To:	Nevada Division of Environmental Protection Nevada Environmental Response Trust
Cc:	Nevada Environmental Response Trust Stakeholders
From:	Michael Del Vecchio, Director Engineering and Project Management
Date:	December 20, 2023
Subject:	NERT – GWETS Operation Monthly Report – November 2023

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 November 2023.

Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS and ion exchange (IX) system normally in November 2023. Flow from PC-115R, PC-119, PC-120, PC-121, and PC-133 were routed to the IX system, bypassing all flow meters associated with the FBR plant for the month of November. The flow rate to the IX system averaged approximately 302 gallons per minute (gpm). The flow rate to the FBR plant averaged approximately 939 gpm. At the end of the month, the filled GW-11 Pond volume was at 44.77 million gallons (MG), which would allow 12.3 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 since the end of October 2023; 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 2.0 mg/L for the month. The influent perchlorate concentration to the FBR plant averaged 50 mg/L for the month, with a maximum concentration of 53 mg/L. In comparison, the influent perchlorate concentration to the FBRs for the month of October 2023 averaged 44 mg/L, with a maximum concentration of 47 mg/L.

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 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 November.

2. Biological Plant

There were influent / effluent diversions during the reporting period generally associated with maintenance activities as well as extraction well short-term shutdown events. Below is a description of the events that occurred:

Diversion Events / Well Shutdowns

- Influent diversion occurred on November 8, 2023 from 7:23pm to 8:06pm as a precautionary measure due to elevated levels of perchlorate in the FBRs. Adjustments were made to the process and the plant was brought back online. Approximately 45,000 gallons of water were added to the GW-11 pond.
- Influent diversion occurred on November 20, 2023 from 10:05am to 1:00pm due to scheduled maintenance on the 1302A VFD as well as the addition of sand to FBR 1. The maintenance was completed and the plant was brought back online. Approximately 183,000 gallons of water were added to the GW-11 Pond.
- Influent diversion occurred on November 27, 2023 from 8:18pm to November 28, 2023 at 2:25am due to a malfunctioning feed control valve. Troubleshooting was conducted, the valve was repaired, and the plant was brought back online. Approximately 375,000 gallons of water were added to the GW-11 Pond.
- Influent diversion occurred on November 28, 2023 from 8:41am to 9:58am due to a malfunctioning air compressor. Troubleshooting was conducted, the compressor function was resolved, and the plant was brought back online. Approximately 74,000 gallons of water were added to the GW-11 Pond.

3. IX Treatment Plant

During the month of February 2022, flooding conditions were observed adjacent to the SWF as a result of the City of Henderson's (CoH's) use of inactive Birding Ponds 10 through 13. The discharge to these ponds resulted in an increase in groundwater elevation adjacent to the SWF by approximately 5 feet. This increase in groundwater elevation caused flooding adjacent to the SWF extraction wells and within four extraction well vaults. Flooding conditions were observed again in September 2023 as a result of the CoH's use of inactive Birding Ponds 10 through 13 again in August and September 2023. ETI temporarily increased the pumping rate of extraction wells PC-120 and PC-121 to reduce flooding with the well vaults. Additionally, the concentration of perchlorate in shallow groundwater increased again resulting in increased loading to the IX treatment plant during September 2023. The CoH ceased

discharging water to Birding Ponds 10 through 13 in early October 2023. Both the groundwater elevation adjacent to the SWF and the perchlorate concentrations in groundwater are elevated and are expected to remain elevated for an extended period as result of CoH's August/September 2023 use of the inactive Birding Ponds assuming no additional significant usage by the CoH occurs.

4. Treatment System Extension (TSE)

During November 2023, operations at the TSE plant were idled resulting from the TIMET infiltration galleries being unable to accept treated water. Throughout the month of November representatives of NERT and TIMET participated in multiple discussions regarding operations of the TSE and TIMET facilities. Operations are anticipated to resume in Q1 2024.

5. Effluent Filtration System (EFS)

During November 2023, the EFS operated normally and produced approximately 390,000 gallons of filtered GWETS effluent which supported the utility water requirements of GWETS operations.

6. Chromium Treatment Subsystem (CTS)

During November 2023, the CTS operated normally and treated approximately 2,405,000 gallons of groundwater, with approximately 5,000 gallons extracted from the Unit 4 Source Area In-Situ Bioremediation Treatability Study.

7. Spills

There was one reportable spill in the Month of November.

- On November 22, 2023 at approximately 4:50 am the feed flow control valves for FBR 3 and 4 as well as the discharge/level control valve for Separator 2 malfunctioned causing the levels in FBR 3 and 4 and Separator 2 to rise above the tank tops causing an overflow. Approximately 20 gallons of partially treated water was released outside of containment. NDEP BWPC was notified in writing on December 1, 2023. All corrective actions identified in NERT's December 1, 2023 letter have been implemented.

