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**To:** Nevada Division of Environmental Protection  
Nevada Environmental Response Trust

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**Cc:** Nevada Environmental Response Trust Stakeholders

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**From:** Michael Del Vecchio, Director Engineering and Project Management

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**Date:** March 20, 2024

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**Subject:** NERT – GWETS Operation Monthly Report – February 2024

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At the request of the Nevada Environmental Response Trust (Trust), Envirogen Technologies, Inc. (ETI) is providing this summary of the groundwater extraction and treatment system (GWETS) operation and performance during February 2024.

### Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS and ion exchange (IX) system normally in February 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 February. The flow rate to the IX system averaged approximately 293 gallons per minute (gpm). The flow rate to the FBR plant averaged approximately 934 gpm. At the end of the month, the filled GW-11 Pond volume was at 49.1 million gallons (MG), which would allow 9.3 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 January 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 2.1 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 January 2023 averaged 45 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 February.

### 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 February 3, 2024 from 4:00pm to 5:00pm due to a malfunctioning diversion valve at the EQ area. Troubleshooting was conducted, the valve was repaired, and the plant was brought back online. Approximately 63,000 gallons of water were added to the GW-11 Pond.
- Influent diversion occurred on February 4, 2024 from 9:48pm to 10:12pm due to a damaged fuse. Troubleshooting was conducted, the fuse was replaced, and the plant was brought back online. Approximately 25,000 gallons of water were added to the GW-11 pond.
- Influent diversion occurred on February 6, 2024 from 5:40pm to 6:37pm due to an unexpected loss of controls as a result of water infiltration into an I/O junction box. Troubleshooting was conducted, excess water removed, the junction box was sealed appropriately, and the plant was brought back online. Approximately 60,000 gallons of water were added to the GW-11 pond.
- Effluent diversion occurred on February 7, 2024 from 7:28am to 10:48am as a precautionary measure due to elevated levels of perchlorate in the FBRs. Adjustments were made to the process and the effluent was returned to the outfall. Approximately 175,000 gallons of water were added to the GW-11 pond.
- Effluent diversion occurred on February 12, 2024 from 9:10pm to 10:40pm as a precautionary measure due to elevated levels of perchlorate in the FBRs. Adjustments were made to the process and the effluent was returned to the outfall. Approximately 98,000 gallons of water were added to the GW-11 pond.
- Effluent diversion occurred on February 13, 2024 from 11:02am to 4:21pm as a precautionary measure due to elevated levels of perchlorate in the FBRs. Adjustments were made to the process and the effluent was returned to the outfall. Approximately 180,000 gallons of water were added to the GW-11 pond.
- Influent diversion occurred on February 21, 2024 from 7:44am to 11:11am due to an unexpected loss of controls as a result of a malfunctioning UPS battery backup. Troubleshooting was conducted and the plant was brought back online. The malfunctioning UPS batter backup has been replaced. Approximately 225,000 gallons of water were added to the GW-11 pond.
- Effluent diversion occurred on February 23, 2024 from 2:34am to 4:46am as a precautionary measure due to elevated levels of perchlorate in the FBRs. Adjustments were made to the process and the effluent was returned to the outfall. Approximately 105,000 gallons of water were added to the GW-11 pond.

- Effluent diversion occurred on February 24, 2024 from 9:06am to 10:51am as a precautionary measure due to elevated levels of perchlorate in the FBRs. Adjustments were made to the process and the effluent was returned to the outfall. Approximately 170,000 gallons of water were added to the GW-11 pond.
- Influent diversion occurred on February 24, 2024 from 12:20pm to 1:00pm as a precautionary measure due to elevated levels of perchlorate in the FBRs. Adjustments were made to the process and the effluent was returned to the outfall. Approximately 42,000 gallons of water were added to the GW-11 pond.
- Effluent diversion occurred on February 24, 2024 from 1:00pm to 3:17pm as a precautionary measure due to elevated levels of perchlorate in the FBRs. Adjustments were made to the process and the effluent was returned to the outfall. Approximately 83,000 gallons of water were added to the GW-11 pond.
- Effluent diversion occurred on February 28, 2024 from 1:05pm to 7:58pm as a precautionary measure due to elevated levels of perchlorate in the FBRs. Adjustments were made to the process and the effluent was returned to the outfall. Approximately 440,000 gallons of water were added to the GW-11 pond.

