
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: May 20, 2024

Subject: NERT – GWETS Operation Monthly Report – April 2024

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 April 2024.

Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS and ion exchange (IX) system normally in April 2024. Flow from PC-115, 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 April. The flow rate to the IX system averaged approximately 288 gallons per minute (gpm). The flow rate to the FBR plant averaged approximately 1022 gpm. At the end of the month, the filled GW-11 Pond volume was at 48.2 million gallons (MG), which would allow 9.9 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 March 2024; 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 52 mg/L for the month, with a maximum concentration of 55 mg/L. In comparison, the influent perchlorate concentration to the FBRs for the month of March 2024 averaged 39 mg/L, with a maximum concentration of 51 mg/L.

During April, ETI continued implementation of a preventative maintenance program to refurbish all frontside and backside FBRs. Through this program, FBRs will be systematically emptied and dismantled to determine the extent of refurbishment. Additional information on this program is presented later in this report.

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 April.

2. Biological Plant

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

Diversions Events / Well Shutdowns

- Extraction well field shutdown of the Seep Well Field (SWF) occurred intermittently on April 5, 2024 from 11:56pm to April 6, 2024 at 1:51am, April 7, 2024 from 7:21am to 8:31am and 10:33am to 11:17am, April 9, 2024 from 3:32am to 4:23am and 7:01am to 9:02am, and on April 10, 2024 from 2:18am to 3:09am, and 5:20am to 11:40am due to power supply interruptions as a result of electrical generator malfunction related to the fuel pump. Maintenance activities were conducted on the electrical generator and the well field was brought back online in all instances.
- Influent diversion of the IWF occurred on April 11, 2024 from 1:03am to 9:16am as a result of a malfunctioning transfer pump. Maintenance was conducted on the transfer pump and the IWF flow was returned to the Chromium Treatment Subsystem (CTS). Approximately 27,000 gallons of water were added to the GW-11 pond.
- Influent diversion occurred on April 16, 2024 from 3:32pm to 3:55pm due to maintenance efforts on the Level Control Valve at Separator 4. Maintenance activities were completed and the plant was brought back online. Approximately 25,000 gallons of water were added to GW-11.

3. IX Treatment Plant

The concentration of perchlorate in shallow groundwater remains elevated in the western wells of the SWF. This increase is a result of the City of Henderson (City) discharging water to Birding Ponds 10 through 13 from late August through October 2023. The perchlorate concentrations in groundwater adjacent to the western leg of the SWF are expected to remain elevated for an extended period as result of this activity.

4. Treatment System Extension (TSE)

During April 2024, operations at the TSE plant continued to be idled. During April, TIMET advised NERT that discussions to resume groundwater flow to the TSE would be delayed until late June. Timeline for

restart of the system pending discussions between NERT and TIMET.

5. Effluent Filtration System (EFS)

During April 2024, the EFS operated normally and produced approximately 434,000 gallons of filtered GWETS effluent which supported the utility water requirements of GWETS operations.

6. Chromium Treatment Subsystem (CTS)

During April 2024, the CTS operated normally and treated approximately 2,335,000 gallons of groundwater.

7. Spills

There were no reportable spills during the month of April.

8. Maintenance

- Major maintenance performed by ETI in the reporting month included:
 - I. Installed new pump and motors at the northwest and southeast corners of the GW-11 Pond.
 - II. Replaced the pump motor at Interceptor Well Field (IWF) well I-Q.
 - III. Installed a still well for tank T-604 level control.
 - IV. Repaired and installed back up polymer pump for DAF.
 - V. Repaired leaking discharge piping and reinstalled Athens Road Well Field (AWF) extraction well ART 7B.
 - VI. Repaired and installed the East press pump.

- Preventative maintenance performed by ETI in the reporting month included:
 - VII. Flushed and calibrated ORP and pH probes.
 - VIII. Inspected and calibrated the level transducer in the GW-11 Pond.
 - IX. Conducted infrared inspection at the FBR MCC electrical breaker buckets.
 - X. Inspected and calibrated the effluent pipeline diversion control valve to the GW-11 pond.
 - XI. Inspected and calibrated level control valve 601.
 - XII. Inspected HMI cabinets at all lift stations.

