ENVIROGEN TECHNOLOGIES

A Lifecycle Performance Company

To:	Nevada Division of Environmental Protection Nevada Environmental Response Trust
Cc:	Nevada Environmental Response Trust Stakeholders
From:	Jeff Lambeth, Director of Operations
Date:	Jun 20, 2016
Subject:	NERT – GWETS Operation Monthly Report – May 2016

At the request of the Nevada Environmental Response Trust (Trust), Envirogen Technologies, Inc. (ETI) is providing this summary of the groundwater extraction and treatment system (GWETS) operation and performance during May 2016.

Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS normally in May 2016. The flow rate to the plant averaged approximately 881 gallons per minute (gpm) during May 2016. At the end of the month, the GW-11 Pond volume was at 44.44 million gallons (MG), which would allow 12.5 days of available additional storage in the event of an emergency plant shutdown with continued well field pumping. The water volume stored in the GW-11 Pond increased approximately 0.1 MG from the end of April. Figure 1 in this report depicts the actual and projected GW-11 pond volumes and additional storage available.

The influent perchlorate concentration to the FBR plant averaged 98 mg/L for the month, with a maximum concentration of 120 mg/L.

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

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. Figure 2 graphically presents historical perchlorate and chromium mass flux information.

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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 Pond**

   - GW-11 Pond Leak Detection System: There were no operational issues.
   - Tetra Tech is in the process of installing a level sensing transducer in the GW11 effluent pipe that will measure the level of the pond. The data will be transmitted to the D1 Control Room Siemens SCADA computer where the levels will be monitored and recorded.

2. **Biological Plant**

   There were no significant Plant interruptions. There were two unplanned diversions for the month of May. Below is a description of the short duration events that occurred:

   - Diversion to GW11, May 17, 2016: The Plant was diverted to GW-11 as a precautionary measure due to low sulfides identified during the in-plant process control lab analysis. The plant was diverted at 5:15 AM and returned to the Wash at 6:30 AM after confirmation the plant was in compliance. The event lasted 75 minutes and 67,050 gallons were diverted to GW11.

   - Diversion to GW11, May 17, 2016: The Plant was diverted to GW-11 as a precautionary measure due to low sulfides identified during the in-plant process control lab analysis. The plant was diverted at 9:59 PM and returned to the Wash at 10:45 PM after confirmation the plant was in compliance. The event lasted 46 minutes and 42,412 gallons were diverted to GW11.

3. **Spills**

   - No reportable spills occurred in May 2016.

4. **Maintenance**

   - Major maintenance performed by ETI in the month included:
     i. Rebuilt South DAF sludge pump and placed back in service.
     ii. ART 4 extraction well was removed, the motor replaced and the wiring from the electrical panel to the well was replaced and put back in service.
     iii. Ground Water Treatment Plant, both the influent pump and effluent pumps were replaced.
     iv. Interceptor well W motor and electrical pigtail replaced due to a fault in the wiring.

v. Interceptor well P had an unbalanced voltage on the motor. Replaced motor and replaced faulty wiring.

vi. FBR 5 & 6 Separator media return pump P-3011 was rebuilt and put back in service.

- Preventative Maintenance completed or being performed by ETI in the month included:
  i. Repair FBR 7 piping
  ii. Fabricate stand to raise the media return pump on FBR 5.
  iii. Sand filter reject lines are plugging off, Sand filter will be taken off-line to complete this task.
  iv. Revamp Pig retrieval system at LS1.
  v. Repair TK101 overflow pipe.
  vi. Repair/replace airline for FBR-A.
  vii. Rebuild Bed Height Pump on FBR 1.
  viii. Micro Nutrient line repair.
  ix. Install Y strainers on air lines for Bed Height Control.

GWETS Upgrades and Facility Projects

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

1. **AP-5 Solids Removal**
   Tetra Tech is moving forward with the Construction of the three large tanks in order to wash and remove perchlorate salts, with eventual treatment of the perchlorate containing wash water in the GWETS. The tanks have been ordered and subgrade preparation for the tank containment area is underway.

2. **Enhanced Operational Metrics**
   Work Authorization has been submitted to provide oversight of the suggested improvements on the punch list that were considered by Tetra Tech to be out of scope of the original implementation work plan.

