

---

**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:** January 20, 2019

---

**Subject:** NERT – GWETS Operation Monthly Report – December 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 December 2019.

### Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS and ion exchange (IX) system normally in December 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 1,050 gpm during December 2019. At the end of the month, the GW-11 Pond volume was at 44.8 million gallons (MG), which would allow 12.3 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 4.7 MG from the end of November 2019 as a result of increased backwashing of the granulated activated carbon vessels. 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 235 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 November 2019 averaged 258 mg/l, with a maximum concentration of 270 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 December.

### 2. Biological Plant

Treatment of AP-5 water through the FBR Biological plant continued in the month of December maintaining a flow rate of 9.0 gpm throughout the month of December

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 field shutdown of the Interceptor Well Field occurred on December 2, 2019 from 8:28am to 8:41am due to maintenance activities at the Groundwater Treatment Plant influent pump discharge fitting. The maintenance was completed and the well field was brought back online.
- Well Field Shutdown of the Seep Well Field occurred on December 3, 2019 from 10:04pm to 10:16pm and 11:08pm to 12:09am December 4, 2019 due to a malfunctioning radio communication transmitter. The radio transmitter was repaired and the flow returned to normal.
- Effluent diversion to GW-11 occurred on December 5, 2019 from 9:45am to 5:28pm as a precautionary measure due to concerns of effluent quality. Adjustments were made to the plant, effluent samples were tested in the lab, and the effluent was returned to the Las Vegas Wash (LVW). Approximately 504,000 gallons of effluent were diverted to GW-11.
- Influent diversion to GW-11 occurred on December 6, 2019 from 5:34pm to 6:17pm due to a malfunctioning radio communication transmitter at Lift Station 2. The communication transmitter was reset and flow returned to normal. A total of approximately 49,000 gallons of water were diverted to GW-11.
- Well Shutdown of IWF extraction well I-C occurred on December 14, 2019 from 7:31am to 9:36am due to a motor and pump malfunction. The well pump was pulled and both the motor and the pump were replaced.
- Influent diversion to GW-11 occurred on December 15, 2019 from 3:07am to 7:47am due to a malfunctioning I/O communication rack failure. The I/O card was replaced and the plant was brought back online. A total of approximately 322,000 gallons of water were diverted to GW-11.
- Influent diversion to GW-11 on December 17, 2019 from 2:56am to 8:38am due to a malfunctioning I/O communication rack failure. The I/O rack backplate was replaced and the plant was brought back online at 8:38am and the effluent was returned to the outfall at 10:38am. A total of approximately 527,000 gallons of water were diverted to GW-11.
- Effluent diversion to GW-11 occurred on December 18, 2019 from 9:38pm to 6:46am as a precautionary measure due to concerns of effluent quality. Adjustments were made to the plant,

effluent samples were tested in the lab, and the effluent was returned to the LVW. Approximately 630,000 gallons of water were diverted to GW-11.

- Influent diversion to GW-11 occurred on December 18, 2019 from 11:55am to 1:08pm to replace the ethernet module associated with the I/O rack failures. A total of approximately 84,000 gallons of water were diverted to GW-11.
- Well field shutdown of the Interceptor Well Field occurred on December 23, 2019 from 2:56pm to 5:30pm due to a damaged pvc pipe fitting on the Influent pump at the Groundwater Treatment Plant. The pipe fitting was replaced and the well field was brought back online.

### 3. Spills

There were no reportable spills in the month of December.

### 4. Maintenance

- Major maintenance performed by ETI in the month included:
  - I. Replaced the flex coupling on the P-1701B pump.
  - II. Installed the new flocculator on the clarifier.
  - III. Replaced the A/C unit on the LS3 MCC units.
  - IV. Replaced the flowmeter on extraction well ART-1.
  - V. Installed a new pressure switch on the east press hydraulic system.
  - VI. Rebuilt the P-102A pump received back from DXP. Also built and installed a new discharge spool piece of the pump.
  - VII. Replaced the South DAF sludge pump.
  - VIII. Rebuilt media return A.
  - IX. Replaced the discharge fitting on extraction well I-C and the 0.5 hp motor.
  - X. Replaced the DAF polymer drawdown column.
  - XI. Rebuilt the discharge fitting of the influent pump at GWTP.
- Preventative Maintenance completed or being performed by ETI in the month included:
  - I. Tested the vibration on the P-102 EQ pumps.
  - II. Added oil to the east compressor.
  - III. Took the vehicles in for PM services.
  - IV. Performed an inspection on the HMI cabinets at LS2.
  - V. Checked the batteries and the charger for the golf carts.
  - VI. Checked the sump pits for proper operation.
  - VII. Greased the FBR recycle pump motors.
  - VIII. Emptied and inspected the GWTP press for proper operation. The cloths were pressure washed.

