
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, 2018

Subject: NERT – GWETS Operation Monthly Report – March 2018

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 2018.

Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS and ion exchange (IX) system normally in March 2018. 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 148 gallons per minute (gpm). The flow rate to the FBR plant averaged approximately 1,094 gpm during March 2018. At the end of the month, the GW-11 Pond volume was at 34.8 million gallons (MG), which would allow 19.2 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 approximately 0.8 MG from the end of February 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 1.2 mg/L for the month. The influent perchlorate concentration to the FBR plant averaged 168 mg/L for the month, with a maximum concentration of 250 mg/L. In comparison, the influent perchlorate concentration to the FBRs for the month of February 2018 averaged 269 mg/l, with a maximum concentration of 300 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 March.

2. Biological Plant

Treatment of AP-5 water through the FBR Biological plant continued in the month of March starting at a flow rate of 9.0 gpm and decreasing to 0.5 gpm on the 12th of March through the end of the month. This reduction was necessary to maintain compliance with the reduced ammonia loading effluent limits for April through September specified in the NPDES permit.

There were two Influent diversion events into GW-11 for the month of March, and three Effluent diversions into GW-11. There was also one event that temporarily interrupted flow at the Athens Road Well Field. Below is a description of the events that occurred:

Diversion Events

- Influent Diversion to GW-11 occurred on March 13, 2018 from 7:11pm to 7:35pm due to a mechanical failure of the sand filter reject tank pump. Maintenance was performed on the pump. Approx. 16,000 gallons of Influent were diverted to GW-11.
- Influent Diversion to GW-11 occurred on March 20, 2018 from 9:06pm to 9:45pm due to a low tank level at T-601 during a backwash event. Approx. 43,000 gallons of Influent were diverted to GW-11.
- Effluent Diversion to GW-11 occurred on March 6, 2018 from 8:25am to 9:20am due to preventative maintenance activities including the clearing of brush and cleaning of surface areas at the outfall. Approx. 28,350 gallons were diverted to GW-11.
- Effluent Diversion to GW-11 occurred on March 19, 2018 at 11:24am to 12:38pm due to preventative maintenance activities including the annual inspection at the sand filter. Approx. 81,560 gallons of Effluent were diverted to GW-11.
- Effluent Diversion to GW-11 occurred on March 21, 2018 at 11:32am to 12:26pm due to preventative maintenance activities including the inspection and replacement of combo valve components on the effluent pipeline. Approx. 60,500 gallons of Effluent were diverted to GW-11.

Unplanned Event

- The Athens Road Well Field experienced intermittent interruptions in flow on March 23, 2018 between 12:53am to 3:10am, 1:04pm and 1:23pm, and 2:35pm and 2:48pm due to a fault in a communication line connection. The connection was replaced and flow restored to normal operation.

3. Spills

There were no reportable spills during the reporting period.

4. Maintenance

- Major maintenance performed by ETI in the month included:
 - I. A belt was replaced on the media return pump for FBR A.
 - II. New airlines were installed on the catwalk to supply the bed height pumps.
 - III. New screens were installed on the sand filter to stop debris from entering the system.
 - IV. Debris was removed from the sludge conditioning tank.
 - V. A new expansion joint was installed on the discharge of the press pump.
 - VI. A new injection line was installed on the discharge of the micro nutrient pump.
 - VII. New lights were installed in the control room.
 - VIII. The double disk bed height pump was removed from FBR 4 and replaced with a new Air Operated Diaphragm pump.

- Preventative Maintenance completed or being performed by ETI in the month included:
 - I. Inspected and replaced packing as needed on the LS1 turbines.
 - II. The P-101 filter strainers at the EQ were removed and cleaned.
 - III. The sand filter was taken offline to complete the annual inspection.
 - IV. The bed height pumps were taken offline and flushed.
 - V. The influent and effluent pumps were greased and inspected.
 - VI. The pipeline and air release valves were inspected.
 - VII. Preventative Maintenance, including inspecting all hoses and filters, rotating lead and lag compressors, changing the oil and filters, and confirmation of all appropriate setpoints were completed on the air compressors.