8. Maintenance

- Major maintenance performed by ETI in the reporting month included:

I. Installed a new 7.5 hp motor on extraction well PC-116.
II. Installed new piping on extraction well E2-1.
III. Replaced the wire on the FBR1/2 pump skid to the HOA switches.
IV. Replaced the seal water solenoid valve and fuse on pump P-3015.
V. Installed a temporary light on the FBR pad.
VI. Installed a new flowmeter on AP Area extraction well E2-2.
VII. Loaded sand into FBR 1.
VIII. Pumped out the wells vaults due to power down at Lift Station 1 from PC-120 and PC-121.

IX. Installed a rebuilt positioner and transducer on the level control valve for Separator 1.
X. Replaced the pH meters on FBR 1 and FBR 4.

- Preventative maintenance performed by ETI in the reporting month included:

I. Inspected and blew out the Lift Station MCC's.
II. Calibrated the level control valve for tank T-601.
III. Greased all rotating equipment.
IV. Installed new in-line air filters for the level control valves.
V. Flushed the pH and ORP lines for the FBR's.
VI. Checked for correct RPM on the recycle pump motors.
VII. Topped off the water for the utility carts.
VIII. Greased the turbines and changed the oil at Lift Station 1.
IX. Inspected the leads in the PLC racks around the plant.
X. Cleared water from the airlines on the slam valves.

Attachment B contains a summary of all maintenance activities completed during the reporting period.

Facility Projects

1. Facility Repair/Replacement Items – Envirogen and the Trust have finalized a list of facility items to be addressed in connection with Amendment 8 to the O&M Agreement. All work with the exception of the replacement of the DAF have been completed. Specific details on in-progress items are provided below:

I. (WA 23-03) Dissolved Air Floatation (DAF) Vessel replacement
    1. The replacement DAF was delivered in December 2023 and will be installed in March 2024.

II. Concrete Repair at various locations on FBR pad
    1. Scheduling work with selected contractor. Work is anticipated to be completed in February 2024.

2. Improved Biological Treatment Plant Efficiency – Consistent with Attachment D to the December 2021 GWETS Operation Monthly Report, Envirogen plans to take five FBRs out of service and maintain them in working condition should they be needed in the future. This action will reduce the use of electricity and water and still maintain sufficient treatment capacity to address current groundwater extracted from the IWF, AWF, and the SWF as well as groundwater to be extracted as part of the Unit 4 Source Area In-Situ Bioremediation Treatability Study. FBR A was placed into Offline mode on April 13, 2022. The electrical and mechanical components of the pump skid were inspected and removed when applicable. The removal of the sand media is complete. Final inspection of all internal components is also complete. The remaining FBRs scheduled to be taken out of service will be addressed in the 2nd quarter of 2024.

Tables

Operational Metrics

Nevada Environmental Response Trust I Groundwater Extraction and Treatment System I Monthly Stakeholder Metrics				
Location ID	**Average Flow Rate (gpm)[4]**	**Perchlorate (mg/L)[5]**	**Chromium (TR) (mg/L)[5]**	**Chromium(VI) (mg/L)[5]**
SWF Total Extraction[1]	735[3]	4.4	ND	0.0012
AWF Total Extraction[1]	410[3]	63	0.10	0.10
IWF Total Extraction[1]	46[3]	357	6.0	5.3
AP Area Total Extraction[1]	7.3[3]	575	0.18	0.19
Chromium Treatment Subsystem Effluent[2]	57	415	1.4	0.00031
GW-11 Influent[1]	0.19	30	0.049	0.051
FBR Influent[2]	939	50	0.14	0.036
Treatment System Extension Influent[2,3]	0.0	0.0	0.0	0.0

Notes:

ND = Not detected above laboratory method detection limit (Cr(TR)=2.5 µg/L).

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

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

3: TSE offline from 11/01 to 11/30.

4: Sum of daily average flow for individual wells.

5: All concentrations reported are monthly flow weighted averages.

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	972	ND	0.26
AWF Total Extraction	9,288	14	14
IWF Total Extraction	5,930	100	88
AP Area Total Extraction	1,514	0.47	0.49
Chromium Treatment Subsystem Effluent	8,577	30	0.0064
GW-11 Influent	2.1	0.0034	0.0035
FBR Influent[1]	16,866	43	11
Treatment System Extension Influent[1,2]	0.0	0.0	0.0

Notes:

TR = Total Recoverable.

