,627	1,791	2,328
5/28/2020	3,708	2,898	2,329
5/29/2020	3,398	2,836	2,328
5/30/2020	3,009	2,535	2,327
5/31/2020	2,378	1,893	2,326
6/1/2020	10,582	2,068	2,327
6/2/2020	2,429	2,172	2,328
6/3/2020	3,130	2,253	2,328
6/4/2020	2,995	2,121	2,327
6/5/2020	3,054	2,697	2,326
6/6/2020	2,609	2,282	2,325
6/7/2020	2,189	1,768	2,323
6/8/2020	2,198	1,649	2,323
6/9/2020	1,980	1,804	2,321
6/10/2020	2,466	1,944	2,319
6/11/2020	2,316	1,924	2,317
6/12/2020	2,318	1,918	2,315
6/13/2020	2,566	2,079	2,314
6/14/2020	2,057	1,703	2,311
6/15/2020	2,164	1,600	2,311
6/16/2020	2,323	1,878	2,310
6/17/2020	2,723	2,313	2,310
6/18/2020	2,277	2,084	2,309
6/19/2020	2,362	1,995	2,305
6/20/2020	2,376	2,100	2,303
6/21/2020	2,130	1,817	2,303
6/22/2020	1,957	1,516	2,303
6/23/2020	2,727	2,119	2,303
6/24/2020	2,269	1,829	2,301
6/25/2020	2,797	1,941	2,299
6/26/2020	2,550	1,948	2,296
6/27/2020	2,626	1,640	2,293
6/28/2020	2,061	1,653	2,291
6/29/2020	2,694	1,658	2,291
6/30/2020	2,703	2,353	2,292