3. **IWF well modifications**
   The Trust has requested ETI submit a proposal to improve the meter accuracy, install VFD's, and possibly replace some Interceptor wells. Target submission is August 1, 2016.

4. **Spill containment enhancements**
   The Trust has requested ETI submit a proposal to improve secondary containment throughout the facility. Target submission is July 25, 2016.

5. **GWETS Discharge Flow Evaluation**
   Tetra Tech is conducting a capacity evaluation of the GWETS discharge pipeline. The evaluation includes modeling followed by pumping and flow rate measurement over a range of discharge flow rates to validate model results.

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 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 I Groundwater Extraction and Treatment System I Monthly Stakeholder Metrics				
Location ID	**Average Flow Rate (gpm)**	**Perchlorate (mg/L)[4,5]**	**Chromium (TR) (mg/L)[4,5]**	**Chromium(VI) (mg/L)[4,5]**
SWF Total Extraction[2]	539[1]	10	0.001	0.001
AWF Total Extraction[2]	275[1]	124	0.33	0.48
IWF Total Extraction[2]	68[1]	694	8.4	8.21
GWTP Effluent[3]	67	707	0.18	0.005
GW-11 Influent[2]	856	72	0.090	0.081
GW-11 Effluent/ FBR Influent[3]	881	98	0.042	0.029

Notes:

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

1: Sum of daily average flow for individual wells.

2: Perchlorate and chromium TR sampled monthly, values reported from TestAmerica.

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

4: All concentrations reported are monthly flow weighted averages.

5: ND analytical values are treated as zero values in the flow weighted average calculations.

Nevada Environmental Response Trust I Groundwater Extraction and Treatment System I Monthly Stakeholder Metrics			
Location ID	**Perchlorate (lbs/month)[1]**	**Chromium (TR) (lbs/month)[1]**	**Chromium (VI) (lbs/month)[1]**
SWF Total Extraction	2,052	0.1	0.2
AWF Total Extraction	12,695	34	49
IWF Total Extraction	17,590	214	208
GWTP Effluent	17,533	4.6	0.1
GW-11 Influent	22,998	29	26
GW-11 Effluent/FBR Influent	32,080	14	9.5

Notes:

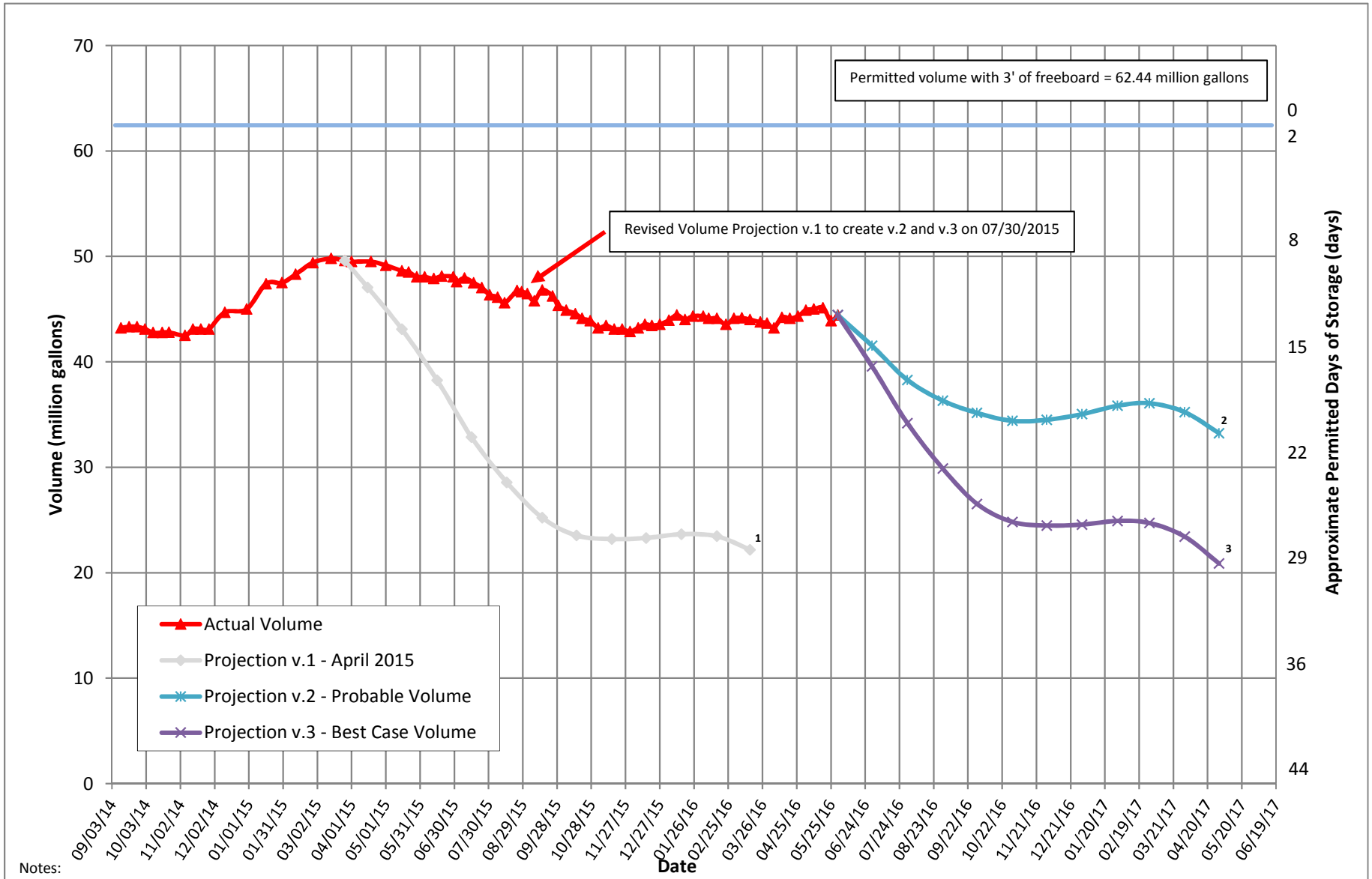
TR = Total Recoverable.

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

ENVIROGEN TECHNOLOGIES

Figures
Operational Metrics

Nevada Environmental Response Trust
GW-11 Pond Volume
Projected v. Actual
Update 5/31/2016



Notes:

1: Monthly GW-11 withdrawals exceed influent flows by approximately 50 gpm.