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

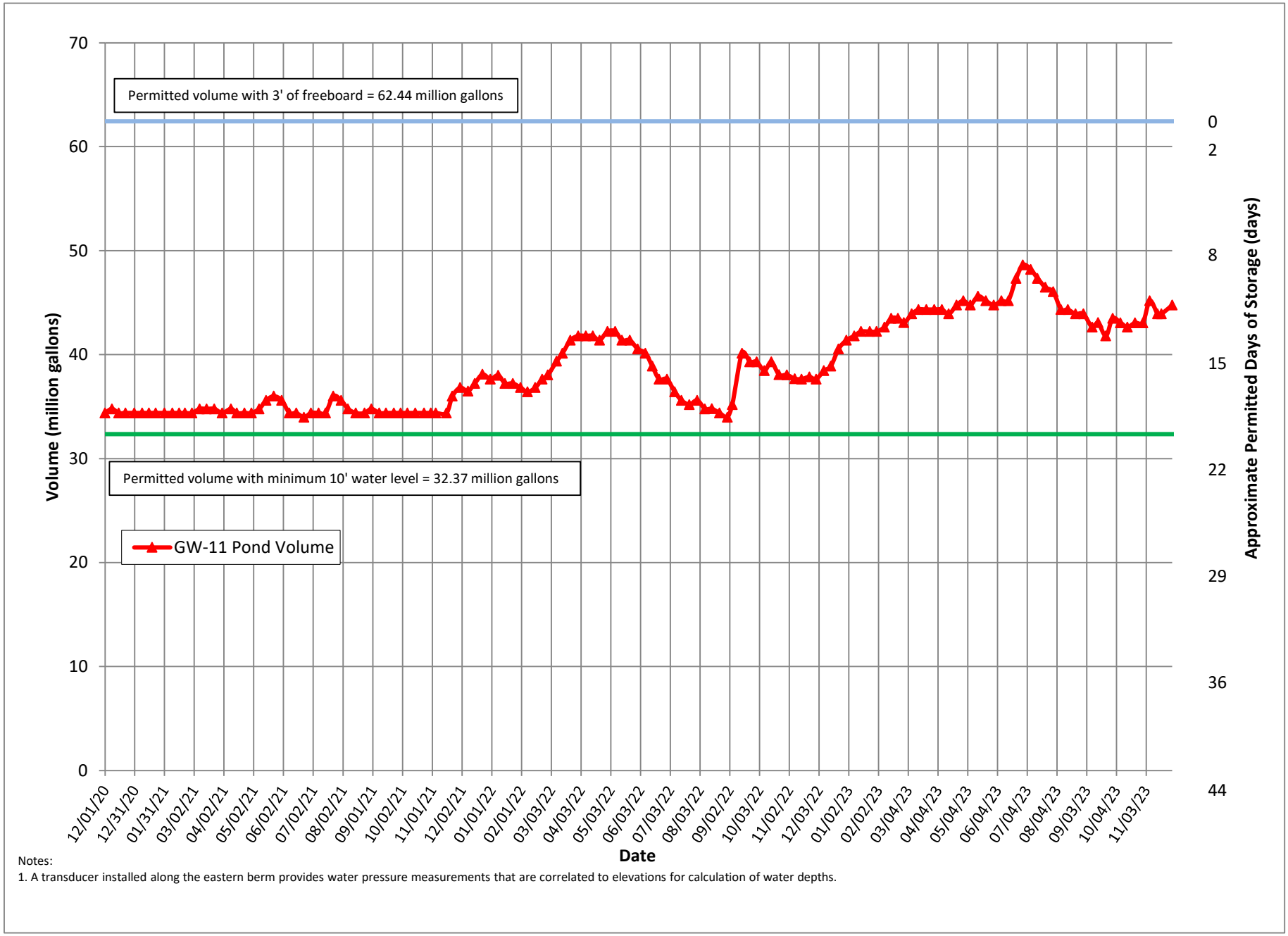
2: TSE offline from 11/01 to 11/30.