### **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 CoH discharging water to Birding Ponds 10 through 13 from late August through October 2023. Both the groundwater elevation adjacent to the western leg of the SWF and the perchlorate concentrations in groundwater are expected to remain elevated for an extended period as result of CoH's August/September 2023 use of the inactive Birding Ponds.

### **4. Treatment System Extension (TSE)**

During February 2024, operations at the TSE plant continued to be idled. Throughout the month of February representatives of NERT and TIMET participated in multiple discussions regarding operations of the TSE and TIMET facilities. Timeline for restart of the system pending discussions between NERT and TIMET.

### **5. Effluent Filtration System (EFS)**

During February 2024, 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 February 2024, the CTS operated normally and treated approximately 2,250,000 gallons of groundwater, with approximately 184,000 gallons extracted from the Unit 4 Source Area In-Situ Bioremediation Treatability Study.

## 7. Spills

Between 7:15 pm and 10:45 pm on February 15, 2024, a series of operational failures resulted in a rising water level and overflow of the lift station sump, as the flow continued into the sump from Lift Stations 1 and 3. Approximately 169,000 gallons of untreated water overflowed the sump in Lift Station 2 and exited the lift station. The water flowed northward in a short concrete-lined channel and upon exiting the channel the water bifurcated with the majority of water flowing north/northeast, a smaller portion flowing east into a low-lying area, and a very small amount of water flowing west to the Pabco Road curb. Water flowing to the north/northeast entered a stormwater culvert which conveyed the water north of Galleria Drive into an unlined drainage ditch. Water that entered the ditch north of Galleria Drive was retained by the headwall of an elevated culvert located approximately 950 feet north of Galleria Drive. A written report summarizing the spill was submitted to the NDEP, Bureau of Water Pollution Control on February 21, 2024. Additionally, NERT submitted report summarizing subsequent soil sampling activities and response to an information request from NDEP, Bureau of Industrial Site Cleanup on April 12, 2024. NDEP approved this report on April 17, 2024 and indicated that NERT is not required to conduct further assessment or remediation to be protective of human health and the environment.

## 8. Maintenance

- Major maintenance performed by ETI in the reporting month included:
  - I. Repaired EQ area sump pump.
  - II. Rebuilt 2 Double Disk Media Return Pumps
  - III. Repaired plate shifters at D-1 presses.
  - IV. Installed new Level Control Valve at Separator 3.
  - V. Repaired Diversion valve at EQ area.
  - VI. Repaired leaking ethanol feed pump for FBR 4.
  - VII. Inspected and cleared North-West pond corner pump.
  
- Preventative maintenance performed by ETI in the reporting month included:
  - I. Conducted rotating equipment inspection
  - II. Calibrated Level Control Valve 601
  - III. Assembled new actuator and positioner.
  - IV. Inspected Phosphoric Acid pump skid and reinstalled leaking pieces.
  - V. Inspected Utility Equipment, straps and slings.
  - VI. Verified pump alignment for FBR's 3 and 4 pump skid.
  - VII. Installed new pressure gauges for FBR's 2 and 8.

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 Flootation (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 May 2024.
2. Improved Biological Treatment Plant Efficiency – Consistent with Attachment D to the December 2021 GWETS Operation Monthly Report, Envirogen plans to take three to 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. 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 3<sup>rd</sup> quarter of 2024.