## 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 – A revised equipment proposal was submitted to the Trust for the TIMET system in October, along with draft work authorizations for the GWETS Extension and O&M services. Envirogen participated in an introductory conference call in December with the Trust and Arcadis, and is awaiting a Work Authorization to move forward on the project.

### **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) <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>	750 <sup>5</sup>	6.8	0.0020	0.0018
AWF Total Extraction <sup>1</sup>	466 <sup>5</sup>	67	0.15	0.15
IWF Total Extraction <sup>1</sup>	61 <sup>5</sup>	466	6.5	6.8
AP Area Total Extraction <sup>1</sup>	11.1 <sup>5</sup>	744	0.093	0.085
GWTP Effluent <sup>2</sup>	62	557	0.35	ND
GW-11 Influent <sup>1</sup>	2.42	66	0.08	0.017
FBR Influent <sup>2 3</sup>	1,050	235	0.023	0.023
T-205 Effluent (AP-5 Wash Water) <sup>3 4</sup>	8.9	16,534	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	1,901	0.55	0.50
AWF Total Extraction	11,622	26	26
IWF Total Extraction	10,518	147	152
AP Area Total Extraction	3,086	0.38	0.35
GWTP Effluent	12,974	8.2	ND
GW-11 Influent	59.7	0.071	0.0154
FBR Influent <sup>1</sup>	91,883	8.9	9.0
T-205 Effluent (AP-5 Wash Water) <sup>1 2</sup>	54,669	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 12/31/2019