GWETS Upgrades and Facility Projects

No open projects at this time.

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) ^{5 6}	Chromium (TR) (mg/L) ^{5 6}	Chromium(VI) (mg/L) ^{5 6}
SWF Total Extraction ²	748 ¹	7.6	0.0021	0.0016
AWF Total Extraction ²	474 ¹	81	0.16	0.17
IWF Total Extraction ²	62 ¹	632	7.9	7.4
AP Area Total Extraction ³	10 ¹	799	NA	0.044
GWTP Effluent ⁴	78	680	0.95	ND
GW-11 Influent ²	2.2	82	0.078	0.035
FBR Influent ^{4 7}	1,094	168	0.042	0.033
T-205 Effluent (AP-5 Wash Water) ^{7 8}	3.6	19,283	NA	NA

Notes:

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

1: Sum of daily average flow for individual wells.

2: Perchlorate and chromium TR sampled monthly, values reported from TestAmerica.

3: Perchlorate, chromium TR and chromium (VI) sampled twice weekly, values reported from TestAmerica.

4: Perchlorate, chromium TR and chromium (VI) sampled weekly, values reported from TestAmerica.

5: All concentrations reported are monthly flow weighted averages.

6: ND analytical values are treated as zero values in the flow weighted average calculations.

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

8: Flow weighted average concentration based on mass flow meter readings.

Nevada Environmental Response Trust Groundwater Extraction and Treatment System Monthly Stakeholder Metrics			
Location ID	Perchlorate (lbs/month) ¹	Chromium (TR) (lbs/month) ¹	Chromium (VI) (lbs/month) ¹
SWF Total Extraction	2,131	0.60	0.45
AWF Total Extraction	14,340	28	31
IWF Total Extraction	14,696	184	172
AP Area Total Extraction	2,947	NA	0.16
GWTP Effluent	19,829	28	ND
GW-11 Influent	67	0.06	0.03
FBR Influent ²	68,620	17	13
T-205 Effluent (AP-5 Wash Water) ^{2 3}	25,701	NA	NA

Notes:

TR = Total Recoverable; NA = Not Analyzed.

