To:	Nevada Division of Environmental Protection Nevada Environmental Response Trust
Cc:	Nevada Environmental Response Trust Stakeholders
From:	Ryan Sullivan, Vice President Service and O&M
Date:	March 20, 2019
Subject:	NERT – GWETS Operation Monthly Report – Feb 2019

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 February 2019.

Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS and ion exchange (IX) system normally in February 2019. Flow from PC-119, PC-120, PC-121, and PC-133 was routed to the IX system, bypassing all flow meters associated with the FBR plant. The flow rate to the IX system averaged approximately 165 gallons per minute (gpm). The flow rate to the FBR plant averaged approximately 1,070 gpm during February 2019. At the end of the month, the GW-11 Pond volume was at 38.5 million gallons (MG), which would allow 16.6 days of available additional storage in the event of an emergency FBR plant shutdown with continued well field pumping. The water volume stored in the GW-11 Pond increased by 1.3 MG from the end of January 2019. (primarily from receiving groundwater from the Unit 4 groundwater extraction test). Figure 1 in this report depicts the actual GW-11 pond volumes and additional storage available.

The influent perchlorate concentration to the IX system averaged 0.47 mg/L for the month. The influent perchlorate concentration to the FBR plant averaged 264 mg/L for the month, with a maximum concentration of 280 mg/L. In comparison, the influent perchlorate concentration to the FBRs for the month of January 2019 averaged 247 mg/l, with a maximum concentration of 260 mg/l. Fluctuations in the influent perchlorate concentrations are due to the changes in the AP-5 treatment feed rate and not a result of groundwater changes.

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. These tables also include data associated with the AP-5 decant liquids. Figure 2 graphically presents historical perchlorate and chromium mass flux information. Attachment A provides a summary of the NPDES permit analytes with numerical discharge limits.

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

There were no operational issues with GW-11 in the month of February.

2. Biological Plant

Treatment of AP-5 water through the FBR Biological plant continued in the month of February beginning with a flow rate of 10.0 gpm and maintaining a consistent flow rate throughout the end of the month.

There were influent / effluent diversions and well shutdowns during the reporting period generally associated with maintenance activities. Below is a description of the events that occurred:

Diversion Events

- Extraction well PC-117 went offline on February 1, 2019 from 5:08am to 10:17am due to a fault in the pump motor. The motor was replaced and the well was brought back online.
- Effluent diversion to GW-11 occurred on February 1, 2019 from 11:54am to 1:25pm due to maintenance efforts at the Outfall. Approximately 96,000 gallons of effluent were diverted to GW-11.
- Interceptor Well Field went offline intermittently on February 2, 2019 from 8:32pm to February 3, 2019 2:38pm due to extreme weather interfering with the electrical transformer causing damage to a fuse in the GWTP panel. The fuse was replace and additional weather proofing was installed on the panel doors.
- Effluent diversion to GW-11 occurred on February 4, 2019 from 12:49pm to 1:27pm due to maintenance efforts at the Outfall. Approximately 40,000 gallons of effluent were diverted to GW-11.
- Effluent diversion to GW-11 occurred on February 8, 2019 from 12:20pm to 12:59pm as a precaution while bringing the North DAF back online. Approximately 33,000 gallons of effluent were diverted to GW-11.
- Extraction well ART-9 went offline on February 26, 2019 from 12:10am to 7:30am. The breaker was reset and the well was brought back online.

3. Spills

There were no reportable spills for the month of February.

4. Maintenance

- Major maintenance performed by ETI in the month included:

    I. Replaced the PLC rack as well as the Universal Power Supply at the GWTP in response to a power loss event.

II. Re-installed the level sensors on the dry polymer system.
III. Replaced the trunnions on the media return pump.
IV. Replaced the motor and pump on E2-1.
V. Saw cut concrete in the D-1 building to improved drainage.
VI. Installed weather stripping on the GWTP MCC cabinet.
VII. Removed the rails for the west press bin to accommodate the Republic bins.
VIII. Installed new blowdown solenoid valves on the DAF pressure tanks.
IX. Installed new flowmeter and piping on E2-1.
X. Replaced media return 1 pump.
XI. Removed the east cylinder on the east press.
XII. Installed the spare DAF polymer pump.
XIII. Installed a new 1 hp pump and motor on E1-2.

