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**To:** Nevada Division of Environmental Protection  
Nevada Environmental Response Trust

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**Cc:** Nevada Environmental Response Trust Stakeholders

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

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**Date:** June 20, 2019

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**Subject:** NERT – GWETS Operation Monthly Report – May 2019

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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 May 2019.

### Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS and ion exchange (IX) system normally in May 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 182 gallons per minute (gpm). The flow rate to the FBR plant averaged approximately 1,027 gpm during May 2019. At the end of the month, the GW-11 Pond volume was at 38.9 million gallons (MG), which would allow 16.4 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 0.4 MG from the end of April 2019. 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 0.27 mg/L for the month. The influent perchlorate concentration to the FBR plant averaged 118 mg/L for the month, with a maximum concentration of 120 mg/L. In comparison, the influent perchlorate concentration to the FBRs for the month of April 2019 averaged 102 mg/l, with a maximum concentration of 120 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 May.

### 2. Biological Plant

Treatment of AP-5 water through the FBR Biological plant continued in the month of May beginning with a flow rate of 2.0 gpm and increasing in flow to 2.5 gpm on May 22, 2019 and maintaining this flow rate through the end of the month. Changes in flow were made to balance the load from processing AP-5 material with seasonal restrictions in NERT's NPDES permit during the summer months.

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 / Well Shutdowns

- Effluent Diversion to GW-11 occurred on May 7, 2019 from 1:21pm to 2:06pm due to maintenance activities on the effluent pipeline. Approximately, 50,000 gallons of effluent were diverted to GW-11.
- Effluent diversion to GW-11 on May 8, 2019 from 11:49am to 1:26pm due to maintenance activities at the sand filter and the effluent pipeline. Approximately, 105,000 gallons of effluent were diverted to GW-11.
- Extraction well ART-8 went offline on May 14, 2019 from 10:54am to 4:01pm due to a faulty motor. The motor was replaced and the pump was brought back online.
- Effluent diversion to GW-11 occurred on May 15, 2019 from 5:56am to 7:16am due to maintenance activities on the effluent pipeline. Approximately 21,000 gallons of effluent were diverted to GW-11.
- Extraction well I-AA went offline on May 16, 2019 from 8:33pm to May 17, 2019 at 10:36am due to an overcurrent error on the motor. The motor was replaced and the pump was brought back online.
- Influent diversion to GW-11 occurred on May 31, 2019 from 8:51am to 10:51m due to maintenance activities on the turbidity meter feed line. Approximately 126,000 gallons of water were diverted to GW-11.

### 3. Spills

There was no reportable spills in the month of May.

### 4. Maintenance

- Major maintenance performed by ETI in the month included:

- I. Installed new conduit and wire on the sand filter pressure sensor.
  - II. Replaced a combo valve on the pipeline.
  - III. Replaced the motor on the LS3 turbine pump.
  - IV. Replaced the air regulator on the separator 4 level control valve.
  - V. Installed the new ultra-sonic level sensor for the sand filter reject tank.
  - VI. Replaced the motherboard on the front gate controller.
  - VII. Rebuilt the bed height pumps and put them back into service.
  - VIII. Replaced the motors on extraction well pumps ART-8A and I-AA.
- Preventative Maintenance completed or being performed by ETI in the month included:
    - I. Inspected and cleaned the combo valves on the pipeline.
    - II. Assembled the spare airlifts.
    - III. Replaced the belt and lubricated the spare air compressor at GWTP.
    - IV. Conducted an oil inspection on the air compressors.
    - V. Replaced the packing on the turbine pump at LS1.
    - VI. Assembled spare bed height pumps and media return pumps.
    - VII. Removed and cleaned the pressure sensor on the sand filter header.
    - VIII. Cleaned the slide activators on the level control positioners on the separators.
    - IX. Cleaned and calibrated the turbidity meters.
    - X. Cleaned the seal water flow meters for the recycle pumps.

### **GWETS Upgrades and Facility Projects**

Treatment System Extension – ETI has completed all of the required engineering and forms necessary to support TIMET’s UIC permit modification review and submitted these items to the Trust.