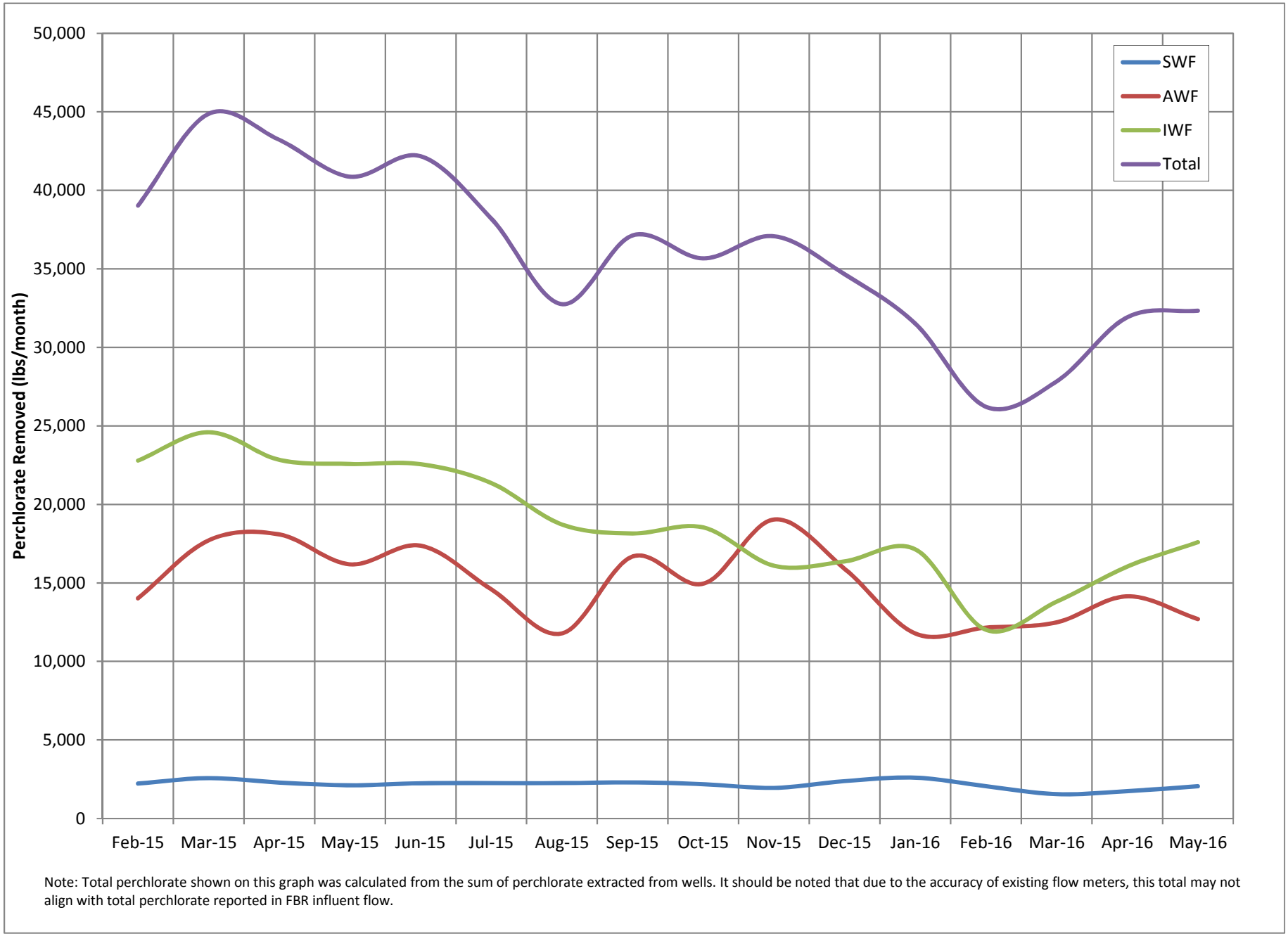
2: Monthly GW-11 withdrawals exceed influent flows by approximately 20 gpm with seasonally changing influent additions each month (ie.- higher GAC backwash volume in summer).

3: Monthly GW-11 withdrawals exceed influent flows by approximately 50 gpm with an assumed 2.8 million gallons of influent additions each month.

4: Monthly evaporation was calculated using Shevenell, 1996. Statewide Potential Evapotranspiration Maps for Nevada. Nevada Bureau of Mines and Geology Report 48. University of Nevada Reno.

5: Average monthly rainfall was estimated from rain gage 4774 data on TIMET property.

Figure 2 - Historical Perchlorate Mass Flux



Note: Total perchlorate shown on this graph was calculated from the sum of perchlorate extracted from wells. It should be noted that due to the accuracy of existing flow meters, this total may not align with total perchlorate reported in FBR influent flow.

Updated: 6/13/2016

Attachment A
NPDES Tracking Sheet (Prepared by ENVIRON)

	Continuous		Daily samples, composited weekly		Weekly samples										Weekly samples, collected separately			Quarterly sample	
	Flow Rate		Perchlorate		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. (ug/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. (lbs/day)		30-Day Avg. (mg/L)	Daily Max. (mg/L)	30-Day Avg. (lbs/day)	30-Day Avg. (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**
January 2016	1.28	1.39	1.3	0.013	6.89	0.00013	0.022	24	250	4.5	47	9	0.25		5.8	6.5	61	0.26	2.9
February 2016	1.34	1.41	1.3	0.014	6.96	0.00013	0.015	20	230	3.6	41	6	0.62		3.9	6.0	43		
March 2016	1.37	1.43	1.3	0.014	6.83	0.00013	0.027	21	240	3.1	35	13	1.9		4.3	5.8	49		
April 2016	1.36	1.44	1.3	0.014	6.84	0.00013	0.026	21	240	2.4	27	4.9	1.2		3.9	6.2	44		
May 2016 (month to date)	1.40	1.47	1.3	0.014	6.65	0.00013	0.019	24	280	3.0	35	1.6	0.9		4.7	6.7	54	0.22	2.5

