

MEMO

To: Nevada Division of Environmental Protection
Nevada Environmental Response Trust

Cc: Nevada Environmental Response Trust Stakeholders

From: Frank Johns/Tt

Date: March 23, 2015

Subject: NERT – GWETS Operation Monthly Report – February 2015

At the request of the Nevada Environmental Response Trust (Trust), Tetra Tech provides this summary of the groundwater extraction and treatment system (GWETS) operation and oversight tasks performed during February 2015.

Summary of GWETS Operation

The GWETS mechanically operated normally in February, with the exception of a planned operational bypass of the new automatic cleaning filtration system at the GW-11 Pond. On February 25, 2015, a small spill of filtered water from the Filter Press System at the east side of the solids handling building (D-1) occurred. The operational bypass of GW-11 and the spill are described in greater detail within the Operational Issues section of this monthly report.

The flow rate to the plant averaged approximately 1,021 gallons per minute (gpm) during February. At the end of the month, the GW-11 volume was 49.4 million gallons (MG), which would allow 9 days of available storage in event of an emergency. GW-11 volume increased approximately 2 MG from the end of January. This increase in volume can be attributed to the increased flow from the Seep Well Field. At the request of the Trust, Tetra Tech will evaluate various enhanced evaporation alternatives to aid in offsetting the increased volume associated with the higher influent flows to GW-11.

The influent perchlorate concentration to the FBR plant averaged 101 mg/L for the month, with a maximum concentration of 110 mg/L.

Analytical data indicate that permitted effluent discharges at GWETS Outfall 001 were within the NPDES permitted numerical discharge limits (Attachment A, prepared by ENVIRON).

Enhanced Operational Metrics

The design for the approved program to add instruments, controls, data acquisition systems, along with various other technical upgrades to improve the efficiency of data collection and reporting remains on-

schedule. An implementation schedule is presented in more detail under the GWETS Upgrades and Facility Projects section below.

Tables 1 and 2 provide a summary of the current GWETS operational metrics that provide data for flow rates, perchlorate and chromium concentrations, and mass removal.

- Table 1 – Flow Rate and Perchlorate and Chromium Concentrations
- Table 2 – Perchlorate and Chromium Mass Flux
- Figure 1 – Historical Perchlorate Mass Flux

Operational Issues

All routine plant repairs conducted by Envirogen Technologies, Inc. (ETI) were done in accordance with its NERT Perchlorate Treatment System Henderson, Nevada Operations Manual. The following is a list of operational issues and major repairs and/or equipment replaced during this reporting period.

1. GW-11 Bypass (February 1 to 4, 2015)

- The bypass reported in the January GWETS Operation Monthly Report was concluded on February 4, 2015. Starting on February 4, 2015, the new automatic cleaning filtration system became operational. ETI learned from the manufacturer that in conjunction with the cleaning brushes, higher flow rates were needed to prevent algal buildup on the exterior of the filters. Both of the filters are rated for 1,000 gpm, so on March 4, 2015, ETI removed one of the two filters from service. By only running one filter, ETI is able to meet the higher flow rates to help prevent algal buildup. Maintaining a filter in standby mode allows one filter to remain clean and available for use should the need arise.
- Leak Detection System: During the month of January 2015, Tetra Tech worked with ETI to verify proper placement of the four leak detection pumps within each of the four monitoring wells. A break was discovered in the northeast monitoring well casing that prevented ETI from extracting and subsequently re-installing the pump at the correct depth. ETI has requested assistance from Tetra Tech regarding repair of the monitoring well casing. Due to the current use of the GW-11 pond and the location of the break in the monitoring well casing, this repair will be a long-term project. In the interim, all four wells continue to be pumped as required by the Groundwater Discharge Permit.

2. Spill Incident

- On February 25, 2015, as part of the overall plant dewatering process of excess biological material (sludge), the plant east filter press completed a feed cycle of treated plant water and sludge. The ETI operator started the blow down process on the east filter press, and failed to notice that the valve to the feed trough was open. This action subsequently allowed air, which is used to blow down the filter press, to push filtered water back up into the trough. Due to the pressure used to blow the press down, the filtered water pushed out of the trough, and discharged onto the concrete pad under the filter press, and flowed out

the bay door opening and onto the macadam driveway. After approximately 15 seconds, the operator noticed the issue and quickly closed the valve to the trough. The operator then immediately grabbed a rubber broom to direct the discharged water back into the D-1 building, containing it there where it was mopped up and returned to the process. Approximately 10 gallons of filtrate water spilled onto the ground.

