To:	Nevada Division of Environmental Protection Nevada Environmental Response Trust
Cc:	Nevada Environmental Response Trust Stakeholders
From:	Ryan Sullivan, Vice President Service and O&M
Date:	July 20, 2021
Subject:	NERT – GWETS Operation Monthly Report – June 2021

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 June 2021.

Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS and ion exchange (IX) system normally in May 2021. Flow from PC-119, PC-120, PC-121, and PC-133 was routed to the IX system, bypassing all flow meters associated with the FBR plant. The flow rate to the IX system averaged approximately 194 gallons per minute (gpm). The flow rate to the FBR plant averaged approximately 1,031 gpm during May 2021. At the end of the month, the GW-11 Pond volume was at 35.6 million gallons (MG), which would allow 18.6 days of available additional storage in the event of an emergency FBR plant shutdown with continued well field pumping. The water volume stored in the GW-11 Pond increased from the end of April 2021. Figure 1 in this report depicts the actual GW-11 pond volumes and additional storage available.

The influent perchlorate concentration to the IX system averaged 0.15 mg/L for the month. The influent perchlorate concentration to the FBR plant averaged 58 mg/L for the month, with a maximum concentration of 61 mg/L. In comparison, the influent perchlorate concentration to the FBRs for the month of April 2021 averaged 55 mg/L, with a maximum concentration of 59 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 June.

2. Biological Plant

There were influent / effluent diversions during the reporting period generally associated with GW-11 pond level maintenance as well as extraction well short-term shutdown events. Below is a description of the events that occurred:

Diversion Events / Well Shutdowns

- Influent diversion to GW-11 occurred on June 2, 2021 from 11:40am to 11:55am due to low maintenance activities at the EQ communications cards. Approximately 10,000 gallons of water were diverted to GW-11.
- Effluent diversion to GW-11 occurred on June 7, 2021 from 10:33pm to 10:58pm as a precautionary measure due to high effluent turbidity results. Adjustments were made, low turbidity was restored, and the effluent was returned to the outfall. Approximately 27,000 gallons of water were diverted to GW-11.
- Effluent diversion to GW-11 occurred on June 10, 2021 from 11:30pm to June 11, 2021 at 5:00am due to low GW-11 pond level. Approximately 350,000 gallons of water were diverted to GW-11.
- Effluent diversion to GW-11 occurred on June 15, 2021 from 11:30pm to June 16, 2021 at 4:50am due to low GW-11 pond level. Approximately 340,000 gallons of water were diverted to GW-11.
- Effluent diversion to GW-11 occurred on June 16, 2021 from 12:19pm to 2:22pm as a precautionary measure due to high effluent turbidity results following maintenance efforts at the Sand Filter. Adjustments were made, low turbidity was restored, and the effluent was returned to the outfall. Approximately 125,000 gallons of water were diverted to GW-11.
- Effluent diversion to GW-11 occurred on June 19, 2021 from 11:31pm to June 20, 2021 at 5:15am due to low GW-11 pond level. Approximately 373,000 gallons of water were diverted to GW-11.
- Effluent diversion to GW-11 occurred on June 21, 2021 from 11:16pm to June 22, 2021 at 5:20am due to low GW-11 pond level. Approximately 378,000 gallons of water were diverted to GW-11.
- Effluent diversion to GW-11 occurred on June 22, 2021 from 11:18pm to June 23, 2021 at 5:30am due to low GW-11 pond level. Approximately 354,000 gallons of water were diverted to GW-11.
- Effluent diversion to GW-11 occurred on June 29, 2021 from 12:26am to 4:34am due to low GW-11 pond level. Approximately 252,000 gallons of water were diverted to GW-11.

3. Spills

There were no reportable spills in the month of June.

4. Maintenance

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

I. Replaced the solenoid on the slam valve for FBR 2.
II. Installed ladders around the plant to access the level control valves for the separators.
III. Set up a new A/C on the instrumentation conex.
IV. Installed the new mechanical seal on the rebuilt P-601 pump.
V. Installed the new micro nutrient pump with new tubing.
VI. Installed a new hydraulic cylinder on the GTWP press.
VII. Installed a new 2'' valve on the west filter press.
VIII. Repaired the connectors on the Profibus communications repeater.
IX. Replaced the coupling on P-1701B sand filter reject pump.

