

MEMO

To: Nevada Division of Environmental Protection
Nevada Environmental Response Trust

Cc: Nevada Environmental Response Trust Stakeholders

From: Frank Johns/Tt

Date: February 20, 2015

Subject: NERT – GWETS Operation Monthly Report – January 2015

Tetra Tech is providing this monthly report to provide a summary of GWETS operation during January 2015 and oversight tasks performed by Tetra Tech.

Summary of GWETS Operation

The groundwater extraction and treatment system (GWETS) operated normally in January, with the exception of the operational bypass of GW-11 as described in greater detail below.

The flow rate to the plant averaged approximately 857 gpm during January. At the end of the month, the GW-11 volume was 47.5 million gallons (MG), which would allow 10.4 days of available storage in event of an emergency. GW-11 volume increased approximately 2.5 MG from the end of December. This increase in volume can be attributable to heavy rains experienced at the end of January and backflows from the equalization tanks that have occurred due to the operational bypass of GW-11. Tetra Tech will look into the water balance and is working on the design to install an influent flow meter to GW-11 to provide better records for flow into GW-11. The influent perchlorate concentration to the FBR plant averaged 77 mg/L for the month, with a maximum concentration of 104 mg/L. The fluctuation in perchlorate concentration aligns with the dates that GW-11 was being bypassed during the month.

Analytical data indicate that permitted effluent discharges at the 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 and include 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 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: The new automatic cleaning filtration system became operational on January 6, 2015; however the system had to be taken offline again on January 29, 2015 to perform modifications to better equip the filters for the type of debris in the pond's effluent flow. ETI performed the necessary modifications and brought the filters back online February 4, 2015. As of the date of this memo, the automatic filters remain online and fully operational.
- Leak Detection System: The northwest, southwest, and southeast sump pumps have been lowered to the correct depth in each sump. ETI pumped water from the northwest, northeast, and southeast sumps. Samples of the extracted water were sent to TestAmerica for characterization per the operations and maintenance (O&M) manual referred to in the Groundwater Discharge Permit. Tetra Tech is preparing a formal memo, on behalf of the Nevada Environmental Response Trust (Trust), to be delivered to the NDEP – Bureau of Water Pollution Control (NDEP-BWPC) further detailing the GW-11 leak detection system timeline of events and responses by ETI and Tetra Tech.

2. Maintenance

- Major maintenance being performed or completed in the month included:
 - i. Automatic cleaning filtration system modifications (see above).
 - ii. A new pump for the hydrogen peroxide system was received and installed.
- Preventative Maintenance completed or being performed in the month included:
 - i. Leaks were repaired on sample ports and flow meters in the Athens Road Well Field.
 - ii. A new level sensor was installed in Lift Station #3.
 - iii. The breaker was reset for the turbine and submersible pump in Lift Station #2 after a storm tripped the breaker.
 - iv. A new airline lubricator for the Filter Press Pump P901 was installed.
 - v. A new pressure regulator was ordered for the compressed air receiver tank. The regulator is scheduled to arrive the week of February 9th. The air system remained online during January with ETI manually throttling valves until the regulator parts arrive and can be installed.

- vi. New shelf spare 0.5 horsepower motors were ordered for the Interceptor Well Pumps and are expected to arrive the week of February 9th.
 - vii. The spare Raw Water Feed Pump P102B was sent to Henderson Electric for repair.
3. Outstanding maintenance and repairs from the previous month have been addressed as outlined below:
- FBR A Phosphorus Feed Pump was running in hand mode until the I/O card could be replaced. The replacement was completed on January 13, 2015.
 - FBR 4 feed valve mounting bracket installed.
 - i. A new coupling for FBR 4 was received in December. The new coupling and mounting bracket were installed on January 15, 2015.
 - An air hose is in place to bypass carbon steel lines that are corroded at the DAF Pressure Tanks and Pressure Pump P551.
 - i. ETI is aware of the problem and is determining a strategy to replace all air hoses individually. ETI will begin the replacement of the first air hose in late February and will update Tetra Tech as necessary.
 - Replacement kits ordered for filter press pump P902.
 - i. The rebuild kits were received. The repairs were completed on January 14, 2015.
 - A new seal arrived for pump P601. As of the date of this memo, the pump was reassembled and installed on February 5, 2015.

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. 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 90% complete, and miscellaneous drawings 80% complete. Contractors have been contacted and have examined the sites and reviewed project requirements. Contractor selection will be completed in February and construction will begin in March with phased activation to follow beginning in late March 2015.