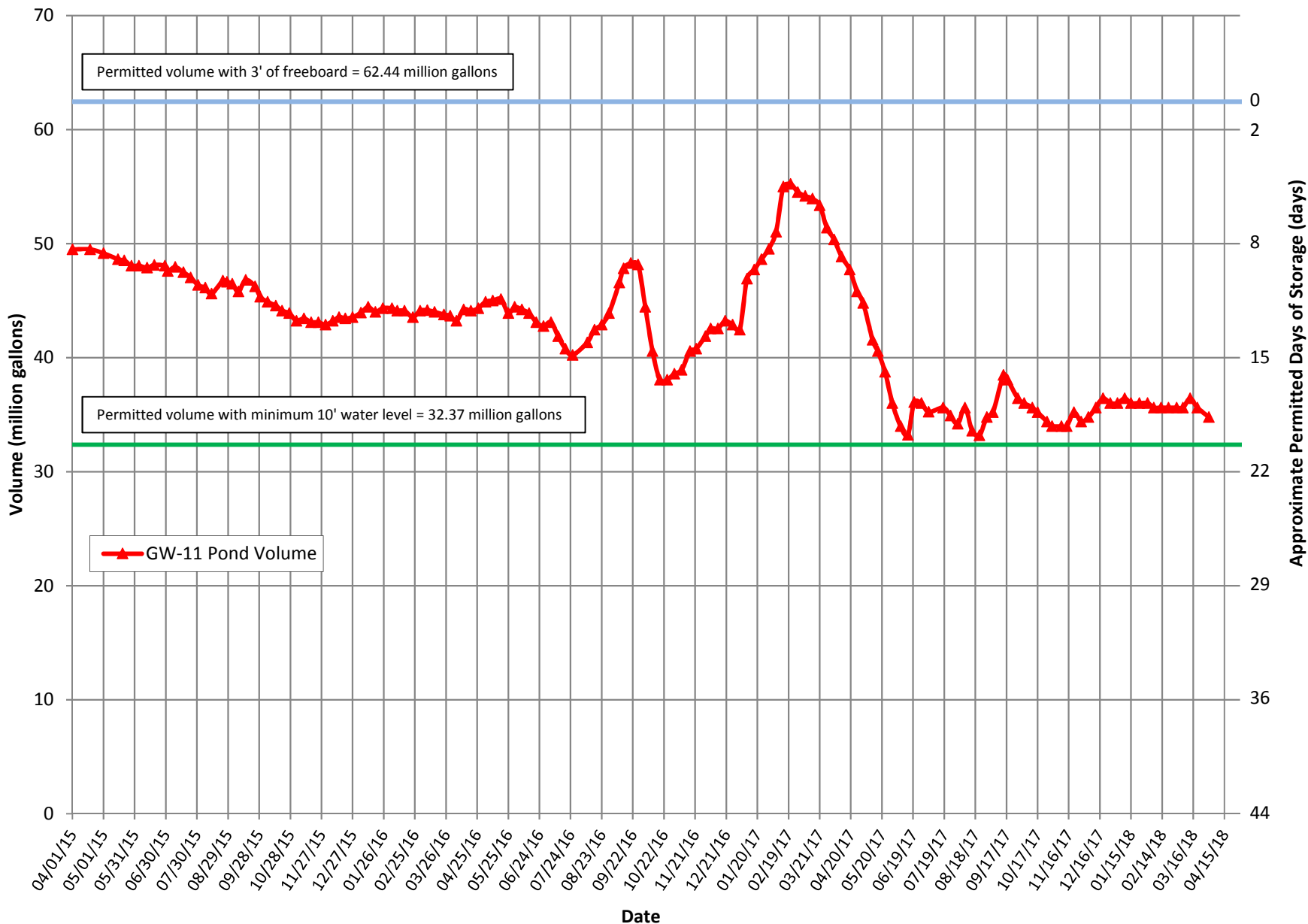
1: Total mass extracted is calculated from flow weighted average concentration and average flow (see Table 1).

