

То:	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:	August 20, 2023
Subject:	NERT – GWETS Operation Monthly Report – August 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 August 2023.

Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS and ion exchange (IX) system normally in August 2023. Flow from PC-118, 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 August. The flow rate to the IX system averaged approximately 254 gallons per minute (gpm). The flow rate to the FBR plant averaged approximately 938 gpm. At the end of the month, the filled GW-11 Pond volume was at 43.9 million gallons (MG), which would allow 12.9 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 decreased since the end of July 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 1.7 mg/L for the month. The influent perchlorate concentration to the FBR plant averaged 48 mg/L for the month, with a maximum concentration of 52 mg/L. In comparison, the influent perchlorate concentration to the FBRs for the month of July 2023 averaged 53 mg/L, with a maximum concentration of 56 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 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 August.

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

- Effluent diversion occurred on August 6, 2023 from 9:01pm to 11:00pm as a precautionary measure
 due to high levels of perchlorate in the effluent. Adjustments were made to the process and the
 effluent was returned to the outfall following confirmation via laboratory testing that perchlorate was
 below the effluent guideline. Approximately 126,000 gallons of water were added to the GW-11
 Pond.
- Extraction well shutdown of Interceptor well I-S occurred on August 5, 2023 from 11:01pm to August 8, 2023 at 1:40pm due to a malfunctioning pump motor. The motor was replaced and the well was brought back online.
- Extraction well field shutdown of the SWF and an Effluent diversion occurred on August 16, 2023 from 12:00pm to August 18, 2023 at 4:00pm when the SWF was brought back online. Treated effluent was discharged to the Las Vegas Wash at 6:50pm. These activities were required to facilitate relocation of a section of the influent and effluent pipelines. Approximately 1,300,000 gallons of water were added to the GW-11 Pond.
- Influent diversion occurred on August 25, 2023 from 9:35am to 3:30pm due to a malfunctioning I/O card. Troubleshooting was conducted, the card was replaced, and the plant was brought back online. Approximately 370,000 gallons of water were added to the GW-11 Pond.
- Influent diversion occurred on August 27, 2023 from 2:06am to 11:37am due to malfunctioning sump pumps. Troubleshooting was conducted, the pumps were replaced, piping was relocated, and the plant was brought back online. Approximately 550,000 gallons of water were added to the GW-11 Pond.
- Effluent diversion occurred on August 27, 2023 from 4:28pm to 4:57pm as a precautionary measure
 due to high levels of perchlorate in the effluent. Adjustments were made to the process and the
 effluent was returned to the outfall following confirmation via laboratory testing that perchlorate was
 below the effluent guideline. Approximately 33,000 gallons of water were added to the GW-11
 Pond.
- Influent diversion occurred on August 28, 2023 from 9:38am to 10:16am due to a software update to the PLC. Approximately 30,000 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. 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 resulting in increased loading to the IX treatment plant. The CoH ceased discharging water to Birding Ponds 10 through 13 in February 2022. The groundwater elevation adjacent to the SWF is no longer elevated but perchlorate concentrations are still elevated, although decreasing, in shallow groundwater adjacent to wells PC-118, PC-119, PC-120, and PC-121.

4. Spills

There were no reportable spills in the Month of August.

5. Maintenance

- Major maintenance performed by ETI in the reporting month included:
 - I. Replaced the Profibus connector on the PLC rack.
 - II. Installed a new analog input card on the PLC rack.
 - III. Replaced the actuator and positioner on separator 2 level control valve.
 - IV. Replaced the 0.5 hp motor on the pump for IWF extraction well I-S.
 - V. Installed the new ISEP sump pump.
 - VI. Replaced the leaking gasket at Lift Station 1.
 - VII. Replaced the 1 hp motor and the pump for AWF extraction well ART-1A.
 - VIII. Re-built the actuator on the effluent diversion valve.
 - IX. Installed a new gasket and blind flange on the effluent line.
 - X. Replaced the filter press pump.
- Preventative maintenance performed by ETI in the reporting month included:
 - I. Flushed all the airlines free of water.
 - II. Greased the aeration blower.
 - III. Inspected and blew out debris from the Lift Station MCC's.
 - IV. Inspected and changed out work battery cables on the utility carts.
 - V. Inspected the belts on the sludge pumps.
 - VI. Cleaned the roto-meters on the seal water lines.
 - VII. Cleaned debris from the sump pits.
 - VIII. Tested the ethanol feed pumps for correct performance.
 - IX. Cleaned the debris from the outfall.
 - X. Cleaned the filters on the computer cabinets.