I. Removed solids from the sand filter reject tank.
II. Cleaned the air filters on the external Air Conditioning units at the lift stations.
III. Cleaned out the cabinets for the Lift Station 3 VFD's.
IV. Cleaned the outfall and trimmed the weeds.
V. Inspected and tested all the breakers in the trailer.
VI. Inspected and cleaned out the paddle flowmeter at Lift Station 2 for Lift Station 1.

GWETS Upgrades and Facility Projects

Unit 4 Chromium Water Treatment Plant – Envirogen participated in a meeting with the Trust in April 2021 to discuss moving this project forward. Envirogen received notification at the end of May that the Trust will be repurposing one of the AP tanks to support the Unit 4 Source Area In-situ Bioremediation Treatability Study. Groundwater extracted as part of this treatability study will be conveyed to this tank via tanker truck where it will be stored and subsequently routed to the treatment plants for processing. Envirogen will take over responsibility for operating this tank for the duration of treatability study. Envirogen will work with the Trust in the coming months to establish a scope of work.

GWETS Extension – The signed Work Authorization for engineering and fabrication of the GWETS Extension was returned to the Trust on January 28, 2020. As a result of comments received from Clark County that prohibit the use of shipping containers as structures, Envirogen submitted a Work Authorization to the Trust for: re-designing the pump system containers to independent skids; modifying the electrical control panels; and providing 3-sided canopies to house sun sensitive equipment. The Work Authorization was signed by Envirogen and the Trust in March 2021. Envirogen received comments from the Trust regarding the GWETS O&M Work Authorization (Contract Amendment 8) and provided a response in March 2021. The Authorization has not been completed, Envirogen is waiting to receive the final version of the Contract Amendment.

GWETS Staffing

ETI continues with 24-hour staffing of the GWETS at the direction of the Trust and continues to follow the security procedures in the Standard Operating Procedures (SOP).

Tables

Operational Metrics

Nevada Environmental Response Trust I Groundwater Extraction and Treatment System I Monthly Stakeholder Metrics				
Location ID	**Average Flow Rate (gpm)**	**Perchlorate (mg/L)[4 5]**	**Chromium (TR) (mg/L)[4 5]**	**Chromium(VI) (mg/L)[4 5]**
SWF Total Extraction[1]	748[3]	5.6	0.00059	0.0012
AWF Total Extraction[1]	455[3]	60	0.13	0.15
IWF Total Extraction[1]	57[3]	468	6.2	6.3
AP Area Total Extraction[1]	8.8[3]	615	0.15	0.21
GWTP Effluent[2]	75	461	0.26	ND
GW-11 Influent[1]	0.25	60	0.06	0.0300
FBR Influent[2]	1,027	58	0.034	0.036

Notes:

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

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

5: ND analytical values are treated as zero values in the flow weighted average calculations.

Nevada Environmental Response Trust I Groundwater Extraction and Treatment System I Monthly Stakeholder Metrics			
Location ID	**Perchlorate (lbs/month)[1]**	**Chromium (TR) (lbs/month)[1]**	**Chromium (VI) (lbs/month)[1]**
SWF Total Extraction	1,524	0.159	0.32
AWF Total Extraction	9,934	21	25
IWF Total Extraction	9,567	128	129
AP Area Total Extraction	1,951	0.49	0.68
GWTP Effluent	12,463	7.1	ND
GW-11 Influent	5.5	0.0051	0.00276
FBR Influent[1]	21,416	12	13.3

Notes:

