



To: Nevada Division of Environmental Protection
Nevada Environmental Response Trust

Cc: Nevada Environmental Response Trust Stakeholders

From: Jeff Lambeth, Director of Operations

Date: August 20, 2016

Subject: NERT – GWETS Operation Monthly Report – July 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 July 2016.

Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS normally in July 2016. The flow rate to the plant averaged approximately 989 gallons per minute (gpm) during July 2016. At the end of the month, the GW-11 Pond volume was at 40.8 million gallons (MG), which would allow 15.0 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 decreased approximately 2.3 MG from the end of June. 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 86 mg/L for the month, with a maximum concentration of 94 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.



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.

2. Biological Plant

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

- Diversion to GW-11, July 4, 2016: Diverted for precautionary measures from 8:19 AM and returned to the Wash at 12:00 pm after confirmation the plant was in compliance. The event lasted 3 hours and 41 minutes and approximately 229,637 gallons were diverted to GW-11.
- Diversion to GW-11, July 10, 2016: Diverted for precautionary measures from 2:50 PM and returned to the Wash at 3:52 PM after confirmation the plant was in compliance. The event lasted 1 hours and 2 minutes and approximately 69,156 gallons were diverted to GW-11.
- Diversion to GW-11, July 25, 2016: Diverted for precautionary measures from 5:24 PM and returned to the Wash at 6:28 PM after confirmation the plant was in compliance. The event lasted 1 hour and 4 minutes and approximately 57,280 gallons were diverted to GW-11.
- Diversion to GW-11, July 27, 2016: Diverted for precautionary measures at 9:40 PM and returned to the Wash at 12:55 AM July 28. The event lasted 3 hours 15 minutes and approximately 202,318 gallons were diverted to GW-11.

3. Spills

No reportable spills occurred in the month of July.

4. Maintenance

- Major maintenance performed by ETI in the month included:
 - i. Lift Station #1 PLC. Experienced a loss of communication from LS #1 to the plant due to an electrical surge/short caused by a loose wire from the radio antenna to the PLC switch. ETI personnel replaced two fuses, one for the Ethernet connection and one for the power source. The system was hard reset and returned to service.
 - ii. Interceptor Well I-Z. ETI replaced the motor contactor and returned to normal service.
 - iii. Art-9 - Well Pump. Replaced the pump and motor. New pump is a Grundfos model 230S75-2, capable of a maximum flow of 180 gpm. New motor is manufactured by



Franklin and is rated at 7.5 hp. Reset motor saver settings and put into service on July 27, 2016.

- iv. Art-8a - Well Pump. Replaced the pump and motor. New pump is a Grundfos model 150S74-3, capable of a maximum flow of 130 gpm. New motor is manufactured by Franklin and is rated at 7.5 hp. Reset motor saver settings and put into service on July 27, 2016.
- Preventative Maintenance completed or being performed by ETI in the month included:
 - i. Pulled bed height pump and inspected for damage. Replaced the diaphragms, cleaned the air slides, and reinstalled.
 - ii. Electron Donor feed system. Replaced the worn looking ethanol feed line with new tubing and new compression fittings as a preventative measure, to ensure no leaks developed.
 - iii. Hydrogen peroxide chemical feed system. Replaced worn O-rings on the feed and suction valves on the pump skid.
 - iv. AE-1023 - FBR 3, 4 & 5 ORP probe. Replaced ORP probes as part of the scheduled quarterly maintenance activities.
 - v. Main plant Air compressor. Ingersoll Rand came in and performed scheduled quarterly maintenance oil change and inspections.
 - vi. P-301A - Second Stage Fluidization pump. Repaired damaged hose used for seal water supply to the pump seal.

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 continuing to move 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.

2. Lift Station #2 & #3

ETI is currently in the process of implementing infrastructure improvements at Lift Stations 2 and 3 as approved by NERT and has ordered long lead items including the turbine pumps. Installation will begin as soon as possible. ETI also installed larger submersible pumps in ART-8a and ART 9 to support the Continuous Optimization Program (COP). All Lift Station #2 & #3 upgrades are scheduled to be complete in early October of 2016.

