
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: Feb 20, 2019

Subject: NERT – GWETS Operation Monthly Report – Jan 2019

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 January 2019.

Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS and ion exchange (IX) system normally in January 2019. 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 1,067 gpm during January 2019. At the end of the month, the GW-11 Pond volume was at 37.2 million gallons (MG), which would allow 17.5 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 increased by 1.2 MG from the end of December 2018. 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 247 mg/L for the month, with a maximum concentration of 260 mg/L. In comparison, the influent perchlorate concentration to the FBRs for the month of December 2018 averaged 262 mg/l, with a maximum concentration of 280 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.

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 January.

2. Biological Plant

Treatment of AP-5 water through the FBR Biological plant continued in the month of January beginning with a flow rate of 10.0 gpm and maintaining a consistent flow rate throughout the end of the month.

There were influent / effluent diversions and well shutdowns during the reporting period generally associated with maintenance activities. Below is a description of the events that occurred:

Diversion Events

- Effluent Diversion to GW-11 occurred on January 1, 2019 from 1:37pm to 4:02pm due to low temperature freezing on the compressed air lines. Approximately 160,000 gallons of effluent were diverted to GW-11.
- Effluent diversion to GW-11 occurred on January 4, 2019 from 9:50am to 10:58am due maintenance efforts on the Sand Filter. Approximately 75,000 gallons of effluent were diverted to GW-11.
- Effluent Diversion to GW-11 occurred on January 8, 2019 from 2:23pm to 4:50pm due to maintenance on the solids removal process at the DAF. Approximately 160,000 gallons of effluent were diverted to GW-11.
- Plant placed into Recycle on January 19, 2019 from 9:19pm to 11:07pm due to loss of communication from all three lift stations. A data switch was replaced and the communication was restored at 10:55pm. The plant was brought back online and the effluent was returned to the Las Vegas Wash at 12:06am on January 20. During this time period the IWF continued to operate but water was discharged to GW-11.
- Extraction well I-AR was turned off on January 21, 2019 thru January 30, 2019 for extended well recharge testing.
- Influent Diversion to GW-11 occurred on January 30, 2019 from 12:32pm to 1:46pm due to maintenance efforts on the T-601 flow control valve. Approximately 90,000 gallons of Influent were diverted to GW-11.
- Effluent Diversion to GW-11 occurred on January 30, 2019 from 4:30 to 5:15pm due to process adjustments. Approximately 90,000 gallons of effluent were diverted to GW-11.
- Effluent Diversion to GW-11 occurred on January 31, 2019 from 10:25am to 11:32am due to maintenance efforts at the outfall. Approximately 73,000 gallons of effluent were diverted to GW-11.

3. Spills

There were no reportable spills for the month of January.

4. Maintenance

- Major maintenance performed by ETI in the month included:
 - I. Replaced the tubing for the pressure switch on FBR 3 recycle pump.
 - II. Installed level sensor on the phosphoric acid tote.
 - III. Replaced the shaft and diaphragm on the east filter press pump.
 - IV. Replaced the P-1001A pump at GWTP.
 - V. Replaced the split coupling on the dry polymer transfer pump.
 - VI. Installed new ISEP sump discharge piping.
 - VII. Installed a new level sensor for the ferrous sulfate chemical storage tank.
 - VIII. Installed a new pH probe for FBR 7.
 - IX. Installed the new 601 level control valve.
 - X. Installed electrical grounding wire on the LS1 flowmeters.

- Preventative Maintenance completed or being performed by ETI in the month included:
 - I. Cleared debris from the Sand filter reject tank.
 - II. Removed solids from the ISEP sump pit.
 - III. Pressure washed the cloths on the west filter press.
 - IV. Tested flows on the IX vessels.
 - V. Cleared the accumulation of solids in media return pump #2.
 - VI. Performed PM's on the Lift Station 3 turbines. Vibration checks and visual inspection were performed and grease was added.
 - VII. Cleared the blockage on the DAF polymer system.

GWETS Upgrades and Facility Projects

Treatment System Extension – ETI continued on production of the process engineering including Process Flow, Mass Balance and P&IDs for initial submission to NDEP. ETI anticipates the design package will be ready for submission in early 2019. Along with the process engineering, ETI is moving forward with mechanical designs for all the vessels and prefabricated containers along with the overall layout. These also should be finalized in early 2019. ETI continues to coordinate with Tetra Tech, who will install the system including the interconnection between TIMET and the Trust. Preliminary layouts and other installation information was given to Tetra Tech. ETI also supplied Tetra Tech with the required information for the air permit analysis required for this addition.

Equipment Availability Tracking

ETI operators continue to update the equipment tracking form on a weekly basis or whenever there is a change in the status of key equipment. During regular site visits, Tetra Tech field personnel verify the entries on the form, including both the operating status and confirmation of the inventory of required shelf spares. The equipment tracking form is included as Attachment B.

