
To: Nevada Division of Environmental Protection
Nevada Environmental Response Trust

Cc: Nevada Environmental Response Trust Stakeholders

From: Ryan Sullivan, Vice President Service and O&M

Date: April 20, 2020

Subject: NERT – GWETS Operation Monthly Report – March 2020

At the request of the Nevada Environmental Response Trust (Trust), Envirogen Technologies, Inc. (ETI) is providing this summary of the groundwater extraction and treatment system (GWETS) operation and performance during March 2020.

Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS and ion exchange (IX) system normally in March 2020. Flow from PC-119, PC-120, PC-121, and PC-133 was routed to the IX system, bypassing all flow meters associated with the FBR plant. The flow rate to the IX system averaged approximately 183 gallons per minute (gpm). The flow rate to the FBR plant averaged approximately 1,073 gpm during March 2020. At the end of the month, the GW-11 Pond volume was at 42.7 million gallons (MG), which would allow 13.7 days of available additional storage in the event of an emergency FBR plant shutdown with continued well field pumping. The water volume stored in the GW-11 Pond decreased by 2.5 MG from the end of February 2020. Figure 1 in this report depicts the actual GW-11 pond volumes and additional storage available.

The influent perchlorate concentration to the IX system averaged 0.44 mg/L for the month. The influent perchlorate concentration to the FBR plant averaged 66 mg/L for the month, with a maximum concentration of 68 mg/L. In comparison, the influent perchlorate concentration to the FBRs for the month of February 2020 averaged 54 mg/l, with a maximum concentration of 65 mg/l. Fluctuations in the influent perchlorate concentrations are due to the changes in the AP-5 treatment feed rate and not a result of groundwater changes. Treatment of AP-5 material resumed on March 4, 2020.

Enhanced Operational Metrics

Tables 1 and 2 provide a summary of the current GWETS operational metrics data for flow rates, perchlorate and chromium concentrations, and mass removal. These tables also include data associated with the AP-5 decant liquids. Figure 2 graphically presents historical perchlorate and chromium mass flux information. Attachment A provides a summary of the NPDES permit analytes with numerical discharge limits.

Operational Issues

All routine plant repairs conducted by ETI were performed in accordance with the NERT Perchlorate Treatment System Operations Manual. The following is a list of operational issues and major repairs and/or equipment replaced during this reporting period.

1. GW-11

There were no operational issues with GW-11 in the month of March.

2. Biological Plant

Treatment of AP-5 water through the FBR Biological plant resumed in the month of March. Treatment began on March 4 with a flow rate of 1.0 gpm and increasing to 2.5 gpm by the end of the month.

There were influent / effluent diversions during the reporting period generally associated with maintenance activities as well as extraction well short-term shutdown events. Below is a description of the events that occurred:

Diversion Events / Well Shutdowns

- Well Shutdown of the Athens Well Field (AWF) extraction wells ART-2 and ART-8 occurred on March 12, 2020 from 9:09pm to 10:19pm due to power outages caused by inclement weather. The wells were reset and brought back online.
- Well Shutdown of the AWF extraction well ART-8 occurred on March 17, 2020 from 10:22am to 1:59pm due to a motor malfunction. The motor was replaced and the well was brought back online.
- Well Shutdown of Seep Well Field (SWF) extraction well PC-121 occurred on March 19, 2020 from 10:20am to 3:49pm due to a damaged fitting on the pump discharge. The fitting was replaced and both the well was brought back online.

3. Spills

There were no reportable spills in the month of March.

4. Maintenance

- Major maintenance performed by ETI in the month included:
 - I. Ceased operation of extraction well PC-121 to replace the 3" discharge piping that required replacement. The piping was replaced with CPVC.
 - II. ART-8A was pulled and had the 7.5 hp motor replaced with a new electrical connection.
 - III. Replaced the level transducer in Interceptor Well Field extraction well I-Y.
 - IV. Pulled and replaced the GWTP press feed pump and rebuilt the spare pump.
 - V. Replaced the ½" discharge fittings on the NW corner pond corner pump of GW-11.
 - VI. Completed the installation of the overflow valve on the separator A discharge line.
 - VII. Installed a new I/P on the feed valve positioner for FBR 1.