- Preventative Maintenance completed or being performed by ETI in the month included:

I. Inspected the air release valves on the effluent pipeline.
II. Implemented a series of repairs including pressure washing the vessel, replacing the sludge pump, replacing the coupling on the recycle pump, welding a patch on the sludge box, coating the inside of the sludge box, replacing the packing on the auger, replacing the front bearing on the auger, and establishing elevations on the weirs.
III. Pressure washed the plates on the west press and inspect the cloths.
IV. Began the infrared checks on all the electrical buckets.
V. Flushed and inspected the west sump pump on the pad for any faults.
VI. Changed the grease and the oil on the aeration blower.
VII. Completed the inspection of the nozzles on the IX vessels.

GWETS Upgrades and Facility Projects

Treatment System Extension – ETI completed the production of the process engineering including Process Flow, Mass Balance and P&IDs for initial submission to NDEP. ETI has forwarded the process package to the Trust for final review. Along with the process engineering, ETI has also completed mechanical designs for all the vessels and prefabricated containers along with the overall layout. ETI continues to coordinate with Tetra Tech, who will install the system including the interconnection between TIMET and the Trust. Preliminary layouts and other installation information was given to Tetra Tech. ETI also supplied Tetra Tech with the required information for the air permit analysis required for this addition.

Equipment Availability Tracking

ETI operators continue to update the equipment tracking form on a weekly basis 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)[6 7]**	**Chromium (TR) (mg/L)[6 7]**	**Chromium(VI) (mg/L)[6 7]**
SWF Total Extraction[1]	752[5]	8.2	0.0012	0.0013
AWF Total Extraction[1]	465[5]	79	0.15	0.15
IWF Total Extraction[1]	57[5]	659	7.5	7.1
AP Area Total Extraction[1]	8.7[5]	960	0.100	0.053
GWTP Effluent [2]	68	677	0.61	0.00044
GW-11 Influent[1]	0.32	51	0.25	0.21
FBR Influent[2 3]	1,070	264	0.045	0.034
T-205 Effluent (AP-5 Wash Water)[3 4]	10	19,641	NA	NA

Notes:

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

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

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

3: AP-5 Wash Water perchlorate data is also included in the GW-11 Effluent/ FBR Influent totals.

4: Flow weighted average concentration based on mass flow meter readings.

5: Sum of daily average flow for individual wells.

6: All concentrations reported are monthly flow weighted averages.

7: 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)[3]**	**Chromium (TR) (lbs/month)[3]**	**Chromium (VI) (lbs/month)[3]**
SWF Total Extraction	2,065	0.30	0.33
AWF Total Extraction	12,336	24	23
IWF Total Extraction	12,572	142	135
AP Area Total Extraction	2,812	0.29	0.16
GWTP Effluent	15,591	14	0.01
GW-11 Influent	5.5	0.03	0.02
FBR Influent[1]	95,232	16	12
T-205 Effluent (AP-5 Wash Water)[1 2]	66,261	NA	NA

Notes:

TR = Total Recoverable; NA = Not Analyzed.

1: AP-5 Wash Water perchlorate data is also included in the GW-11 Effluent/ FBR Influent totals.