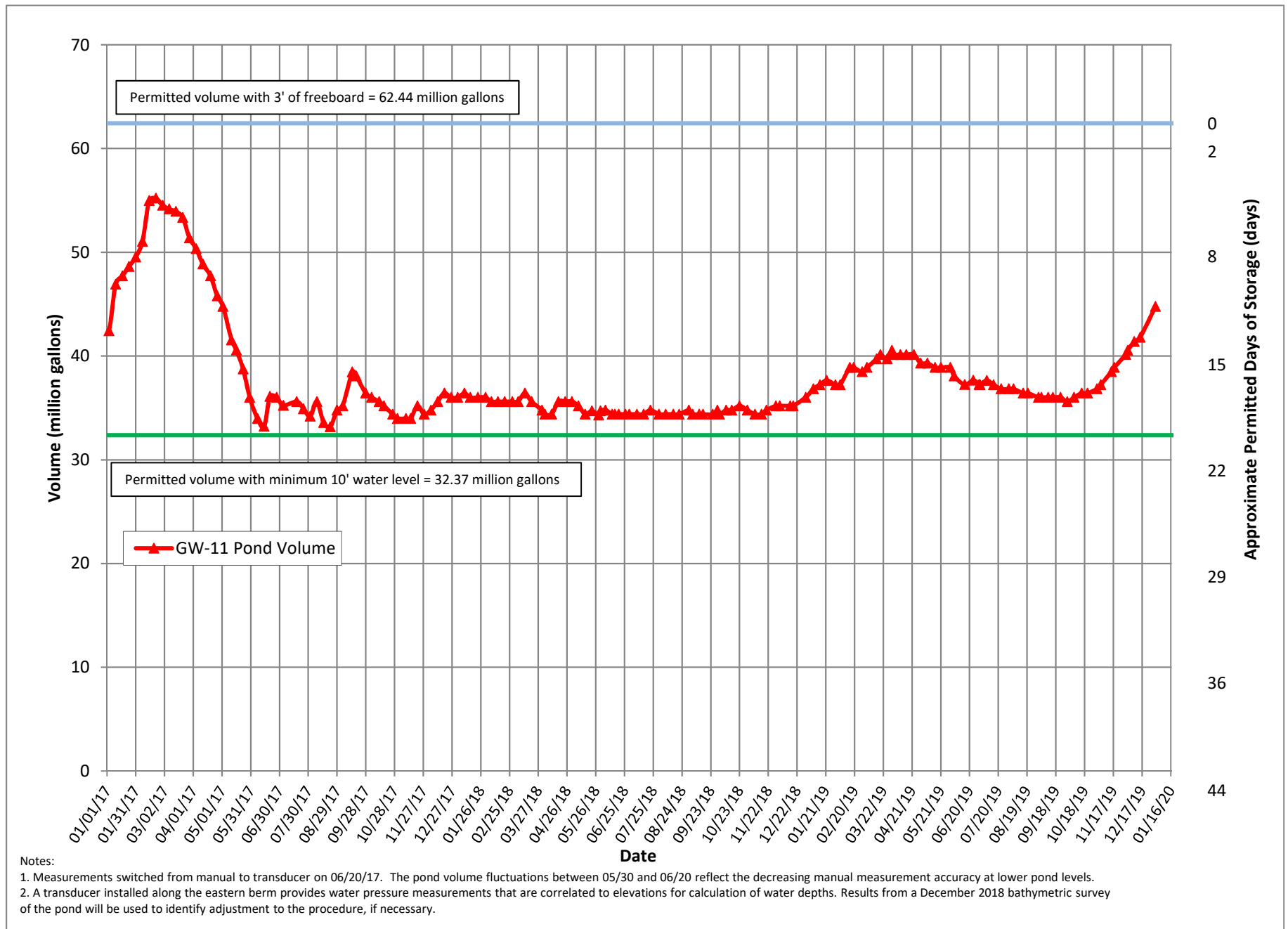
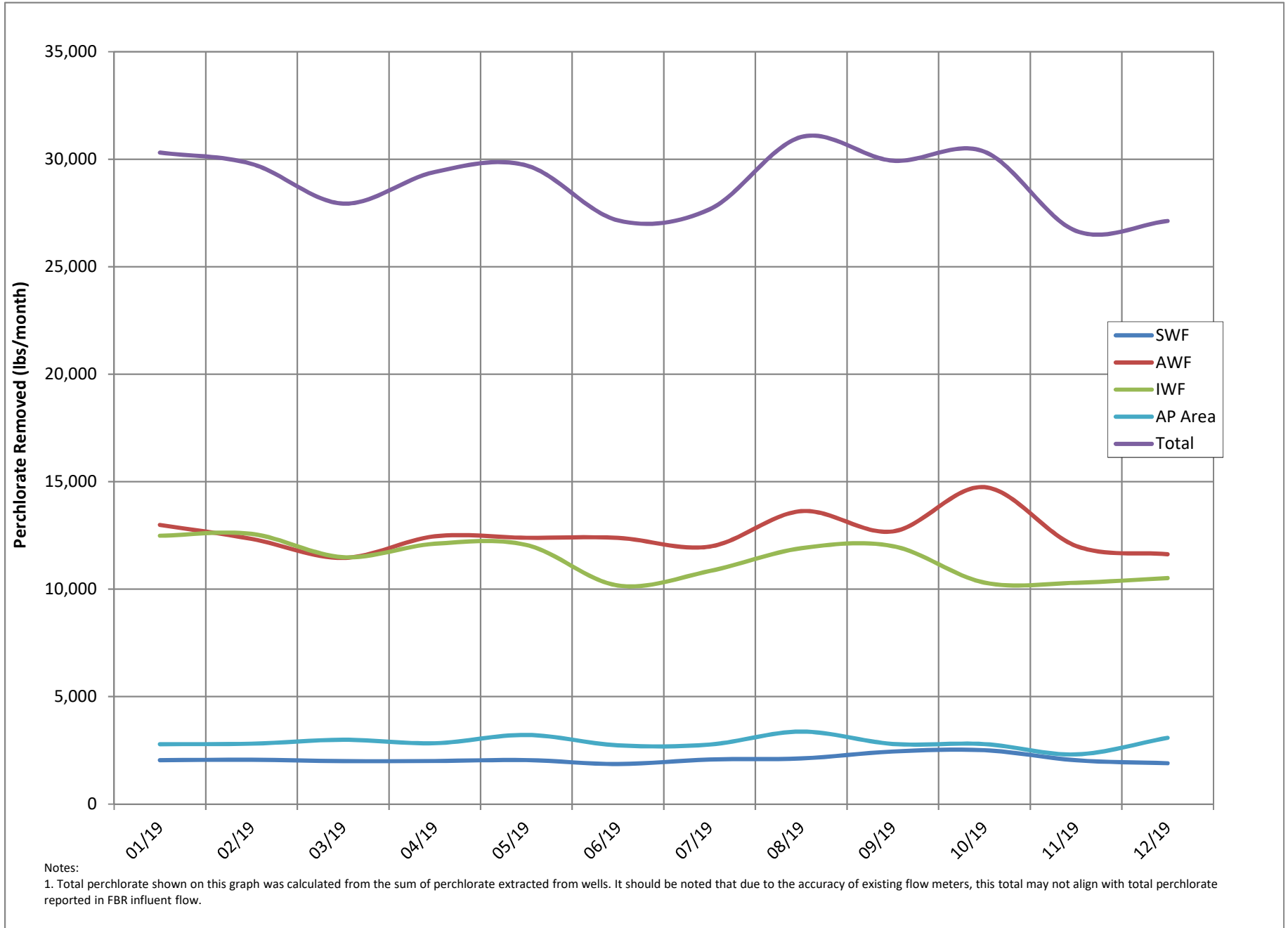