- VIII. Replaced the rubber on two of the flights of the North DAF.
 - IX. Installed a new splash guard around the sand filter reject tank.
 - X. Drained the conditioning tank and removed a loose metal bracket from the bottom piping.
 - XI. Installed a new press cylinder on the plate shifter on the east filter press.
- Preventative Maintenance completed or being performed by ETI in the month included:
 - I. Took the South DAF offline for the semi-annual maintenance. The vessel was pressure washed the South DAF re-secured and aligned the recycle pump, and replaced the hardware on the supports of the auger.
 - II. Conducted the infrared inspection on the MCC electrical buckets in the D-1 building.
 - III. Changed the oil on the turbine motor.
 - IV. Changed the oil in the Lift Station 2 100 hp motor.
 - V. Removed the solids from the P-1102 sump pit.
 - VI. Flushed, cleaned and calibrated the turbidity meters.
 - VII. Cleared debris from the scald protectors on the safety showers and then tested them. All are in good working order.
 - VIII. Changed the belts on the swamp coolers in the E-hut maintenance building.
 - IX. Rotated and inspected the flex coupling on the recycle pump for FBR 1&2.
 - X. Tested the communication between the control room and the Lift Stations.

GWETS Upgrades and Facility Projects

Unit 4 Chromium Water Treatment Plant – Envirogen received comments regarding the deliverable documents that were submitted to the Trust in July 2019 for this project. The revised documents dealing with the Controls Specification, Process Drawings, and Mechanical Details were re-submitted to the Trust in September. Envirogen is awaiting further direction from the Trust regarding this matter.

GWETS Extension –The signed Work Authorization for engineering and fabrication of the GWETS Extension was returned to the Trust on January 28, 2020. The O&M Work Authorization proposal for the GWETS Extension was submitted to the Trust on March 10, 2020. Envirogen is awaiting further direction from the Trust regarding the Work Authorization.

GWETS Staffing

ETI continues with 24-hour staffing of the GWETS at the direction of the Trust and continues to follow the security procedures in the Standard Operating Procedures (SOP).

Tables

Operational Metrics

Nevada Environmental Response Trust Groundwater Extraction and Treatment System Monthly Stakeholder Metrics				
Location ID	Average Flow Rate (gpm)	Perchlorate (mg/L) ^{6 7}	Chromium (TR) (mg/L) ^{6 7}	Chromium(VI) (mg/L) ^{6 7}
SWF Total Extraction ¹	757 ⁵	5.9	0.0013	0.0014
AWF Total Extraction ¹	467 ⁵	65	0.14	0.15
IWF Total Extraction ¹	61 ⁵	412	6.6	6.9
AP Area Total Extraction ¹	11.3 ⁵	624	0.103	0.098
GWTP Effluent ²	62	438	0.30	ND
GW-11 Influent ¹	0.13	65	0.07	0.015
FBR Influent ^{2 3}	1,073	66	0.030	0.021
T-205 Effluent (AP-5 Wash Water) ^{3 4 8}	1.6	NA	NA	NA

Notes:

TR = Total Recoverable; NA = Not Analyzed; ND = Not detectable above laboratory method detection limit (Chromium (VI) = 0.25 ug/L).

- 1: Perchlorate and chromium TR sampled monthly, values reported from TestAmerica.
- 2: Perchlorate, chromium TR, and chromium (VI) sampled weekly, values reported from TestAmerica.
- 3: AP-5 Wash Water perchlorate data is also included in the GW-11 Effluent/ FBR Influent totals.
- 4: Flow weighted average concentration based on mass flow meter readings.
- 5: Sum of daily average flow for individual wells.
- 6: All concentrations reported are monthly flow weighted averages.
- 7: ND analytical values are treated as zero values in the flow weighted average calculations.
- 8: AP-5 sediment mixing and solids washing activities were completed on January 4, 2020.

Nevada Environmental Response Trust Groundwater Extraction and Treatment System Monthly Stakeholder Metrics			
Location ID	Perchlorate (lbs/month) ³	Chromium (TR) (lbs/month) ³	Chromium (VI) (lbs/month) ³
SWF Total Extraction	1,659	0.38	0.38
AWF Total Extraction	11,293	24	26
IWF Total Extraction	9,408	151	157
AP Area Total Extraction	2,621	0.43	0.41
GWTP Effluent	10,051	6.9	ND
GW-11 Influent	3.1	0.004	0.0007
FBR Influent ¹	26,294	12	8.6
T-205 Effluent (AP-5 Wash Water) ^{1 2 4}	0.0	NA	NA

Notes:

TR = Total Recoverable; NA = Not Analyzed.

1: AP-5 Wash Water perchlorate data is also included in the GW-11 Effluent/ FBR Influent totals.

2: AP-5 Wash Water concentrations and mass flux are estimates based on mass flow meter readings.

3: Total mass extracted is calculated from flow weighted average concentration and average flow (see Table 1).

4: AP-5 sediment mixing and solids washing activities were completed on January 4, 2020.