- The spill was reported to the Nevada Division of Environmental Protection – Bureau of Water Pollution Control (NDEP-BWPC) via telephone on February 25, 2015, within the 24-hour reporting timeframe, and assigned Spill Incident No. 150225-02. . A written report of the spill was submitted to NDEP-BWPC on February 27, 2015. Preventative actions implemented in response to this spill are detailed as follows:
 - i. ETI purchased spill absorbent socks for use as portable barriers to be placed at each end of the bay doors for the filter presses to prohibit any process water from escaping the building.
 - ii. ETI modified the SOP for operation of the filter presses to show the use of the absorbent socks specified above. This revision was completed prior to the operator retraining described below.
 - iii. ETI retrained all operators on proper operation of the filter presses, including necessary steps to properly perform the blow down process. This retraining used the newly revised SOP which covers the operation of the presses.
- The revision to the SOP and retraining stated above was completed by February 27, 2015.

3. Maintenance

- No major maintenance was performed or completed in the month.
- Preventative Maintenance completed or being performed in the month included:
 - i. The spare Raw Water Feed Pump P102B was sent to Henderson Electric for repair. ETI is still waiting on parts from the east coast to complete work on the seal.
 - ii. A loaner autosampler for the Ion Chromatograph (IC) unit is in use until ETI receives approval for the purchase of a new autosampler for the IC unit. As of the date of this memo, ETI has received approval for the purchase of a new autosampler and has one on order.

4. Outstanding maintenance and repairs from the previous month have been addressed as outlined below:

- An air hose remains in place to bypass carbon steel lines that are corroded at the DAF Pressure Tanks and Pressure Pump P551.
 - i. ETI plans on replacing corroded air lines beginning in late March.
- A new pressure regulator was received for the compressed air receiver tank. A new valve and new piping was also installed to replace a rusted and damaged valve.
- New shelf spare 0.5 horsepower motors were received for the Interceptor Well Pumps.

GWETS Upgrades and Facility Projects

The following is a summary of initiatives in-progress during the reporting period at the direction of the Trust:

1. 2013 Optimization

Additional adjustments to flow rates were made in January and ENVIRON is continuing to collect data. A data deliverable was sent to the NDEP on January 12, 2015. Pumps and wiring were upgraded at wells ART-7B and ART-7A. ENVIRON's 2013 Optimization Project is complete, and a formal report will be included as an attachment to the Semiannual Performance Report to be submitted to the NDEP at the end of April 2015.

2. AP-5 Solids Removal

The Draft Phase II Work Plan for AP-5 Solids Removal was submitted to the NDEP for review on December 24, 2014. Preliminary comments on the Draft Phase II Work Plan were received from NDEP on February 6, 2015. Tetra Tech anticipates the Phase II Work Plan will be finalized in March 2015. Tetra Tech continues to coordinate with the NDEP, ETI, and the Trust on this project.

3. Enhanced Operational Metrics

Tetra Tech started design for the enhanced operational metrics project in September. A meeting was held with ETI in late October to coordinate recommended upgrades to instrumentation and controls. Design continues on schedule with P&IDs 95% complete, control panel drawings 95% complete, and miscellaneous drawings and specifications 90% complete. Contractors have been contacted and have examined the sites and reviewed project requirements. Contractor selection will be completed and construction will begin in March with phased activation to follow later in the month.

Equipment Availability Tracking

ETI operators continue to update the equipment tracking form on a weekly basis at a minimum, or whenever there is a change in the status of key equipment. During regular site visits, Tetra Tech field personnel continue to verify the entries in the form, including both the operating status and confirming the inventory of required shelf spares. The equipment tracking form submitted to Tetra Tech on March 5, 2015, is attached (Attachment B).

GWETS Staffing

ETI continues to staff the GWETS using a single shift and follows the security procedure in the Standard Operating Procedures (SOP) dated April 30, 2014.