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	756 ⁵	7.2	0.0017	0.0009
AWF Total Extraction ¹	465 ⁵	75	0.16	0.16
IWF Total Extraction ¹	56 ⁵	594	7.3	7.0
AP Area Total Extraction ¹	8.7 ⁵	858	0.088	0.083
GWTP Effluent ²	56	643	0.44	0.000047
GW-11 Influent ¹	0.16	75	0.091	0.008
FBR Influent ^{2 3}	1,067	247	0.099	0.084
T-205 Effluent (AP-5 Wash Water) ^{3 4}	9.7	19,749	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.

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	2,045	0.47	0.27
AWF Total Extraction	12,989	28	27
IWF Total Extraction	12,485	154	147
AP Area Total Extraction	2,789	0.29	0.27
GWTP Effluent	13,420	9.3	0.00
GW-11 Influent	4.5	0.01	0.00
FBR Influent ¹	98,459	39	34
T-205 Effluent (AP-5 Wash Water) ^{1 2}	71,330	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.

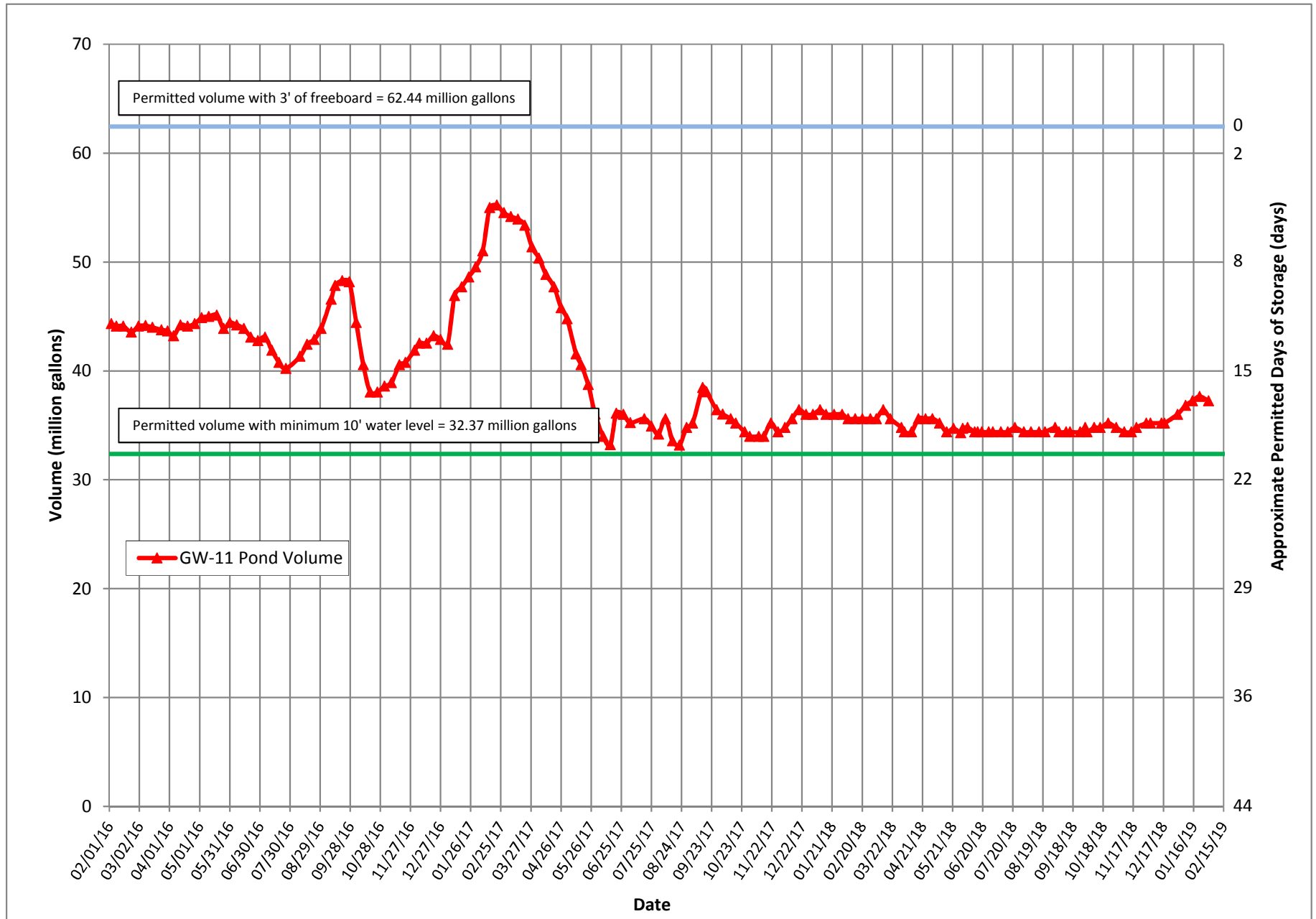
2: AP-5 Wash Water concentrations and mass flux are estimates based on mass flow meter readings.