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 February 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 on January 9th, 19th, and 29th. Tetra Tech was on site January 20th and 21st and met with ETI to discuss operations during this time. Becki Dano, CEM, of Tetra Tech, performed visits to the GWETS on January 7th, 16th, 23rd, and 29th. 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 the management of the GWETS at this time. 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	520 ¹	11	0.001	Future Metric
AWF Total Extraction ⁵	284 ¹	164	0.43	Future Metric
IWF Total Extraction ⁶	71 ¹	859	7.51	Future Metric
GWTP Effluent ⁷	61	862	0.36	ND
GW-11 Influent	NA ³	NA ⁴	NA ⁴	Future Metric
GW-11 Effluent/ FBR Influent ⁷	801	104	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 twice 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 January 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	2,153	0.19
AWF Total Extraction	17,367	46
IWF Total Extraction	22,885	200
GWTP Effluent	19,754	8
GW-11 Influent	NA ²	NA ²
GW-11 Effluent/FBR Influent	31,054	21

Notes:

TR = Total Recoverable; NA = Not Available

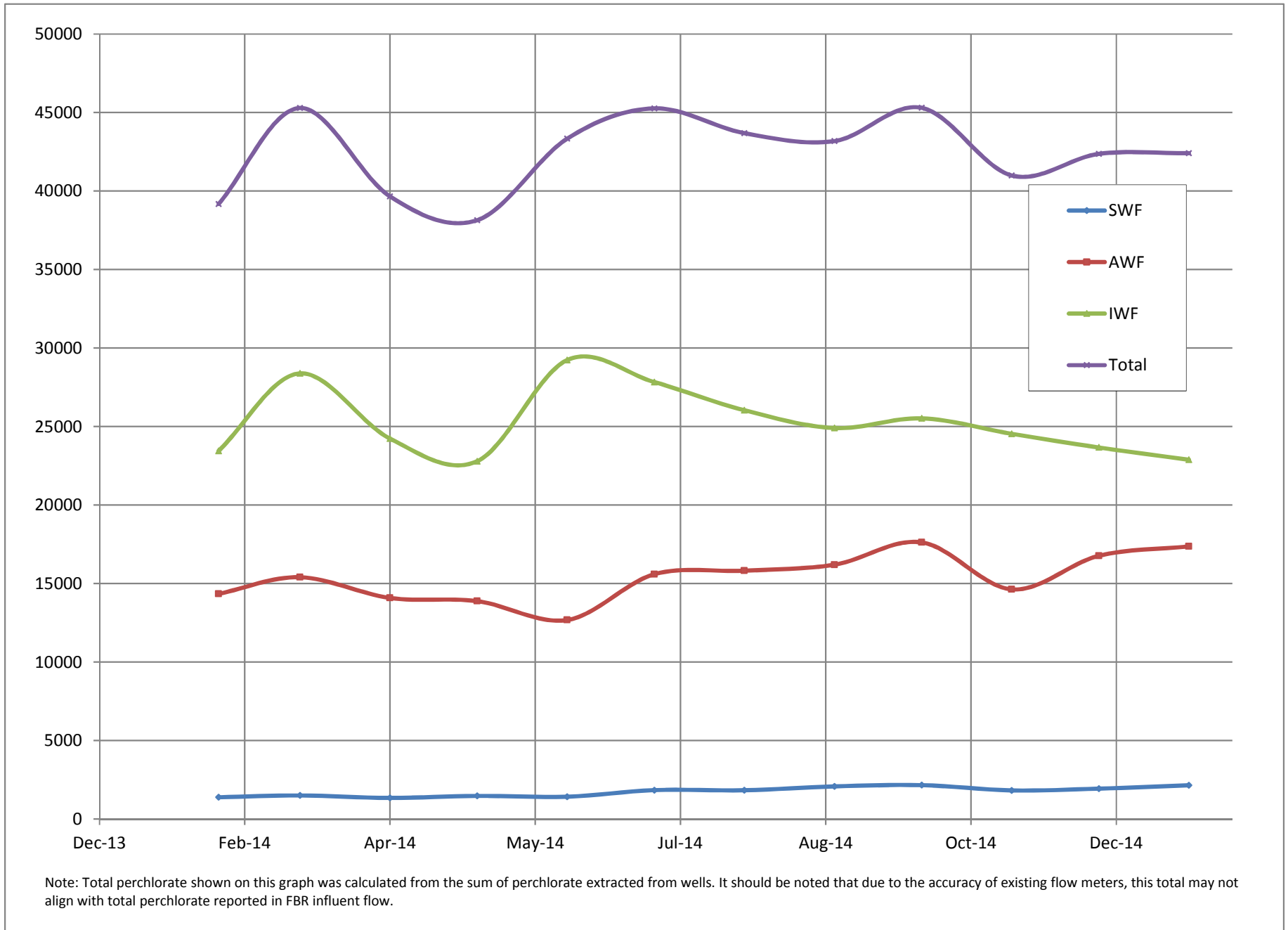
1: Total lbs extracted is calculated from flow weighted average concentration and average flow (see Table 1)