Figures

Operational Metrics

Figure 1 - GW-11 Pond Volume Through 3/31/2020

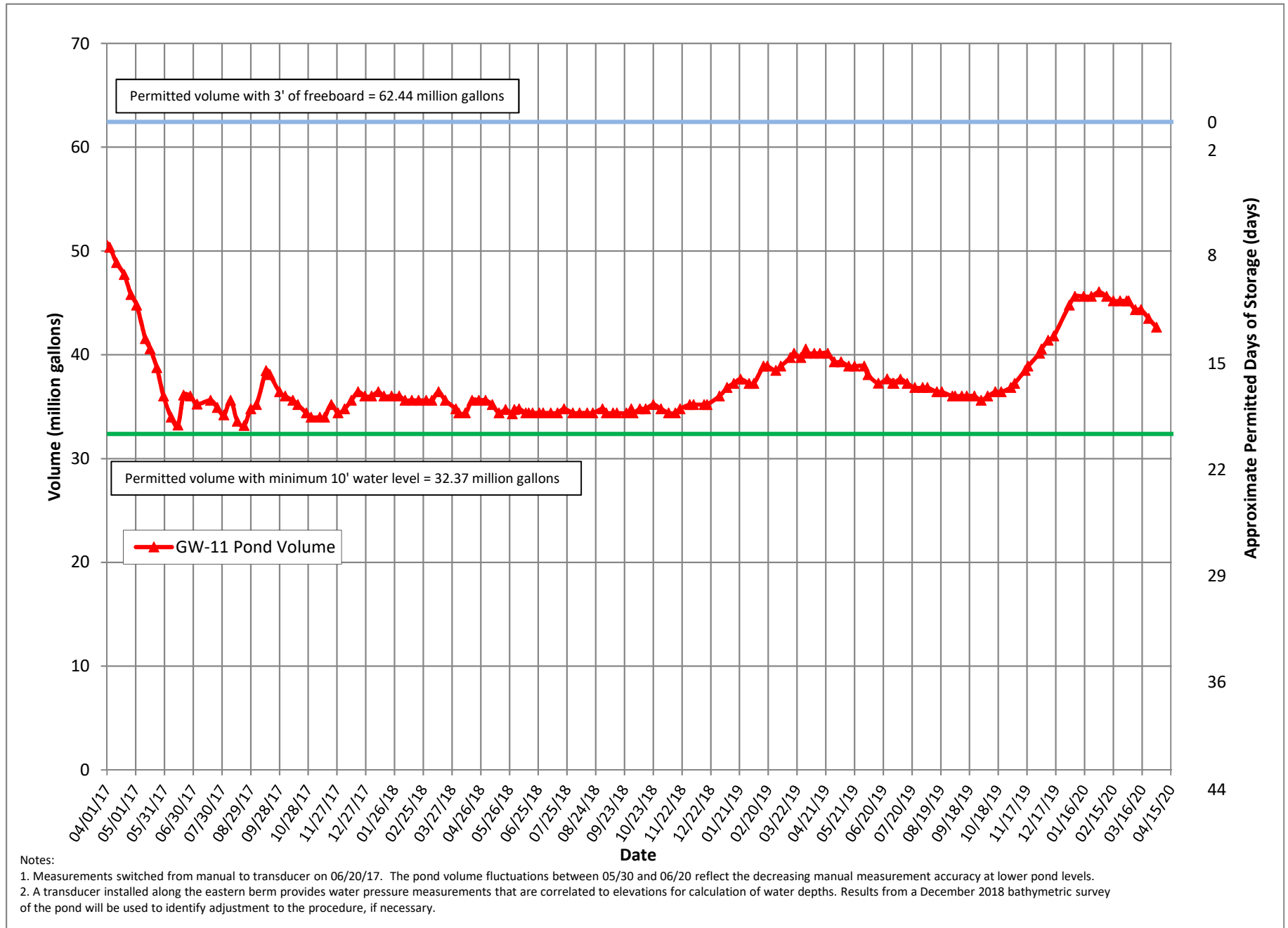
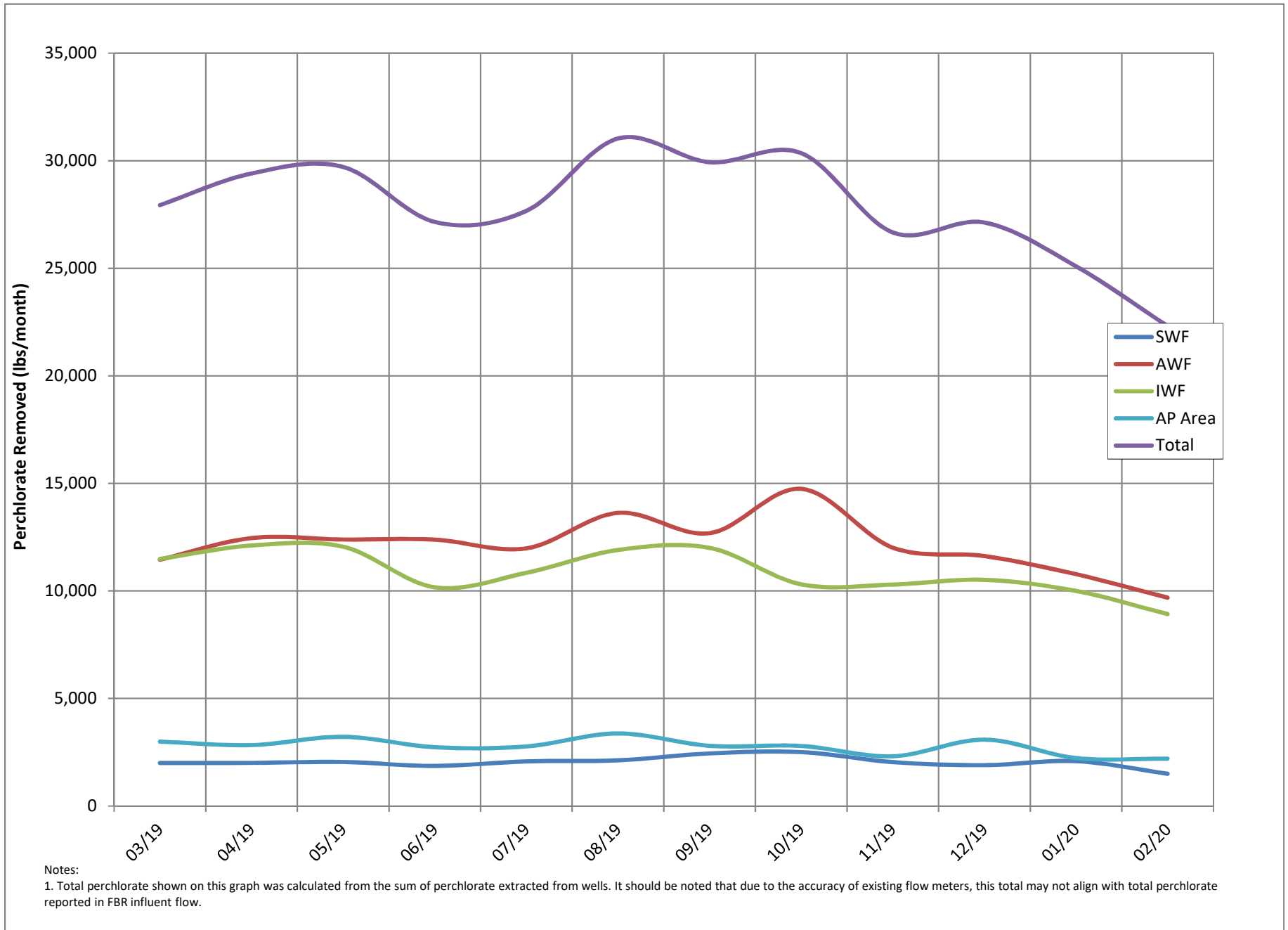