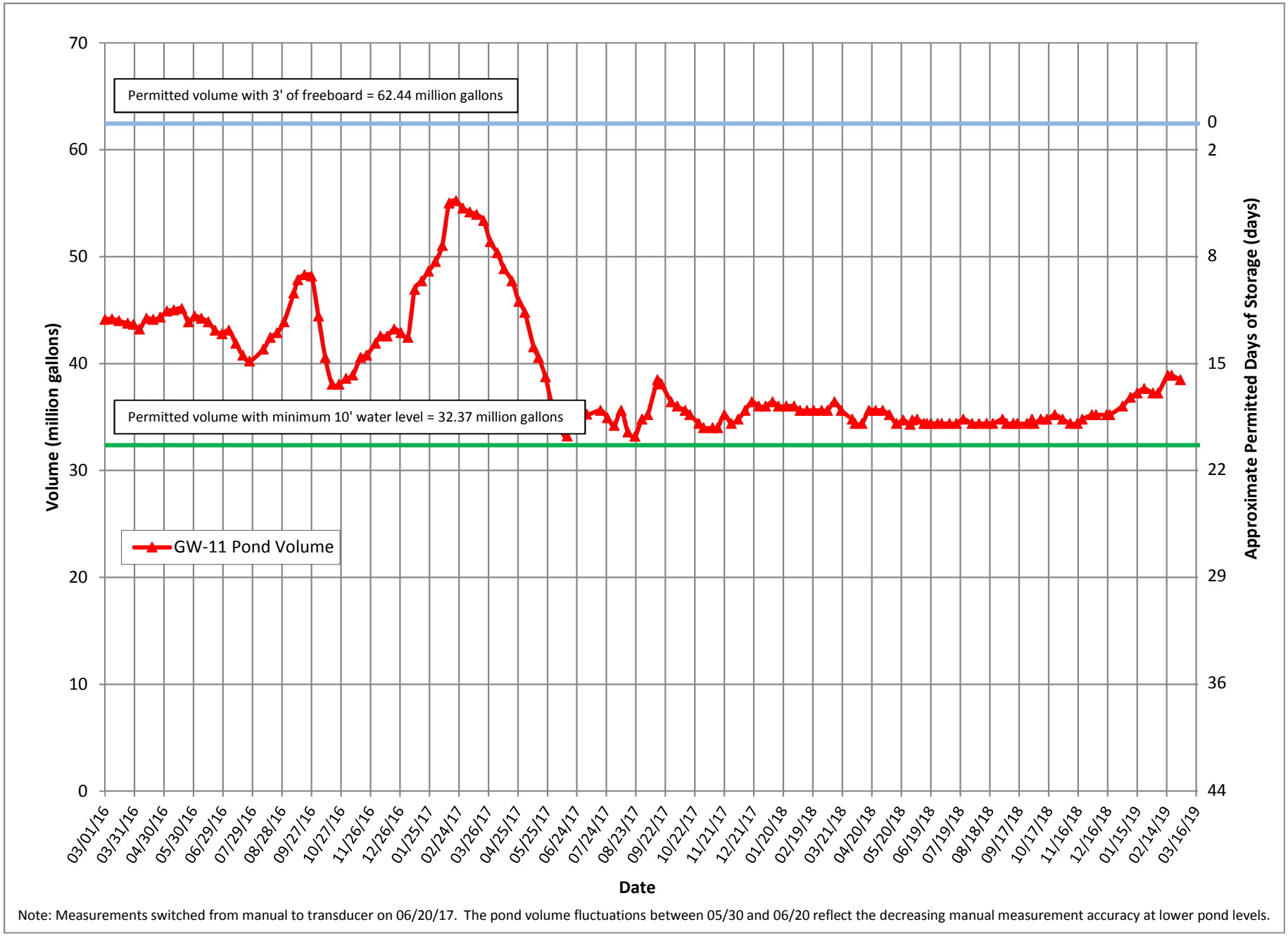
2: AP-5 Wash Water concentrations and mass flux are estimates based on mass flow meter readings.