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

6. Treatment System Extension

During July 2023, the flow rate to the TSE averaged approximately 53 gpm. The influent perchlorate concentration to the TSE averaged 8.7 mg/L for the month, with a maximum concentration of 8.9 mg/L. In comparison, the influent perchlorate concentration to the TSE for the month of June 2023 averaged 8.6 mg/L, with a maximum concentration of 8.9 mg/L.

Facility Projects

- 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
 - DAF equipment is on order. The expected delivery is late November 2024.
 - II. Concrete Repair at various locations on FBR pad
 - 1. Contractor evaluation complete. Awaiting quote for services.
- 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 4th quarter of 2023.
- 3. GWETS Pipeline Realignments ETI was made aware of at least three locations approximately 1.75 miles from the site which will require the modification of the influent and effluent pipelines due to conflicts with ongoing development in the area. The Trust has authorized Tetra Tech to engage with the required property owners to design and build the new sections of pipeline. ETI continues to work with both Tetra Tech and the Trust to verify plans are acceptable and plant downtime is kept to a minimum during the construction efforts. In December, the first pipeline realignment project immediately north of Galleria Drive was completed. The second pipeline realignment located further north of Galleria Drive was determined to be unnecessary as the vertical separation between the GWETS pipelines and the stormwater culvert under construction did not place an unacceptable load on the pipelines at this location. The third pipeline realignment was located in the vicinity to Pabco Road and Galleria Road was completed in August 2023.
- 4. Water Reuse Consistent with the Trust's efforts to reduce its water consumption and acknowledgment of best management practices, accelerated by the Basic Water Company (BWC) bankruptcy filing, the Trust has actively pursued multiple options to become independent

of the BWC water distribution system. To that end, it is the objective of the Trust to replace the water currently distributed by BWC through implementation of an effluent filtration system (EFS) to allow for reuse of the GWETS effluent. The filtered effluent can only be used within treatment operations. The filtration system was delivered to the NERT Site in May 2023 and equipment integration began in June 2023 following receipt of NDEP's approval of the 100 percent design on June 6, 2023. A second identical filtration unit has been delivered the site and integration into the EFS is underway. Following integration of the second filtration unit, the two filtration units will be operated in a lead-lag configuration.

Tables

Operational Metrics

Nevada Environmental Response Ti	Nevada Environmental Response Trust Groundwater Extraction and Treatment System Monthly Stakeholder Metrics										
Location ID	Average Flow Rate (gpm)	Perchlorate (mg/L)⁴	Chromium (TR) (mg/L)⁴	Chromium(VI) (mg/L)⁴							
SWF Total Extraction ¹	696³	8.5	0.0021	0.0026							
AWF Total Extraction ¹	433³	54	0.11	0.11							
IWF Total Extraction ¹	45³	363	5.5	5.2							
AP Area Total Extraction ¹	7.9 ³	624	0.23	0.20							
Chromium Treatment Subsystem Effluent ²	59	397	0.73	0.00014							
GW-11 Influent ¹	0.056	30	0.055	0.054							
FBR Influent ²	938	48	0.092	0.022							
Treatment System Extension Influent ²	52	8.7	0.21	0.18							

Notes:

TR = Total Recoverable.

- 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: Sum of daily average flow for individual wells.
- 4: All concentrations reported are monthly flow weighted averages.