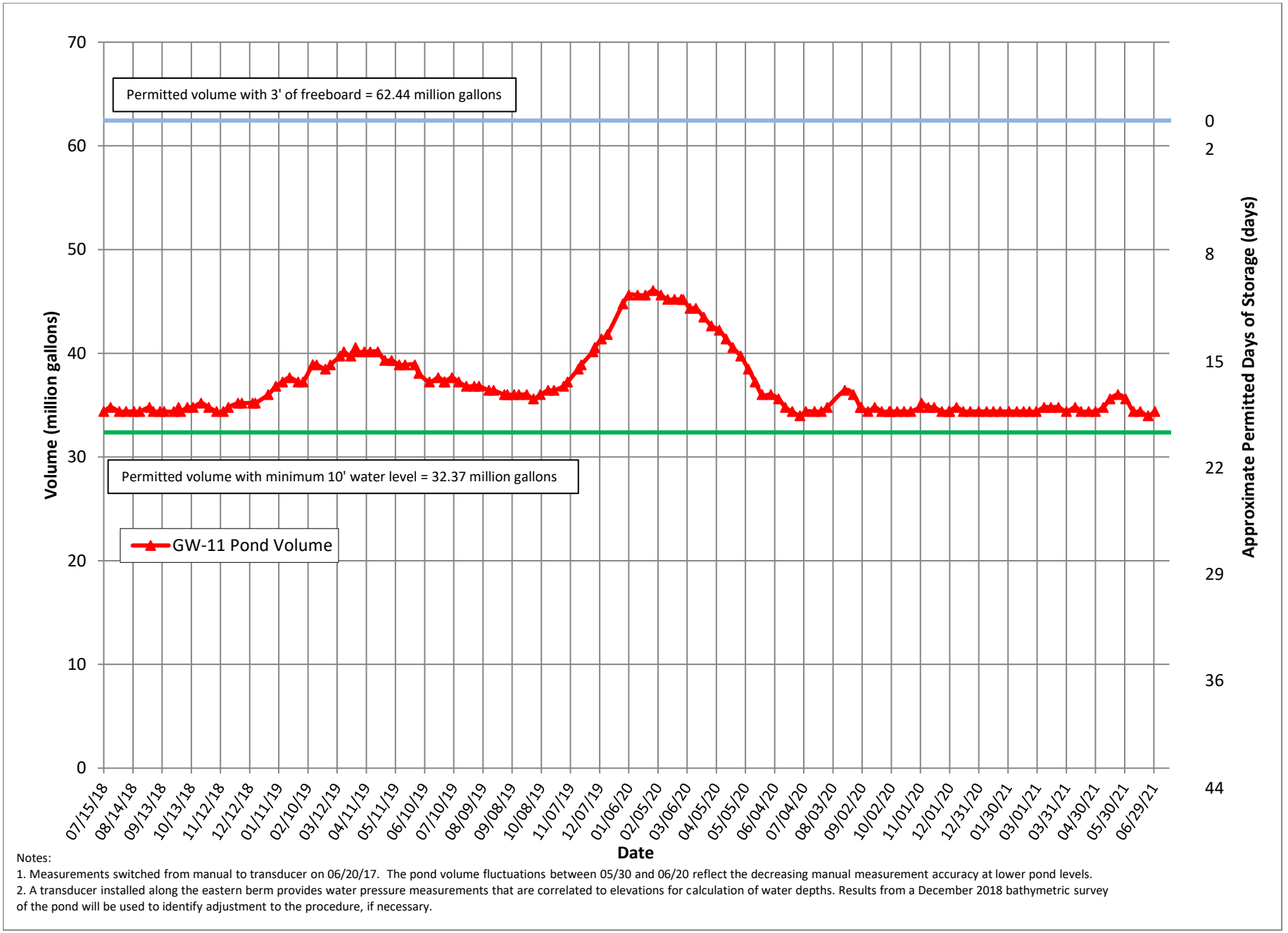
TR = Total Recoverable; NA = Not Analyzed.