Figure 2 - Historical Perchlorate Mass Removed From Environment



Attachment A

NPDES Tracking Sheet (Prepared by Ramboll)

Treated Effluent at Outfall 001																			
Continuous		Daily Samples, composited weekly				Weekly Grab Samples								Weekly, collected separately			Quarterly		
Flow Rate		Perchlorate		pH	Hexavalent Chromium	Total Chromium	Manganese	Total Iron	Total Inorganic Nitrogen (TIN)	Total Suspended Solids (TSS)		Total Ammonia as N	Total Phosphorus as P	BOD ₅ (inhibited)			Total Dissolved Solids (TDS)		
30-Day Avg. (MGD)	Daily Maximum (MGD)	30-Day Avg. (µg/L)	30-Day Avg. (lbs/day)							Daily Min. (S.U.)	Daily Max. (S.U.)			Daily Max. (µg/L)	Daily Max. (µg/L)	Daily Max. (µg/L)		Daily Max. (µg/L)	Daily Average (mg/L)
2.52	2.88	18	0.38	6.5	9.0	10	100	5,000	10,000	20	135	2,839	20*	10*	25	40	525	8,000	
January 2020	1.82	1.89	4.0	0.06	6.60	6.87	1.1	19	290	540	0.85	5.0	76	6	3.3	1.3	2.1	20	
February 2020	1.85	1.91	1.3	0.019	6.68	6.91	ND (<0.25)	7.6	170	980	1.1	4.9	75	2.3	1.6	1.0	1.0	15	4,100
March 2020 (month to date)	1.86	1.91	1.3	0.020	6.55	7.11	0.36	5.4	220	1,100	ND (<0.50)	6.9	110	1.3	1.8	1.0	1.0	15	
April 2020 (month to date)	NA	NA																	