Nevada Environmental Response Tru	st Groundwater Extraction and Tre	atment System I Monthly Stakehold	ler Metrics
Location ID	Perchlorate (lbs/month) ¹	Chromium (TR) (lbs/month) ¹	Chromium (VI) (lbs/month) ¹
SWF Total Extraction	1,833	0.45	0.56
AWF Total Extraction	8,719	18	17
IWF Total Extraction	6,049	92	87
AP Area Total Extraction	1,838	0.68	0.60
Chromium Treatment Subsystem Effluent	8,701	16	0.0031
GW-11 Influent	0.63	0.0012	0.0011
FBR Influent ¹	16,637	32	7.6
Treatment System Extension Influent ¹	169	4.0	3.5

Notes:

TR = Total Recoverable.

^{1:} 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 08/31/2023

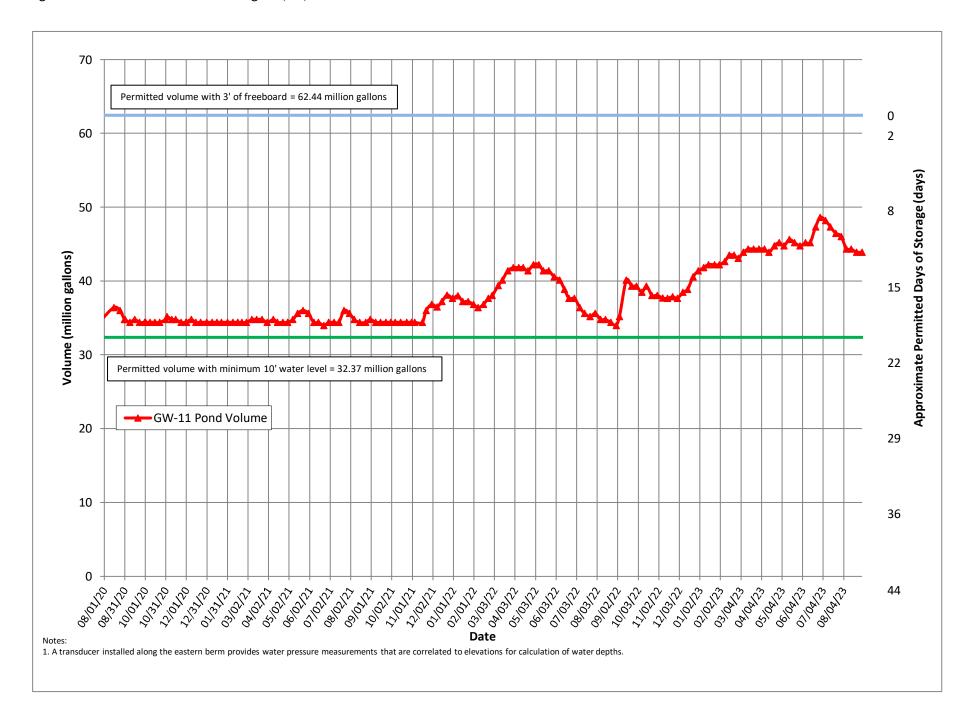
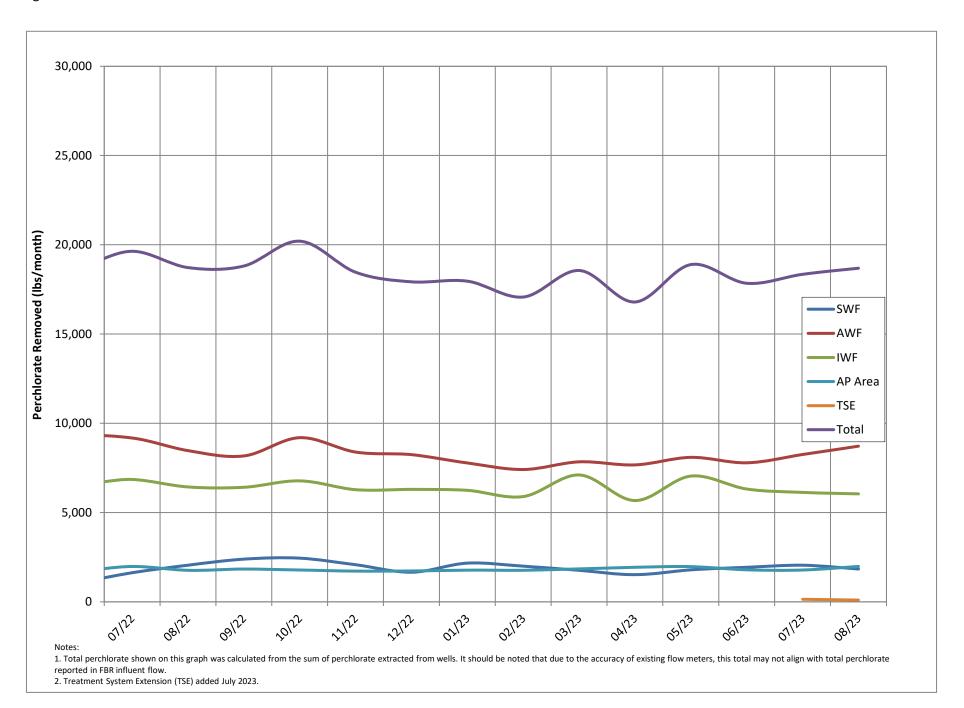