Table Updated: 12/21/2023

Figures

Operational Metrics

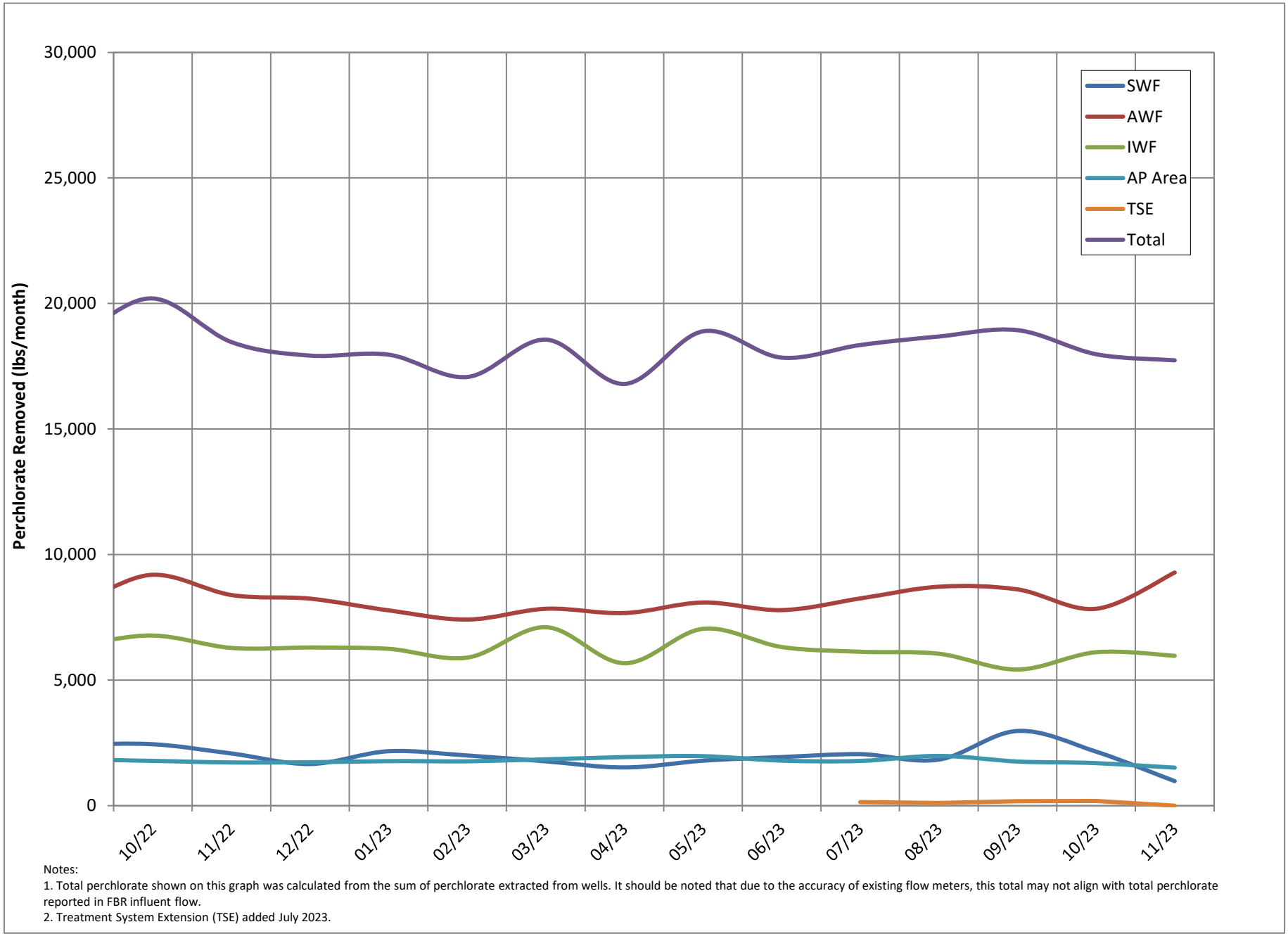
Figure 1 - GW-11 Pond Volume Through 11/30/2023



Notes:
1. A transducer installed along the eastern berm provides water pressure measurements that are correlated to elevations for calculation of water depths.

Figure Updated: 12/5/2023

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.
2. Treatment System Extension (TSE) added July 2023.

Figure Updated: 12/21/2023

Attachment A

NPDES Tracking Sheet (Prepared by Ramboll)

NPDES Permit NV0023060 - Analytes with Numerical Discharge Limits

WORKING TRACKING SPREADSHEET
DRAFT - NOT TO BE SUBMITTED TO AGENCY

Treated Effluent at Outfall 001																							
Continuous		Daily Samples, composited weekly		Weekly Grab Samples											Weekly, collected separately			Quarterly					
Flow Rate		Perchlorate		pH		Hexavalent Chromium	Total Chromium	Manganese	Total Iron	Total Inorganic Nitrogen (TIN)	Total Suspended Solids (TSS)		Total Ammonia as N	Total Phosphorus as P	BOD_5 (inhibited)			Total Dissolved Solids (TDS)					
30-Day Avg. (MGD)	Daily Maximum (MGD)	30-Day Avg. (µg/L)	30-Day Avg. (lbs/day)	Daily Min. (S.U.)	Daily Max. (S.U.)	Daily Max. (µg/L)	Daily Max. (µg/L)	Daily Max. (µg/L)	Daily Max. (µg/L)	Daily Max. (mg/L)	Daily Average (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)	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 2023	1.70	1.76	ND (<1.6)	0.011	6.6	6.9	ND (<0.150)	26	390	1,100	0.96	13	190	1.9	5.1	ND (<5.0)	ND (<5.0)	36	3,900					
February 2023	1.69	1.75	1.1	0.015	6.8	7.1	ND (<0.150)	41	340	1,300	1.3	22	310	4.2	7.2	ND (<5.0)	ND (<5.0)	35						
March 2023	1.67	1.78	2.3	0.033	7.1	7.4	ND (<0.150)	13	320	1,100	1.3	20	270	3.6	5.6	ND (<5.0)	ND (<5.0)	35						
April 2023	1.63	1.75	1.6	0.022	6.75	7.1	ND (<0.150)	35	390	940	0.82	15	200	2.5	4.6	ND (<5.0)	ND (<5.0)	34	3,800					
May 2023	1.68	1.79	3.8	0.052	7.0	7.2	ND (<0.150)	20	720	1,400	1.1	15	220	2.7	5.7	ND (<5.0)	ND (<5.0)	35						
June 2023	1.47	1.72	ND (<1.6)	0.010	6.6	6.6	ND (<0.150)	9.0	460	1,300	0.75	12	160	1.8	3.7	ND (<5.0)	ND (<5.0)	34						
July 2023	1.67	1.82	1.5	0.021	6.5	7.20	0.177	25	330	1,200	0.67	14	200	1.8	5.4	3.1	4.7	43	4,200					
August 2023	1.62	1.96	ND (<1.6)	0.011	6.56	7.12	ND (<0.150)	22	480	1,600	0.71	19	240	1.8	6.1	ND (<5.0)	ND (<5.0)	33						
September 2023	1.67	1.85	2.0	0.029	6.97	7.22	ND (<0.150)	8.6	420	1,100	1.1	17	230	0.9	5.4	ND (<5.0)	ND (<5.0)	36						
October 2023	1.70	1.81	4.7	0.053	7.00	7.10	ND (<0.150)	20	360	1,300	1.4	13	190	1.5	6.7	ND (<5.0)	ND (<5.0)	37	3,800					
November 2023 (month to date)	1.61	1.91	ND (<1.6)	0.011	6.90	7.19	ND (<0.150)	60	520	1,700	1.6	19	240	1.8	7.8	3.6	7.8	46						