GWETS Security

During weekly calls, ETI notifies Tetra Tech of any issues with GWETS security. There were no GWETS security issues reported during the month.

Tetra Tech Activities

Tetra Tech conducted calls with ETI to review operation of the GWETS February 5th, 12th, 19th and 26th. Becki Dano, CEM, of Tetra Tech, performed visits to the GWETS on February 5th, 13th, 20th and 26th. Ms. Dano reviewed permit and sampling forms to ensure each was correct and up-to-date, checked equipment status, and verified shelf spare inventory.

Summary

Based on our review of available and relevant information, Tetra Tech concurs with ETI's management of the GWETS during the reporting period. No additional involvement from either the Trust or Tetra Tech is recommended at this time.

Tables

Operational Metrics

Nevada Environmental Response Trust Groundwater Extraction and Treatment System Monthly Stakeholder Metrics				
Location ID	Average Flow Rate (gpm)	Perchlorate (mg/L) ²	Chromium TR (mg/L) ²	Chromium(VI) (mg/L) ^{2,8}
SWF Total Extraction ⁵	596 ¹	11	0.002	Future Metric
AWF Total Extraction ⁵	284 ¹	147	0.41	Future Metric
IWF Total Extraction ⁶	70 ¹	965	7.60	Future Metric
GWTP Effluent ⁷	62	943	0.44	ND
GW-11 Influent	NA ³	NA ⁴	NA ⁴	Future Metric
GW-11 Effluent/ FBR Influent ⁷	0	101	0.07	0.05

Notes:

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

1: Sum of daily average flow for individual wells .

2: All concentrations reported are monthly flow weighted averages.

3: GW-11 was bypassed once during the month. Flow is a calculated metric, but will be transitioned to flow meter measurement beginning in Spring 2015.

4: Perchlorate and chromium can be calculated, but will be transitioned to in-line samples beginning in 2015.

5: Perchlorate sampled monthly, chromium TR sampled quarterly, values reported from TestAmerica.

6: Perchlorate and chromium TR sampled quarterly, values reported from TestAmerica.

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

8: Hexavalent chromium will be analyzed and reported monthly beginning Spring 2015.

Nevada Environmental Response Trust Groundwater Extraction and Treatment System Monthly Stakeholder Metrics		
Location ID	Perchlorate (lbs/month) ¹	Chromium TR (lbs/month) ¹
SWF Total Extraction	2,221	0.38
AWF Total Extraction	14,018	44
IWF Total Extraction	22,790	180
GWTP Effluent	19,559	9
GW-11 Influent	NA ²	NA ²
GW-11 Effluent/FBR Influent	34,738	25

Notes:

TR = Total Recoverable; NA = Not Available.