Figure 2 - Historical Perchlorate Mass Removed From Environment



Attachment A

NPDES Tracking Sheet (Prepared by Ramboll)

										Trea	ted Effluent at Out	fall 001						
	Cont	inuous	Daily Samples, con	nposited weekly					-		Weekly Grab Sa	amples				Weekly, c	ollected separately	Quarterly
	Flow Rate		Perchlo	orate		рН	Hexavalent Chromium	Total Chromium	Manganese	Total Iron	Total Inorganic Nitrogen (TIN)	Total Susper		Total Ammonia as N	Total Phosphorus as P	BO	D₅ (inhibited)	Total Dissolved Solids (TDS)
	30-Day Avg. (MGD)	Daily Maximum (MGD)	30-Day Avg. (μg/L)	30-Day Avg. (Ibs/day)	Daily (S.	Min. Daily Max J.) (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. 30-Day (mg/L) 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
nuary 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	
bruary 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	3,900
arch 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	
oril 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	
ay 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	3,800
ne 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	
ly 2023	1.67	1.82	1.5	0.021	6	5 7.2	0.177	25	330	1,200	0.73	14	200	1.8	5.4	ND (<5.0)	ND (<5.0) 35	
igust 2023	1.62	1.96	ND (<1.6)	0.011	6.	56 7.12	ND (<0.150)	22	480	1,600	0.71	20	240	1.8	6.1	ND (<5.0)	ND (<5.0) 33	4,200
ptember 2023 (month to date)	1.77	1.85	NA	NA	6.	97 6.97	ND (<0.150)	4.6	420	1.100	0.73	11	170	1.7	3.4	ND (<5.0)	ND (<5.0) 39	

