

MEMO

To: Nevada Division of Environmental Protection
Nevada Environmental Response Trust

Cc: Nevada Environmental Response Trust Stakeholders

From: Frank Johns/Tt

Date: February 9, 2015

Subject: NERT – GWETS Operation Monthly Report – December 2014

Tetra Tech is providing this monthly report to provide a summary of GWETS operation during December 2014 and oversight tasks performed by Tetra Tech.

Summary of GWETS Operation

The groundwater extraction and treatment system (GWETS) operated normally in December, with the exception of the on-going operational bypass of GW-11. GW-11 was still being bypassed during the month due to high suspended solids content, primarily insects and some algae, causing frequent plugging of the bag filters and increased the backwash frequency for the GAC. Envirogen Technologies, Inc. (ETI) ordered automatic cleaning filters to replace the bag filters. Delays in shipping from the manufacturer pushed back the installation date by several weeks. As of the date of this memo, the new filtration system was completed on January 5, 2015 and was operational on January 6, 2015.

The flow rate to the plant averaged approximately 936 gpm during the month. At the end of the month, the GW-11 volume was 45 million gallons (MG), which would allow 12.1 days of available storage in event of an emergency. The volume increased approximately 1.9 MG from the end of November. As reported in the Groundwater Discharge Permit Fourth Quarter Report, the equalization tanks (TK-101 tanks) that regulate the flow of water to the FBR treatment plant from on-site and off-site well fields may have backflowed into GW-11 in December, which may have caused the increase in pond volume¹. The influent perchlorate concentration from the equalization tank to the FBR plant averaged 102 mg/L for the month, with a maximum concentration of 107 mg/L.

There were no exceedances at the GWETS Outfall 001 for perchlorate or any other constituent in excess of the NPDES permitted numerical discharge limits (Attachment A, prepared by ENVIRON).

¹ As reported by ENVIRON on January 27, 2015 in the Groundwater Discharge Permit NEV2001515 Discharge Monitoring Reports – 4th Quarter 2014 and Annual Report.

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.

See attached Tables 1 and 2 for 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

In addition to routine plant repairs conducted by ETI 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: GW-11 continued to be bypassed in December due to the issue with insects and algae causing plugging of the bag filters ahead of the GAC units. ETI ordered automatic cleaning filters to replace the bag filters. As of the date of this memo, the new filtration system was completed on January 5, 2015 and was operational on January 6, 2015.
- Leak Detection System: The pumps in the GW-11 corner sumps were pulled and inspected in November 2014 at the request of Nevada Division of Environmental Protection – Bureau of Water Pollution Control (NDEP-BWPC). The northwest pump was lowered following the inspection and 600 gallons were pumped from this corner. The pump in the northeast sump became lodged in the pipe during the November 2014 inspection. As of the date of this memo, ETI has contacted a drilling company to inspect the northeast sump with more robust equipment to aid in making a decision on the best course of action. The sumps were video scoped on December 11th and December 29th to confirm actual depths. Water was pumped from the northeast well during both December events. As of the date of this memo, the northwest, southwest, and southeast sump pumps have been lowered to the correct depth as confirmed by the video scope.

2. Maintenance

- Major maintenance being performed or completed in the month included:
 - i. Motors for pumps in wells PC-150 and ART-7B were swapped.
 - ii. A key on the shaft needed to be replaced on the 1compressor in GWTP area. As of the date of this memo, the repair was completed on January 17, 2015.
 - iii. Pump P3012 was rebuilt.

- Preventative Maintenance completed or being performed in the month included:
 - i. A new seal arrived for P601 pump and installation was pushed back to January.
 - ii. A clean water test was conducted on FBR 5 as part of the overhaul of the FBR. All flows and pressures looked good. Pumps have been lubricated and are ready for operation.
3. Outstanding maintenance and repairs from the previous month have been addressed as outlined below:
- FBR A Phosphorus Feed Pump continues to run in hand mode until the I/O card can be replaced. A full plant shutdown is required to replace the card. As of the date of this memo, the replacement was completed on January 13, 2015.
 - FBR 4 feed valve mounting bracket ordered.
 - i. A new coupling for FBR 4 was received in December. As of the date of this memo, 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 notes that all air line systems from the sand filters to the FBR pad need to be replaced. ETI has a schedule in place that spans the next six months to replace all air hoses individually starting at the sand filter and working down the process line. To replace lines on the FBR pad, isolation valves will need to be added and a full plant shutdown is required. ETI will provide the Trust and Tetra Tech advance notice of any planned shutdown.
 - Replacement kits ordered for filter press pump P902.
 - i. Rebuild kits have been received. As of the date of this memo, the repairs were completed on January 14, 2015.
 - New pump heads ordered for DAF polymer system.
 - i. A new pump head was installed and spare pump heads were reordered from a different company.