Daily Grab Sample Dates	Composite Sample Date	µg/L	lbs/day	Sample Date	S.U.	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	Sample Date	mg/L	lbs/day	Sample Date	mg/L		
12/29 - 1/4	1/4/2020	4.4	4.4	0.063	12/30/2019	6.63	ND (<0.25)	4.6	300	63	4.5	14	196	--	4.5	63	--	0.27	3.8	12/30/2019	ND (<2.0)	1.0	14
1/5 - 1/11	1/11/2020	12	12	0.18	1/6/2020	6.60	ND (<0.25)	2.7	290	58	0.85	4.9	70	--	0.85	12	--	0.22	3.1	1/8/2020	ND (<2.0)	1.0	15
1/12 - 1/18	1/18/2020	ND (<2.5)	1.3	0.019	1/13/2020	6.63	ND (<0.25)	19	210	66	ND (<0.50)	3.2	49	--	0.25	3.8	ND (<0.025)	0.013	0.19	1/15/2020	ND (<2.0)	1.0	16
1/19 - 1/25	1/25/2020	ND (<2.5)	1.3	0.019	1/20/2020	6.87	ND (<0.25)	5.8	210	140	ND (<0.50)	9.2	142	--	0.16	2.5	--	0.12	1.9	1/22/2020		2.1	32
1/26 - 2/1	2/1/2020	ND (<2.5)	1.3	0.020	1/27/2020	6.76	1.1	ND (<2.5)	200	540	ND (<0.50)	2.7	41	--	0.35	5.4	--	0.51	7.8	1/29/2020	ND (<2.0)	1.0	15
2/2 - 2/8	2/8/2020	ND (<2.5)	1.3	0.019	2/3/2020	6.91	ND (<0.25)	3.0	150	980	1.1	6.7	103	--	0.11	1.7	--	0.093	1.4	2/5/2020	ND (<2.0)	1.0	13
2/9 - 2/15	2/15/2020	ND (<2.5)	1.3	0.019	2/10/2020	6.68	ND (<0.25)	7.6	170	820	ND (<0.50)	6.4	97	--	0.18	2.7	--	0.095	1.4	2/12/2020	ND (<2.0)	1.0	15
2/16 - 2/22	2/22/2020	ND (<2.5)	1.3	0.019	2/17/2020	6.87	ND (<0.25)	4.5	160	510	ND (<0.50)	3.0	46	--	0.15	2.3	--	0.12	1.8	2/19/2020	ND (<2.0)	1.0	15
2/23 - 2/29	2/29/2020	ND (<2.5)	1.3	0.020	2/24/2020	6.81	ND (<0.25)	3.6	140	770	ND (<0.50)	3.5	54	--	0.17	2.6	--	0.11	1.7	2/26/2020	ND (<2.0)	1.0	16
3/1 - 3/7	3/7/2020	ND (<2.5)	1.3	0.020	3/2/2020	7.01	ND (<0.25)	4.8	190	920	ND (<0.50)	5.8	91	--	0.17**	2.7	--	0.13	2.0	3/4/2020	ND (<2.0)	1.0	15
3/8 - 3/14	3/14/2020	ND (<2.5)	1.3	0.020	3/9/2020	6.55	ND (<0.25)	4.7	220	890	ND (<0.50)	6.1	96	--	0.12**	1.9	--	0.11	1.7	3/12/2020	ND (<2.0)	1.0	15
3/15 - 3/21	3/21/2020	ND (<2.5)	1.3	0.020	3/16/2020	7.11	ND (<0.25)	5.4	190	1,100	ND (<0.50)	11	173	ND (<0.10)	0.05**	0.79	--	0.077	1.2	3/18/2020	ND (<2.0)	1.0	16
3/22 - 3/28	3/28/2020	ND (<2.5)	1.3	0.019	3/23/2020	6.74	ND (<0.25)	3.6	220	1,000	ND (<0.50)	6.2	97	--	0.14**	1.5	--	0.13	2.0	3/25/2020	ND (<2.0)	1.0	15
3/29 - 4/4	4/4/2020	ND (<2.5)	1.3	0.019	3/30/2020	6.61	0.36	3.5	140	740	ND (<0.50)	5.5	86	ND (<0.10)	0.05**	0.76	NA	NA	NA	4/1/2020	ND (<2.0)	1.0	NA
					4/6/2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4/8/2020	NA	NA	