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

Figures

Operational Metrics

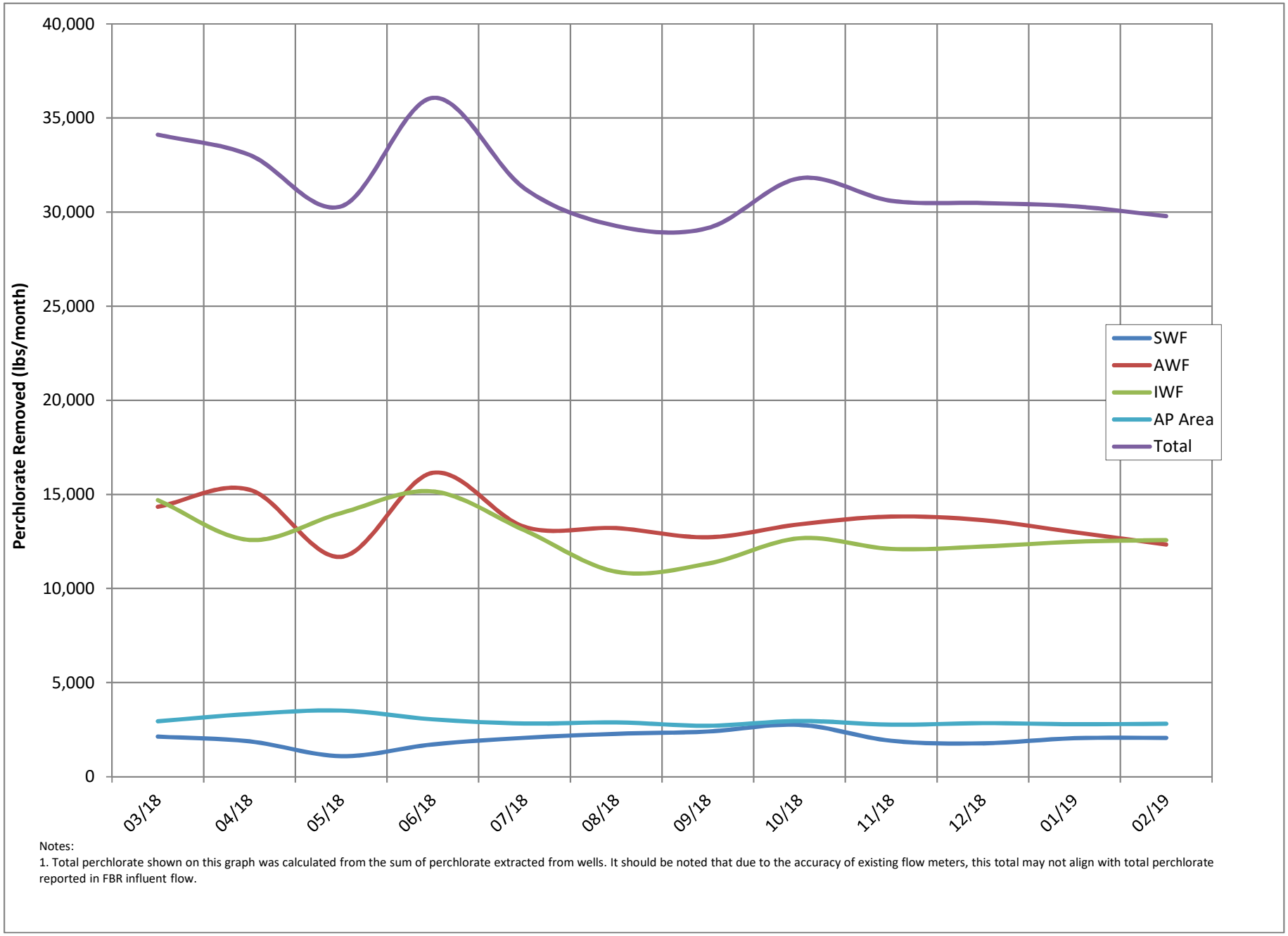
Figure 1 - GW-11 Pond Volume Through 2/28/2019



Note: Measurements switched from manual to transducer on 06/20/17. The pond volume fluctuations between 05/30 and 06/20 reflect the decreasing manual measurement accuracy at lower pond levels.

Figure Updated: 3/4/2019

Figure 2 - Historical Perchlorate Mass Removed From Environment



Notes:
1. 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.

Figure Updated: 3/20/2019

Attachment A

NPDES Tracking Sheet (Prepared by ENVIRON)