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

Another round of flow optimization for the IWF will be initiated in January since both AWF wells (PC-150 and ART-7B) are now operational. Capture zone analyses for the IWF and AWF were continued during December. A data deliverable is expected to be provided to the NDEP at the end of January. 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. As of the date of this memo, Tetra Tech prepared and presented the Phase II Work Plan Presentation to the NDEP on January 8, 2015. Tetra Tech continues to coordinate with the NDEP, ETI, and the Trust on this project. This will be a long-term project that will directly impact GWETS operations across multiple levels once implemented.

3. Enhanced Operational Metrics

Tetra Tech started design for the enhanced operational metrics project in September. A meeting was held in late October to coordinate recommended upgrades to instrumentation and controls with ETI. Design continues on schedule with P&IDs 95% complete, control panel drawings 80% complete, and miscellaneous drawings 60% complete. 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 the presence of the required shelf spares. The equipment tracking form submitted to Tetra Tech on December 31, 2014, 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 issues reported during the month.

Tetra Tech Activities

Tetra Tech conducted calls with ETI to review operation of the GWETS on December 5th, 19th, and 31st. A site visit was conducted on December 9th and so the discussion for that week took place on December 9th on site. Becki Dano, CEM, of Tetra Tech, performed visits to the GWETS on December 4th, 12th, 19th, 24th and 31st. Becki checked permit and sampling forms to ensure each was correct and up-to-date, checked equipment status, and viewed 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	521 ¹	10	0.001	Future Metric
AWF Total Extraction ⁵	284 ¹	158	0.47	Future Metric
IWF Total Extraction ⁶	71 ¹	888	7.83	Future Metric
GWTP Effluent ⁷	62	844	0.49	ND
GW-11 Influent	NA ³	NA ⁴	NA ⁴	Future Metric
GW-11 Effluent/ FBR Influent ⁷	936	119	0.13	0.06

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 is currently offline. Flow is a calculated metric, but will be transitioned to flow meter measurement beginning in 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	1,935	0
AWF Total Extraction	16,767	50
IWF Total Extraction	23,665	209
GWTP Effluent	19,538	11
GW-11 Influent	NA ²	NA ²
GW-11 Effluent/FBR Influent	41,491	46

Notes:

TR = Total Recoverable; NA = Not Available

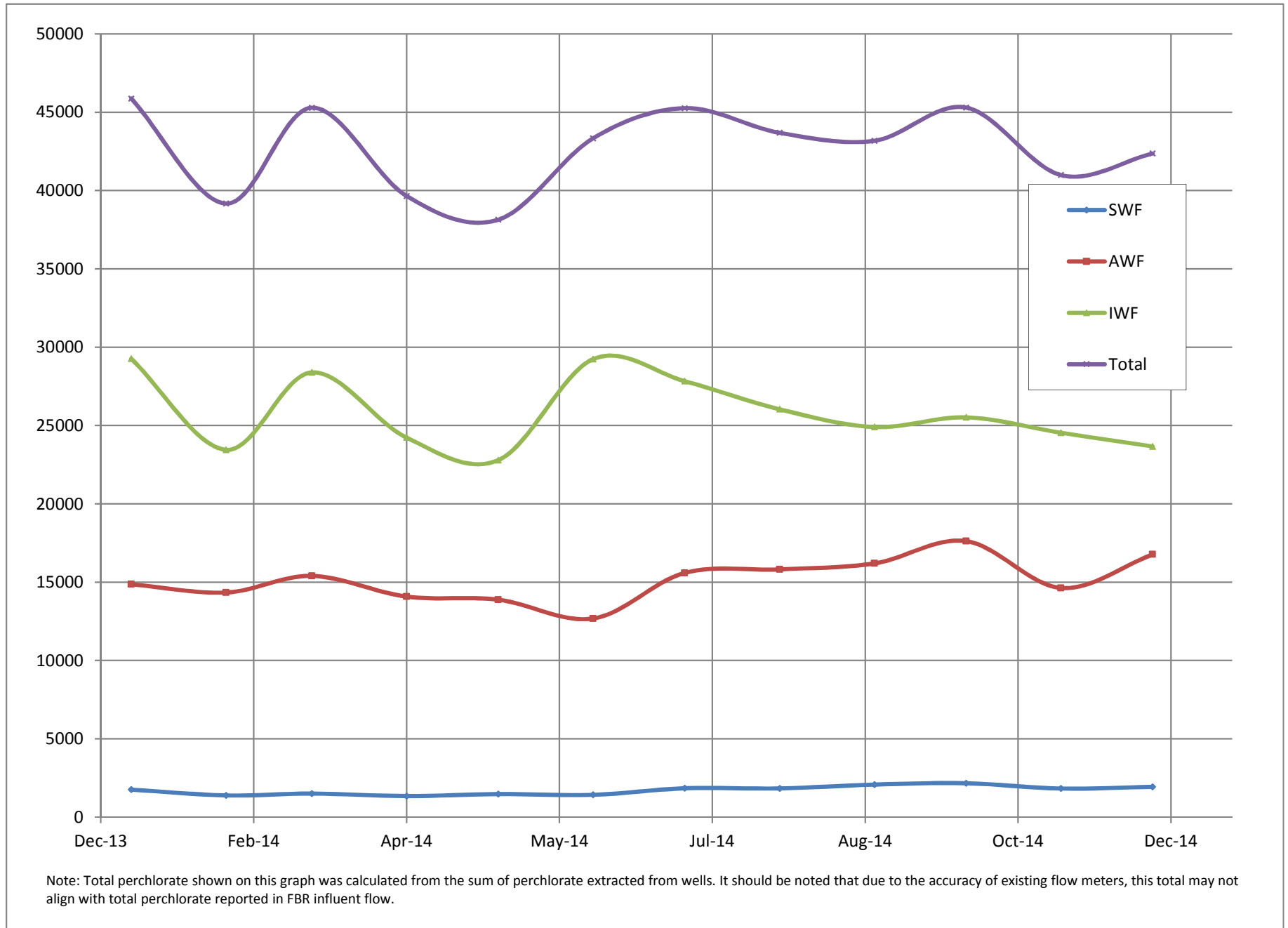
1: Total lbs extracted is calculated from flow weighted average concentration and average flow (see Table 1)

2: GW-11 is currently offline

Figures

Operational Metrics

Figure 1 - Historical Perchlorate Mass Flux



Attachment A

NPDES Tracking Sheet (Prepared by ENVIRON)

	Continuous				Daily samples, composited weekly				Weekly samples								Weekly samples, collected separately			Quarterly sample	
	Flow Rate		Perchlorate		30-Day Avg. (ug/L)	30-Day Avg. (lbs/day)	pH	Hexavalent Chromium	Total Chromium	Total Suspended Solids (TSS)		Total Iron		Total Ammonia as N		Total Phosphorus as P	BOD ₅ (inhibited)			Manganese	
	30-Day Avg. (MGD)	Daily Maximum (MGD)	30-Day Avg. (mg/L)	30-Day Avg. (lbs/day)						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. (mg/L)	Daily Max. (mg/L)	30-Day Avg. (lbs/day)
	1.45	1.75	18	0.22			6.5 to 9.0	0.01	0.1	135	1,634	10	121.03	40		20	25	40	254	5	60.52
December 2013	1.30	1.34	1.3	0.014	6.98	0.00013	0.014	20	220	3.6	39	1.8		1.7		2.5	3.8	27			
January 2014	1.34	1.37	1.3	0.014	6.91	0.00013	0.036	28	320	4.2	47	5.3		3.3		4.2	5.2	47	0.57	6.5	
February 2014	1.37	1.44	1.3	0.014	7.08	0.00013	0.020	19	220	2.9	33	10		3.2		5.2	9.9	58			
March 2014	1.38	1.48	1.3	0.014	6.98	0.00048	0.012	25	260	5.2	55	6		2.3		2.6	3.7	30			
April 2014	1.07	1.46	1.3	0.012	6.63	0.00029	0.028	17	170	3.8	37	2.2		1.9		4.3	6.3	44	0.15	1.6	
May 2014	1.37	1.48	1.3	0.014	6.81	0.00013	0.012	19	220	3.3	38	8		3.1		3.1	3.4	35			
June 2014	1.31	1.37	1.3	0.014	6.69	0.00013	0.017	17	170	3.3	35	5		2.0		2.4	5.4	26			
July 2014	1.11	1.40	1.3	0.012	6.88	0.00013	0.020	32	290	6.7	61	2.2		3.2		4.3	5.4	40	0.24	2.0	
August 2014	1.27	1.60	1.3	0.013	6.80	0.00013	0.034	20	210	3.9	41	2.8		2.1		3.2	5.7	33			
September 2014	1.16	1.32	1.3	0.012	6.73	0.00013	0.029	26	260	4.4	43	3		11		2.3	3.8	22			
October 2014	1.19	1.23	1.3	0.012	6.86	0.00013	0.026	15	150	3.0	29	9		5.9		3.1	4.5	31	0.42	4.1	
November 2014	1.18	1.23	1.3	0.012	7.22	0.00013	0.016	16	160	3.3	32	3.0		1.3		2.1	4.4	21			
December 2014 (month-to-date)	1.14	1.20	1.3	0.012	6.92	0.00013	0.012	16	150	3.6	34	2.1		0.66		2.6	3.0	25			