2: GW-11 was bypassed twice 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 (month-to-date)

1.19	1.39	1.3	0.012	6.61	0.00013	0.021	23	220	4.0	39	3.3	1.4	2.9	3.9	28	NA	NA
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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	NA	NA
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		
					1/26/2015	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1/28/2015	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: January 30, 2015

Attachment B

Equipment Tracking Form

Sub-System	P&ID	Description	Status ¹	Checked	Notes
Main Plant Equipment					
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	Leaks were repaired on sample ports and flow meters.
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	New level sensor installed.
3 Lift Station 2 and Transmission Pipelines					
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	Reset breaker for turbine and submersible pump.
4 Interceptor Wells and Cr Treatment Plant					
4.01		IWF Well Field, 30 wells	Running	X	
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	Standby	X	
4.08		Interceptor Booster Pump B	Running	X	
4.09		Area In And Around GWTP	Running	X	
5 Equalization Area and GW-11 Pond					
5.01	PID10A	Pond GW-11	In operation	X	
5.02	PID10A	Pond Water Pump - P101A	Standby	X	Self-cleaning strainers went back online after replacing paddles with brushes and cleaning the strainers.
5.03	PID10A	Pond Water Pump - P101B	Standby	X	
5.04	PID10A	Equalization Tanks	In operation	X	
5.05	PID10A	Area in and Around EQ	In operation	X	
5.06	PID10A	Raw Water Feed Pump - P102A	Running	X	

¹Status 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

5.07	PID10A	Raw Water Feed Pump - P102B	Maintenance	X	Sent back to Enderson Electric to repair 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	

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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	
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	

¹Status 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

7.13	PID15	<i>FBR 4 Nutrient (Phos Acid) Feed Pump - P1524</i>	Off	X	
7.14	PID07B	<i>FBR 3 Electron Donor Assembly Pump - P733</i>	Off	X	
7.15	PID07B	<i>FBR 4 Electron Donor Assembly Pump - P734</i>	Off	X	

¹Status Codes

Running - Unit is in operation

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Maintenance - Out of service for maintenance

Off - Not currently needed for use, but can be placed in service

7		Second Stage FBRs 5 & 6			
8.01	PID03A	FBR 5	Off	X	
8.02	PID03A	FBR 6	Off	X	
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	
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	Maintenance	X	Considering the install of ADP as a test for media return next week.
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	

¹Status Codes

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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

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	An airhose is in place to bypass 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	Steel airlines being bypassed with the airhose 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	
11 Pumping System (Old Effluent)					
11.01	PID06	Effluent Tank 601	In operation	X	
11.02	PID06	Effluent Pump - P601	Maintenance	X	Pump reassembled and installed on 2/5/15.
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	Removed damaged effluent valve and ordered a new valve.

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Maintenance - Out of service for maintenance

Off - Not currently needed for use, but can be placed in service

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	New air line lubricator was installed.
14.06	PID09	Filter Press Pump - P902	Running	X	Both pumps are in service and operational.
14.07	PID09	West Press	Running	X	
14.08	PID09	East Press	Standby	X	Press flushed with water.
14.09	PID09	Filtrate Tank	In operation	X	
14.10	PID09	Filtrate Tank Effluent (recycle) Pump - P903	Running	X	
15 Chemical Systems					
Electron Donor System					
15.01	PID07B	Electron Donor Tank	In operation	X	
15.02	PID07B	Booster Pump P739A	Standby	X	
15.03	PID07B	Booster Pump P739B	Running	X	
17	PID07C	Micro Nutrient System	In operation	X	
18	PID07C	Hydrogen Peroxide System	In operation	X	New pump received and installed. The pump is running from the PLC.
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	

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Utility Systems					
26		Compressed Air System			
26.01	PID08	West Compressor	Running	X	
26.02	PID08	East Compressor	Running	X	
26.03	PID08	O2 Compressor	Running	X	
26.04	PID08	Compressed Air Receiver Tank	In operation	X	New pressure regulator ordered.
26.05	PID08	Air Dryer	Running	X	
26.06	PID08	Oil Removal Filter	In operation	X	
26.07	PID08	Particulate Filter	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	
Miscellaneous Systems					
33		Operations Office/Network	In operation	X	
34		Laboratory Analyzers	In operation	X	
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	1/2 HP motors on order.
		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	

¹Status 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