# Tables

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*Operational Metrics*

Nevada Environmental Response Trust   Groundwater Extraction and Treatment System   Monthly Stakeholder Metrics				
Location ID	Average Flow Rate (gpm) <sup>4</sup>	Perchlorate (mg/L) <sup>5</sup>	Chromium (TR) (mg/L) <sup>5</sup>	Chromium(VI) (mg/L) <sup>5</sup>
SWF Total Extraction <sup>1</sup>	738	7.5	0.00084	0.0018
AWF Total Extraction <sup>1</sup>	425	49	0.12	0.11
IWF Total Extraction <sup>1</sup>	45	377	5.1	5.1
AP Area Total Extraction <sup>1</sup>	7.6	655	0.21	0.17
Chromium Treatment Subsystem Effluent <sup>2</sup>	54	379	0.37	0.0014
GW-11 Influent <sup>1</sup>	0.17	28	0.055	0.052
FBR Influent <sup>2</sup>	934	48	0.14	0.045
Treatment System Extension Influent <sup>2,3</sup>	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 02/01 to 02/29.
- 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) <sup>1</sup>	Chromium (TR) (lbs/month) <sup>1</sup>	Chromium (VI) (lbs/month) <sup>1</sup>
SWF Total Extraction	1,606	0.18	0.39
AWF Total Extraction	7,206	18	17
IWF Total Extraction	5,921	80	80
AP Area Total Extraction	1,738	0.55	0.44
Chromium Treatment Subsystem Effluent	7,177	7.0	0.027
GW-11 Influent	1.7	0.0033	0.0031
FBR Influent <sup>1</sup>	15,580	46	14
Treatment System Extension Influent <sup>1,2</sup>	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 02/01 to 02/29.