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	mg/L	lbs/day	Sample Date	mg/L	lbs/day	mg/L	lbs/day
12/1 - 12/7	12/7/2013	ND (<2.5)	1.3	0.014	12/2/2013	7.11	ND (<0.00025)	0.0031	39	430	4.2	46	ND (<0.10)	0.05	0.5	0.053	0.58	12/5/2013	1.4	15		
12/8 - 12/14	12/14/2013	ND (<2.5)	1.3	0.013	12/9/2013	6.65	ND (<0.00025)	0.014	15	160	3.7	40	ND (<0.10)	0.05	0.5	0.089	0.95	12/11/2013	2.1	22		
12/15 - 12/21	12/21/2013	ND (<2.5)	1.3	0.014	12/16/2013	7.08	ND (<0.00025)	0.014	12	130	3.2	35	ND (<0.10)	0.05	0.5	0.15	1.6	12/18/2013	3.1	34		
12/22 - 12/28	12/28/2013	ND (<2.5)	1.3	0.014	12/23/2013	7.22	ND (<0.00025)	0.010	19	210	3.7	40	--	0.46	5.0	0.28	3.1	12/23/2013	3.8	41		
12/29 - 1/4	1/4/2014	ND (<2.5)	1.3	0.014	12/30/2013	6.85	ND (<0.00025)	0.0075	14	150	3.3	36	--	0.23	2.5	0.21	2.3	12/30/2013	1.9	21		
1/5 - 1/11	1/11/2014	ND (<2.5)	1.3	0.014	1/6/2014	6.91	ND (<0.00025)	0.015	21	230	3.7	41	--	0.17	1.9	0.26	2.9	1/8/2014	2.3	26		
1/12 - 1/18	1/18/2014	ND (<2.5)	1.3	0.014	1/13/2014	7.31	ND (<0.00025)	0.0082	16	180	3.5	40	--	0.25	2.8	0.21	2.4	1/15/2014	4.5	51	0.57	6.5
1/19 - 1/25	1/25/2014	ND (<2.5)	1.3	0.014	1/20/2014	6.72	0.0013	0.036	60	680	5.8	65	--	0.97	11	0.42	4.7	1/22/2014	4.6	52		
1/26 - 2/1	2/1/2014	ND (<2.5)	1.3	0.014	1/27/2014	6.69	ND (<0.00025)	0.0098	15	170	3.8	43	--	0.48	5.4	0.28	3.1	1/29/2014	5.2	58		
2/2 - 2/8	2/8/2014	ND (<2.5)	1.3	0.014	2/3/2014	6.91	ND (<0.00025)	0.020	23	260	4.0	45	--	0.33	3.7	0.13	1.5	2/5/2014	4.6	52		
2/9 - 2/15	2/15/2014	ND (<2.5)	1.3	0.014	2/10/2014	6.98	ND (<0.00025)	0.0047	22	250	3.0	34	--	0.94	11	0.33	3.7	2/12/2014	2.6	29		
2/16 - 2/22	2/22/2014	ND (<2.5)	1.3	0.015	2/17/2014	7.25	ND (<0.00025)	0.0052	22	260	4.2	49	--	1.5	17	0.27	3.1	2/19/2014	9.9	110		
2/23 - 3/1	3/1/2014	ND (<2.5)	1.3	0.015	2/24/2014	7.18	ND (<0.00025)	0.0043	10	120	0.30	3.5	--	0.58	6.8	0.39	4.6	2/26/2014	3.7	43		
3/2 - 3/8	3/8/2014	ND (<2.5)	1.3	0.013	3/3/2014	6.91	ND (<0.00025)	0.0064	16	170	3.8	41	--	0.43	4.6	0.20	2.1	3/5/2014	2.4	26		
3/9 - 3/15	3/15/2014	ND (<2.5)	1.3	0.015	3/10/2014	7.36	ND (<0.00025)	0.0051	54	630	9.8	114	--	1.6	19	0.28	3.3	3/12/2014	3.4	40		
3/16 - 3/22	3/22/2014	ND (<2.5)	1.3	0.015	3/17/2014	6.87	ND (<0.00025)	0.0023	13	150	3.0	36	--	0.19	2.3	0.18	2.1	3/19/2014	1.0	12		
3/23 - 3/29	3/29/2014	ND (<2.5)	1.3	0.015	3/24/2014	6.72	0.00048	0.0059	12	140	3.6	42	--	0.33	3.9	0.18	2.1	3/26/2014	3.7	44		