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 06/30/2021

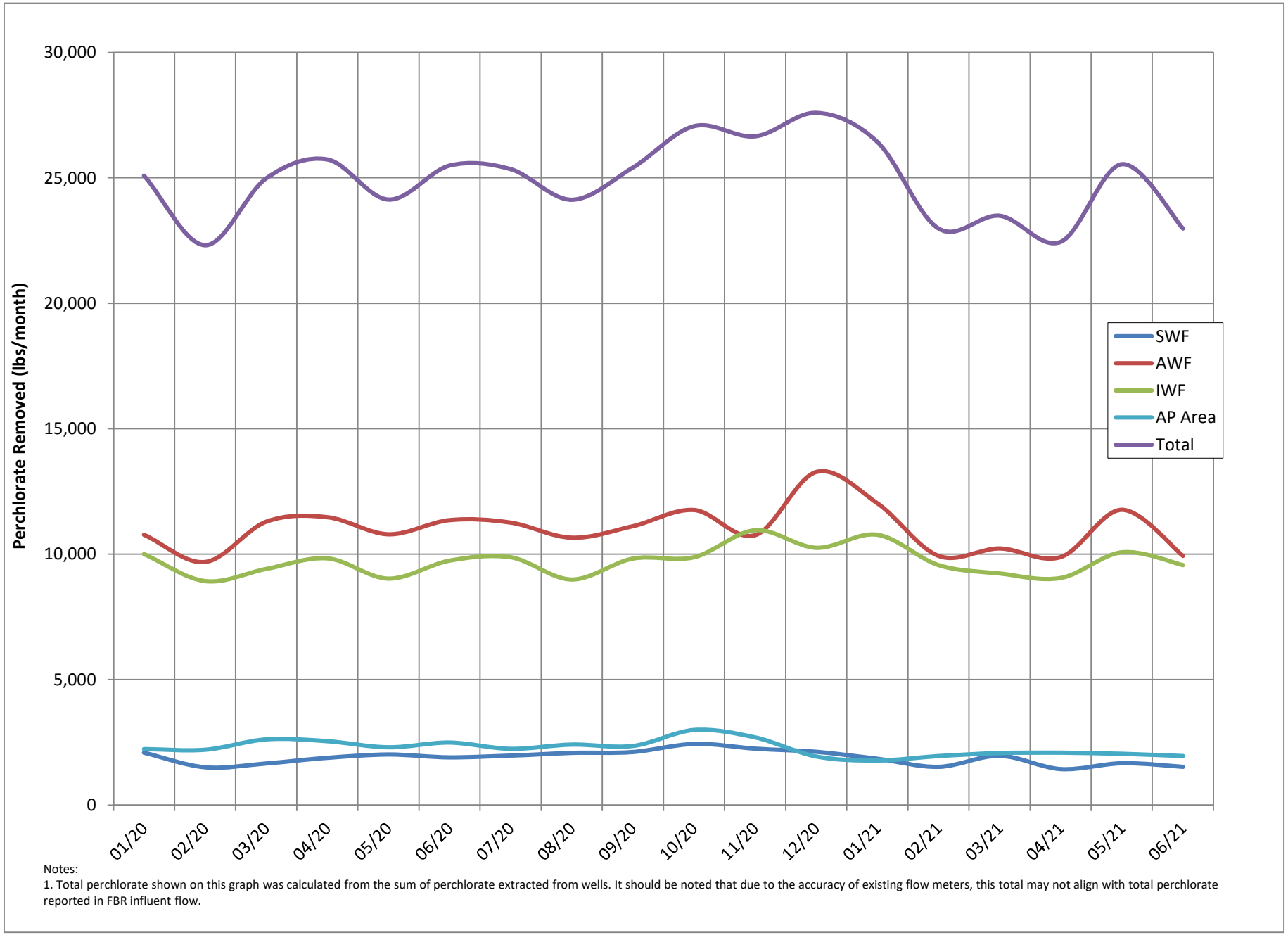


Notes:

1. Measurements switched from manual to transducer on 06/20/17. The pond volume fluctuations between 05/30 and 06/20 reflect the decreasing manual measurement accuracy at lower pond levels.
2. A transducer installed along the eastern berm provides water pressure measurements that are correlated to elevations for calculation of water depths. Results from a December 2018 bathymetric survey of the pond will be used to identify adjustment to the procedure, if necessary.