# Figures

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*Operational Metrics*

Figure 1 - GW-11 Pond Volume Through 02/29/2024

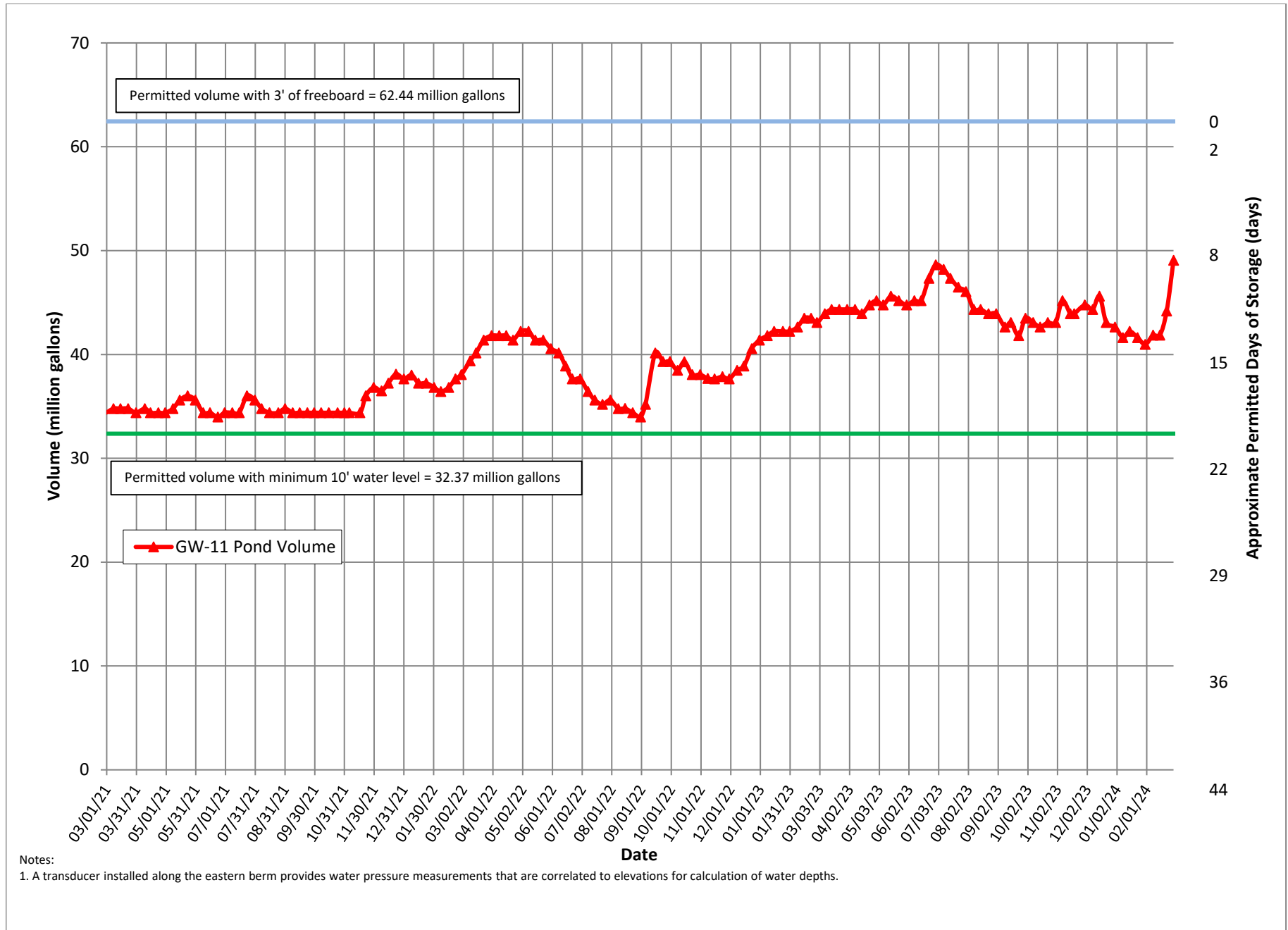
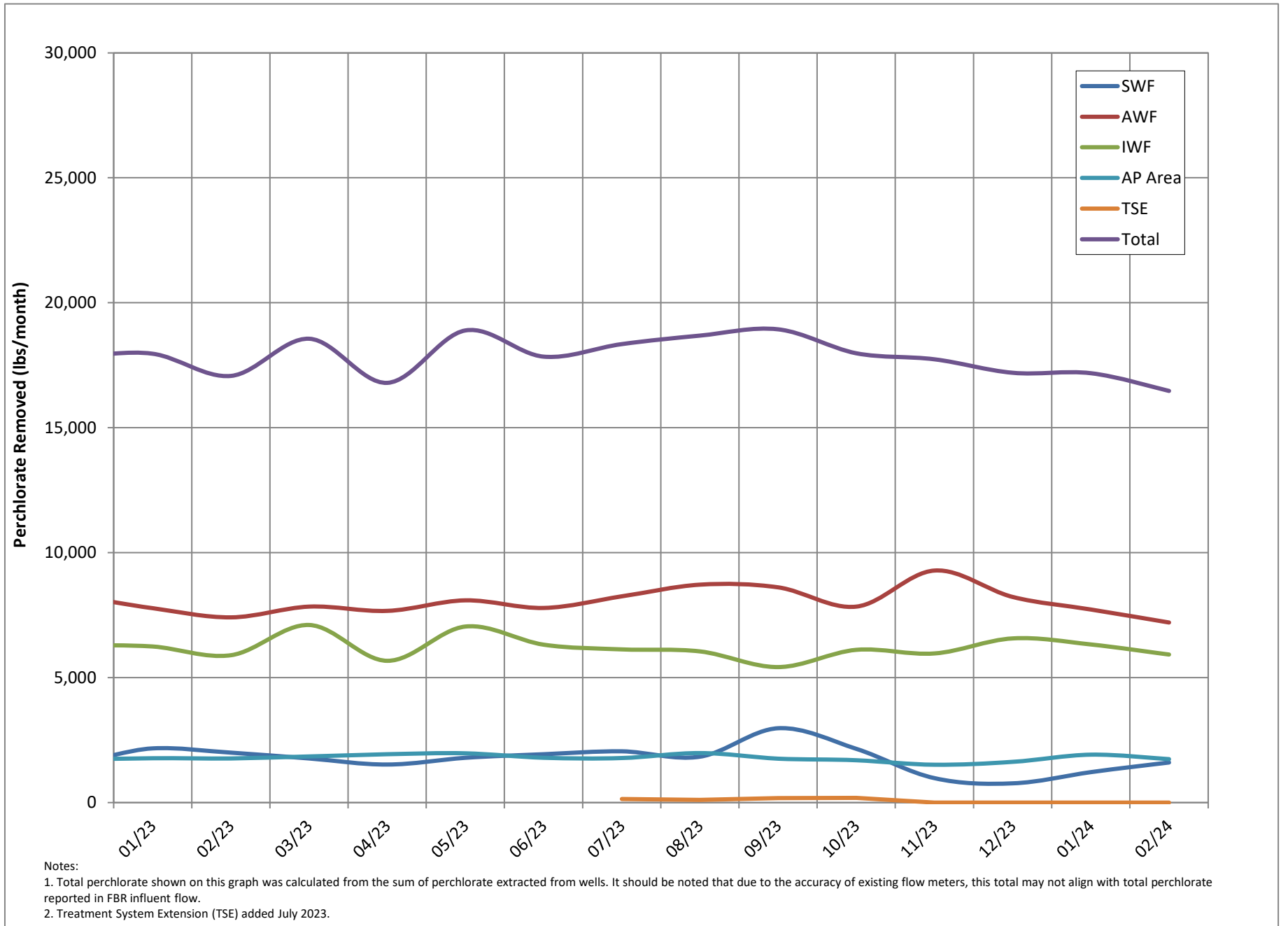