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
1/3 - 1/9	1/9/2016	ND (<2.5)	1.3	0.013	1/4/2016	6.92	ND (<0.00025)	0.0070	18	193	3.9	42	--	0.32	3.4	--	0.028	0.30	1/6/2016	5.7	61		
1/10 - 1/16	1/16/2016	ND (<2.5)	1.3	0.013	1/11/2016	7.02	ND (<0.00025)	0.022	25	260	5.0	52	--	1.8	19	ND (<0.025)	0.013	0.13	1/13/2016	6.5	68		
1/17 - 1/23	1/23/2016	ND (<2.5)	1.3	0.013	1/19/2016	6.62	ND (<0.00025)	0.016	30	311	5.1	53	--	0.96	9.9	ND (<0.025)	0.013	0.13	1/20/2016	6.0	62		
1/24 - 1/30	1/30/2016	ND (<2.5)	1.3	0.014	1/25/2016	7.01	ND (<0.00025)	0.014	23	255	3.8	42	--	0.19	2.1	--	0.040	0.44	1/27/2016	4.8	53	0.26	2.9
1/31 - 2/6	2/6/2016	ND (<2.5)	1.3	0.014	2/1/2016	6.94	ND (<0.00025)	0.015	35	394	4.5	51	--	0.18	2.0	--	0.059	0.66	2/3/2016	6.0	68		
2/7 - 2/13	2/13/2016	ND (<2.5)	1.3	0.014	2/9/2016	7.18	ND (<0.00025)	0.013	16	181	3.8	43	--	0.98	11	--	0.059	0.67	2/10/2016	2.5	28		
2/13 - 2/20	2/20/2016	ND (<2.5)	1.3	0.014	2/15/2016	6.82	ND (<0.00025)	0.0092	14	158	2.8	32	--	0.33	3.7	--	0.048	0.54	2/17/2016	3.4	38		
2/21 - 2/27	2/27/2016	ND (<2.5)	1.3	0.014	2/22/2016	6.91	ND (<0.00025)	0.013	16	181	3.4	38	--	0.50	5.6	--	0.054	0.61	2/24/2016	3.5	40		
2/28 - 3/5	3/5/2016	ND (<2.5)	1.3	0.014	3/1/2016	7.11	ND (<0.00025)	0.0092	12	132	2.0	22	--	1.9	21	--	0.062	0.68	3/2/2016	3.3	36		
3/6 - 3/12	3/12/2016	ND (<2.5)	1.3	0.014	3/7/2016	6.91	ND (<0.00025)	0.012	18	202	2.6	29	--	1.4	16	--	0.096	1.1	3/9/2016	2.7	30		
3/13 - 3/19	3/19/2016	ND (<2.5)	1.3	0.015	3/14/2016	6.68	ND (<0.00025)	0.026	33	388	4.1	48	--	0.71	8.3	--	0.23	2.7	3/16/2016	5.8	68		
3/20 - 3/26	3/26/2016	ND (<2.5)	1.3	0.015	3/21/2016	6.81	ND (<0.00025)	0.023	22	256	4.1	48	--	0.45	5.2	--	0.32	3.7	3/23/2016	5.5	64		
3/27 - 4/2	4/2/2016	ND (<2.5)	1.3	0.014	3/28/2016	6.65	ND (<0.00025)	0.027	19	213	2.6	29	--	1.2	13	--	0.12	1.3	3/30/2016	4.1	46		
4/3 - 4/9	4/9/2016	ND (<2.5)	1.3	0.014	4/6/2016	6.71	ND (<0.00025)	0.013	14	160	2.6	30	--	0.37	4.2	--	0.060	0.69	4/6/2016	1.4	16		
4/10 - 4/16	4/16/2016	ND (<2.5)	1.3	0.014	4/11/2016	6.82	ND (<0.00025)	0.017	23	254	3.5	39	--	0.48	5.3	--	0.11	1.2	4/13/2016	6.0	66		
4/17 - 4/23	4/23/2016	ND (<2.5)	1.3	0.014	4/18/2016	6.82	ND (<0.00025)	0.026	25	281	2.8	32	--	0.44	5.0	--	0.17	1.9	4/20/2016	6.2	70		
4/24 - 4/30	4/30/2016	ND (<2.5)	1.3	0.015	4/25/2016	7.02	ND (<0.00025)	0.011	21	245	0.70	8.2	--	0.44	5.1	--	0.092	1.1	4/27/2016	2.1	24		
5/1 - 5/7	5/7/2016	ND (<2.5)	1.3	0.014	5/2/2016	6.84	ND (<0.00025)	0.019	25	289	2.9	34	ND(<0.10)	0.05	0.58	--	0.089	1.0	5/4/2016	3.9	45	0.22	2.5
5/8 - 5/14	5/14/2016	ND (<2.5)	1.3	0.014	5/9/2016	6.64	ND (<0.00025)	0.0078	22	254	2.6	30	--	0.27	3.1	--	0.075	0.87	5/11/2016	2.5	29		
5/15 - 5/21	5/21/2016	ND (<2.5)	1.3	0.014	5/16/2016	6.51	ND (<0.00025)	0.011	20	231	3.2	37	--	0.18	2.1	--	0.085	0.98	5/18/2016	6.7	77		
5/22 - 5/28	5/28/2016	NA	NA	NA	5/23/2016	6.60	ND (<0.00025)	0.011	29	349	3.4	41	ND(<0.10)	0.05	0.60	--	0.067	0.81	5/25/2016	5.5	66		
5/29 - 6/4	6/4/2016	NA	NA	NA	5/30/2016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6/1/2016	NA	NA		
					6/6/2016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6/8/2016	NA	NA		