- FBR Refurbishment
 - I. Removed all sand from FBR 2.
 - II. Removed all laterals and nozzles from FBR 2 for inspection.
 - III. Removed all carbon from FBR 5.
 - IV. Replaced damaged fiberglass support from FBR 2.
 - V. Installed replacement laterals and nozzles in FBR 2.
 - VI. Installed replacement laterals and nozzles in FBR 5.
 - VII. Prepared FBR 2 and FBR 5 for media.

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 June 2024.
 - II. Concrete Repair at various locations on FBR pad
 1. Scheduling work with selected contractor. Work is anticipated to be completed in July 2024.
2. Improved Biological Treatment Plant Efficiency – Consistent with Attachment D to the December 2021 GWETS Operation Monthly Report, Envirogen plans to take three 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. FBR A was placed into offline mode on April 13, 2022. The remaining two FBRs scheduled to be taken out of service will be addressed in the 3rd quarter of 2024 after the ongoing FBR refurbishment is complete.

Tables

Operational Metrics

Nevada Environmental Response Trust Groundwater Extraction and Treatment System 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	710	8.3	0.0025	0.00162
AWF Total Extraction ¹	423	50	0.18	0.18
IWF Total Extraction ¹	46	358	5.4	4.8
AP Area Total Extraction ¹	8.1	558	0.18	0.17
Chromium Treatment Subsystem Effluent ²	56	387	1.6	0.00039
GW-11 Influent ¹	0.18	32	0.09	0.083
FBR Influent ²	1,022	52	0.31	0.076
Treatment System Extension Influent ^{2,3}	0.0	0.0	0.0	0.0

Notes:

- 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 04/01 to 04/30.
- 4: Sum of daily average flow for individual wells.
- 5: All concentrations reported are monthly flow weighted averages.

Nevada Environmental Response Trust Groundwater Extraction and Treatment System Monthly Stakeholder Metrics			
Location ID	Perchlorate (lbs/month) ¹	Chromium (TR) (lbs/month) ¹	Chromium (VI) (lbs/month) ¹
SWF Total Extraction	1,778	0.52	0.35
AWF Total Extraction	7,582	28	27
IWF Total Extraction	5,907	90	78
AP Area Total Extraction	1,626	0.52	0.50
Chromium Treatment Subsystem Effluent	7,796	32	0.0079
GW-11 Influent	32	0.093	0.083
FBR Influent ¹	19,201	116	28
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 04/01 to 04/3.