### **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

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*Operational Metrics*

Nevada Environmental Response Trust   Groundwater Extraction and Treatment System   Monthly Stakeholder Metrics				
Location ID	Average Flow Rate (gpm)	Perchlorate (mg/L) <sup>6 7</sup>	Chromium (TR) (mg/L) <sup>6 7</sup>	Chromium(VI) (mg/L) <sup>6 7</sup>
SWF Total Extraction <sup>1</sup>	741 <sup>5</sup>	7.4	0.0017	0.0021
AWF Total Extraction <sup>1</sup>	462 <sup>5</sup>	72	0.16	0.16
IWF Total Extraction <sup>1</sup>	60 <sup>5</sup>	535	7.1	6.8
AP Area Total Extraction <sup>1</sup>	11.7 <sup>5</sup>	738	0.079	0.082
GWTP Effluent <sup>2</sup>	59	570	0.27	ND
GW-11 Influent <sup>1</sup>	0.12	52	0.08	0.03
FBR Influent <sup>2 3</sup>	1,027	118	0.105	0.019
T-205 Effluent (AP-5 Wash Water) <sup>3 4</sup>	2.1	19,195	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) <sup>3</sup>	Chromium (TR) (lbs/month) <sup>3</sup>	Chromium (VI) (lbs/month) <sup>3</sup>
SWF Total Extraction	2,048	0.48	0.59
AWF Total Extraction	12,390	27	28
IWF Total Extraction	12,055	159	154
AP Area Total Extraction	3,218	0.34	0.36
GWTP Effluent	12,639	6.0	ND
GW-11 Influent	2.3	0.00	0.00
FBR Influent <sup>1</sup>	45,076	40	7.1
T-205 Effluent (AP-5 Wash Water) <sup>1 2</sup>	15,391	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