Figure 2 - Historical Perchlorate Mass Removed From Environment



# 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 <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. (mg/L)	Daily Max. (mg/L)	Daily Avg. (mg/L)	30-Day Avg. (lbs/day)	30-Day Avg. (lbs/day)	30-Day Avg. (mg/L)	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	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	0.07	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	8	
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	10	2.0	0.7	1.4	10	4,300
June 2019	1.73	1.83	0.5	0.0072	6.63	6.65	3.5	2.8	360	150	2.5	4.9	70	18	2.2	0.7	1.9	9	
July 2019	1.72	1.81	5	0.07	6.59	7.00	ND (<0.25)	4.0	360	77	2.9	3.8	54	8	2.4	0.67	0.83	5	
August 2019	1.72	1.82	5	0.07	6.55	6.6	ND (<0.25)	3.8	330	150	1.1	4.1	60	12	1.8	0.36	1.5	8	4,200
September 2019	1.75	1.79	2.3	0.03	6.51	7.11	ND (<0.25)	3.9	290	95	1.1	4.8	69	3.1	0.6	1.0	8		
October 2019	1.70	1.80	0.5	0.0071	6.50	6.70	ND (<0.25)	ND (<2.5)	280	72	12	5.2	76	130	0.6	1.4	9		
November 2019	1.76	1.80	1.0	0.014	6.51	6.98	ND (<0.25)	4.0	330	73	17	2.7	38	120	0.7	2.2	11	4,400	
December 2019	1.72	1.84	1.3	0.018	6.51	6.78	ND (<0.25)	16	320	200	17	16	230	160	2.9	0.6	2.0	9	
January 2020 (month to date)	1.73	1.78	4.4	0.063	6.60	6.60	ND (<0.25)	2.7	290	58	0.85	4.9	70	12	NA	NA	NA	NA	NA