3/30 - 4/5	4/5/2014	ND (<2.5)	1.3	0.0090	3/31/2014	7.04	ND (<0.00025)	0.012	30	220	5.9	42	ND (<0.10)	0.05	0.36	0.26	1.9	4/4/2014 ¹	NS	NS		
4/6 - 4/12	4/12/2014	ND (<2.5)	1.3	0.0056	4/11/2014	6.61	0.00029	0.0096	15	70	3.4	15	ND (<0.10)	0.05	0.23	0.16	0.7	4/11/2014	3.4	15		
4/13 - 4/19	4/19/2014	ND (<2.5)	1.3	0.015	4/14/2014	6.66	ND (<0.00025)	0.028	20	230	4.4	52	ND (<0.10)	0.05	0.59	0.22	2.6	4/16/2014	6.3	74	0.15	1.6
4/20 - 4/26	4/26/2014	ND (<2.5)	1.3	0.014	4/21/2014	6.62	ND (<0.00025)	0.012	15	170	3.5	40	--	0.51	5.9	0.20	2.3	4/23/2014	2.5	29		
4/27 - 5/3	5/3/2014	ND (<2.5)	1.3	0.014	4/28/2014	6.62	ND (<0.00025)	0.012	17	200	3.7	43	--	0.18	2.1	0.16	1.9	4/30/2014	4.9	57		
5/4 - 5/10	5/10/2014	ND (<2.5)	1.3	0.014	5/5/2014	6.77	ND (<0.00025)	0.0074	13	150	2.7	31	--	0.49	5.6	0.14	1.6	5/7/2014	2.8	32		
5/11 - 5/17	5/17/2014	ND (<2.5)	1.3	0.014	5/12/2014	6.62	0.0013	0.0083	26	290	3.9	44	--	1.1	12	0.39	4.4	5/14/2014	3.0	34		
5/18 - 5/24	5/24/2014	ND (<2.5)	1.3	0.014	5/19/2014	7.06	ND (<0.00025)	0.012	15	170	3.3	37	--	0.99	11	0.31	3.5	5/21/2014	3.4	38		
5/25 - 5/31	5/31/2014	ND (<2.5)	1.3	0.014	5/27/2014	6.77	ND (<0.00025)	0.012	23	270	3.4	39	--	0.12	1.4	0.25	2.9	5/28/2014 ²	NS	NS		
6/1 - 6/7	6/7/2014	ND (<2.5)	1.3	0.014	6/2/2014	6.85	ND (<0.00025)	0.010	18	200	3.1	34	--	1.3	14	0.52	5.6	6/4/2014	2.3	25		
6/8 - 6/14	6/14/2014	ND (<2.5)	1.3	0.014	6/9/2014	6.69	ND (<0.00025)	0.0091	13	140	3.0	33	--	0.11	1.2	0.040	0.43	6/11/2014	1.2	13		
6/15 - 6/21	6/21/2014	ND (<2.5)	1.3	0.014	6/16/2014	6.69	ND (<0.00025)	0.016	13	140	3.7	41	--	0.57	6.3	0.16	1.8	6/18/2014	0.86	10		
6/22 - 6/28	6/28/2014	ND (<2.5)	1.3	0.013	6/23/2014	6.71	ND (<0.00025)	0.0062	10	110	2.0	21	--	0.11	1.2	0.070	0.75	6/25/2014	5.4	58		
6/29 - 7/5	7/5/2014	ND (<2.5)	1.3	0.012	6/30/2014 ³	6.50	ND (<0.00025)	0.017	29	280	4.8	47	ND (<0.10)	0.05	0.49	0.16	1.6	7/2/2014 ³	4.5	44		
7/6 - 7/12	7/12/2014	ND (<2.5)	1.3	0.012	7/8/2014 ⁴	6.77	ND (<0.00025)	0.0089	20	200	3.2	31	--	0.41	4.0	0.23	2.3	7/9/2014 ³	3.4	33	0.24	2.0
7/13 - 7/19	7/19/2014	ND (<2.5)	1.3	0.010	7/15/2014	6.85	ND (<0.00025)	0.020	34	280	8.3	69	ND (<0.10)	0.05	0.41	0.35	2.9	7/16/2014	4.5	37		
7/20 - 7/26	7/26/2014	ND (<2.5)	1.3	0.012	7/21/2014	7.25	ND (<0.00025)	0.020	50	470	9.2	87	--	0.22	2.1	0.56	5.3	7/23/2014	3.7	35		
7/27 - 8/2	8/2/2014	ND (<2.5)	1.3	0.012	7/28/2014	6.65	ND (<0.00025)	0.014	23	220	6.1	57	--	0.25	2.3	0.25	2.3	7/30/2014	5.4	51		
8/3 - 8/9	8/9/2014	ND (<2.5)	1.3	0.013</																		