Daily Grab	Composite		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
Sample Dates 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	1			0.044	0.63		0.43	4.3	1/11/2023	ND (<5.0)	2.5	36		ļ
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	1			0.16	2.3		0.40	5.8	1/18/2023	ND (<5.0)	2.5	36		ļ
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	1			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	2			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	2	349		0.19	2.8		0.31	4.5	2/8/2023	ND (<5.0)	2.5	36		ļ
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	2	282		0.15	2.1		0.49	6.9	2/15/2023	ND (<5.0)	2.5	35		ļ
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	2	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	1	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	1	196		0.23	3.2		0.30	4.2	3/8/2023	ND (<5.0)	2.5	35		ļ
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	2	284		0.33	4.3		0.40	5.2	3/15/2023	ND (<5.0)	2.5	32		ļ
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	2	298		0.18	2.6		0.33	4.7	3/22/2023	ND (<5.0)	2.5	35		ļ
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	2	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	1	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	1	268		0.17	2.4		0.31	4.4	4/12/2023	ND (<5.0)	2.5	35		ļ
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	1	3 237		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	1	205		0.34	4.6		0.46	6.3	5/3/2023	ND (<5.0)	2.5	34		ļ
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	3	450		0.12	1.6		0.58	7.9	5/10/2023	ND (<5.0)	2.5	34		ļ
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	1	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	1	149		0.16	2.4		0.36	5.3	5/24/2023	ND (<5.0)	2.5	37		ļ
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	1			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	1	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	1			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	1	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	1			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	7.2	0.177	25	330	1000	0.42	2			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	, ,	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	1			0.23	3.3		0.52	7.6	7/27/2023	ND (<5.0)	2.5	36		
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	2			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	1			0.058	0.8		0.23	3.2	8/9/2023	ND (<5.0)	2.5	35	- 1 1	
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	2			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) ²	13	480	1600	0.54	2			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	1			0.27	4.1		0.43	6.6	8/30/2023	ND (<5.0)	2.5	38		
I					9/6/2023	6.97	ND (<0.150)	4.6	420	1100	0.73	1	170		0.11	1.7		0.22	3.4	9/6/2023	ND (<5.0)	2.5	39		J

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.

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

Last Updated: September 15, 2023

⁺ Additional samples were collected this week.

^{*} 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.

 $^{^2} Pace \ Hexavalent \ Chromium \ sample \ taken \ 08/24/2023; original \ sample \ taken \ 08/23/2023 \ (L1648967) \ needed \ resampling.$

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			
1.02		Lift Station 1 Lift Pump A			3	Replaced the gasket on the discharge of the turbine.
1.03		Lift Station 1 Lift Pump B				
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	Replaced the 1 hp motor on ART-1A.
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		1	The lines were re-located at Galleria and Pabco.
3.02		Effluent Pipeline			1	The lines were re-located at Galleria and Pabco.
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	Replaced the .5 hp motor on I-S.
4.02		Ferrous Sulfate Feed System	Running		3	Changed out the hose and fittings on the suction of the pump.
4.03		Polymer Feed System	Running			
4.04		Clarifier	In operation			
4.05		Filter Press				
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			
5		Equalization Area and GW-11 Pond				
5.01	PID10A					
5.02	PID10A	Pond Water Pump - P101A				
5.03	PID10A	Pond Water Pump - P101B	Standby			
5.04	PID10A	Equalization Tanks	In operation		2	Pulled and rebuilt the actuator and positioner on the diversion valve.
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				

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

Sub- System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
5.08	PID10A	F-101 Filters	Running			
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			
6.07	PID02A		Running			
6.08	PID01A	First Stage Separator Tank - T2011	Running			
6.09	PID01A	Media Return Pump - P2011				
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				
6.13	PID07A	FBR A pH Feed Pump - P71A				
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				
6.18	PID07A	FBR 2 Nutrient (Urea) Feed Pump - P722				
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				
6.21	PID15	FBR 2 Nutrient (Phos Acid) Feed Pump - P1522				
6.22	PID07B	FBR A Electron Donor Assembly Pump - P73A				
6.23	PID07B					
6.24	PID07B	FBR 2 Electron Donor Assembly Pump - P732	Running		2	Reversed and checked the injection check valve.
7		First Stage FBRs 3 & 4				
7.01	PID01B	FBR 3	Running		3	Inspected and cleared the lines on the INF flowmeter.
7.02	PID01B		Running			
7.03	PID02B	First Stage Separator Tank - T2012	Running		3	Installed a new positioner on the actuator.
7.04	PID01B	Media Return Pump - P2012				
7.05	PID01B					
7.06	PID01B	First Stage FRB Pump - P1014				
7.07	PID01B	First Stage FBR Pump - P102A	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