Figure Updated: 7/6/2021

Figure 2 - Historical Perchlorate Mass Removed From Environment



Notes:
1. Total perchlorate shown on this graph was calculated from the sum of perchlorate extracted from wells. It should be noted that due to the accuracy of existing flow meters, this total may not align with total perchlorate reported in FBR influent flow.

Figure Updated: 7/19/2021

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 2021	1.80	1.90	0.6	0.009	6.6	6.8	ND (<0.25)	12	100	1,300	1.0	19	290	4	7	ND (<5.0)	ND (<5.0)	38	
Feburary 2021	1.76	1.85	0.55	0.008	6.5	6.7	ND (<0.25)	5.6	100	1,200	10	21	320	6	6.1	11	38	170	3,900
March 2021	1.76	1.84	ND (<0.31)	0.0023	6.5	6.9	ND (<0.25)	2.2	110	1,100	1.4	15	220	2.6	6.6	5	15	80	
April 2021	1.72	1.82	9	0.12	6.6	7.2	ND (<0.25)	1.2	72	940	0.29	7	100	2.2	5.2	ND (<5.0)	ND (<5.0)	37	
May 2021	1.65	1.84	0.16	0.0021	6.5	6.9	ND (<0.25)	4.7	100	1,700	0.56	16	220	2.8	3.2	ND (<5.0)	ND (<5.0)	34	3,600
June 2021	1.73	1.82	0.16	0.0022	6.5	6.6	ND (<0.25)	2.1	78	990	0.69	15	220	1.6	5.5	ND (<5.0)	ND (<5.0)	34	
July 2021 (month to date)	1.65	1.79	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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
1/3 - 1/9	1/9/2021	ND (<0.31)	0.16	0.0023	1/4/2021	6.6		ND (<0.25)	2.2	100	650	0.16		24	367	--	0.064	1.0	--	0.38	5.8	1/6/2021	ND (<5.0)	2.5	38		
1/10 - 1/16	1/16/2021	ND (<0.31)	0.16	0.0023	1/12/2021	6.7		ND (<0.25)	2.9	82	720	0.32		21	319	--	0.14	2.1	--	0.36	5.5	1/13/2021	ND (<5.0)	2.5	38		
1/17 - 1/23	1/23/2021	1.8	1.8	0.027	1/18/2021	6.8		ND (<0.25)	3.6	83	1,300	1.0		18	278	--	0.87	13	--	0.68	10	1/20/2021	ND (<5.0)	2.5	38		
1/24 - 1/30	1/30/2021	ND (<0.31)	0.16	0.0023	1/25/2021	6.6		ND (<0.25)	12	64	940	0.21		14	215	--	0.095	1.5	--	0.39	6.0	1/27/2021	ND (<5.0)	2.5	39		
1/31 - 2/6	2/6/2021	ND (<0.31)	0.16	0.0023	2/1/2021	6.7		ND (<0.25)	5.3 5.6[+]	49	880	1.1		13	198	--	0.99	15	--	0.43	6.6	2/3/2021	ND (<5.0)	2.5	38	2/2/2021	3,900
2/7 - 2/13	2/13/2021	0.92 J	0.92	0.014	2/8/2021	6.6		ND (<0.25)	4.4	57	1,100	10		28	429	--	0.25	3.8	--	0.45	6.9	2/10/2021	ND (<5.0)	2.5	36		
2/14 - 2/20	2/20/2021	ND (<0.31)	0.16	0.0023	2/15/2021	6.5		ND (<0.25)	2.9	76	930	0.16		22	330	--	0.16	2.4	--	0.38	5.7	2/17/2021	38		569		
2/21 - 2/27	2/27/2021	0.96 J	0.96	0.0140	2/22/2021	6.7		ND (<0.25)	ND (<0.85)	100	1,200	0.19		21	316	--	0.16	2.4	--	0.34	5.1	2/24/2021	ND (<5.0)	2.5	37		
2/28 - 3/6	3/6/2021	ND (<0.31)	0.16	0.0022	3/2/2021	6.6		ND (<0.25)	1.1	96	570	1.4		11	155	--	0.30	4.2	--	0.34	4.8	3/4/2021	ND (<5.0)	2.5	38		
2/7 - 3/13	3/13/2021	ND (<0.31)	0.16	0.0023	3/8/2021	6.6		ND (<0.25)	2.2	110	760	0.21		20	286	--	0.21	3.0	--	0.37	5.3	3/10/2021	ND (<5.0)	2.5	37		