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

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

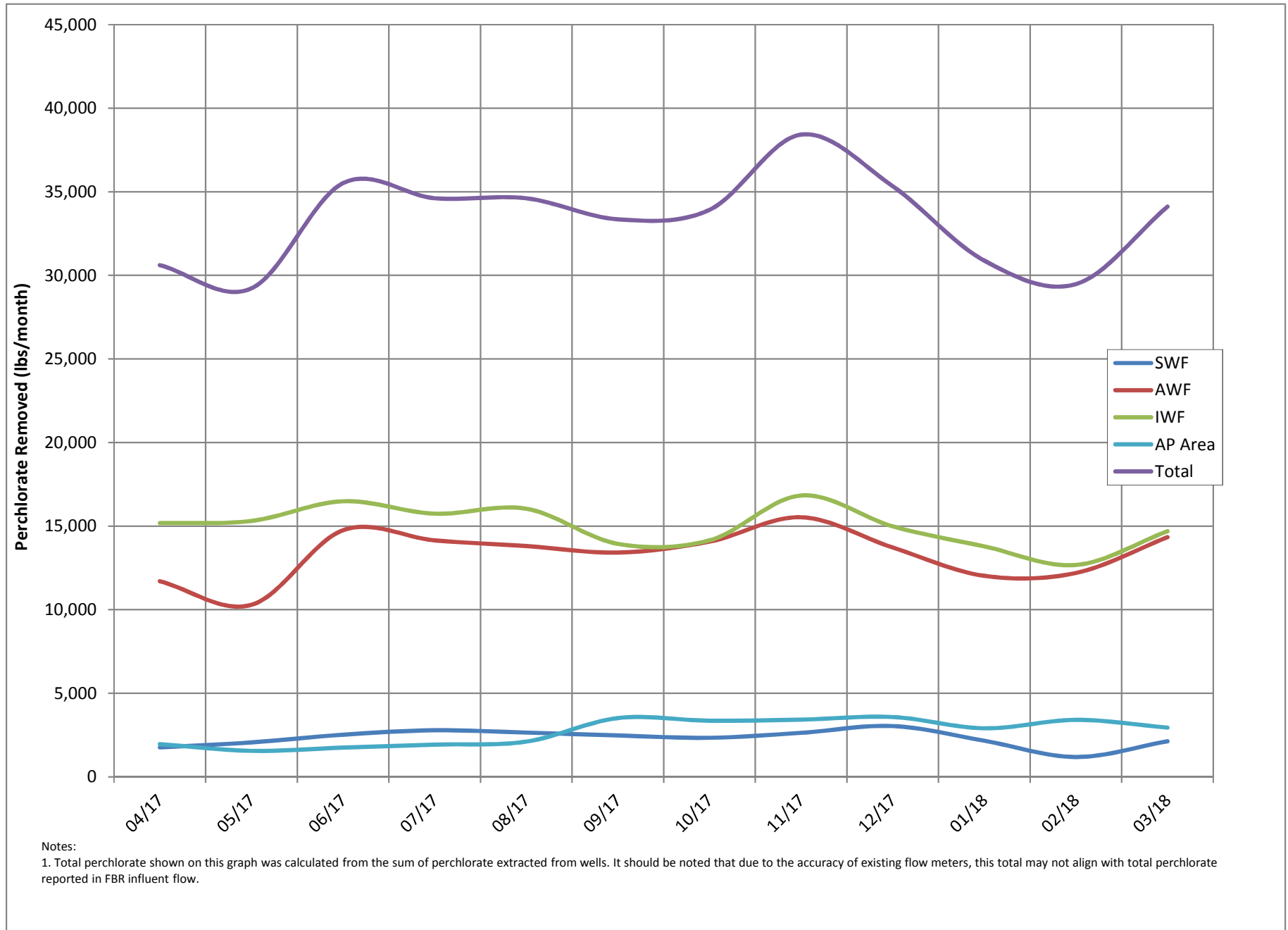
Figures

Operational Metrics



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. (µg/L)	Daily Max. (µg/L)	Daily Max. (µg/L)	Daily Max. (µg/L)	Daily Max. (mg/L)	Daily Max. (mg/L)	30-Day Avg. (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 2018	1.80	1.88	0.5	0.0075		6.70	7.02	0.49	18	600	3,900	14	17	260		170		2.9	3.9	45		
February 2018	1.83	1.88	1.5	0.022		6.81	6.87	ND (<0.25)	8.2	590	2,300	12	16	230		150		2.9	4.0	43	4,600	
March 2018 (month to date)	1.78	1.89	0.5	0.0075		6.76	7.19	ND (<0.25)	15	430	2,600	10	13	200		50		2.8	4.1	52		
April 2018 (month to date)	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA	NA	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	
12/31 - 1/6	1/6/2018	ND (<1.0)	0.5	0.0077	1/2/2018	7.02	ND (<0.25)	6.6	600	1,600	14	12	185	--	12	183**	--	0.082	1.3	1/3/2018	2.2	33
1/7 - 1/13	1/13/2018	ND (<1.0)	0.5	0.0072	1/8/2018	6.86	ND (<0.25)	4.8	600	2,800	11	18	263	--	11	160	--	0.13	1.9	1/10/2018	3.2	48
1/14 - 1/20	1/20/2018	ND (<1.0)	0.5	0.0076	1/15/2018	6.70	0.25	5.7	550	1,100	11	7.9	122	--	10	142**	--	0.11	1.7	1/17/2018	3.9	58
1/21 - 1/27	1/27/2018	ND (<1.0)	0.5	0.0076	1/22/2018	6.83	0.49	18	530	3,900	12	26	401	--	11	170**	--	0.18	2.8	1/24/2018	2.3	36
1/29 - 2/3	2/3/2018	ND (<1.0)	0.5	0.0077	1/29/2018	6.72	ND (<0.25)	11	580	3,800	9.8	21	316	--	8.9	134	--	0.11	1.7	1/31/2018	3.1	47
2/4 - 2/10	2/10/2018	ND (<1.0)	0.5	0.0076	2/5/2018	6.87	ND (<0.25)	5.4	580	960	12	6.9	104	--	9.9	150**	--	0.047	0.71	2/7/2018	2.6	40
2/11 - 2/17	2/17/2018	3.1	3.1	0.048	2/12/2018	6.81	ND (<0.25)	6.8	590	1,300	12	7.0	106	--	10	151	--	0.055	0.840	2/14/2018	2.3	35
2/18 - 2/24	2/24/2018	ND (<1.0)	0.5	0.0077	2/19/2018	6.86	ND (<0.25)	7.0	550	2,300	12	16	240	--	10	150	--	0.11	1.7	2/21/2018	2.8	43
2/25 - 3/3	3/3/2018	1.7	1.7	0.024	2/26/2018	6.84	ND (<0.25)	8.2	550	1,700	12	33	481	--	6.9	101	--	0.19	2.8	2/28/2018	4.0	55
3/4 - 3/10	3/10/2018	ND (<1.0)	0.5	0.0073	3/5/2018	6.96	ND (<0.25)	11	430	2,600	9.8	18	269	--	8.3	124	--	0.24	3.6	3/7/2018	4.1	60
3/11 - 3/17	3/17/2018	ND (<1.0)	0.5	0.0076	3/12/2018	6.76	ND (<0.25)	7.1	360	2,100	10	17	258	--	8.6	130**	--	0.22	3.3	3/14/2018	3.7	58
3/18 - 3/24	3/24/2018	ND (<1.0)	0.5	0.0075	3/19/2018	7.14	ND (<0.25)	15	290	2,300	ND (<0.50)	12	175	--	0.39	5.7	--	0.11	1.6	3/21/2018	2.5	38
3/25 - 3/31	3/31/2018	NA	NA	NA	3/26/2018	7.19	ND (<0.25)	3.6	340	890	ND (<0.50)	5.9	90	--	0.45	6.0	--	0.13	2.0	3/28/2018	0.95	NA
					4/2/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	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)
 -- = 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 6, 2018