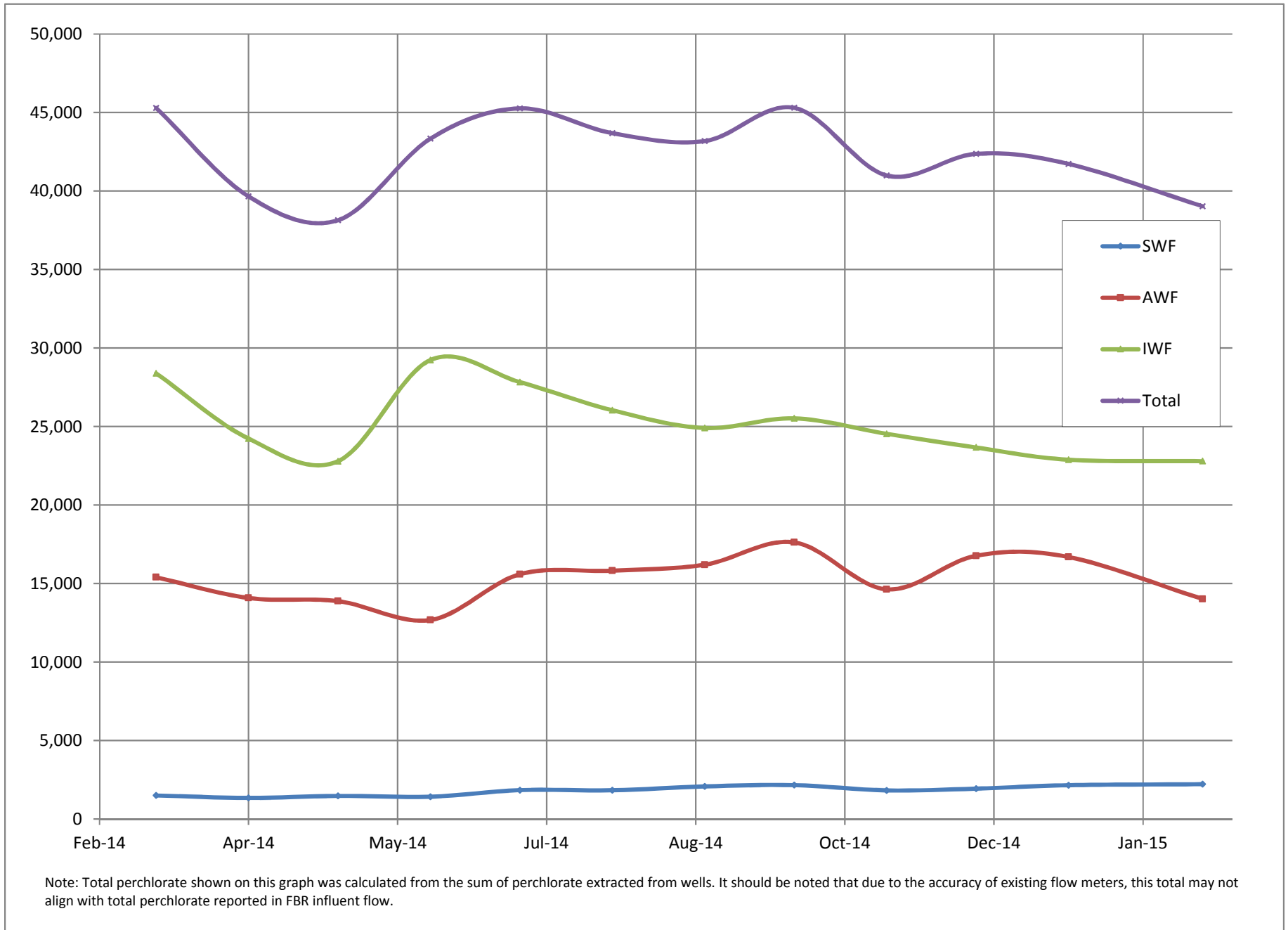
1: Total lbs extracted is calculated from flow weighted average concentration and average flow (see Table 1).

2: GW-11 was bypassed once during the month.

Figures

Operational Metrics

Figure 1 - Historical Perchlorate Mass Flux



Attachment A

NPDES Tracking Sheet (Prepared by ENVIRON)

Continuous		Daily samples, composited weekly	
Flow Rate		Perchlorate	
30-Day Avg. (MGD)	Daily Maximum (MGD)	30-Day Avg. (ug/L)	30-Day Avg. (lbs/day)
1.45	1.75	18	0.22

Weekly samples								
pH	Hexavalent Chromium	Total Chromium	Total Suspended Solids (TSS)		Total Iron		Total Ammonia as N	Total Phosphorus as P
30-Day Avg. (S.U.)	Daily Max. (mg/L)	Daily Max. (mg/L)	30-Day Avg. (mg/L)	30-Day Avg. (lbs/day)	30-Day Avg. (mg/L)	30-Day Avg. (lbs/day)	30-Day Avg. (lbs/day)	30-Day Avg. (lbs/day)
6.5 to 9.0	0.01	0.1	135	1,634	10	121.03	40	20

Weekly samples, collected separately			Quarterly sample	
BOD ₅ (inhibited)			Manganese	
30-Day Avg. (mg/L)	Daily Max. (mg/L)	30-Day Avg. (lbs/day)	30-Day Avg. (mg/L)	30-Day Avg. (lbs/day)
25	40	254	5	60.52

January 2015	1.20	1.39	1.3	0.012	6.59	0.00013	0.021	25	250	4.1	40	2.6	1.5	3.3	4.3	33	0.20	2.0
February 2015 (month-to-date)	1.35	1.42	1.3	0.014	6.85	0.00013	0.024	16	180	2.1	23	2.8	1.7	3.9	5.7	44		