Figures

Operational Metrics

Figure 1 - GW-11 Pond Volume Through 04/30/2024

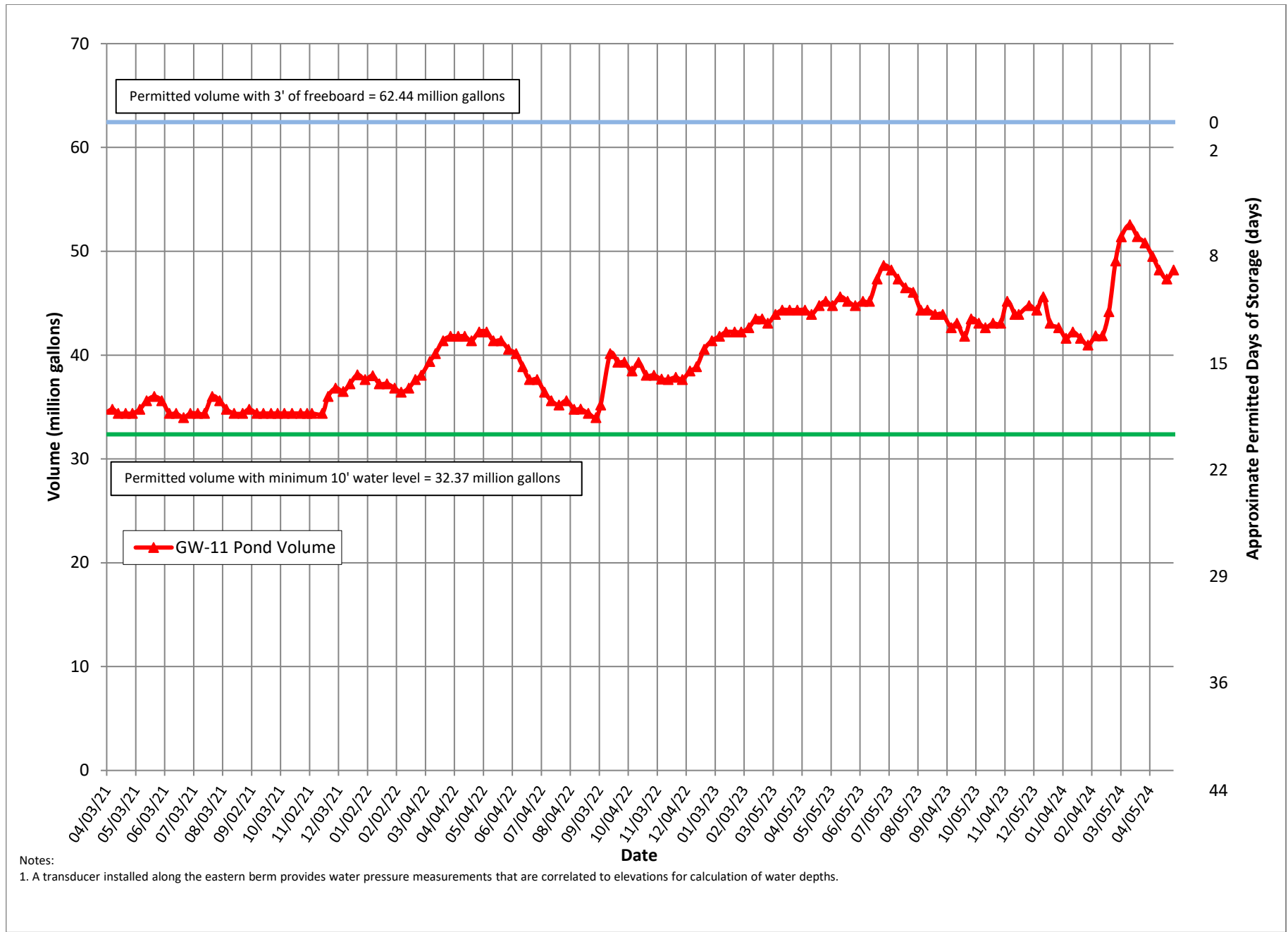
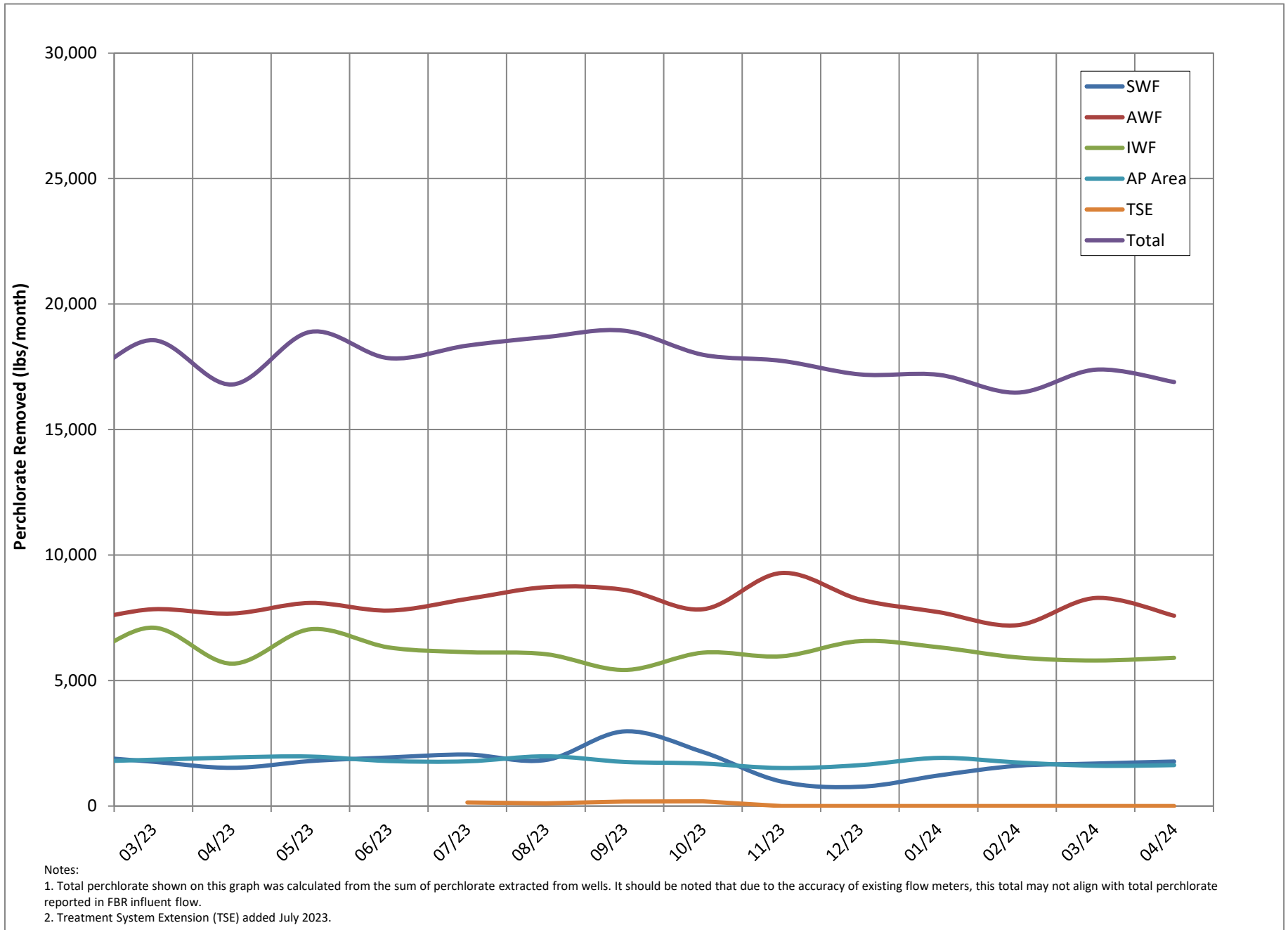