Daily Grab Sample Dates	Composite Sample Date		µg/L	lbs/day	Sample Date	S.U.	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L		lbs/day	mg/L		lbs/day	mg/L		lbs/day	Sample Date	mg/L		lbs/day	Sample Date	mg/L
1/1 - 1/7	1/7/2023	ND (<1.6)	0.8	0.011	1/4/2023	6.6	ND (<0.150)	10	340	830	0.87	ND(<10)	5	70	--	0.090	1.3	--	0.43	6.0	1/4/2023	ND (<5.0)	2.5	35		
1/8 - 1/14	1/14/2023	ND (<1.6)	0.8	0.011	1/11/2023	6.8	ND (<0.150)	22	280	690	0.80	--	10	142	--	0.044	0.63	--	0.30	4.3	1/11/2023	ND (<5.0)	2.5	36		
1/15 - 1/21	1/21/2023	ND (<1.6)	0.8	0.012	1/18/2023	6.8	ND (<0.150)	15	350	1100	0.80	--	19	275	--	0.16	2.3	--	0.40	5.8	1/18/2023	ND (<5.0)	2.5	36		
1/22 - 1/28	1/28/2023	ND (<1.6)	0.8	0.012	1/25/2023	6.9	ND (<0.150)	26	390	760	0.96	--	19	277	--	0.24	3.5	--	0.31	4.5	1/25/2023	ND (<5.0)	2.5	36		
1/29 - 2/4	2/4/2023	ND (<1.6)	0.8	0.011	2/1/2023	7.1	ND (<0.150)	7.6	340	620	0.80	--	20	281	--	0.16	2.3	--	0.32	4.5	2/1/2023	ND (<5.0)	2.5	35		
2/5 - 2/11	2/11/2023	ND (<1.6)	0.8	0.011	2/8/2023	6.8	ND (<0.150)	41	290	1100	0.87	--	24	349	--	0.19	2.8	--	0.31	4.5	2/8/2023	ND (<5.0)	2.5	36		
2/12 - 2/18	2/18/2023	2.0	2.0	0.027	2/15/2023	6.8	ND (<0.150)	3.8	280	970	0.75	--	20	282	--	0.15	2.1	--	0.49	6.9	2/15/2023	ND (<5.0)	2.5	35		
2/19 - 2/25	2/25/2023	ND (<1.6)	0.8	0.011	2/22/2023	7.0	ND (<0.150)	25	260	1300	1.3	--	24	335	--	0.69	9.6	--	0.91	12.7	2/22/2023	ND (<5.0)	2.5	35	2/28/2023	3,900
2/26 - 3/4	3/4/2023	ND (<1.6)	0.8	0.012	3/1/2023	7.2	ND (<0.150)	13	320	1100	0.22	--	12	174	--	0.20	2.9	--	0.49	7.1	3/1/2023	ND (<5.0)	2.5	36		
3/5 - 3/11	3/11/2023	ND (<1.6)	0.8	0.011	3/8/2023	7.1	ND (<0.150)	9.5	300	620	1.0	--	14	196	--	0.23	3.2	--	0.30	4.2	3/8/2023	ND (<5.0)	2.5	35		
3/12 - 3/18	3/18/2023	ND (<1.6)	0.8	0.011	3/15/2023	7.2	ND (<0.150)	11	290	860	1.3	--	22	284	--	0.33	4.3	--	0.40	5.2	3/15/2023	ND (<5.0)	2.5	32		
3/19 - 3/25	3/25/2023	ND (<1.6)	0.8	0.011	3/22/2023	7.1	ND (<0.150)	5.3	240	710	0.71	--	21	298	--	0.18	2.6	--	0.33	4.7	3/22/2023	ND (<5.0)	2.5	35		
3/26 - 4/1	4/1/2023	8.4	8.4	0.120	3/29/2023	7.4	ND (<0.150)[1]	4.8	260	620	1.1	--	29	413	--	0.35	5.0	--	0.49	7.0	3/29/2023	ND (<5.0)	2.5	36		
4/2 - 4/8	4/8/2023	ND (<1.6)	0.8	0.011	4/5/2023	6.8	ND (<0.150)	0.87	260	210	0.79	--	16	223	--	0.16	2.2	--	0.32	4.5	4/5/2023	ND (<5.0)	2.5	35		
4/9 - 4/15	4/15/2023	3.9	3.9	0.054	4/12/2023	7.0	ND (<0.150)	35	390	540	0.75	--	19	268	--	0.17	2.4	--	0.31	4.4	4/12/2023	ND (<5.0)	2.5	35		