3. Lift Station #1 upgrades

A proposal has been assembled and submitted by ETI Engineering for proposed upgrades to Lift Station #1.

4. IWF well modifications

A proposal for the IWF is being prepared to address the Trust's desire to improve the flow meter accuracy and installation of VFDs on the extraction pumps (to support the COP).

5. Spill containment enhancements

A proposal for secondary containment modifications has been assembled by ETI Engineering and has been submitted.



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 Groundwater Extraction and Treatment System 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	549 ¹	10	ND	0.0005
AWF Total Extraction ²	293 ¹	122	0.28	0.28
IWF Total Extraction ²	54 ¹	742	8.9	8.6
GWTP Effluent ³	52	829	2.2	14
GW-11 Influent ²	44	120	0.16	ND
GW-11 Effluent/ FBR Influent ³	989	86	0.041	0.033

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 Groundwater Extraction and Treatment System Monthly Stakeholder Metrics			
Location ID	Perchlorate (lbs/month) ¹	Chromium (TR) (lbs/month) ¹	Chromium (VI) (lbs/month) ¹
SWF Total Extraction	2,070	ND	0.10
AWF Total Extraction	13,351	31	31
IWF Total Extraction	14,879	179	173
GWTP Effluent	16,166	44	14
GW-11 Influent	1,985	2.6	ND
GW-11 Effluent/FBR Influent	31,631	15	12

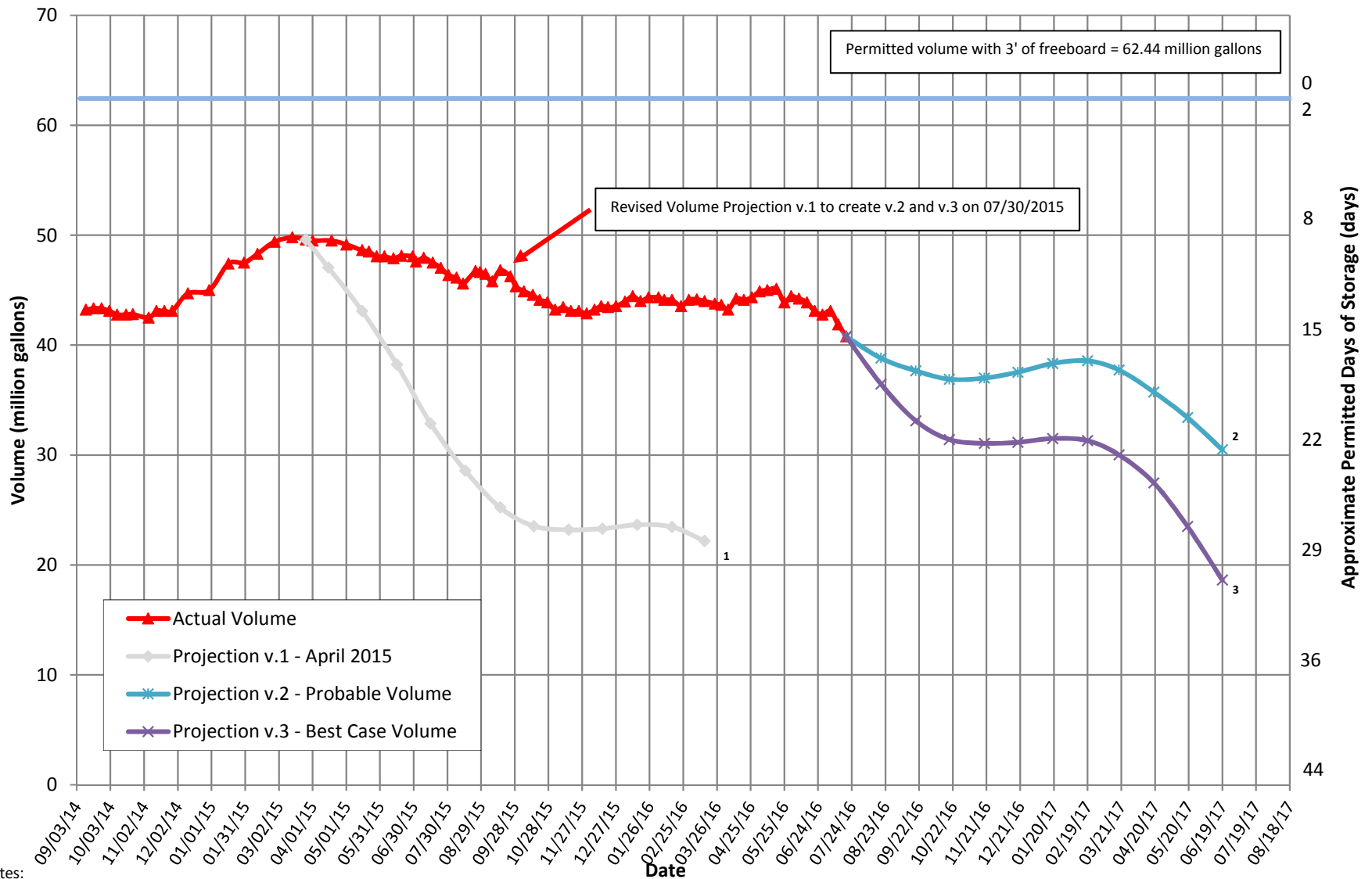
Notes:

TR = Total Recoverable.

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



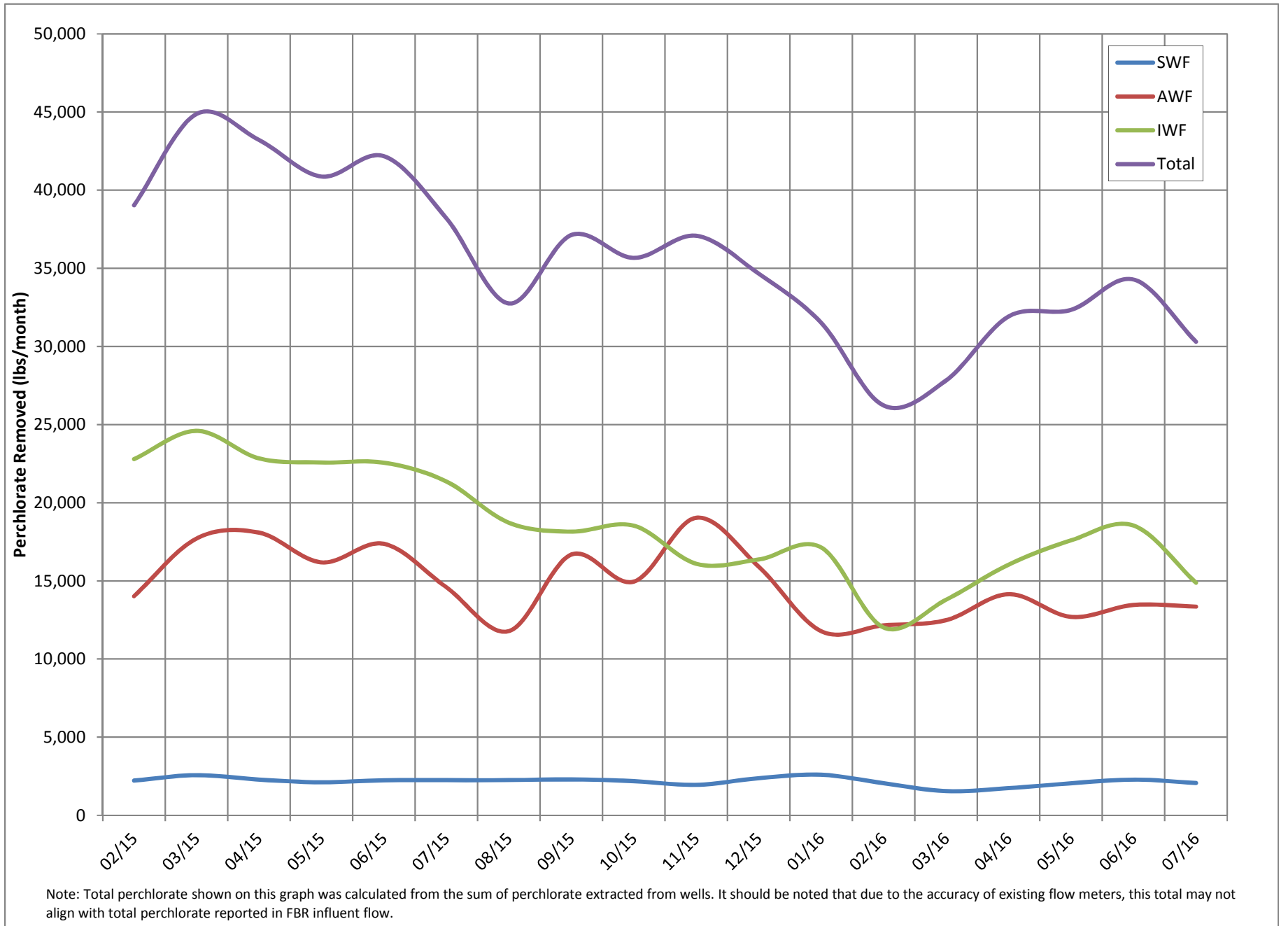
Figures Operational Metrics



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





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. (ug/L)	30-Day Avg. (lbs/day)						30-Day Avg. (S.U.)	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. (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
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
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		
1.37	1.43	1.3	0.014	6.83	0.00013	0.027	21	240	3.1	35		13		1.3			4.3	5.8	49		
1.36	1.44	1.3	0.014	6.84	0.00013	0.026	21	240	2.8	27		4.9		1.2			3.9	6.2	44		
1.40	1.47	1.3	0.015	6.66	0.00013	0.019	22	260	2.7	32		3		0.8			4.7	6.7	54	0.22	2.5
1.30	1.43	1.3	0.014	6.64	0.00013	0.014	11	130	1.6	18		7		1.0			1.7	3.5	19		
1.29	1.39	1.3	0.013	6.68	0.00013	0.0078	5.4	60	1.2	13		7		1.2			2.2	4.1	23		

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		
1/10 - 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		
1/17 - 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		
1/24 - 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		
1/31 - 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		
2/7 - 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		
2/13 - 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		
2/21 - 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		
2/28 - 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		
3/6 - 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		
3/13 - 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		
3/20 - 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		