Figure 2 - Historical Perchlorate Mass Removed From Environment



Attachment A

NPDES Tracking Sheet (Prepared by Ramboll)

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. (mg/L)	30-Day Avg. (mg/L)	30-Day Avg. (lbs/day)	30-Day Avg. (lbs/day)		30-Day Avg. (lbs/day)		30-Day Avg. (mg/L)	Daily Max. (mg/L)	30-Day Avg. (lbs/day)	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 2024	1.76	1.85	ND (<1.6)	0.012	6.98	7.21	ND (<0.150)	12	320	1200	1.8	20	280	1.8		5.3		4.7	13	63	
February 2024	1.35	1.88	ND (<1.6)	0.009	7.20	7.26	ND (<0.150)	35	310	1900	5.9	18	210	0.4		4.9		ND (<5.0)	ND (<5.0)	29	3,900
March 2024	1.59	1.85	ND (<1.6)	0.011	7.04	7.40	ND (<0.150)	59	430	1000	0.87	16	210	0.8		5.8		ND (<5.0)	ND (<5.0)	34	
April 2024	1.66	1.77	ND (<1.6)	0.011	7.04	7.15	0.414	57	420	1100	1.1	20	260	2.2		2.7		ND (<5.0)	ND (<5.0)	34	NA
May 2024 (month to date)	1.41	1.52	NA	NA	6.68	7.06	ND (<0.150)	33	420	930	1.2	14	170	1.6		2.4		ND (<5.0)	ND (<5.0)	29	