Figure 2 - Historical Perchlorate Mass Removed From Environment



# Attachment A

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*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 <sub>5</sub> (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)	30-Day Avg. (mg/L)	30-Day Avg. (lbs/day)	30-Day Avg. (lbs/day)	30-Day Avg. (mg/L)	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 (month to date)	1.48	1.79	ND (<1.6)	0.009	7.11	7.40	ND (<0.150)	17	430	710	0.80	20	250	1.2	10	ND (<5.0)	ND (<5.0)	30			

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	13 <sup>1</sup>	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	--	0.69 <sup>2</sup>	8.3	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	--	1.5 <sup>3</sup>	15	3/7/2024	ND (<5.0)	2.5	25
					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

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.

<sup>1</sup> Average of 8.6 mg/L, 34 mg/L, and 2.5 mg/L (<5.0 mg/L); rerun was analyzed past hold time, and duplicates didn't match.

<sup>2</sup> Average of 0.73 mg/L and 0.64 mg/L.

<sup>3</sup> Average of 1.6 mg/L and 1.3 mg/L.

Last Updated: March 22, 2024

# Attachment B

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Equipment Tracking Form

Sub-System	P&ID	Description	Status <sup>1</sup>	Checked	Criticality <sup>2</sup>	Notes
<b>Main Plant Equipment</b>						
<b>1</b>		<b>Seep Wells and Lift Station 1</b>				
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			
<b>2</b>		<b>Athens Road Wells and Lift Station 3</b>				
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			
<b>3</b>		<b>Lift Station 2 and Transmission Pipelines</b>				
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			
<b>4</b>		<b>Interceptor Wells and Cr Treatment Plant</b>				
4.01		IWF Well Field, 30 wells	Running			
4.02		Ferrous Sulfate Feed System	Running			
4.03		Polymer Feed System	Running			Installed new polymer 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			
<b>5</b>		<b>Equalization Area and GW-11 Pond</b>				
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			

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 <sup>1</sup>	Checked	Criticality <sup>2</sup>	Notes
5.05	PID10A	Area in and Around EQ	In operation			
5.06	PID10A	Raw Water Feed Pump - P102A				
5.07	PID10A	Raw Water Feed Pump - P102B				
5.08	PID10A	F-101 Filters	Running			
5.09	PID10B	Carbon Absorber - LGAC 201A				
5.10	PID10B	Carbon Absorber - LGAC 201B				
5.11	PID10B	Carbon Absorber - LGAC 201C				
<b>6</b>		<b>First Stage FBRs A, 1 &amp; 2</b>				
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	FBR 2	Running			
6.08	PID01A	First Stage Separator Tank - T2011	Running			Inspected for proper operation.
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				Switched Recycle pumps
6.12	PID01A	First Stage FRB Pump - P101A				
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			
<b>7</b>		<b>First Stage FBRs 3 &amp; 4</b>				
7.01	PID01B	FBR 3	Running			
7.02	PID01B	FBR 4	Running			