4/16 - 4/22	4/22/2023	ND (<1.6)	0.8	0.011	4/19/2023	6.75	ND (<0.150)	6.6	260	370	0.82	--	18	237	--	0.21	2.8	--	0.30	4.0	4/19/2023	ND (<5.0)	2.5	33		
4/23 - 4/29	4/29/2023	ND (<1.6)	0.8	0.011	4/26/2023	7.1	ND (<0.150)	6.9	290	940	0.82	ND(<10)	5	69	--	0.18	2.5	--	0.41	5.7	4/26/2023	ND (<5.0)	2.5	35		
4/30 - 5/6	5/6/2023	ND (<1.6)	0.8	0.011	5/3/2023	7.0	ND (<0.150)	4.4	360	280	1.1	--	15	205	--	0.34	4.6	--	0.46	6.3	5/3/2023	ND (<5.0)	2.5	34		
5/7 - 5/13	5/13/2023	ND (<1.6)	0.8	0.011	5/10/2023	7.2	ND (<0.150)	20	280	1400	0.82	--	33	450	--	0.12	1.6	--	0.58	7.9	5/10/2023	ND (<5.0)	2.5	34		
5/14 - 5/20	5/20/2023	ND (<1.6)	0.8	0.011	5/17/2023	7.0	ND (<0.150)	4.8	240	570	0.77	--	14	206	--	0.17	2.5	--	0.34	5.0	5/17/2023	ND (<5.0)	2.5	37	5/17/2023	3,800
5/21 - 5/27	5/27/2023	ND (<1.6)	0.8	0.012	5/24/2023	7.1	ND (<0.150)	2.1	290	470	0.85	--	10	149	--	0.16	2.4	--	0.36	5.3	5/24/2023	ND (<5.0)	2.5	37		
5/28 - 6/3	6/3/2023	16	16	0.216	5/30/2023	7.16	ND (<0.150)	2.6	720	300	0.85	ND(<10)	5	68	--	0.18	2.5	--	0.29	3.9	5/30/2023	ND (<5.0)	2.5	34		
6/4 - 6/10	6/10/2023	ND (<1.6)	0.8	0.011	6/7/2023	6.6	ND (<0.150)	5.2	310	680	0.63	--	13	185	--	0.065	0.9	--	0.23	3.3	6/7/2023	ND (<5.0)	2.5	35		
6/11 - 6/17	6/17/2023	ND (<1.6)	0.8	0.010	6/14/2023	6.6	ND (<0.150)	6.5	460	600	0.75	--	10	126	--	0.28	3.5	--	0.31	3.9	6/14/2023	ND (<5.0)	2.5	32		
6/18 - 6/24	6/24/2023	ND (<1.6)	0.8	0.009	6/21/2023	6.6	ND (<0.150)	4.0	450	480	0.59	--	11	151	--	0.15	2.1	--	0.19	2.6	6/21/2023	ND (<5.0)	2.5	34		
6/25 - 7/1	7/1/2023	ND (<1.6)	0.8	0.009	6/28/2023	6.6	ND (<0.150)	9.0	380	1300	0.50	--	13	170	--	0.061	0.8	--	0.37	4.8	6/28/2023	ND (<5.0)	2.5	33		
7/2 - 7/8	7/8/2023	ND (<1.6)	0.8	0.011	7/5/2023	6.5	ND (<0.150)	10	300	1200	0.67	--	14	181	--	0.16	2.1	--	0.40	5.2	7/5/2023	ND (<5.0)	2.5	32		
7/9 - 7/15	7/15/2023	ND (<1.6)	0.8	0.012	7/13/2023	7.20	0.177	25	330	1000	0.42	--	22	295	--	0.10	1.3	--	0.36	4.8	7/13/2023	ND (<5.0)	2.5	34		
7/16 - 7/22	7/22/2023	3.5	3.5	0.049	7/19/2023	6.7	ND (<0.150)	1.2	260	520	0.34	ND(<10)	5	73	ND(<0.039)	0.0195	0.3	--	0.29	4.2	7/19/2023	ND (<5.0)	2.5	36		
7/23 - 7/29	7/29/2023	ND (<1.6)	0.8	0.011	7/27/2023	6.87	ND (<0.150)	11	260	250	0.61	--	16	233	--	0.23	3.3	--	0.52	7.6	7/27/2023	4.7[2]	4.7	68		
7/30 - 8/5	8/5/2023	ND (<1.6)	0.8	0.011	8/2/2023	6.93	ND (<0.150)	14	390	880	0.34	--	20	300	--	0.071	1.1	--	0.78	11.7	8/2/2023	ND (<5.0)	2.5	38		
8/6 - 8/12	8/12/2023	ND (<1.6)	0.8	0.011	8/9/2023	7.12	ND (<0.150)	22	430	800	0.42	--	12	168	--	0.058	0.8	--	0.23	3.2	8/9/2023	ND (<5.0)	2.5	35		