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			
12/31 - 1/6	1/6/2024	ND (<1.6)	0.8	0.012	1/3/2024	6.98	ND (<0.150)	12	260	830	0.89	--	16	233	--	0.12	1.7	--	0.44	6.4	1/3/2024	ND (<5.0)	2.5	36
1/7 - 1/13	1/13/2024	ND (<1.6)	0.8	0.012	1/10/2024	7.18	ND (<0.150)	11	310	590	0.72	--	19	268	--	0.13	1.8	--	0.48	6.8	1/10/2024	ND (<5.0)	2.5	35
1/14 - 1/20	1/20/2024	ND (<1.6)	0.8	0.012	1/17/2024	7.01	ND (<0.150)	12	320	1200	0.80	--	28	358	--	0.071	0.9	--	0.47	6.0	1/17/2024	Footnote 1	13	171
1-21 - 1-27	1/27/2024	ND (<1.6)	0.8	0.012	1/24/2024	7.21	ND (<0.150)	5.0	280	360	1.8	--	17	251	--	0.27	4.0	--	0.29	4.3	1/24/2024	ND (<5.0)	2.5	37
1/28 - 2/3	2/3/2024	ND (<1.6)	0.8	0.011	1/31/2024	7.12	ND (<0.150)	8.3	270	770	0.63	--	20	296	ND (<0.039)	0.0195	0.3	--	0.19	2.8	1/31/2024	ND (<5.0)	2.5	37
2/4 - 2/10	2/10/2024	ND (<1.6)	0.8	0.011	2/7/2024	7.20	ND (<0.150)	35	290	1900	0.81	--	23	279	--	0.051	0.6	Footnote 2	0.69	8.4	2/7/2024	ND (<5.0)	2.5	30
2/11 - 2/17	2/17/2024	ND (<1.6)	0.8	0.009	2/14/2024	7.24	ND (<0.150)	8.8	310	1100	5.9	--	20	240	ND (<0.039)	0.0195	0.2	--	0.51	6.1	2/14/2024	ND (<5.0)	2.5	30
2/18 - 2/24	2/24/2024	ND (<1.6)	0.8	0.010	2/22/2024	7.24	ND (<0.150)	18	220	950	0.63	--	13	191	ND (<0.039)	0.0195	0.3	--	0.17	2.5	2/22/2024	ND (<5.0)	2.5	37
2/25 - 3/2	3/2/2024	ND (<1.6)	0.8	0.005	2/29/2024	7.26	ND (<0.150)	15	160	1800	1.50	--	16	114	--	0.045	0.3	--	0.36	2.6	2/29/2024	ND (<5.0)	2.5	18
3/3 - 3/9	3/9/2024	ND (<1.6)	0.8	0.009	3/7/2024	7.40	ND (<0.150)	17	290	440	0.69	--	14	140	--	0.059	0.6	Footnote 3	1.5	15	3/7/2024	ND (<5.0)	2.5	25
3/10 - 3/16	3/16/2024	ND (<1.6)	0.8	0.011	3/13/2024	7.11	ND (<0.150)	15	430	710	0.80	--	25	358	--	0.13	1.9	--	0.40	5.7	3/13/2024	ND (<5.0)	2.5	36
3/17 - 3/23	3/23/2024	ND (<1.6)	0.8	0.012	3/20/2024	7.04	ND (<0.150)	25	430	1000	0.84	--	11	165	ND (<0.039)	0.0195	0.3	--	0.046	0.7	3/20/2024	ND (<5.0)	2.5	37
3/24 - 3/30	3/30/2024	ND (<1.6)	0.8	0.012	3/27/2024	7.37	ND (<0.150)	59	430	940	0.87	--	12	181	ND (<0.039)	0.0195	0.3	--	0.15	2.3	3/27/2024	ND (<5.0)	2.5	38
3/31 - 4/6	4/6/2024	ND (<1.6)	0.8	0.011	4/3/2024	7.09	ND (<0.150)	44	420	1100	0.98	--	19	264	--	0.15	2.1	--	0.21	2.9	4/3/2024	ND (<5.0)	2.5	35
4/7 - 4/13	4/13/2024	ND (<1.6)	0.8	0.011	4/10/2024	7.10	0.414	57	330	970	0.98	--	28	346	--	0.16	2.0	--	0.23	2.8	4/10/2024	ND (<5.0)	2.5	31
4/14 - 4/20	4/20/2024	ND (<1.6)	0.8	0.012	4/17/2024	7.04	ND (<0.150)	26	360	740	1.1	--	13	192	--	0.21	3.1	--	0.21	3.1	4/17/2024	ND (<5.0)	2.5	37
4/21 - 4/27	4/27/2024	ND (<1.6)	0.8	0.011	4/24/2024	7.15	ND (<0.150)	42	360	840	1.1	--	18	244	--	0.11	1.5	--	0.13	1.8	4/24/2024	ND (<5.0)	2.5	34
4/28 - 5/4	5/4/2024	NA	NA	NA	5/1/2024	7.06	ND (<0.150)	33	380	600	0.20	ND (<10)	5	53	--	0.20	2.1	--	0.21	2.2	5/1/2024	ND (<5.0)	2.5	27
5/5 - 5/11	5/11/2024	NA	NA	NA	5/8/2024	6.68	ND (<0.150)	18	420	930	1.2	--	23	287	--	0.084	1.0	--	0.21	2.6	5/8/2024	ND (<5.0)	2.5	31