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*Operational Metrics*

Figure 1 - GW-11 Pond Volume Through 5/31/2019

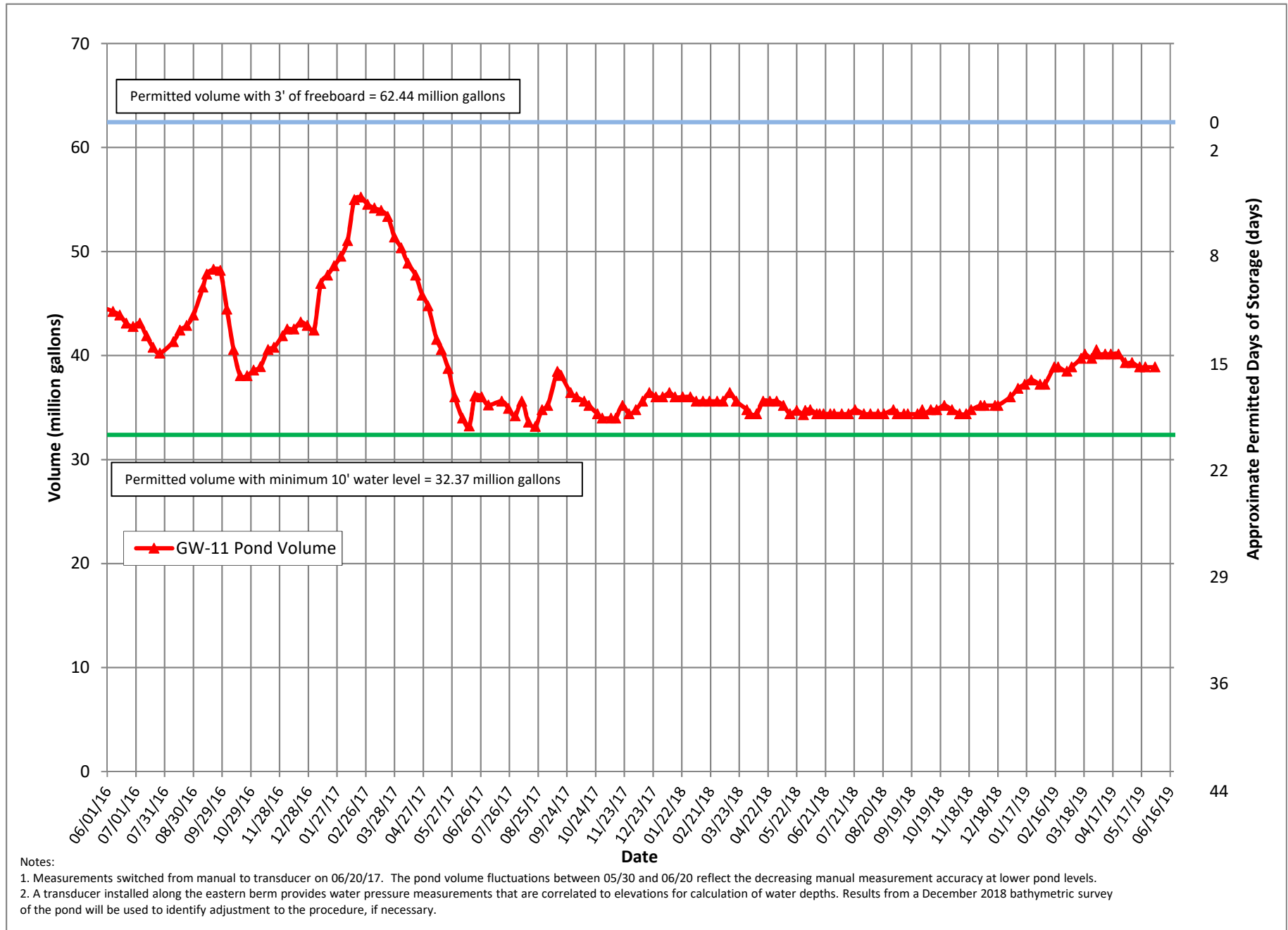
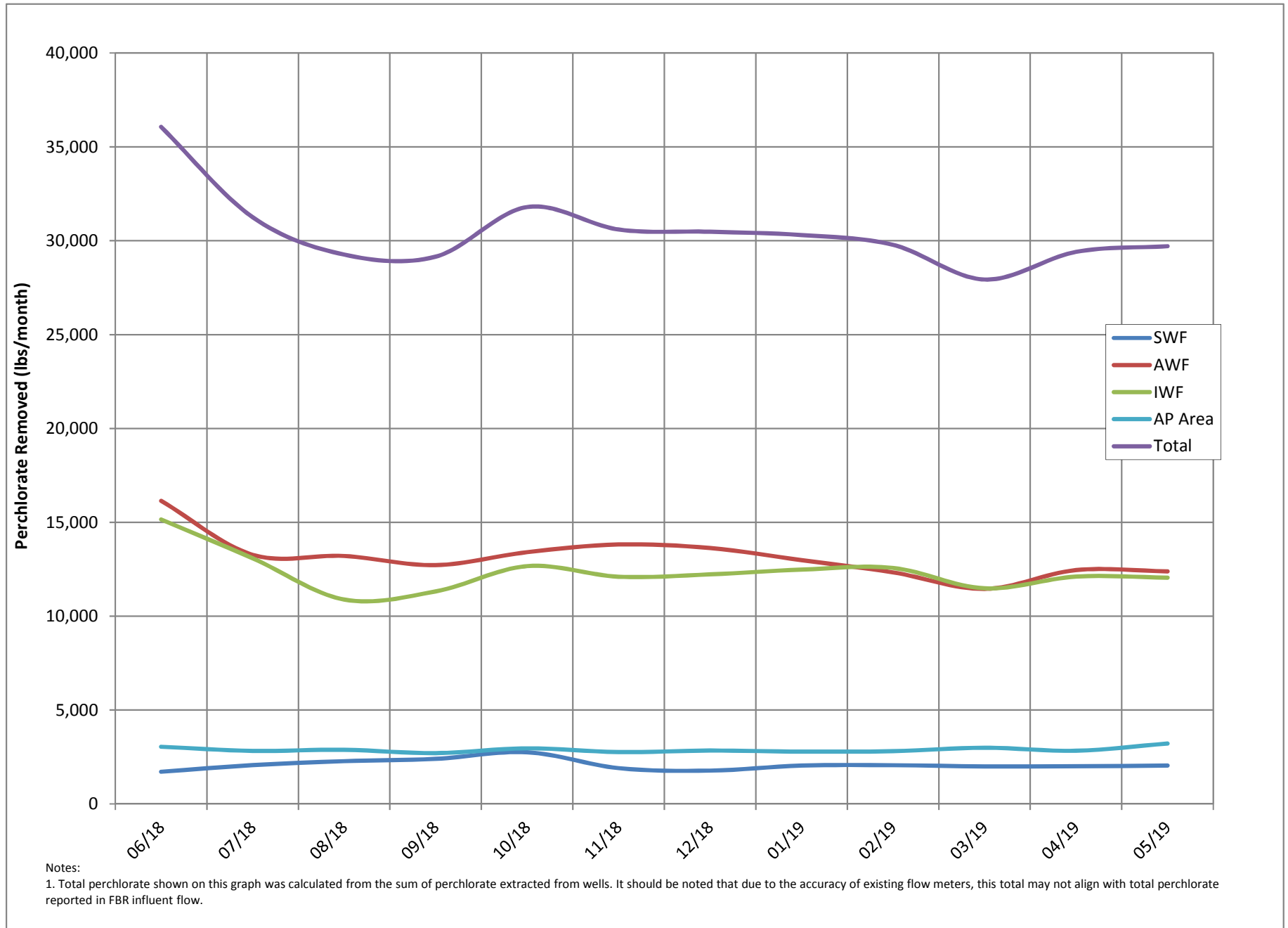