Sub- System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
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	, , , , , , , , , , , , , , , , , , ,				
7.15	PID07B	FBR 4 Electron Donor Assembly Pump - P734	Running			
8		Second Stage FBRs 5 & 6				
8.01	PID03A	FBR 5	Running			
8.02	PID03A		Running			
8.03	PID03C	Second Stage Separator Tank - T3011				
8.04	PID03A	Media Return Pump - P3011	Running			
8.05	PID03A	Second Stage FBR Pump - P3015				
8.06	PID03A	Second Stage FBR Pump - P3016				
8.07	PID03A	Second Stage FBR Pump - P301A				
8.08	PID07A	FBR 5 pH Feed Pump - P715				
8.09	PID07A	FBR 6 pH Feed Pump - P716				
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		FBR 6 Electron Donor Assembly Pump - P736	Running			
9		Second Stage FBRs 7 & 8				
9.01	PID03B		Running			
9.02	PID03B		Running			
9.03	PID03D	Second Stage Separator Tank - T3012	Running		3	Installed a new positioner on the actuator.
9.04	PID03B	Media Return Pump - P3012	. 3			
9.05		Second Stage FBR Pump - P3017				
9.06	PID03B	Second Stage FBR Pump - P3018				
9.07	PID03B	Second Stage FBR Pump - P302A				
9.08	PID07A	FBR 7 pH Feed Pump - P717				
9.09	PID07A	FBR 8 pH Feed Pump - P718				
9.10		FBR 7 Nutrient (Urea) Feed Pump - P727				
9.11	PID07A	FBR 8 Nutrient (Urea) Feed Pump - P728				
9.12	PID07B	, , , , , , , , , , , , , , , , , ,				
9.13	PID07B	FBR 8 Electron Donor Assembly Pump - P738	Running			
10		Aeration and DAF System				

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

Sub- System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
10.01	PID04	Aeration Tank	In operation			
10.02	PID04	Aeration Blower - B401	Running		3	Changed out the belt on the blower.
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			
10.15	PID05	DAF Pressure Pump - P551				
10.16	PID05	DAF Float Pump - P552	Running			
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			
11.03	PID06	Effluent Pump - P602				
12		Sand Filter System				
12.01	PID17	Sand Filter			3	Replaced the air fittings on the airlifts. Installed a new air regulator.
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				
13.02	PID10C	Effluent Booster Pump - P1302A				
13.03	PID10C	Effluent Booster Pump - P1302B				
13.04	PID10C	Area Around Effluent and North D-1	Running		4	Ongoing installation of the UF membrane system.
14		Solids Collection and Pressing System				
14.01	PID16	Sludge Storage Tank				
14.02	PID16	Solids Storage Effluent Pump - P1601				
14.03	PID16	Solids Cond. Tank				
14.04	PID09	Sludge Mixer	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

Sub- System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
14.05	PID09	Filter Press Pump - P901	Running			
14.06	PID09	Filter Press Pump - P902			3	Changed out the pump.
14.07	PID09	West Press	Standby			
14.08	PID09	East Press				
14.09	PID09	Filtrate Tank				
14.10	PID09	Filtrate Tank Effluent (recycle) Pump - P903	Running			
		Chemical Systems				
15		Electron Donor System				
15.01	PID07B	Electron Donor Tank				
15.02	PID07B	Booster Pump P739A				
15.03	PID07B	Booster Pump P739B	•			
17	PID07C	Micro Nutrient System				
18	PID07C	Hydrogen Peroxide System				
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				
26.03	PID08	O2 Compressor				
26.04	PID08	Compressed Air Receiver Tank				
26.05	PID08	Air Dryer				
26.06	PID08	Oil Removal Filter				
26.07	PID08	Particulate Filter				
27	PID16	Oxygen System				
28		GWETS Plant Controls/ Siemens Controls				
29		Well Control System/ Allen Bradley Controls	In operation			

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 ¹	Checked	Criticality ²	Notes
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			

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