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 Average of 8.6 mg/L and 18.25 mg/L (rerun duplicates detected 34 mg/L and 2.5 mg/L [<5.0 mg/L], respectively).

² Average of 0.73 mg/L and 0.655 mg/L (rerun duplicates detected 0.64 mg/L and 0.67 mg/L, respectively).

³ Average of 1.6 mg/L and 1.3 mg/L (rerun duplicates detected 1.3 mg/L and 1.3 mg/L, respectively).

Last Updated: May 17, 2024

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	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			Repaired leaking piping at ART 7B.
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	Running			
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			Installed new level transducer at I-Q.
4.02		Ferrous Sulfate Feed System	Running			
4.03		Polymer Feed System	Running			
4.04		Clarifier	Running			
4.05		Filter Press	Running			
4.06		GWTP Effluent Tank	Running			
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	Pond GW-11	Running			Inspected and calibrated level transducer.
5.02	PID10A	Pond Water Pump - P101A	Running			
5.03	PID10A	Pond Water Pump - P101B	Standby			
5.04	PID10A	Equalization Tanks	Running			

Status Codes

Running - Unit is in operation
 Standby - Spare or duplicate, not currently in operation
 Maintenance - Out of service for maintenance
 Off - Not currently needed for use, but can be placed in service

Criticality Codes

1 = Critical - Cannot continue with operation until repairs made
 2 = Important - Can still operate safely and in compliance with permits, but risks are increased
 3 = Moderate - Work needs to be performed, but plant can still operate with redundancy that is in place
 4 = Low - Minor repairs that in no way alter the performance of the plant

Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
5.05	PID10A	Area in and Around EQ	Running			
5.06	PID10A	Raw Water Feed Pump - P102A	Standby			
5.07	PID10A	Raw Water Feed Pump - P102B	Running			
5.08	PID10A	F-101 Filters	Running			
5.09	PID10B	Carbon Absorber - LGAC 201A	Off			
5.10	PID10B	Carbon Absorber - LGAC 201B	Off			
5.11	PID10B	Carbon Absorber - LGAC 201C	Off			
6		First Stage FBRs A, 1 & 2				
6.01	PID14	FBR A	Offline			
6.02	PID14	Separator Tank - 1401	Offline			
6.03	PID14	Media Return Pump - P 1401	Offline			
6.04	PID14	P1401A	Offline			
6.05	PID01A	P1401B	Offline			
6.06	PID01A	FBR 1	Running			
6.07	PID02A	FBR 2	Standby			
6.08	PID01A	First Stage Separator Tank - T2011	Running			
6.09	PID01A	Media Return Pump - P2011	Running			
6.10	PID01A	First Stage FBR Pump - P1011	Standby			
6.11	PID01A	First Stage FBR Pump - P1012	Running			
6.12	PID01A	First Stage FRB Pump - P101A	Standby			
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	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			

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Criticality Codes

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 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
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	Off			
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			
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			
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			
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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Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
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	Running			
10.02	PID04	Aeration Blower - B401	Running			
10.03	PID04	Bio filter	Running			
10.04	PID04	Nutrient Solution	Running			
10.05	PID04	Bio filter Sump	Running			
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	Running			
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			
10.17	PID05	Screw Conveyer Drive	Standby			
10.18	PID05	Skimmer Drive	Running			
11		Pumping System (Old Effluent)				
11.01	PID06	Effluent Tank 601	Running			
11.02	PID06	Effluent Pump - P601	Standby			
11.03	PID06	Effluent Pump - P602	Running			
12		Sand Filter System				
12.01	PID17	Sand Filter	Running			
12.02	PID17	Filter Reject Tank	Running			
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			
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	Running			
14.02	PID16	Solids Storage Effluent Pump - P1601	Running			
14.03	PID16	Solids Cond. Tank	Running			
14.04	PID09	Sludge Mixer	Running			
14.05	PID09	Filter Press Pump - P901	Running			
14.06	PID09	Filter Press Pump - P902	Standby			Repaired and installed East press pump.
14.07	PID09	West Press	Standby		4	
14.08	PID09	East Press	Running		4	
14.09	PID09	Filtrate Tank	Running			
14.10	PID09	Filtrate Tank Effluent (recycle) Pump - P903	Running			
Chemical Systems						
15		Electron Donor System				
15.01	PID07B	Electron Donor Tank	Running			
15.02	PID07B	Booster Pump P739A	Running			
15.03	PID07B	Booster Pump P739B	Standby			
17	PID07C	Micro Nutrient System	Running			
18	PID07C	Hydrogen Peroxide System	Running			
19	PID07C	De-Foam System	Running			
20	PID15	Nutrient (Phosphoric Acid) System (Tank only - pumps included in FBRs)	Running			
21	PID07A	Nutrient (Urea) System (Tank only - pumps included in FBRs)	Running			
22	PID07A	pH System (Tank and effluent pH feed pump only - other pumps included in FBRs)	Running			
23	PID07C	Ferric Chloride	Running			
24	PID07B	Polymer Systems - DAF	Running			
25	PID09	Polymer System - Solids Dewatering (2 tanks, 2 centrifugal pumps, mixer, volumetric feeder)	Running			
Utility Systems						
26		Compressed Air System				
26.01	PID08	West Compressor	Running			
26.02	PID08	East Compressor	Running			
26.03	PID08	O2 Compressor	Running			
26.04	PID08	Compressed Air Receiver Tank	Running			
26.05	PID08	Air Dryer	Running			
26.06	PID08	Oil Removal Filter	Running			

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Sub-System	P&ID	Description	Status ¹	Checked	Criticality ²	Notes
26.07	PID08	Particulate Filter	Running			
27	PID16	Oxygen System	Offline			
28		GWETS Plant Controls/ Siemens Controls	Running			
29		Well Control System/ Allen Bradley Controls	Running			
30		MCC FBR Pad	Running			
31		MCC in D-1	Running			
32		MCC in EQ area	Running			
Miscellaneous Systems						
33		Operations Office/Network	Running			
34		Laboratory Analyzers	Running			
35		Security Systems	Running			
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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