8/13 - 8/19	8/19/2023	ND (<1.6)	0.8	0.008	8/16/2023	6.56	ND (<0.150)	10	230	1300	0.50	--	28	202	--	0.11	0.8	--	0.11	0.8	8/16/2023	ND (<5.0)	2.5	18	8/16/2023	4,200
8/20 - 8/16	8/26/2023	ND (<1.6)	0.8	0.011	8/23/2023	7.08	ND (<0.150)[3]	13	480	1600	0.54	--	20	295	--	0.14	2.1	--	0.55	8.1	8/23/2023	ND (<5.0)	2.5	37		
8/27 - 9/2	9/2/2023	ND (<1.6)	0.8	0.012	8/30/2023	6.98	ND (<0.150)	10	480	1100	0.71	--	15	229	--	0.27	4.1	--	0.43	6.6	8/30/2023	ND (<5.0)	2.5	38		
9/3 - 9/9	9/9/2023	ND (<1.6)	0.8	0.012	9/6/2023	6.97	ND (<0.150)	4.6	420	1100	0.73	--	11	170	--	0.11	1.7	--	0.22	3.4	9/6/2023	ND (<5.0)	2.5	39		
9/10 - 9/16	9/16/2023	6.1	6.1	0.087	9/13/2023	7.08	ND (<0.150)	8.6	340	1100	0.71	--	16	232	--	0.054	0.8	--	0.41	5.9	9/13/2023	ND (<5.0)	2.5	36		
9/17 - 9/23	9/23/2023	ND (<1.6)	0.8	0.011	9/20/2023	7.22	ND (<0.150)	4.2	340	930	1.1	--	14	213	--	0.053	0.8	--	0.24	3.7	9/20/2023	ND (<5.0)	2.5	38		
9/24 - 9/30	9/30/2023	ND (<0.63)	0.315	0.004	9/27/2023	7.18	ND (<0.150)	ND (<4.3)	360	820	0.93	--	25	324	ND(<0.039)	0.0195	0.3	--	0.68	8.8	9/27/2023	ND (<5.0)	2.5	32		
10/1 - 10/7	10/7/2023	ND (<1.6)	0.8	0.012	10/4/2023	7.00	ND (<0.150)	8.1	330	1000	1.2	--	15	219	--	0.14	2.0	--	0.38	5.6	10/4/2023	ND (<5.0)	2.5	37		
10/8 - 10/14	10/14/2023	ND (<0.63)	0.315	0.005	10/11/2023	7.10	ND (<0.150)	20	320	1300	0.74	--	20	294	ND(<0.039)	0.0195	0.29	--	0.66	9.7	10/11/2023	ND (<5.0)	2.5	37		
10/15 - 10/21	10/21/2023	13	13	0.192	10/18/2023	7.06	ND (<0.150)	2.4	360	650	1.4	--	12	181	--	0.16	2.4	--	0.40	6.0	10/18/2023	ND (<5.0)	2.5	38		
10/22 - 10/28	10/28/2023	ND (<0.63)	0.315	0.004	10/25/2023	7.06	ND (<0.150)	2.4	320	630	1.3	ND(<10)	5	75	--	0.076	1.1	--	0.37	5.6	10/25/2023	ND (<5.0)	2.5	38		
10/29 - 11/4	11/4/2023	ND (<1.6)	0.8	0.009	11/2/2023	7.14	ND (<0.150)	5.6	400	790	1.6	--	17	116	ND(<0.039)	0.0195	0.1	--	0.55	3.8	11/2/2023	ND (<5.0)	2.5	17		
11/5 - 11/11	11/11/2023	ND (<1.6)	0.8	0.012	11/8/2023	6.90	ND (<0.150)	7.7	410	1000	1.6	--	26	397	ND(<0.039)	0.0195	0.3	--	0.14	2.1	11/8/2023	ND (<5.0)	2.5	38		
11/12 - 11/18	11/18/2023	ND (<1.6)	0.8	0.012	11/15/2023	6.99	ND (<0.150)	4.5	330	910	0.96	--	11	156	ND(<0.039)	0.0195	0.3	--	0.39	5.5	11/15/2023	ND (<5.0)	2.5	35	11/15/2023	3,800
11/19 - 11/25	11/25/2023	ND (<1.6)	0.8	0.010	11/21/2023	7.19	ND (<0.150)	10	520	1100	1.3	--	18	195	--	0.51	5.5	--	0.83	9.0	11/21/2023	ND (<5.0)	2.5	27		
					11/29/2023	7.16	ND (<0.150)	60	490	1700	0.19	--	24	340	--	0.19	2.7	--	1.3	18.4	11/29/2023	7.8	7.8	111		