Daily Grab Sample Date	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	0.9	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	0.2	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	
2/17 - 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	0.6	9	
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 (<50)	3.3	46	--	0.13	18**	--	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 (<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 (<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
5/5 - 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 (<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	0.0073	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	13	
6/2 - 6/8	6/8/2019	ND (<1.0)	0.5	0.0076	6/3/2019	6.63	ND (<0.25)	ND (<2.5)	340	58	0.82	3.5	53	--	0.82	12	--	0.14	2.1	6/5/2019	ND (<0.50)	0.25	3.8
6/9 - 6/15	6/15/2019	ND (<1.0)	0.5	0.0072	6/10/2019	6.63	3.5	2.8	360	73	1.6	7.5	105	--	1.0	14**	--	0.16	2.2	6/12/2019	ND (<0.50)	0.25	3.5
6/16 - 6/22	6/22/2019	ND (<1.0)	0.5	0.0070	6/17/2019	6.65	ND (<0.25)	ND (<2.5)	310	150	2.5	5.7	81	--	2.5	35**	--	0.18	2.5	6/19/2019	1.9	27	
6/23 - 6/29	6/29/2019	ND (<1.0)	0.5	0.0071	6/24/2019	6.65	ND (<0.25)	ND (<2.5)	330	59	1.8	2.9	38	--	1.8	24**	--	0.15	2.0	6/26/2019	ND (<0.50)	0.25	3.7
6/30 - 7/6	7/6/2019	5.7	5.7	0.080	7/1/2019	7.00	ND (<0.25)	ND (<2.5)	340	ND (<50)	ND (<50)	3.6	51	ND (<0.10)	0.05	0.7	--	0.13	1.8	7/3/2019	ND (<0.50)	0.25	3.6
7/7 - 7/13	7/13/2019	11	11	0.16	7/8/2019	6.59	ND (<0.25)	ND (<2.5)	310	ND (<50)	2.9	1.7	25	--	1.4	21	--	0.13	1.9	7/10/2019	0.83	12	
7/14 - 7/20	7/20/2019	3.5	3.5	0.051	7/15/2019	6.77	ND (<0.25)	2.6	280	77	0.83	6.7	97	--	0.26	3.8	--	0.25	3.6	7/17/2019	ND (<0.50)	0.25	3.6
7/21 - 7/27	7/27/2019	ND (<1.0)	0.5	0.0070	7/22/2019	6.62	ND (<0.25)	4.0	330	ND (<50)	ND (<50)	4.4	63	--	0.11	1.6	--	0.19	2.7	7/24/2019	ND (<0.50)	0.25	3.6
7/28 - 8/3	8/3/2019	4.4	4.4	0.063	7/29/2019	6.77	ND (<0.25)	ND (<2.5)	360	72	ND (<50)	2.4	35	--	0.16	2.3	--	0.12	1.8	7/31/2019	ND (<0.50)	0.25	3.7
8/4 - 8/10	8/10/2019	4.1	4.1	0.060	8/5/2019	6.6	ND (<0.25)	ND (<2.5)	330	ND (<50)	ND (<50)	4.7	70	--	0.22	3.3	--	0.10	1.5	8/7/2019	1.5	22	
8/11 - 8/17	8/17/2019	ND (<1.0)	0.5	0.0070	8/12/2019	6.59	ND (<0.25)	3.1	260	120	1.0	2.1	30	--	1.0	14	--	0.046	0.7	8/14/2019	ND (<0.50)	0.25	3.5
8/18 - 8/24	8/24/2019	ND (<1.0)	0.5	0.0070	8/19/2019	6.59	ND (<0.25)	3.8	260	150	0.97	6.3	90	--	0.97	14**	--	0.21	3.0	8/21/2019	ND (<0.50)	0.25	3.4
8/25 - 8/31	8/31/2019	13	13	0.19	8/26/2019	6.55	ND (<0.25)	2.7	330	85	1.1	3.4	50	--	1.1	16	--	0.14					

# Attachment B

---

*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			
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	Installed a new flowmeter on ART-1 with new piping after the rain damaged the existing.
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		4	Replace the external A/C unit on the VFD MCC's
<b>3 Lift Station 2 and Transmission Pipelines</b>						
3.01		Influent Pipeline	In operation			
3.02		Effluent Pipeline	Running			
3.03		Lift Station 2 Lift Pump A	Running		2	Changing the oil on the motor on a regular basis to clear small particles from the upper bearing.
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 motor and connections on I-C.
4.02		Ferrous Sulfate Feed System	Running		2	Changed out the connection of the discharge/injection fitting of the ferrous feed on the influent pump.
4.03		Polymer Feed System	Running		3	Installed a new mixer on the polymer system.
4.04		Clarifier	In operation		3	Installed a new flocculator with a new motor.
4.05		Filter Press	Running		3	Oil was added to the tank.
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			
<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			

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
5.06	PID10A	Raw Water Feed Pump - P102A			2	The pump and motor were returned. The pump was installed with a new discharge spool piece.
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			
<b>6</b>		<b>First Stage FBRs A, 1 &amp; 2</b>				
6.01	PID14	FBR A			4	The seal water tubing was replaced on the recycle pump.
6.02	PID14	Separator Tank - 1401				
6.03	PID14	Media Return Pump - P 1401			3	Replaced and rebuilt the pump.
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			

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
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			
<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			
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			

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
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>				
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		3	The pump was replaced with a rebuilt pump.
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			4	New weirs were cut for the reject line.
12.02	PID17	Filter Reject Tank	In operation		4	Solids were removed from the suction side of the pumps.
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			

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
<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			
14.06	PID09	Filter Press Pump - P902				
14.07	PID09	West Press	Standby			
14.08	PID09	East Press	Running		2	The press was offline due to a lack of pressure build up. The replacement pressure switches were ordered.
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	The pump was switched to a different version to stop the leaking from the pumping head of the old pump.
23	PID07C	Aluminum Chlorohydrate	In operation			
24	PID07B	Polymer Systems - DAF	In operation		2	The tote was changed out. The valve at the base of the tote was broken. The pump heads were cleared of debris.
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			

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
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			
<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			

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