3/27 - 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		
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		
4/10 - 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		
4/17 - 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		
4/24 - 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		
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		
5/8 - 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		
5/15 - 5/21	5/21/2016	ND (<2.5)	1.3	0.014	5/16/2016	6.51	ND (<0.00025)	0.011	20	211	3.2	37	--	0.18	2.1	--	0.085	0.98		
5/22 - 5/28	5/28/2016	ND (<2.5)	1.3	0.015	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		
5/29 - 6/4	6/4/2016	ND (<2.5)	1.3	0.014	5/31/2016	6.72	ND (<0.00025)	0.0063	15	172	1.6	18	--	0.94	11	--	0.047	0.54		
6/5 - 6/11	6/11/2016	ND (<2.5)	1.3	0.013	6/6/2016	6.69	ND (<0.00025)	0.0030	3.7	39	0.43	4.6	--	0.34	3.6	--	0.027	0.29		
6/12 - 6/18	6/18/2016	ND (<2.5)	1.3	0.014	6/13/2016	6.68	ND (<0.00025)	0.0049	6.9	75	1.3	14	--	0.22	2.4	--	0.046	0.50		
6/19 - 6/25	6/25/2016	ND (<2.5)	1.3	0.013	6/20/2016	6.62	ND (<0.00025)	0.0078	10	106	1.3	14	--	0.31	3.3	--	0.12	1.3		
6/26 - 7/2	7/2/2016	ND (<2.5)	1.3	0.014	6/27/2016	6.57	ND (<0.00025)	0.014	25	280	3.5	39	--	1.5	16.8	--	0.17	1.9		
7/3 - 7/9	7/9/2016	ND (<2.5)	1.3	0.014	7/4/2016	6.51	ND (<0.00025)	0.0049	2.6	28	1.1	12	--	0.18	1.9	--	0.12	1.3		
7/10 - 7/16	7/16/2016	ND (<2.5)	1.3	0.013	7/11/2016	6.78	ND (<0.00025)	0.0035	4.5	47	1.1	12	--	0.32	3.4	--	0.040	0.42		
7/17 - 7/23	7/23/2016	NA	NA	NA	7/18/2016	6.75	ND (<0.00025)	0.0078	9.0	96	1.4	15	--	1.4	15	--	0.19	2.0		
7/24 - 7/30	7/30/2016	NA	NA	NA	7/25/2016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
					8/1/2016	NA	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