Note: Analytical responsibilities are performed by Eurofins Environment Testing (Eurofins) in Phoenix, Arizona, and hexavalent chromium is analyzed by Pace Analytical (Pace) in Las Vegas, Nevada, unless otherwise indicated.

[+] Additional samples were collected this week.

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)

NS = Not Sampled or Not Analyzed

-- = 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.

[1] Pace Hexavalent Chromium sample taken 03/31/2023; original sample taken 03/29/2023 (L1599378) went over hold time and needed resampling.

[2] Average of 6.9 mg/L and 2.5 mg/L (< 5.0 mg/L); there was not enough sample to rerun in duplicate.

[3] Pace Hexavalent Chromium sample taken 08/24/2023; original sample taken 08/23/2023 (L1648967) needed resampling.

Last Updated: December 8, 2023

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		2	Pulled and replaced the motor on PC-116.
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		4	Replaced A/C on the turbine cabinet.
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			
4.02		*Ferrous Sulfate Feed System*	Running			
4.03		*Polymer Feed System*	Running		3	Replaced the pump with a new diaphragm pump.
4.04		*Clarifier*	In operation			
4.05		*Filter Press*	Running			
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		4	Installed a temporary light in the area.
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			
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			

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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
5.09	PID10B	*Carbon Absorber - LGAC 201A*				
5.10	PID10B	*Carbon Absorber - LGAC 201B*				
5.11	PID10B	*Carbon Absorber - LGAC 201C*				
6		**First Stage FBRs A, 1** *& 2*				
6.01	PID14	*FBR A*				EQUIPMENT OFFLINE
6.02	PID14	*Separator Tank - 1401*				EQUIPMENT OFFLINE
6.03	PID14	*Media Return Pump - P 1401*				EQUIPMENT OFFLINE
6.04	PID14	*P1401A*				EQUIPMENT OFFLINE
6.05	PID01A	*P1401B*				EQUIPMENT OFFLINE
6.06	PID01A	*FBR 1*	Running		1	The electrical was damaged in the conduit for the power supply for the HOA switches that power the pumps. New wire was pulled.
6.07	PID02A	*FBR 2*	Running		1	The electrical was damaged in the conduit for the power supply for the HOA switches that power the pumps. New wire was pulled.
6.08	PID01A	*First Stage Separator Tank - T2011*	Running		3	The positioner and transducer have been replaced.
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*				
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			Equipment offline
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*				
7.01	PID01B	*FBR 3*	Running			
7.02	PID01B	*FBR 4*	Running			
7.03	PID02B	*First Stage Separator Tank - T2012*	Running		3	Rebuilt and replaced the positioner and the transducer on the level control valve.

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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
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		3	Cleared the injection line and replaced the check valve.
8		**Second Stage FBRs 5** & 6				
8.01	PID03A	*FBR 5*	Running		3	Replaced the slam valve.
8.02	PID03A	*FBR 6*	Running			
8.03	PID03C	*Second Stage Separator Tank - T3011*	Running			
8.04	PID03A	*Media Return Pump - P3011*	Running			
8.05	PID03A	*Second Stage FBR Pump - P3015*	Running		3	Replaced the solenoid for the seal water system.
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		3	Flushed the line forward to clear the large amount of solids in the line.
9.05	PID03B	*Second Stage FBR Pump - P3017*	Running			
9.06	PID03B	*Second Stage FBR Pump - P3018*	Running			
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			

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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		4	Replaced the muffler on the air blowdown.
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			
10.15	PID05	*DAF Pressure Pump - P551*	Running			
10.16	PID05	*DAF Float Pump - P552*	Running		3	Swapped out the pump with a rebuilt pump.
10.17	PID05	*Screw Conveyer Drive*	Standby			
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		3	Reconnected the leads on the motor.
11.03	PID06	*Effluent Pump - P602*				
12		**Sand Filter System**				
12.01	PID17	*Sand Filter*				
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			
13.03	PID10C	*Effluent Booster Pump - P1302B*	Standby		1	Powered down the MCC and installed the new VFD on the motor.
13.04	PID10C	*Area Around Effluent and North D-1*	Running			
14		**Solids Collection and Pressing System**				

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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
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		4	Rebuilding the spare pump.
14.06	PID09	*Filter Press Pump - P902*				
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		4	A new mechanical seal has been ordered for the pump.
		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	*Ferric Chloride*	In operation			
24	PID07B	*Polymer Systems - DAF*	In operation			
25	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		2	Unit offline due to a failed motor starter. A new starter has been ordered.
26.03	PID08	*O2 Compressor*	Running			
26.04	PID08	*Compressed Air Receiver Tank*	In operation			
26.05	PID08	*Air Dryer*	Running			

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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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