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

Figures

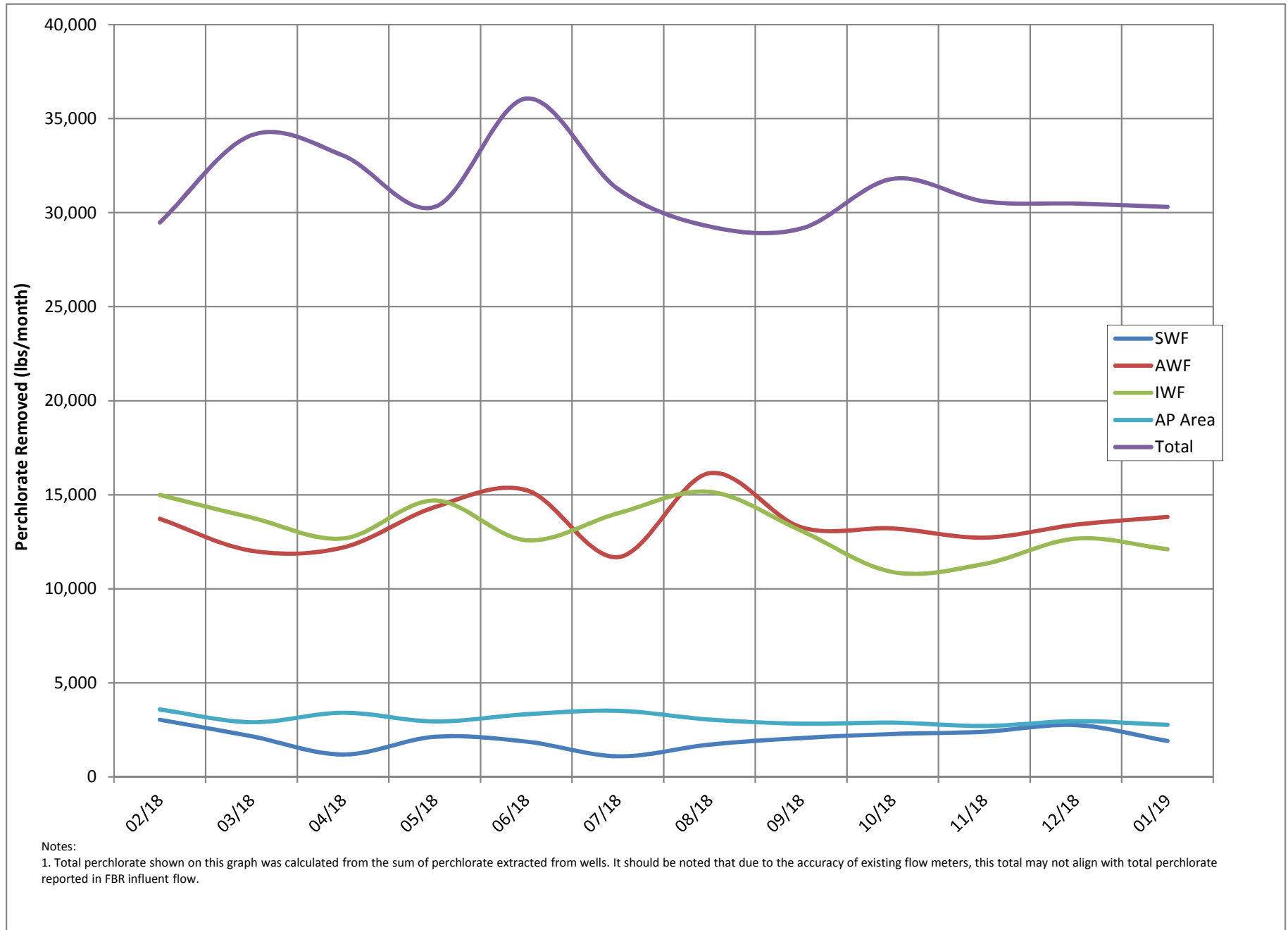
Operational Metrics

Figure 1 - GW-11 Pond Volume Through 1/31/2019



Note: Measurements switched from manual to transducer on 06/20/17. The pond volume fluctuations between 05/30 and 06/20 reflect the decreasing manual measurement accuracy at lower pond levels.