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: August 5, 2016



Attachment B Equipment Tracking Form

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			
1.03		Lift Station 1 Lift Pump B	Standby			
1.04		Area in and around Lift Station 1	Running		2	Replaced fuses in the OIT panel
2		Athens Road Wells and Lift Station 3				
2.01		Athens Road Well Field, 9 wells	Running		2	Replaced ART-8A and ART-9 with larger pump and motors. Lowered ART-7B by five feet.
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			
3.03		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		3	Ramble completed study of the wellfield removing and collecting measurements of all wells and equipment. New motors installed on I-z and I-G.
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	Standby			
4.08		Interceptor Booster Pump B	Running			
4.09		Area In And Around GWTP	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
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			
5.04	PID10A	Equalization Tanks	In operation			
5.05	PID10A	Area in and Around EQ	In operation			
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			
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		3	New housing installed after lining worn through causing a hole.
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			

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Sub-System	P&ID	Description	Status	Checked	Criticality	Notes
6.23	PID07B	FBR 1 Electron Donor Assembly Pump - P731	Running		2	Replaced tubing and fittings at the ethanol injection point.
6.24	PID07B	FBR 2 Electron Donor Assembly Pump - P732	Running			
7		First Stage FBRs 3 & 4				
7.01	PID01B	FBR 3	Running			FBR put online. In process of bring up to full capacity flow.
7.02	PID01B	FBR 4	Off			
7.03	PID02B	First Stage Separator Tank - T2012	Running			
7.04	PID01B	Media Return Pump - P2012	Off			
7.05	PID01B	First Stage FBR Pump - P1013	Running			
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	Running			
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			
8.03	PID03C	Second Stage Separator Tank - T3011	Running			
8.04	PID03A	Media Return Pump - P3011	Running		3	Replaced belt and trunnions. Unclogged the line while the pump was in service.
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
11		Pumping System (Old Effluent)				
11.01	PID06	Effluent Tank 601	In operation			
11.02	PID06	Effluent Pump - P601	Standby			
11.03	PID06	Effluent Pump - P602	Running			
12		Sand Filter System				
12.01	PID17	Sand Filter	Running			
12.02	PID17	Filter Reject Tank	In operation			
12.03	PID17	Filter Reject Pump - P1701A	Standby			
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		3	Installed new drain plug on the volute.
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	Maintenance		3	New shaft and inner plates on order. Pump offline
14.06	PID09	Filter Press Pump - P902	Running		3	Removed and cleaned the air ends to ensure proper operation.
14.07	PID09	West Press	Standby			
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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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			
26.02	PID08	East Compressor	Running			
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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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			Suction discs, trunnions, and cams have been ordered for replacement of used inventory.
		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			New ½ hp motors are on order. (2)
		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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