Treated Effluent at Outfall 001

	Continuous: Flow Rate 30-Day Avg. (MGD)	Continuous: Flow Rate Daily Maximum (MGD)	Daily Samples, composited weekly: Perchlorate 30-Day Avg. (µg/L)	Perchlorate 30-Day Avg. (lbs/day)	Weekly Grab Samples: pH Daily Min. (S.U.)	pH Daily Max. (S.U.)	Hexavalent Chromium Daily Max. (µg/L)	Total Chromium Daily Max. (µg/L)	Manganese Daily Max. (µg/L)	Total Iron Daily Max. (µg/L)	Total Inorganic Nitrogen (TIN) Daily Max. (mg/L)	Total Suspended Solids (TSS) Daily Average (mg/L)	TSS 30-Day Avg. (lbs/day)	Total Ammonia as N 30-Day Avg. (lbs/day)	Total Phosphorus as P 30-Day Avg. (lbs/day)	Weekly, collected separately: BOD_5 (inhibited) 30-Day Avg. (mg/L)	BOD_5 Daily Max. (mg/L)	BOD_5 30-Day Avg. (lbs/day)	Quarterly: Total Dissolved Solids (TDS) Daily Max. (mg/L)
	2.52	**2.88**	**18**	**0.38**	**6.5**	**9.0**	**10**	**100**	**5,000**	**10,000**	**20**	**135**	**2,839**	**20***	**10***	**25**	**40**	**525**	**8,000**
January 2019	1.80	1.87	0.5	0.0075	6.77	7.33	ND (<0.25)	31	250	330	15	7	110	170	1.5	1.8	2.7	27	4,500
February 2019 (month to date)	1.77	1.86	0.5	0.0071	6.58	6.91	ND (<0.25)	8.6	210	390	14	8	120	190	1.8	0.9	1.2	16	
March 2019 (month to date)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Daily Grab Sample Dates	Composite Sample Date	Perchlorate	µg/L	lbs/day	Sample Date	pH S.U.	Hexavalent Chromium µg/L	Total Chromium µg/L	Manganese µg/L	Total Iron µg/L	TIN mg/L	TSS mg/L	TSS lbs/day	Total Ammonia as N	mg/L	lbs/day	Total Phosphorus as P	mg/L	lbs/day	Sample Date	BOD_5 mg/L	BOD_5 lbs/day	Sample Date	TDS mg/L
12/30 - 1/5	1/5/2019	ND (<1.0)	0.5	0.0074	1/2/2019	7.33	ND (<0.25)	31	200	170	11	15	231	--	11	185[++]	--	0.20	3.1	1/2/2019	2.7	42		
1/6 - 1/12	1/12/2019	ND (<1.0)	0.5	0.0074	1/7/2019	7.21	ND (<0.25)	7.2	250	99	15	4.4	63	--	15	117[++]	--	0.13	1.9	1/9/2019	1.5	22		
1/13 - 1/19	1/19/2019	ND (<1.0)	0.5	0.0075	1/14/2019	6.77	ND (<0.25)	3.7	150	330	14	4.4	67	--	13	117	--	0.061	0.93	1/16/2019	2.6	40		
1/20 - 1/26	1/26/2019	ND (<1.0)	0.5	0.0077	1/21/2019	7.26	ND (<0.25)	7.6	190	170	12	5.4	84	--	11	172	ND (<0.025)	0.013	0.20	1/23/2019	1.5	23		
1/27 - 2/2	2/2/2019	ND (<1.0)	0.5	0.0074	1/28/2019	6.98	ND (<0.25)	4.0	200	170	9.5	6.1	95	--	9.5	148	--	0.10	1.6	1/30/2019	0.78	11		
2/3 - 2/9	2/9/2019	ND (<1.0)	0.5	0.0071	2/4/2019	6.58	ND (<0.25)	8.6	200	390	14	12	176	--	14	205	--	0.12	1.8	2/6/2019	1.2	16	2/11/2019	4,500
2/10 - 2/16	2/16/2019	NA	NA	NA	2/11/2019	6.88	ND (<0.25)	6.3	180	100	13	4.8	72	--	13	194	NA	NA	NA	2/13/2019	1.1	16		
2/17 - 2/23	2/23/2019	NA	NA	NA	2/18/2019	6.91	ND (<0.25)	5.3	210	82	13	NA	NA	--	12	179	NA	NA	NA	2/20/2019	0.75	NA		
2/24 - 2/30	2/30/2019	NA	NA	NA	2/25/2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2/27/2019	0.55	NA		
					3/4/2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3/6/2019	NA	NA		

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

[++] Additional samples were collected and analyzed for ammonia during this week and results were included in the 30-day average loading calculation.