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	All nine wells in operation.
1.02		Lift Station 1 Lift Pump A	Running	X	
1.03		Lift Station 1 Lift Pump B	Standby	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	Tiberti construction swapped the motors in PC-150 and ART-7B.
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 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	
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	A temporary sump was installed until a permanent pump can be purchased. The key on the shaft needs to be replaced on the compressor.
5 Equalization Area and GW-11 Pond					
5.01	PID10A	Pond GW-11	In operation	X	
5.02	PID10A	Pond Water Pump - P101A	Off	X	
5.03	PID10A	Pond Water Pump - P101B	Off	X	
5.04	PID10A	Equalization Tanks	In operation	X	

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5.05	PID10A	<i>Area in and Around EQ</i>	In operation	X	Contractors installed new automatic strainers, but waiting on filter and for electrical to be connected.
5.06	PID10A	<i>Raw Water Feed Pump - P102A</i>	Running	X	
5.07	PID10A	<i>Raw Water Feed Pump - P102B</i>	Running	X	
5.08	PID10B	<i>Carbon Absorber - LGAC 201A</i>	Running	X	
5.09	PID10B	<i>Carbon Absorber - LGAC 201B</i>	Running	X	
5.10	PID10B	<i>Carbon Absorber - LGAC 201C</i>	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	Unclogged discharge line from media return pump.
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	The pump is running in hand until the I/O card can be replaced. Replacing the I/O card requires a full plant shutdown.
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	New coupling received.
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	

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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	

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7	Second Stage FBRs 5 & 6				
8.01	PID03A	FBR 5	Off	X	Ran wet test on FBR 5. All pressures and flows look good.
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	A line was clogged and the pump was rebuilt.
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	

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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	The steel airline are being bypassed with an airhose feeding the pressure tank.
10.16	PID05	DAF Float Pump - P552	Running	X	
10.17	PID05	Screw Conveyor 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	A new seal arrived for the pump, but installation has been pushed back to January.
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	The positioner for the filter reject tank has been received.
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	Debris was cleared from the transmitter for the level indicator.
13.02	PID10C	Effluent Booster Pump - P1302A	Running	X	
13.03	PID10C	Effluent Booster Pump - P1302B	Running	X	

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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	Standby	X	Received rebuild kits, but needed more parts to complete rebuild.
14.07	PID09	West Press	Running	X	
14.08	PID09	East Press	Standby	X	Press was flushed with water.
14.09	PID09	Filtrate Tank	In operation	X	
14.10	PID09	Filtrate Tank Effluent (recycle) Pump - P903	Running	X	
		Chemical Systems			
15		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	
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	Reordered pump heads from different company and new pump head installed.
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	
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	
		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	

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