3/14 - 3/20	3/20/2021	ND (<0.31)	0.16	0.0023	3/15/2021	6.5		ND (<0.25)	ND (<0.85)	78	700	0.46		21	316	--	0.22	3.3	--	0.63	9.5	3/17/2021	ND (<5.0)	2.5	37		
3/21 - 3/27	3/27/2021	ND (<0.31)	0.16	0.0023	3/22/2021	6.9		ND (<0.25)	ND (<0.85)	53	1,100	ND (<0.050)		18	271	ND(<0.039)	0.020	0.29	--	0.55	8.3	3/24/2021	15		228		
3/28 - 4/3	4/3/2021	ND (<0.31)	0.16	0.0023	3/29/2021	6.6		ND (<0.25)	ND (<0.85)	61	840	0.25	ND(<10)	5	74	--	0.13	1.9	--	0.34	5.0	3/31/2021	ND (<5.0)	2.5	37		
4/4 - 4/10	4/10/2021	10	10	0.14	4/5/2021	6.6		ND (<0.25)	1.1	38	880	0.22	ND(<10)	5	74	--	0.16	2.4	--	0.37	5.5	4/7/2021	ND (<5.0)	2.5	37		
4/11 - 4/17	4/17/2021	ND (<0.31)	0.16	0.0023	4/12/2021	7.0	7.0[+]	ND (<0.25)	ND (<0.85)	30	920	0.24		13	194	--	0.14	2.1	--	0.33	4.9	4/14/2021	ND (<5.0)	2.5	37		
4/18 - 4/24	4/24/2021	ND (<0.31)	0.16	0.0022	4/19/2021	7.0		ND (<0.25)	1.2	49	940	0.29	ND(<10)	5	75	--	0.15	2.2	--	0.33	4.9	4/21/2021	ND (<5.0)	2.5	37		
4/25 - 5/1	5/1/2021	24	24	0.35	4/27/2021	7.2		ND (<0.25)	ND (<0.85)	72	790	0.23	ND(<10)	5	75	--	0.15	2.3	--	0.35	5.3	4/28/2021	ND (<5.0)	2.5	38		
5/2 - 5/8	5/8/2021	ND (<0.31)	0.16	0.0020	5/3/2021	6.8		ND (<0.25)	ND (<0.85)	54	950	0.33	ND(<10)	5	59	--	0.19	2.3	--	0.31	3.7	5/5/2021	ND (<5.0)	2.5	25		
5/9 - 5/15	5/15/2021	ND (<0.31)	0.16	0.0021	5/11/2021	6.7		ND (<0.25)	ND (<0.85)	72	970	0.56		15	217	--	0.44	6.4	--	0.38	5.5	5/12/2021	ND (<5.0)	2.5	37	5/12/2021	3,600
5/16 - 5/22	5/22/2021	ND (<0.31)	0.16	0.0021	5/17/2021	6.9		ND (<0.25)	3.7	100	1,700	0.14		23	301	--	0.11	1.4	--	0.079	1.0	5/19/2021	ND (<5.0)[++]	2.5	37		
5/23 - 5/29	5/29/2021	ND (<0.31)	0.16	0.0023	5/24/2021	6.5		ND (<0.25)	4.7	98	790	0.21		20	295	--	0.090	1.3	--	0.17	2.5	5/26/2021	ND (<5.0)	2.5	37		
5/30 - 6/5	6/5/2021	ND (<0.31)	0.16	0.0023	6/1/2021	6.6		ND (<0.25)	2.1	77	690	0.33		12	180	--	0.15	2.2	--	0.41	6.1	6/2/2021	ND (<5.0)[+]	2.5	37		
6/6 - 6/12	6/12/2021	ND (<0.31)	0.16	0.0023	6/7/2021	6.6		ND (<0.20)	1.6	78	990	0.22		16	237	--	0.065	1.0	--	0.10	1.5	6/9/2021	ND (<5.0)	2.5	37		
6/13 - 6/19	6/19/2021	ND (<0.31)	0.16	0.0022	6/14/2021	6.6		ND (<0.20)	1.7	61	960	0.69		23	343	--	0.11	1.6	--	0.53	7.9	6/16/2021	ND (<5.0)	2.5	35		
6/20 - 6/26	6/26/2021	ND (<0.31)	0.16	0.0021	6/21/2021	6.5		ND (<0.20)	ND (<0.85)	50	530	0.35		15	175	--	0.12	1.4	--	0.36	4.2	6/23/2021	ND (<5.0)	2.5	30		
6/27 - 7/3	7/3/2021	ND (<0.31)	0.16	0.0022	6/28/2021	6.5		ND (<0.20)	1.4	54	860	0.52		11	164	--	0.12	1.8	--	0.52	7.8	6/30/2021	ND (<5.0)	2.5	30		
					7/6/2021	NA		NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	7/7/2021	NA		NA		