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)

J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

-- = Analyte detected; see column adjacent to right

* Total phosphorus discharge limitation of 10 lbs/day applies between March 1 and October 31; Ammonia discharge limitation of 20 lbs/day applies between April 1 and September 30; no limits apply the rest of the year.

Last Updated: March 8, 2019

Attachment B

Equipment Tracking Form

Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
		Main Plant Equipment				
1		**Seep Wells and Lift Station 1**				
1.01		*Seep Well Field, 9 wells*	Running		4	Installed grounding wire on the flowmeters
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		**Athens Road Wells and Lift Station** 3				
2.01		*Athens Road Well Field, 9 wells*	Running			
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		2	Installed a new pump and motor as well as new piping on the AP-5 well E2-1.
4.02		*Ferrous Sulfate Feed System*	Running			
4.03		*Polymer Feed System*	Running			
4.04		*Clarifier*	In operation			
4.05		*Filter Press*	Running		4	Pressure washed the plates and adjusted the pressure regulator
4.06		*GWTP Effluent Tank*	In operation			
4.07		*Interceptor Booster Pump A*	Running			
4.08		*Interceptor Booster Pump B*	Standby			
4.09		*Area In And Around GWTP*	Running		1	Power outage occurred. The VFD's had to be reset and all the discharge piping was removed and inspected. The 1--1 pump was changed out to test for better flow. The PLC rack had to be replaced and the UPS was replaced.
5		**Equalization Area and GW-11 Pond**				
5.01	PID10A	*Pond GW-11*	In operation			
5.02	PID10A	*Pond Water Pump - P101A*	Running			
5.03	PID10A	*Pond Water Pump - P101B*	Standby			

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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[1]	Checked	Criticality[2]	Notes
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*				
5.07	PID10A	*Raw Water Feed Pump - P102B*				
5.08	PID10A	*F-101 Filters*	Running			
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*				
6.02	PID14	*Separator Tank - 1401*				
6.03	PID14	*Media Return Pump - P 1401*			3	The pump was replaced with a rebuilt one. The trunnions failed on the pump.
6.04	PID14	*P1401A*				
6.05	PID01A	*P1401B*				
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	The trunnions split on the pump. The pump was rebuilt and the system was put back online.
6.10	PID01A	*First Stage FBR Pump - P1011*	Standby			
6.11	PID01A	*First Stage FBR Pump - P1012*			1	The pump was pulled and sent to Cortech for repairs to the shaft and housing
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			
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*				

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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
7.01	PID01B	*FBR 3*	Running		2	The recycle pressure lines froze. The lines were replaced.
7.02	PID01B	*FBR 4*	Running			
7.03	PID02B	*First Stage Separator Tank - T2012*	Running			
7.04	PID01B	*Media Return Pump - P2012*	Running			
7.05	PID01B	*First Stage FBR Pump - P1013*	Running			
7.06	PID01B	*First Stage FRB Pump - P1014*	Running			
7.07	PID01B	*First Stage FBR Pump - P102A*	Running			
7.08	PID07A	*FBR 3 pH Feed Pump - P713*	Running			
7.09	PID07A	*FBR 4 pH Feed Pump - P714*	Running			
7.10	PID07A	*FBR 3 Nutrient (Urea) Feed Pump - P723*				
7.11	PID07A	*FBR 4 Nutrient (Urea) Feed Pump - P 724*	Off			
7.12	PID15	*FBR 3 Nutrient (Phos Acid) Feed Pump - P1523*	Running			
7.13	PID15	*FBR 4 Nutrient (Phos Acid) Feed Pump - P1524*	Running			
7.14	PID07B	*FBR 3 Electron Donor Assembly Pump - P733*	Running			
7.15	PID07B	*FBR 4 Electron Donor Assembly Pump - P734*	Running			
8		**Second Stage FBRs 5** & 6				
8.01	PID03A	*FBR 5*	Running		4	Began installation of the new airlines.
8.02	PID03A	*FBR 6*	Running			
8.03	PID03C	*Second Stage Separator Tank - T3011*	Running			
8.04	PID03A	*Media Return Pump - P3011*	Running		3	The pulley was replaced on the pump and was put back into 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			
9		**Second Stage FBRs 7** & 8				
9.01	PID03B	*FBR 7*	Running			
9.02	PID03B	*FBR 8*	Running			
9.03	PID03D	*Second Stage Separator Tank - T3012*	Running			
9.04	PID03B	*Media Return Pump - P3012*	Running			
9.05	PID03B	*Second Stage FBR Pump - P3017*	Running			
9.06	PID03B	*Second Stage FBR Pump - P3018*	Running			