Note: All analytical responsibilities are performed by TestAmerica Laboratories, Inc. (TestAmerica) in Irvine, California, unless otherwise indicated.
 ** Additional samples were collected and analyzed for ammonia during this week and results were included in the 30-day average loading calculation.
 NA = Not Available To Date
 ND = Not Detected above laboratory reporting limit; concentration in adjacent cell to right is one-half the reporting limit (per Permit condition)
 J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.
 -- = Analyte detected; see column adjacent to right.
 * Total phosphorus discharge limitation of 10 lbs/day applies between March 1 and October 31; Ammonia discharge limitation of 20 lbs/day applies between April 1 and September 30; no limits apply the rest of the year.
 Last Updated: April 10, 2020

Attachment B

Equipment Tracking Form

Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
Main Plant Equipment						
1 Seep Wells and Lift Station 1						
1.01		Seep Well Field, 9 wells	Running		1	Took the well offline to replace the 3" discharge piping that was rusted through. The piping was replaced with CPVC.
1.02		Lift Station 1 Lift Pump A	Running			
1.03		Lift Station 1 Lift Pump B	Standby			
1.04		Area in and around Lift Station 1	Running		4	Replaced the fan in the MCC.
2 Athens Road Wells and Lift Station 3						
2.01		Athens Road Well Field, 9 wells	Running		2	ART-8A was pulled and had the 7.5 hp motor replaced with a new electrical connection.
2.02		Lift Station 3 Lift Pump A	Standby			
2.03		Lift Station 3 Lift Pump B	Running			
2.04		Area in and around Lift Station 3	Running			
3 Lift Station 2 and Transmission Pipelines						
3.01		Influent Pipeline	In operation			
3.02		Effluent Pipeline	Running			
3.03		Lift Station 2 Lift Pump A	Running		3	Changed the oil on the turbine motor as PM
3.04		Lift Station 2 Lift Pump B	Standby			
3.05		Area in and around Lift Station 2	Running			
4 Interceptor Wells and Cr Treatment Plant						
4.01		IWF Well Field, 30 wells	Running		3	Replaced the transducer in I-Y. Replaced the lifting gas spring on E-2-3.
4.02		Ferrous Sulfate Feed System	Running			
4.03		Polymer Feed System	Running			
4.04		Clarifier	In operation			
4.05		Filter Press	Running		3	The press pump was replaced. The old pump was clogged.
4.06		GWTP Effluent Tank	In operation			
4.07		Interceptor Booster Pump A	Running			
4.08		Interceptor Booster Pump B	Standby			
4.09		Area In And Around GWTP	Running		4	Installed new light bulbs around the plant
5 Equalization Area and GW-11 Pond						
5.01	PID10A	Pond GW-11	In operation		3	Replaced the discharge fittings on the NW corner pond corner pump
5.02	PID10A	Pond Water Pump - P101A	Running			
5.03	PID10A	Pond Water Pump - P101B	Standby			
5.04	PID10A	Equalization Tanks	In operation			

Status Codes

Running - Unit is in operation
 Standby - Spare or duplicate, not currently in operation
 Maintenance - Out of service for maintenance
 Off - Not currently needed for use, but can be placed in service

Criticality Codes

1 = Critical - Cannot continue with operation until repairs made
 2 = Important - Can still operate safely and in compliance with permits, but risks are increased
 3 = Moderate - Work needs to be performed, but plant can still operate with redundancy that is in place
 4 = Low - Minor repairs that in no way alter the performance of the plant

Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
5.05	PID10A	Area in and Around EQ	In operation			
5.06	PID10A	Raw Water Feed Pump - P102A				
5.07	PID10A	Raw Water Feed Pump - P102B				
5.08	PID10A	F-101 Filters	Running			
5.09	PID10B	Carbon Absorber - LGAC 201A	Running			
5.10	PID10B	Carbon Absorber - LGAC 201B	Running			
5.11	PID10B	Carbon Absorber - LGAC 201C	Running			
6		First Stage FBRs A, 1 & 2				
6.01	PID14	FBR A				
6.02	PID14	Separator Tank - 1401			3	Completed the installation of the overflow valve.
6.03	PID14	Media Return Pump - P 1401			3	The pump was rebuilt with new diaphragm lids and a cam riser.
6.04	PID14	P1401A				
6.05	PID01A	P1401B				
6.06	PID01A	FBR 1	Running			
6.07	PID02A	FBR 2	Running			
6.08	PID01A	First Stage Separator Tank - T2011	Running			
6.09	PID01A	Media Return Pump - P2011	Running			
6.10	PID01A	First Stage FBR Pump - P1011	Standby			
6.11	PID01A	First Stage FBR Pump - P1012			2	Installed a new I/P on the feed valve positioner.
6.12	PID01A	First Stage FRB Pump - P101A	Running			
6.13	PID07A	FBR A pH Feed Pump - P71A	Off			
6.14	PID07A	FBR 1 pH Feed Pump - P711	Off			
6.15	PID07A	FBR 2 pH Feed Pump - P712	Off			
6.16	PID07A	FBR A Nutrient (Urea) Feed Pump - P72A	Off			
6.17	PID07A	FBR 1 Nutrient (Urea) Feed Pump - P721	Off			
6.18	PID07A	FBR 2 Nutrient (Urea) Feed Pump - P722	Off			
6.19	PID15	FBR A Nutrient (Phos Acid) Feed Pump - P1520A	Running			
6.20	PID15	FBR 1 Nutrient (Phos Acid) Feed Pump - P1521	Running			
6.21	PID15	FBR 2 Nutrient (Phos Acid) Feed Pump - P1522	Running			
6.22	PID07B	FBR A Electron Donor Assembly Pump - P73A	Running			
6.23	PID07B	FBR 1 Electron Donor Assembly Pump - P731	Running			
6.24	PID07B	FBR 2 Electron Donor Assembly Pump - P732	Running			
7		First Stage FBRs 3 & 4				
7.01	PID01B	FBR 3	Running			
7.02	PID01B	FBR 4	Running			
7.03	PID02B	First Stage Separator Tank - T2012	Running			