Figure 2 - Historical Perchlorate Mass Removed From Environment



# Attachment A

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*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 <sub>5</sub> (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. (lbs/day)	30-Day Avg. (mg/L)	Daily Max. (mg/L)	30-Day Avg. (lbs/day)	Daily Max. (mg/L)	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	1.80	1.87	0.5	0.0075	6.77	7.33	ND (<0.25)	31	250	330	15	7	110	170	1.5	1.8	2.7	27		
February 2019	1.79	1.87	4.7	0.070	6.58	6.91	ND (<0.25)	16	220	390	14	10	150	190	1.6	0.9	1.2	13		4,500
March 2019	1.67	1.86	0.5	0.0069	6.57	6.82	ND (<0.25)	14	290	160	19	7	100	120	2.1	0.7	2.2	11		
April 2019	1.73	1.85	0.5	0.0072	6.50	6.88	ND (<0.25)	11	310	410	1.2	9	130	5	1.6	0.5	1.4	7		
May 2019	1.78	1.83	0.5	0.0074	6.50	7.05	ND (<0.25)	5.9	340	130	1.5	6	90	8	2.0	0.7	1.4	9		4,300
June 2019 (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				
12/30 - 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	197	--	0.061	0.93	1/16/2019	2.6	40			
1/20 - 1/26	1/26/2019	ND (<1.0)	0.5	0.0077	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	ND (<1.0)	0.5	0.0074	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	0.78	11			
2/3 - 2/9	2/9/2019	ND (<1.0)	0.5	0.0071	2/4/2019	6.58	ND (<0.25)	8.6	200	390	14	12	176	--	14	205	--	0.12	1.8	2/6/2019	1.2	16			
2/10 - 2/16	2/16/2019	9.1	9.1	0.14	2/11/2019	6.88	ND (<0.25)	6.3	180	100	13	4.8	72	--	13	194	--	0.11	1.6	2/13/2019	1.1	16	2/11/2019	4,500	
2/17 - 2/23	2/23/2019	8.6	8.6	0.13	2/18/2019	6.91	ND (<0.25)	5.3	210	82	13	9.3	139	--	12	179	--	0.094	1.4	2/20/2019	0.75	11			
2/24 - 3/2	3/2/2019	ND (<1.0)	0.5	0.0075	2/25/2019	6.74	ND (<0.25)	16	220	170	11	13	202	--	11	171	--	0.11	1.7	2/27/2019	0.55	8.3			
3/3 - 3/9	3/9/2019	ND (<1.0)	0.5	0.0068	3/4/2019	6.64	ND (<0.25)	14	220	160	15	15	199	--	15	199	--	0.11	1.5	3/6/2019	ND (<0.50)	0.25	3.4		
3/10 - 3/16	3/16/2019	ND (<1.0)	0.5	0.0068	3/11/2019	6.57	ND (<0.25)	3.5	250	72	19	4.8	65	--	19	257	--	0.16	2.2	3/13/2019	ND (<0.50)	0.25	3.3		
3/17 - 3/23	3/23/2019	ND (<1.0)	0.5	0.0073	3/18/2019	6.82	ND (<0.25)	3.4	290	81	13	4.9	67	--	13	178**	--	0.24	3.3	3/20/2019	2.2	33			
3/24 - 3/30	3/30/2019	ND (<1.0)	0.5	0.0068	3/25/2019	6.69	ND (<0.25)	5.0	280	78	0.97	5.1	71	--	0.97	14**	--	0.12	1.7	3/27/2019	ND (<0.50)	0.25	3.2		
3/30 - 4/6	4/6/2019	ND (<1.0)	0.5	0.0070	4/1/2019	6.64	ND (<0.25)	ND (<2.5)	250	ND (<50)	ND (<0.50)	3.3	46	--	0.13	1.8	--	0.081	1.1	4/3/2019	ND (<0.50)	0.25	3.6		
4/7 - 4/13	4/13/2019	ND (<1.0)	0.5	0.0075	4/8/2019	6.50	ND (<0.25)	3.8	300	92	ND (<0.50)	9.6	136	ND (<0.10)	0.05	1.2**	--	0.13	1.8	4/10/2019	ND (<0.50)	0.25	3.8		
4/14 - 4/20	4/20/2019	ND (<1.0)	0.5	0.0071	4/15/2019	6.60	ND (<0.25)	3.2	300	72	ND (<0.50)	4.3	65	--	0.21	2.9**	--	0.075	1.1	4/17/2019	ND (<0.50)	0.25	3.3		
4/21 - 4/27	4/27/2019	ND (<1.0)	0.5	0.0074	4/22/2019	6.88	ND (<0.25)	11	310	410	0.60	23	335	--	0.60	8.7**	--	0.13	1.9	4/24/2019	1.4	21			
4/28 - 5/4	5/4/2019	ND (<1.0)	0.5	0.0073	4/29/2019	6.50	ND (<0.25)	ND (<2.5)	310	130	1.2	5.1	76	--	0.63	9.4	--	0.14	2.1	5/1/2019	ND (<0.50)	0.25	3.7	5/1/2019	4,300
5/5 - 5/11	5/11/2019	ND (<1.0)	0.5	0.0074	5/6/2019	6.50	ND (<0.25)	2.5	310	58	1.2	3.5	51	--	0.64	9.4**	--	0.14	2.1	5/8/2019	0.63	9.0			
5/12 - 5/18	5/18/2019	ND (<1.0)	0.5	0.0074	5/13/2019	6.78	ND (<0.25)	5.9	340	130	0.57	13	193	--	0.57	8.4	--	0.22	3.3	5/15/2019	ND (<0.50)	0.25	3.7		
5/19 - 5/25	5/25/2019	ND (<1.0)	0.5	0.0074	5/20/2019	6.57	ND (<0.25)	2.7	290	70	ND (<0.50)	3.4	51	--	0.47	7.1	--	0.10	1.5	5/22/2019	1.4	21			
5/26 - 6/1	6/1/2019	ND (<1.0)	0.5	0.0074	5/28/2019	7.05	ND (<0.25)	4.4	250	99	1.5	4.6	67	--	0.79	11	--	0.078	1.1	5/29/2019	0.88	NA			
					6/3/2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6/5/2019	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: June 7, 2019