Note: All analytical responsibilities are performed by TestAmerica Laboratories, Inc. (TestAmerica) in Irvine, California, unless otherwise indicated.

NA = Not Available To Date

ND = Not Detected above laboratory reporting limit; concentration in adjacent cell to right is one-half the reporting limit (per Permit condition)
-- = Analyte detected; see column adjacent to right
Last Updated: June 10, 2016

Sub-System	P&ID	Description	Status	Checked	Criticality	Notes
		Main Plant Equipment				
1		**Seep Wells and Lift Station 1**				
1.01		*Seep Well Field, 9 wells*	Running			
1.02		*Lift Station 1 Lift Pump A*	Running			Replace the packing on the turbine.
1.03		*Lift Station 1 Lift Pump B*	Standby			
1.04		*Area in and around Lift Station 1*	Running		3	Place secondary containment around the wet well.
2		**Athens Road Wells and Lift Station** 3				
2.01		*Athens Road Well Field, 9 wells*	Running		2	
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			
3		**Lift Station *2* and Transmission Pipelines**				
3.01		*Influent Pipeline*	In operation			
3.02		*Effluent Pipeline*	Running		3	.
3.03		*Lift Station 2 Lift Pump A*	Running			
3.04		*Lift Station 2 Lift Pump B*	Standby			
3.05		*Area in and around Lift Station 2*	Running			
4		**Interceptor Wells and Cr Treatment Plant**				
4.01		*IWF Well Field, 30 wells*	Running			Replace the ½ hp motor on I-P.
4.02		*Ferrous Sulfate Feed System*	Running			
4.03		*Polymer Feed System*	Running			
4.04		*Clarifier*	In operation			
4.05		*Filter Press*	Running			
4.06		*GWTP Effluent Tank*	In operation			
4.07		*Interceptor Booster Pump A*	Running		3	
4.08		*Interceptor Booster Pump B*	Standby			
4.09		*Area In And Around GWTP*	Running		3	New P-1001 pump was installed to achieve higher flow.