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 3 = Moderate - Work needs to be performed, but plant can still operate with redundancy that is in place
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Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
7.04	PID01B	Media Return Pump - P2012	Running			
7.05	PID01B	First Stage FBR Pump - P1013	Running			
7.06	PID01B	First Stage FRB Pump - P1014	Running			
7.07	PID01B	First Stage FBR Pump - P102A	Running			
7.08	PID07A	FBR 3 pH Feed Pump - P713	Running			
7.09	PID07A	FBR 4 pH Feed Pump - P714	Running			
7.10	PID07A	FBR 3 Nutrient (Urea) Feed Pump - P723				
7.11	PID07A	FBR 4 Nutrient (Urea) Feed Pump - P 724	Off			
7.12	PID15	FBR 3 Nutrient (Phos Acid) Feed Pump - P1523	Running			
7.13	PID15	FBR 4 Nutrient (Phos Acid) Feed Pump - P1524	Running			
7.14	PID07B	FBR 3 Electron Donor Assembly Pump - P733	Running			
7.15	PID07B	FBR 4 Electron Donor Assembly Pump - P734	Running			
8		Second Stage FBRs 5 & 6				
8.01	PID03A	FBR 5	Running			
8.02	PID03A	FBR 6	Running			
8.03	PID03C	Second Stage Separator Tank - T3011	Running			
8.04	PID03A	Media Return Pump - P3011	Running		3	The pump had the belt replaced 2x. A spare pump is on standby
8.05	PID03A	Second Stage FBR Pump - P3015	Running			
8.06	PID03A	Second Stage FBR Pump - P3016	Standby			
8.07	PID03A	Second Stage FBR Pump - P301A	Running			
8.08	PID07A	FBR 5 pH Feed Pump - P715	Off			
8.09	PID07A	FBR 6 pH Feed Pump - P716	Off			
8.1	PID07A	FBR 5 Nutrient (Urea) Feed Pump - P725	Off			
8.11	PID07A	FBR 6 Nutrient (Urea) Feed Pump - P726	Off			
8.12	PID07B	FBR 5 Electron Donor Assembly Pump - P735	Running			
8.13	PID07B	FBR 6 Electron Donor Assembly Pump - P736	Running			
9		Second Stage FBRs 7 & 8				
9.01	PID03B	FBR 7	Running			
9.02	PID03B	FBR 8	Running			
9.03	PID03D	Second Stage Separator Tank - T3012	Running			
9.04	PID03B	Media Return Pump - P3012	Running			
9.05	PID03B	Second Stage FBR Pump - P3017	Running			
9.06	PID03B	Second Stage FBR Pump - P3018	Running			
9.07	PID03B	Second Stage FBR Pump - P302A	Running			
9.08	PID07A	FBR 7 pH Feed Pump - P717	Off			