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	The radio communication systems were reset and inspected. The antenna's were realigned for better communication.
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		1	New connectors were installed on the VFD Profibus lines for better communication.
3		Lift Station 2 and Transmission Pipelines				
3.01		Influent Pipeline	In operation			
3.02		Effluent Pipeline	Running		1	A new air release valve was installed on the pipeline.
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			
4.02		Ferrous Sulfate Feed System	Running			
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		3	A new contactor and pressure switch was installed on the air compressor.
5		Equalization Area and GW-11 Pond				
5.01	PID10A	Pond GW-11	In operation		3	A new 1/2 hp motor was installed on the NW corner.
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		4	The regulator was removed to stop a leak inside containment on the SLW line.
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				
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	Running			
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
 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
7.04	PID01B	Media Return Pump - P2012	Running		4	A new belt was installed on the pump.
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			
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			
9.09	PID07A	FBR 8 pH Feed Pump - P718	Off			
9.10	PID07A	FBR 7 Nutrient (Urea) Feed Pump - P727	Off			

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Criticality Codes

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 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
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			
10.12	PID05	DAF Pressure Pump - P501	Running			
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			
11.02	PID06	Effluent Pump - P601	Running			
11.03	PID06	Effluent Pump - P602	Standby			
12		Sand Filter System				
12.01	PID17	Sand Filter			1	The unit was taken offline for the annual service and inspection.
12.02	PID17	Filter Reject Tank	In operation		2	Solids were removed from the tank and a new screen was attached.
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				

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Criticality Codes

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Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
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	Debris was removed from the tank.
14.04	PID09	Sludge Mixer	Running			
14.05	PID09	Filter Press Pump - P901	Running		3	The airlines and the pump were disassembled to remove the solids and any other debris from the equipment.
14.06	PID09	Filter Press Pump - P902				
14.07	PID09	West Press	Standby			
14.08	PID09	East Press	Running			
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		2	New tubing was installed on the discharge of the pump as well as a new injection point.
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 System	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						
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			

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Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
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			Spares are on the shelf
		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			Spares are on the shelf.

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