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	Checked	Criticality	Notes
5		**Equalization Area and GW-11 Pond**				
5.01	PID10A	*Pond GW-11*	In operation			
5.02	PID10A	*Pond Water Pump - P101A*	Standby			
5.03	PID10A	*Pond Water Pump - P101B*	Standby		3	New seal received. Tentative plan in place. Pump still operational.
5.04	PID10A	*Equalization Tanks*	In operation			
5.05	PID10A	*Area in and Around EQ*	In operation		2	Wrapped fiberglass seal around over flow pipe to repair small drip inside the containment.
5.06	PID10A	*Raw Water Feed Pump - P102A*	Running			
5.07	PID10A	*Raw Water Feed Pump - P102B*	Standby			
5.08	PID10A	*F-101 Filters*	Standby			
5.09	PID10B	*Carbon Absorber - LGAC 201A*	Running			
5.10	PID10B	*Carbon Absorber - LGAC 201B*	Running			
5.11	PID10B	*Carbon Absorber - LGAC 201C*	Running			
6		**First Stage FBRs A, 1** *& 2*				
6.01	PID14	*FBR A*	Running			Installed new airlines to the top of the catwalk
6.02	PID14	*Separator Tank - 1401*	Running			
6.03	PID14	*Media Return Pump - P 1401*	Running			
6.04	PID14	*P1401A*	Standby			
6.05	PID01A	*P1401B*	Running			
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*	Running			
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			

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	Checked	Criticality	Notes
6.23	PID07B	*FBR 1 Electron Donor Assembly Pump - P731*	Running			
6.24	PID07B	*FBR 2 Electron Donor Assembly Pump - P732*	Running			
7		**First Stage FBRs 3** & *4*				
7.01	PID01B	*FBR 3*	Off			
7.02	PID01B	*FBR 4*	Off			
7.03	PID02B	*First Stage Separator Tank - T2012*	Off			
7.04	PID01B	*Media Return Pump - P2012*	Off			
7.05	PID01B	*First Stage FBR Pump - P1013*	Off			
7.06	PID01B	*First Stage FRB Pump - P1014*	Off			
7.07	PID01B	*First Stage FBR Pump - P102A*	Off			
7.08	PID07A	*FBR 3 pH Feed Pump - P713*	Off			
7.09	PID07A	*FBR 4 pH Feed Pump - P714*	Off			
7.10	PID07A	*FBR 3 Nutrient (Urea) Feed Pump - P723*	Off			
7.11	PID07A	*FBR 4 Nutrient (Urea) Feed Pump - P 724*	Off			
7.12	PID15	*FBR 3 Nutrient (Phos Acid) Feed Pump - P1523*	Off			
7.13	PID15	*FBR 4 Nutrient (Phos Acid) Feed Pump - P1524*	Off			
7.14	PID07B	*FBR 3 Electron Donor Assembly Pump - P733*	Off			
7.15	PID07B	*FBR 4 Electron Donor Assembly Pump - P734*	Off			
8		**Second Stage FBRs 5** & 6				
8.01	PID03A	*FBR 5*	Running			
8.02	PID03A	*FBR 6*	Running		3	
8.03	PID03C	*Second Stage Separator Tank - T3011*	Running			
8.04	PID03A	*Media Return Pump - P3011*	Running		3	Pump rebuilt replacing the trunnions, discs, shaft, cams, and bearings. Replaced belt
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			

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Sub-System	P&ID	Description	Status	Checked	Criticality	Notes
9		**Second Stage FBRs 7** & 8				
9.01	PID03B	*FBR 7*	Off		4	
9.02	PID03B	*FBR 8*	Off		4	
9.03	PID03D	*Second Stage Separator Tank - T3012*	Off			
9.04	PID03B	*Media Return Pump - P3012*	Off			
9.05	PID03B	*Second Stage FBR Pump - P3017*	Off			
9.06	PID03B	*Second Stage FBR Pump - P3018*	Off			
9.07	PID03B	*Second Stage FBR Pump - P302A*	Off			
9.08	PID07A	*FBR 7 pH Feed Pump - P717*	Off			
9.09	PID07A	*FBR 8 pH Feed Pump - P718*	Off			
9.10	PID07A	*FBR 7 Nutrient (Urea) Feed Pump - P727*	Off			
9.11	PID07A	*FBR 8 Nutrient (Urea) Feed Pump - P728*	Off			
9.12	PID07B	*FBR 7 Electron Donor Assembly Pump - P737*	Off			
9.13	PID07B	*FBR 8 Electron Donor Assembly Pump - P738*	Off			
10		**Aeration and DAF System**				
10.01	PID04	*Aeration Tank*	In operation			
10.02	PID04	*Aeration Blower - B401*	Running			
10.03	PID04	*Biofilter*	In operation			
10.04	PID04	*Nutrient Solution*	Running			
10.05	PID04	*Biofilter Sump*	Running			
10.06	PID04	*Nutrient Pump - P401*	Running			
10.07	PID04	*Biofilter Sump Pump - P402A*	Standby			
10.09	PID04	*Biofilter Blower*	Running			
10.10	PID05	*DAF Pressure Tanks*	In operation		3	
10.11	PID05	*DAF Vessel - D501*	Maintenance		2	
10.12	PID05	*DAF Pressure Pump - P501*	Maintenance			
10.13	PID05	*DAF Float Pump - P502*	Standby			
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			