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Criticality Codes

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Sub-System	P&ID	Description	Status <sup>1</sup>	Checked	Criticality <sup>2</sup>	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				
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			Repaired leaking ethanol pump.
<b>8</b>		<b>Second Stage FBRs 5 &amp; 6</b>				
8.01	PID03A	FBR 5	Running			
8.02	PID03A	FBR 6	Running			
8.03	PID03C	Second Stage Separator Tank - T3011	Running			Installed new Level Control Valve.
8.04	PID03A	Media Return Pump - P3011	Running			Rebuilt Media Return Pump.
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			
<b>9</b>		<b>Second Stage FBRs 7 &amp; 8</b>				
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 <sup>1</sup>	Checked	Criticality <sup>2</sup>	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			
<b>10</b>		<b>Aeration and DAF System</b>				
10.01	PID04	Aeration Tank	In operation			
10.02	PID04	Aeration Blower - B401	Running			
10.03	PID04	Bio filter	In operation			
10.04	PID04	Nutrient Solution	Running			
10.05	PID04	Bio filter Sump				
10.06	PID04	Nutrient Pump - P401	Running			
10.07	PID04	Bio filter Sump Pump - P402A	Standby			
10.09	PID04	Bio filter Blower	Running			
10.10	PID05	DAF Pressure Tanks	In operation			
10.11	PID05	DAF Vessel - D501	Running			
10.12	PID05	DAF Pressure Pump - P501	Running			
10.13	PID05	DAF Float Pump - P502	Running			
10.14	PID05	DAF Vessel - D551	Running			
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			
<b>11</b>		<b>Pumping System (Old Effluent)</b>				
11.01	PID06	Effluent Tank 601	In operation			
11.02	PID06	Effluent Pump - P601	Running			Calibrated Flow Control Valve-601
11.03	PID06	Effluent Pump - P602				
<b>12</b>		<b>Sand Filter System</b>				
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			
<b>13</b>		<b>Effluent Tank and Pumping</b>				
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			
<b>14</b>		<b>Solids Collection and Pressing System</b>				

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14.01	PID16	Sludge Storage Tank	In operation			
14.02	PID16	Solids Storage Effluent Pump - P1601	Running			
14.03	PID16	Solids Cond. Tank	In operation			
14.04	PID09	Sludge Mixer	Running			
14.05	PID09	Filter Press Pump - P901	Running			
14.06	PID09	Filter Press Pump - P902				
14.07	PID09	West Press	Standby		4	Set the plate shifters to rise. Waiting on parts for them to extend
14.08	PID09	East Press	Running		4	Set the plate shifters to rise. Waiting on parts for them to extend
14.09	PID09	Filtrate Tank	In operation			
14.10	PID09	Filtrate Tank Effluent (recycle) Pump - P903	Running			
<b>Chemical Systems</b>						
<b>15</b>		<b>Electron Donor System</b>				
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			
<b>Utility Systems</b>						
<b>26</b>		<b>Compressed Air System</b>				
26.01	PID08	West Compressor	Running			
26.02	PID08	East Compressor	Running			
26.03	PID08	O2 Compressor	Running			
26.04	PID08	Compressed Air Receiver Tank	In operation			
26.05	PID08	Air Dryer	Running			
26.06	PID08	Oil Removal Filter	In operation			

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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			
<b>Miscellaneous Systems</b>						
33		Operations Office/Network	In operation			
34		Laboratory Analyzers	In operation			
35		Security Systems	In operation			
<b>Shelf Spares</b>						
		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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