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Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
9.09	PID07A	FBR 8 pH Feed Pump - P718	Off			
9.10	PID07A	FBR 7 Nutrient (Urea) Feed Pump - P727	Off			
9.11	PID07A	FBR 8 Nutrient (Urea) Feed Pump - P728	Off			
9.12	PID07B	FBR 7 Electron Donor Assembly Pump - P737	Running			
9.13	PID07B	FBR 8 Electron Donor Assembly Pump - P738	Running			
10		Aeration and DAF System				
10.01	PID04	Aeration Tank	In operation			
10.02	PID04	Aeration Blower - B401	Running			
10.03	PID04	Bio filter	In operation			
10.04	PID04	Nutrient Solution	Running			
10.05	PID04	Bio filter Sump				
10.06	PID04	Nutrient Pump - P401	Running			
10.07	PID04	Bio filter Sump Pump - P402A	Standby			
10.09	PID04	Bio filter Blower	Running			
10.10	PID05	DAF Pressure Tanks	In operation			
10.11	PID05	DAF Vessel - D501	Running		1	Took the S.DAF offline for the semi-annual maintenance. The vessel was pressure washed, the recycle pump was resecured and aligned, replaced the hardware on the supports on the auger.
10.12	PID05	DAF Pressure Pump - P501	Running			
10.13	PID05	DAF Float Pump - P502	Running			
10.14	PID05	DAF Vessel - D551	Running		2	Replaced the rubber on two of the flights.
10.15	PID05	DAF Pressure Pump - P551	Running			
10.16	PID05	DAF Float Pump - P552	Running			
10.17	PID05	Screw Conveyer Drive	Standby			
10.18	PID05	Skimmer Drive	Running			
11		Pumping System (Old Effluent)				
11.01	PID06	Effluent Tank 601	In operation			
11.02	PID06	Effluent Pump - P601	Running			
11.03	PID06	Effluent Pump - P602	Standby			
12		Sand Filter System				
12.01	PID17	Sand Filter				
12.02	PID17	Filter Reject Tank	In operation		4	A new splash guard was put up around the reject tank.
12.03	PID17	Filter Reject Pump - P1701A	Standby			
12.04	PID17	Filter Reject Pump - P1701B	Running			
13		Effluent Tank and Pumping				

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Criticality Codes

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Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
13.01	PID10C	UV Effluent Tank	Running			
13.02	PID10C	Effluent Booster Pump - P1302A	Running			
13.03	PID10C	Effluent Booster Pump - P1302B	Standby			
13.04	PID10C	Area Around Effluent and North D-1	Running			
14		Solids Collection and Pressing System				
14.01	PID16	Sludge Storage Tank	In operation			
14.02	PID16	Solids Storage Effluent Pump - P1601	Running			
14.03	PID16	Solids Cond. Tank	In operation		2	The tank was drained and a loose metal bracket was removed from the bottom piping.
14.04	PID09	Sludge Mixer	Running			
14.05	PID09	Filter Press Pump - P901	Running			
14.06	PID09	Filter Press Pump - P902				
14.07	PID09	West Press	Standby			
14.08	PID09	East Press	Running		3	New press cylinder was installed on the plate shifter.
14.09	PID09	Filtrate Tank	In operation			
14.10	PID09	Filtrate Tank Effluent (recycle) Pump - P903	Running			
		Chemical Systems				
15		Electron Donor System				
15.01	PID07B	Electron Donor Tank	In operation			
15.02	PID07B	Booster Pump P739A	Running			
15.03	PID07B	Booster Pump P739B	Standby			
17	PID07C	Micro Nutrient System	In operation			
18	PID07C	Hydrogen Peroxide System	In operation			
19	PID07C	De-Foam System	In operation			
20	PID15	Nutrient (Phosphoric Acid) System (Tank only - pumps included in FBRs)	In operation			
21	PID07A	Nutrient (Urea) System (Tank only - pumps included in FBRs)	In operation			
22	PID07A	pH System (Tank and effluent pH feed pump only - other pumps included in FBRs)	In operation			
23	PID07C	Ferric Chloride	In operation			
24	PID07B	Polymer Systems - DAF	In operation			
25	PID09	Polymer System - Solids Dewatering (2 tanks, 2 centrifugal pumps, mixer, volumetric feeder)	In operation			
		Utility Systems				

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Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
26		Compressed Air System				
26.01	PID08	West Compressor	Running			
26.02	PID08	East Compressor	Running			
26.03	PID08	O2 Compressor	Running			
26.04	PID08	Compressed Air Receiver Tank	In operation			
26.05	PID08	Air Dryer	Running			
26.06	PID08	Oil Removal Filter	In operation			
26.07	PID08	Particulate Filter	In operation			
27	PID16	Oxygen System	In operation			
28		GWETS Plant Controls/ Siemens Controls	In operation			
29		Well Control System/ Allen Bradley Controls	In operation			
30		MCC FBR Pad	In operation			
31		MCC in D-1	In operation			
32		MCC in EQ area	In operation			
		Miscellaneous Systems				
33		Operations Office/Network	In operation			
34		Laboratory Analyzers	In operation			
35		Security Systems	In operation			
		Shelf Spares				
		Media Return Pump Rebuild Kit	In stock			
		pH Feed Pump	In stock			
		Nutrient Feed Pump	In stock			
		Electron Donor Feed Pump	In stock			
		Phosphoric Acid Feed Pump	In stock			
		Interceptor Well Pumps (4 each)	In stock			
		Seep Well Pump (1 each, same as Athens so total of 2)	In stock			
		Athens Road Well Pump (1 each, same as Seep so total of 2)	In stock			

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