# Attachment B

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*Equipment Tracking Form*

Sub-System	P&ID	Description	Status <sup>1</sup>	Checked	Criticality <sup>2</sup>	Notes
<b>Main Plant Equipment</b>						
<b>1 Seep Wells and Lift Station 1</b>						
1.01		Seep Well Field, 9 wells	Running			
1.02		Lift Station 1 Lift Pump A	Running		3	Replaced the packing on the turbine
1.03		Lift Station 1 Lift Pump B	Standby			
1.04		Area in and around Lift Station 1	Running			
<b>2 Athens Road Wells and Lift Station 3</b>						
2.01		Athens Road Well Field, 9 wells	Running		2	Replaced the 7.5 hp motor on ART-8A
2.02		Lift Station 3 Lift Pump A	Standby			
2.03		Lift Station 3 Lift Pump B	Running		2	Replaced the 10 hp motor on the turbine
2.04		Area in and around Lift Station 3	Running		4	Installed the aux A/C's on the MCC cabinets
<b>3 Lift Station 2 and Transmission Pipelines</b>						
3.01		Influent Pipeline	In operation			
3.02		Effluent Pipeline	Running		2	Replaced the combo valve 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			
<b>4 Interceptor Wells and Cr Treatment Plant</b>						
4.01		IWF Well Field, 30 wells	Running		2	Replaced the pump and motor on I-AA
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	Replaced the pump on GWTP compressor
<b>5 Equalization Area and GW-11 Pond</b>						
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				
5.08	PID10A	F-101 Filters	Running			

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 <sup>1</sup>	Checked	Criticality <sup>2</sup>	Notes
5.09	PID10B	Carbon Absorber - LGAC 201A	Running			
5.10	PID10B	Carbon Absorber - LGAC 201B	Running			
5.11	PID10B	Carbon Absorber - LGAC 201C	Running			
<b>6</b>		<b>First Stage FBRs A, 1 &amp; 2</b>				
6.01	PID14	FBR A				
6.02	PID14	Separator Tank - 1401				
6.03	PID14	Media Return Pump - P 1401			3	Replaced the belt
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				
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			
<b>7</b>		<b>First Stage FBRs 3 &amp; 4</b>				
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			
7.07	PID01B	First Stage FBR Pump - P102A	Running			

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Criticality Codes

1= Critical - Cannot continue with operation until repairs made  
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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 <sup>1</sup>	Checked	Criticality <sup>2</sup>	Notes
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			
<b>8</b>		<b>Second Stage FBRs 5 &amp; 6</b>				
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			
<b>9</b>		<b>Second Stage FBRs 7 &amp; 8</b>				
9.01	PID03B	FBR 7	Running			
9.02	PID03B	FBR 8	Running			
9.03	PID03D	Second Stage Separator Tank - T3012	Running		3	Replaced the air regulator on the air supply to the positioner
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			
9.13	PID07B	FBR 8 Electron Donor Assembly Pump - P738	Running			
<b>10</b>		<b>Aeration and DAF System</b>				

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Sub-System	P&ID	Description	Status <sup>1</sup>	Checked	Criticality <sup>2</sup>	Notes
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			
<b>11</b>		<b>Pumping System (Old Effluent)</b>				
11.01	PID06	Effluent Tank 601	In operation			
11.02	PID06	Effluent Pump - P601	Running			
11.03	PID06	Effluent Pump - P602	Standby			
<b>12</b>		<b>Sand Filter System</b>				
12.01	PID17	Sand Filter			3	The pressure sensor was remove and calibrated
12.02	PID17	Filter Reject Tank	In operation		4	Installed the new level control sensor
12.03	PID17	Filter Reject Pump - P1701A	Standby			
12.04	PID17	Filter Reject Pump - P1701B	Running			
<b>13</b>		<b>Effluent Tank and Pumping</b>				
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			
<b>14</b>		<b>Solids Collection and Pressing System</b>				
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			
14.04	PID09	Sludge Mixer	Running			
14.05	PID09	Filter Press Pump - P901	Running			

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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			
<b>Chemical Systems</b>						
<b>15</b>		<b>Electron Donor System</b>				
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		3	Replaced the 2 inch valve at the base of the tank
23	PID07C	Aluminum Chlorohydrate	In operation			
24	PID07B	Polymer Systems - DAF	In operation		3	Replaced the venturi pumps on the discharge of the pumps
25	PID09	Polymer System - Solids Dewatering (2 tanks, 2 centrifugal pumps, mixer, volumetric feeder)	In operation			
<b>Utility Systems</b>						
<b>26</b>		<b>Compressed Air System</b>				
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			

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32		MCC in EQ area	In operation			
		<b>Miscellaneous Systems</b>				
33		Operations Office/Network	In operation			
34		Laboratory Analyzers	In operation			
35		Security Systems	In operation			
		<b>Shelf Spares</b>				
		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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