Daily Grab Sample Dates	Composite Sample Date	ug/L	lbs/day	Sample Date	S.U.	mg/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	mg/L	lbs/day		
1/4 - 1/10	1/10/2015	ND (<2.5)	1.3	0.010	1/5/2015	6.53	ND (<0.00025)	0.021	24	201	4.8	40	--	0.94	7.9	0.083	0.69	1/7/2015	3.1	26	0.20	2.0
1/11 - 1/17	1/17/2015	ND (<2.5)	1.3	0.013	1/12/2015	6.64	ND (<0.00025)	0.019	19	192	3.9	39	ND (<0.10)	0.05	0.51	0.16	1.6	1/14/2015	3.9	39		
1/18 - 1/24	1/24/2015	ND (<2.5)	1.3	0.014	1/19/2015	6.65	ND (<0.00025)	0.018	25	276	3.4	38	--	0.13	1.4	0.16	1.8	1/21/2015	1.8	20		
1/25 - 1/31	1/31/2015	ND (<2.5)	1.3	0.013	1/26/2015	6.54	ND (<0.00025)	0.019	30	316	4.1	43	ND (<0.10)	0.05	0.53	0.17	1.8	1/28/2015	4.3	45		
2/1 - 2/7	2/7/2015	ND (<2.5)	1.3	0.014	2/2/2015	6.90	ND (<0.00025)	0.010	11	121	1.6	18	--	0.20	2.2	0.12	1.3	2/4/2015	4.5	49		
2/8 - 2/14	2/14/2015	ND (<2.5)	1.3	0.014	2/9/2015	6.67	ND (<0.00025)	0.024	17	196	0.66	7.6	--	0.33	3.8	0.27	3.1	2/11/2015	5.7	66		
2/15 - 2/21	2/21/2015	ND (<2.5)	1.3	0.014	2/17/2015	6.97	ND (<0.00025)	0.0064	19	215	3.9	44	--	0.21	2.4	0.067	0.76	2/18/2015	1.5	17		
					2/23/2015	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.

NA = Not Available To Date

NS = No Sample

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

Last Updated: February 27, 2015

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	x		
1.02		Lift Station 1 Lift Pump A	Standby	x		
1.03		Lift Station 1 Lift Pump B	Running	x		
1.04		Area in and around Lift Station 1	Running	x		
2		Athens Road Wells and Lift Station 3				
2.01		Athens Road Well Field, 9 wells	Running	x	2	ETI installed new gaskets and piping for the flowmeter for ART-9.
2.02		Lift Station 3 Lift Pump A	Standby	x		
2.03		Lift Station 3 Lift Pump B	Running	x		
2.04		Area in and around Lift Station 3	Running	x		
3		Lift Station 2 and Transmission Piplines				
3.01		Influent Pipeline	In operation	x		
3.02		Effluent Pipeline	Running	x		
3.03		Lift Station 2 Lift Pump A	Running	x		
3.04		Lift Station 2 Lift Pump B	Standby	x		
3.05		Area in and around Lift Station 2	Running	x		
4		Interceptor Wells and Cr Treatment Plant				
4.01		IWF Well Field, 30 wells	Running	x	3	ETI replaced the transformer in INT-J.
4.02		Ferrous Sulfate Feed System	Running	x		
4.03		Polymer Feed System	Running	x		
4.04		Clarifier	In operation	x		
4.05		Filter Press	Running	x		
4.06		GWTP Effluent Tank	In operation	x		
4.07		Interceptor Booster Pump A	Maintenance	x	3	ETI disassembled the pump to observe if a new seal is necessary.
4.08		Interceptor Booster Pump B	Running	x		
4.09		Area In And Around GWTP	Running	x		

Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
5		Equalization Area and GW-11 Pond				
5.01	PID10A	Pond GW-11	In operation	x		
5.02	PID10A	Pond Water Pump - P101A	Running	x		
5.03	PID10A	Pond Water Pump - P101B	Running	x		
5.04	PID10A	Equalization Tanks	In operation	x		
5.05	PID10A	Area in and Around EQ	In operation	x		ETI removed and cleaned the strainers again on F-101. ETI is running one filter at a time. The second filter is ready and in standby mode. (2 filters in place).
5.06	PID10A	Raw Water Feed Pump - P102A	Running	x		
5.07	PID10A	Raw Water Feed Pump - P102B	Maintenance	x	3	ETI called Henderson Electric to follow up on pump parts. ETI is still waiting on parts from the east coast to complete work on the seal.
5.08	PID10B	Carbon Absorber - LGAC 201A	Running	x		
5.09	PID10B	Carbon Absorber - LGAC 201B	Running	x		
5.10	PID10B	Carbon Absorber - LGAC 201C	Running	x		
6		First Stage FBRs A, 1 & 2				
6.01	PID14	FBR A	Running	x		
6.02	PID14	Separator Tank - 1401	Running	x		
6.03	PID14	Media Return Pump - P 1401	Running	x		
6.04	PID14	P1401A	Standby	x		
6.05	PID01A	P1401B	Running	x		
6.06	PID01A	FBR 1	Running	x		
6.07	PID02A	FBR 2	Running	x		
6.08	PID01A	First Stage Separator Tank - T2011	Running	x		
6.09	PID01A	Media Return Pump - P2011	Running	x		
6.10	PID01A	First Stage FBR Pump - P1011	Standby	x		
6.11	PID01A	First Stage FBR Pump - P1012	Running	x		
6.12	PID01A	First Stage FRB Pump - P101A	Running	x		
6.13	PID07A	FBR A pH Feed Pump - P71A	Standby	x		
6.14	PID07A	FBR 1 pH Feed Pump - P711	Standby	x		
6.15	PID07A	FBR 2 pH Feed Pump - P712	Standby	x		
6.16	PID07A	FBR A Nutrient (Urea) Feed Pump - P72A	Off	x		
6.17	PID07A	FBR 1 Nutrient (Urea) Feed Pump - P721	Off	x		
6.18	PID07A	FBR 2 Nutrient (Urea) Feed Pump - P722	Off	x		
6.19	PID15	FBR A Nutrient (Phos Acid) Feed Pump - P1520A	Running	x		
6.20	PID15	FBR 1 Nutrient (Phos Acid) Feed Pump - P1521	Running	x		
6.21	PID15	FBR 2 Nutrient (Phos Acid) Feed Pump - P1522	Running	x		
6.22	PID07B	FBR A Electron Donor Assembly Pump - P73A	Running	x		
6.23	PID07B	FBR 1 Electron Donor Assembly Pump - P731	Running	x		
6.24	PID07B	FBR 2 Electron Donor Assembly Pump - P732	Running	x		

Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
7		First Stage FBRs 3 & 4				
7.01	PID01B	FBR 3	Off	x		
7.02	PID01B	FBR 4	Off	x		
7.03	PID02B	First Stage Separator Tank - T2012	Off	x		
7.04	PID01B	Media Return Pump - P2012	Off	x		
7.05	PID01B	First Stage FBR Pump - P1013	Off	x		
7.06	PID01B	First Stage FRB Pump - P1014	Off	x		
7.07	PID01B	First Stage FBR Pump - P102A	Off	x		
7.08	PID07A	FBR 3 pH Feed Pump - P713	Off	x		
7.09	PID07A	FBR 4 pH Feed Pump - P714	Off	x		
7.10	PID07A	FBR 3 Nutrient (Urea) Feed Pump - P723	Off	x		
7.11	PID07A	FBR 4 Nutrient (Urea) Feed Pump - P 724	Off	x		
7.12	PID15	FBR 3 Nutrient (Phos Acid) Feed Pump - P1523	Off	x		
7.13	PID15	FBR 4 Nutrient (Phos Acid) Feed Pump - P1524	Off	x		
7.14	PID07B	FBR 3 Electron Donor Assembly Pump - P733	Off	x		
7.15	PID07B	FBR 4 Electron Donor Assembly Pump - P734	Off	x		
8		Second Stage FBRs 5 & 6				
8.01	PID03A	FBR 5	Off	x		
8.02	PID03A	FBR 6	Off	x	4	ETI is transferring carbon for the FBR rehab process.
8.03	PID03C	Second Stage Separator Tank - T3011	Off	x		
8.04	PID03A	Media Return Pump - P3011	Off	x		
8.05	PID03A	Second Stage FBR Pump - P3015	Off	x		
8.06	PID03A	Second Stage FBR Pump - P3016	Off	x		
8.07	PID03A	Second Stage FBR Pump - P301A	Off	x		
8.08	PID07A	FBR 5 pH Feed Pump - P715	Off	x		
8.09	PID07A	FBR 6 pH Feed Pump - P716	Off	x		
8.1	PID07A	FBR 5 Nutrient (Urea) Feed Pump - P725	Off	x		
8.11	PID07A	FBR 6 Nutrient (Urea) Feed Pump - P726	Off	x		
8.12	PID07B	FBR 5 Electron Donor Assembly Pump - P735	Off	x		
8.13	PID07B	FBR 6 Electron Donor Assembly Pump - P736	Off	x		

Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
9		Second Stage FBRs 7 & 8				
9.01	PID03B	FBR 7	Running	x		
9.02	PID03B	FBR 8	Running	x		
9.03	PID03D	Second Stage Separator Tank - T3012	Running	x		
9.04	PID03B	Media Return Pump - P3012	Running	x		
9.05	PID03B	Second Stage FBR Pump - P3017	Standby	x		
9.06	PID03B	Second Stage FBR Pump - P3018	Running	x		
9.07	PID03B	Second Stage FBR Pump - P302A	Running	x		
9.08	PID07A	FBR 7 pH Feed Pump - P717	Standby	x		
9.09	PID07A	FBR 8 pH Feed Pump - P718	Standby	x		
9.10	PID07A	FBR 7 Nutrient (Urea) Feed Pump - P727	Off	x		
9.11	PID07A	FBR 8 Nutrient (Urea) Feed Pump - P728	Off	x		
9.12	PID07B	FBR 7 Electron Donor Assembly Pump - P737	Running	x		
9.13	PID07B	FBR 8 Electron Donor Assembly Pump - P738	Running	x		
10		Aeration and DAF System				
10.01	PID04	Aeration Tank	In operation	x		
10.02	PID04	Aeration Blower - B401	Running	x		
10.03	PID04	Biofilter	In operation	x		
10.04	PID04	Nutrient Solution	Running	x		
10.05	PID04	Biofilter Sump	Running	x		
10.06	PID04	Nutrient Pump - P401	Running	x		
10.07	PID04	Biofilter Sump Pump - P402A	Standby	x		
10.09	PID04	Biofilter Blower	Running	x		
10.10	PID05	DAF Pressure Tanks	In operation	x	4	ETI has an air hose in place to bypass the carbon steel lines that are corroded.
10.11	PID05	DAF Vessel - D501	Running	x		
10.12	PID05	DAF Pressure Pump - P501	Running	x		
10.13	PID05	DAF Float Pump - P502	Running	x		
10.14	PID05	DAF Vessel - D551	Standby	x		
10.15	PID05	DAF Pressure Pump - P551	Running	x	4	ETI is bypassing steel air lines with a hose feeding the pressure tank.
10.16	PID05	DAF Float Pump - P552	Running	x		
10.17	PID05	Screw Conveyer Drive	Standby	x		
10.18	PID05	Skimmer Drive	Running	x		

Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
11		Pumping System (Old Effluent)				
11.01	PID06	Effluent Tank 601	In operation	x		
11.02	PID06	Effluent Pump - P601	Running	x		
11.03	PID06	Effluent Pump - P602	Running	x		
12		Sand Filter System				
12.01	PID17	Sand Filter	Running	x		
12.02	PID17	Filter Reject Tank	In operation	x		
12.03	PID17	Filter Reject Pump - P1701A	Running	x		
12.04	PID17	Filter Reject Pump - P1701B	Standby	x		
13		Effluent Tank and Pumping				
13.01	PID10C	UV Effluent Tank	Running	x		
13.02	PID10C	Effluent Booster Pump - P1302A	Running	x		
13.03	PID10C	Effluent Booster Pump - P1302B	Running	x		
13.04	PID10C	Area Around Effluent and North D-1	Running	x	3	ETI received a new valve and will replace next week. The valve is not critical to the process. Blind flanges are currently installed. There is no risk present.
14		Solids Collection and Pressing System				
14.01	PID16	Sludge Storage Tank	In operation	x		
14.02	PID16	Solids Storage Effluent Pump - P1601	Running	x		
14.03	PID16	Solids Cond. Tank	In operation	x		
14.04	PID09	Sludge Mixer	Running	x		
14.05	PID09	Filter Press Pump - P901	Running	x		
14.06	PID09	Filter Press Pump - P902	Running	x		
14.07	PID09	West Press	Standby	x		
14.08	PID09	East Press	Running	x		
14.09	PID09	Filtrate Tank	In operation	x		
14.10	PID09	Filtrate Tank Effluent (recycle) Pump - P903	Running	x	4	ETI cancelled the seal order because they were able to repair the packing gland without further purchases.

Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
Chemical Systems						
15		Electron Donor System				
15.01	PID07B	<i>Electron Donor Tank</i>	In operation	x		
15.02	PID07B	<i>Booster Pump P739A</i>	Standby	x		
15.03	PID07B	<i>Booster Pump P739B</i>	Running	x		
17	PID07C	Micro Nutrient System	In operation	x		
18	PID07C	Hydrogen Peroxide System	In operation	x		
19	PID07C	De-Foam System	In operation	x		
20	PID15	Nutrient (Phosphoric Acid) System (Tank only - pumps included in FBRs)	In operation	x		
21	PID07A	Nutrient (Urea) System (Tank only - pumps included in FBRs)	In operation	x		
22	PID07A	pH System (Tank and effluent pH feed pump only - other pumps included in FBRs)	In operation	x		
23	PID07C	Ferric Chloride System	In operation	x		
24	PID07B	Polymer Systems - DAF	In operation	x		
25	PID09	Polymer System - Solids Dewatering (2 tanks, 2 centrifugal pumps, mixer, volumetric feeder)	In operation	x		
Utility Systems						
26		Compressed Air System				
26.01	PID08	<i>West Compressor</i>	Running	x		Ingersoll Rand performed maintenance on both compressors.
26.02	PID08	<i>East Compressor</i>	Running	x		Ingersoll Rand performed maintenance on both compressors.
26.03	PID08	<i>O2 Compressor</i>	Running	x		
26.04	PID08	<i>Compressed Air Receiver Tank</i>	In operation	x	4	ETI received the regulator. ETI is waiting on additional parts and will wait for a plant shut down to complete repairs. A new valve and new piping was also installed to replace a rusted and damaged valve.
26.05	PID08	<i>Air Dryer</i>	Running	x		
26.06	PID08	<i>Oil Removal Filter</i>	In operation	x		
26.07	PID08	<i>Particulate Filter</i>	In operation	x		
27	PID16	Oxygen System	In operation	x		
28		GWETS Plant Controls/ Siemens Controls	In operation	x		
29		Well Control System/ Allen Bradley Controls	In operation	x		
30		MCC FBR Pad	In operation	x		
31		MCC in D-1	In operation	x		
32		MCC in EQ area	In operation	x		

Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
Miscellaneous Systems						
33		Operations Office/Network	In operation	x		
34		Laboratory Analyzers	In operation	x		A loaner sampler for the IC unit in use until ETI receives approval for the purchase of a new IC unit.
35		Security Systems	In operation	x		
Shelf Spares						
		Media Return Pump Rebuild Kit	In stock	x		
		pH Feed Pump	In stock	x		
		Nutrient Feed Pump	In stock	x		
		Electron Donor Feed Pump	In stock	x		
		Phosphoric Acid Feed Pump	In stock	x		
		Interceptor Well Pumps (4 each)	In stock	x		
		Seep Well Pump (1 each, same as Athens so total of 2)	In stock	x		
		Athens Road Well Pump (1 each, same as Seep so total of 2)	In stock	x		

¹ Status Codes

Equipment

Running Unit is in operation
 Standby Duplicate or installed spare, not currently operating
 Maintenance Out for repairs or maintenance
 Off Not currently needed, but available

² 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 - Tasks performed to either improve the existing equipment (i.e., testing new options)
 - Minor repairs that in no way alter the performance of the plant

Tanks, Pipelines, Ponds

In operation
 Out of service

Spares

In stock