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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
9.07	PID03B	*Second Stage FBR Pump - P302A*	Running			
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*	Running			
9.13	PID07B	*FBR 8 Electron Donor Assembly Pump - P738*	Running			
10		**Aeration and DAF System**				
10.01	PID04	*Aeration Tank*	In operation			
10.02	PID04	*Aeration Blower - B401*	Running			
10.03	PID04	*Bio filter*	In operation			
10.04	PID04	*Nutrient Solution*	Running			
10.05	PID04	*Bio filter Sump*				
10.06	PID04	*Nutrient Pump - P401*	Running			
10.07	PID04	*Bio filter Sump Pump - P402A*	Standby			
10.09	PID04	*Bio filter Blower*	Running			
10.10	PID05	*DAF Pressure Tanks*	In operation			
10.11	PID05	*DAF Vessel - D501*	Running			
10.12	PID05	*DAF Pressure Pump - P501*	Running			
10.13	PID05	*DAF Float Pump - P502*	Running			
10.14	PID05	*DAF Vessel - D551*	Running		1	The system was taken offline to perform the semi-annual maintenance. The vessel was pressure washed and inspected.
10.15	PID05	*DAF Pressure Pump - P551*	Running		3	New blowdown solenoids were installed and new mufflers.
10.16	PID05	*DAF Float Pump - P552*	Running		3	The pump was changed out as a part of the semi-annual inspection.
10.17	PID05	*Screw Conveyer Drive*	Standby		3	A new bearing was installed on the front of the auger and new packing was installed on the packing gland.
10.18	PID05	*Skimmer Drive*	Running			
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*			3	A new airlift was assembled.
12.02	PID17	*Filter Reject Tank*	In operation			
12.03	PID17	*Filter Reject Pump - P1701A*	Standby			
12.04	PID17	*Filter Reject Pump - P1701B*	Running			

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Criticality Codes

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4 = Low – Minor repairs that in no way alter the performance of the plant

Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
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*				
14.07	PID09	*West Press*	Standby			
14.08	PID09	*East Press*	Running		1	The cylinder was removed for repairs. The system is currently offline until the cyclinder returns for the shop.
14.09	PID09	*Filtrate Tank*	In operation			
14.10	PID09	*Filtrate Tank Effluent (recycle) Pump - P903*	Running			
		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	PID07C	*Micro Nutrient System*	In operation			
18	PID07C	*Hydrogen Peroxide System*	In operation			
19	PID07C	*De-Foam System*	In operation			
20	PID15	*Nutrient (Phosphoric Acid) System (Tank only - pumps included in FBRs)*	In operation			
21	PID07A	*Nutrient (Urea) System (Tank only - pumps included in FBRs)*	In operation			
22	PID07A	*pH System (Tank and effluent pH feed pump only - other pumps included in FBRs)*	In operation			
23	PID07C	*Aluminum Chlorohydrate*	In operation			
24	PID07B	*Polymer Systems - DAF*	In operation		2	A new pump was put in place as a spare. The pump online was rebuilt.
25	PID09	*Polymer System - Solids Dewatering (2 tanks, 2 centrifugal pumps, mixer, volumetric feeder)*	In operation			
		Utility Systems				

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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
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	PID16	*Oxygen System*	In operation			
28		*GWETS Plant Controls/ Siemens Controls*	In operation			
29		*Well Control System/ Allen Bradley Controls*	In operation			
30		*MCC FBR Pad*	In operation			
31		*MCC in D-1*	In operation			
32		*MCC in EQ area*	In operation			
		Miscellaneous Systems				
33		*Operations Office/Network*	In operation			
34		*Laboratory Analyzers*	In operation			
35		*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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