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Sub-System	P&ID	Description	Status	Checked	Criticality	Notes
11		**Pumping System (Old Effluent)**				
11.01	PID06	*Effluent Tank 601*	In operation			
11.02	PID06	*Effluent Pump - P601*	Running			
11.03	PID06	*Effluent Pump - P602*	Standby			
12		**Sand Filter System**				
12.01	PID17	*Sand Filter*	Maintenance		2	
12.02	PID17	*Filter Reject Tank*	Out of service			
12.03	PID17	*Filter Reject Pump - P1701A*	Maintenance		3	
12.04	PID17	*Filter Reject Pump - P1701B*	Running			
13		**Effluent Tank and Pumping**				
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			
14		**Solids Collection and Pressing System**				
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*	Running			
14.07	PID09	*West Press*	Standby			Parts ordered for repairs to the plate shifters.
14.08	PID09	*East Press*	Running			
14.09	PID09	*Filtrate Tank*	In operation			
14.10	PID09	*Filtrate Tank Effluent (recycle) Pump - P903*	Running			

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Sub-System	P&ID	Description	Status	Checked	Criticality	Notes
		Chemical Systems				
15		**Electron Donor System**				
15.01	PID07B	*Electron Donor Tank*	In operation			
15.02	PID07B	*Booster Pump P739A*	Running			
15.03	PID07B	*Booster Pump P739B*	Standby			
17.00	PID07C	*Micro Nutrient System*	In operation			
18.00	PID07C	*Hydrogen Peroxide System*	In operation			
19.00	PID07C	*De-Foam System*	In operation			
20.00	PID15	*Nutrient (Phosphoric Acid) System* (Tank only - pumps included in FBRs)	In operation			
21.00	PID07A	*Nutrient (Urea) System* (Tank only - pumps included in FBRs)	In operation			
22.00	PID07A	*pH System* (Tank and effluent pH feed pump only - other pumps included in FBRs)	In operation			
23.00	PID07C	*Ferric Chloride System*	In operation			
24.00	PID07B	*Polymer Systems - DAF*	In operation			
25.00	PID09	*Polymer System - Solids Dewatering* (2 tanks, 2 centrifugal pumps, mixer, volumetric feeder)	In operation			
		Utility Systems				
26		**Compressed Air System**				
26.01	PID08	*West Compressor*	Running		2	*Replaced the safety switch on the air end*
26.02	PID08	*East Compressor*	Running		2	
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			
27.00	PID16	*Oxygen System*	In operation			
28.00	PID16	*GWETS Plant Controls/ Siemens Controls*	In operation			
29.00	PID16	*Well Control System/ Allen Bradley Controls*	In operation			
30.00	PID16	*MCC FBR Pad*	In operation			
31.00	PID16	*MCC in D-1*	In operation			
32.00	PID16	*MCC in EQ area*	In operation			

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Sub-System	P&ID	Description	Status	Checked	Criticality	Notes
		Miscellaneous				
33.00		*Operations Office/Network*	In operation			
34.00		*Laboratory Analyzers*	In operation			
35.00		*Security Systems*	In operation			
		Shelf Spares				
		Media Return Pump Rebuild Kit	In stock			
		pH Feed Pump	In stock			
		Nutrient Feed Pump	In stock			
		Electron Donor Feed Pump	In stock			
		Phosphoric Acid Feed Pump	In stock			
		Interceptor Well Pumps (4 each)	In stock			
		Seep Well Pump (1 each, same as Athens so total of 2)	In stock			
		Athens Road Well Pump (1 each, same as Seep so total of 2)	In stock			

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