Figure 2 - Historical Perchlorate Mass Removed From Environment



Attachment A

NPDES Tracking Sheet (Prepared by ENVIRON)

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 Max. (mg/L)	Daily Average (mg/L)	30-Day Avg. (lbs/day)	30-Day Avg. (lbs/day)		30-Day Avg. (lbs/day)		30-Day Avg. (mg/L)	Daily Max. (mg/L)	30-Day Avg. (lbs/day)	Daily Max. (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 2019 (month to date)																						
1.81	1.87	0.5		0.0074		6.77	7.33	ND (<0.25)	31	250	330	15	7	110	170		1.5		2.1	2.7	31	

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	mg/L	lbs/day	Sample Date	mg/L	lbs/day	Sample Date	mg/L	
12/30 - 1/5	1/5/2019	ND (<1.0)	0.5	0.0074	1/2/2019	7.33	ND (<0.25)	31	200	170	11	15	231	--	11	185**	--	0.20	3.1	1/2/2019	2.7	42		
1/6 - 1/12	1/12/2019	ND (<1.0)	0.5	0.0074	1/7/2019	7.21	ND (<0.25)	7.2	250	99	15	4.4	63	--	15	117**	--	0.13	1.9	1/9/2019	1.5	22		
1/13 - 1/19	1/19/2019	ND (<1.0)	0.5	0.0075	1/14/2019	6.77	ND (<0.25)	3.7	150	330	14	4.4	67	--	13	117	--	0.061	0.93	1/16/2019	2.6	40		
1/20 - 1/26	1/26/2019	NA	NA	NA	1/21/2019	7.26	ND (<0.25)	7.6	190	170	12	5.4	84	--	11	172	ND (<0.025)	0.013	0.20	1/23/2019	1.5	23		
1/27 - 2/2	2/2/2019	NA	NA	NA	1/28/2019	6.98	ND (<0.25)	4.0	200	170	9.5	6.1	95	--	9.5	148	--	0.10	1.6	1/30/2019	NA	NA		
					2/4/2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2/6/2019	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: February 8, 2019

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		2	Replaced the motor on PC-117
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			
2		Athens Road Wells and Lift Station 3				
2.01		Athens Road Well Field, 9 wells	Running			
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			
3.04		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		2	Replaced the motor on I-P
4.02		Ferrous Sulfate Feed System	Running		3	Insulated the piping on the feed line
4.03		Polymer Feed System	Running			
4.04		Clarifier	In operation			
4.05		Filter Press	Running			
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		1	Replaced P-1001 pump with a new one and rebuilt the seal on the old pump
5		Equalization Area and GW-11 Pond				
5.01	PID10A	Pond GW-11	In operation			
5.02	PID10A	Pond Water Pump - P101A	Running			
5.03	PID10A	Pond Water Pump - P101B	Standby			
5.04	PID10A	Equalization Tanks	In operation			
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				

Status Codes

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Criticality Codes

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 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
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Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
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			3	
6.02	PID14	Separator Tank - 1401				
6.03	PID14	Media Return Pump - P 1401				
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			1	The pump was pulled and sent to Cortech for repairs to the shaft and housing
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			
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			

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Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
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 belt was replaced on the pump
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		2	The old pH probe was removed and pipe clamp was installed on the pipe.
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			
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			

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Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
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			
10.12	PID05	DAF Pressure Pump - P501	Running		2	The pump was replaced. The bearings were also replaced on the barrel
10.13	PID05	DAF Float Pump - P502	Running			
10.14	PID05	DAF Vessel - D551	Running			
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		1	The level control valve was replaced with an electrically actuated valve
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			
12.03	PID17	Filter Reject Pump - P1701A	Standby			
12.04	PID17	Filter Reject Pump - P1701B	Running			
13		Effluent Tank and Pumping				
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			

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Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
14.02	PID16	Solids Storage Effluent Pump - P1601	Running			
14.03	PID16	Solids Cond. Tank	In operation			
14.04	PID09	Sludge Mixer	Running			
14.05	PID09	Filter Press Pump - P901	Running		3	The diaphragm was replaced on the pump
14.06	PID09	Filter Press Pump - P902				
14.07	PID09	West Press	Standby		2	The press was pressure washed and 6 clothes were replaced
14.08	PID09	East Press	Running		3	The hydraulic fluid was replaced and the filter
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		4	New drawdown columns were installed on each phos pump
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	Aluminum Chlorohydrate	In operation			
24	PID07B	Polymer Systems - DAF	In operation		2	The pump head was rebuilt and the eductor was replaced.
25	PID09	Polymer System - Solids Dewatering (2 tanks, 2 centrifugal pumps, mixer, volumetric feeder)	In operation			
Utility Systems						
26	Compressed Air System					
26.01	PID08	West Compressor	Running			
26.02	PID08	East Compressor	Running		3	The thermostat was replaced on the unit.
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			

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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
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		3	The auto-dialer was relocated for better signal.
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			Spares are on the shelf
		Interceptor Well Pumps (4 each)	In stock			Pumps and motors are stocked.
		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			Spares are on the shelf.

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