Note: All analytical responsibilities are performed by TestAmerica Laboratories, Inc. (TestAmerica) in Irvine, California, unless otherwise indicated.
[+] An additional sample was collected this week.
[++] Sample result has quality control (QC) qualifiers. CBOD was detected in the control blank and therefore the laboratory control sample (LCS) is outside acceptance limits.
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)
-- = Analyte detected; see column adjacent to right
* Total phosphorus discharge limitation of 10 lbs/day applies between March 1 and October 31; Ammonia discharge limitation of 20 lbs/day applies between April 1 and September 30; no limits apply the rest of the year.
Last Updated: July 9, 2021

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		3	Cleaned out the cabinets and inspected ART-4 VFD for any damages.
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		4	Replaced the tubing on the discharge of the pump before the injection point.
4.04		*Clarifier*	In operation			
4.05		*Filter Press*	Running		2	Replaced the hydraulic cylinder. Cleared out the air end of the hydraulic system.
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	*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		2	Repaired the connection on the Profibus repeater.
5.06	PID10A	*Raw Water Feed Pump - P102A*				

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
5.07	PID10A	*Raw Water Feed Pump - P102B*				
5.08	PID10A	*F-101 Filters*	Running			
5.09	PID10B	*Carbon Absorber - LGAC 201A*	Running			
5.10	PID10B	*Carbon Absorber - LGAC 201B*	Running			
5.11	PID10B	*Carbon Absorber - LGAC 201C*	Running			
6		**First Stage FBRs A, 1** *& 2*				
6.01	PID14	*FBR A*				
6.02	PID14	*Separator Tank - 1401*				
6.03	PID14	*Media Return Pump - P 1401*				
6.04	PID14	*P1401A*				
6.05	PID01A	*P1401B*				
6.06	PID01A	*FBR 1*	Running			
6.07	PID02A	*FBR 2*	Running			
6.08	PID01A	*First Stage Separator Tank - T2011*	Running		4	Installed a ladder to access the level control valve
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			
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		4	Installed a ladder to access the level control valve
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			

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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
7.07	PID01B	*First Stage FBR Pump - P102A*	Running			
7.08	PID07A	*FBR 3 pH Feed Pump - P713*	Running			
7.09	PID07A	*FBR 4 pH Feed Pump - P714*	Running			
7.10	PID07A	*FBR 3 Nutrient (Urea) Feed Pump - P723*				
7.11	PID07A	*FBR 4 Nutrient (Urea) Feed Pump - P 724*	Off			
7.12	PID15	*FBR 3 Nutrient (Phos Acid) Feed Pump - P1523*	Running			
7.13	PID15	*FBR 4 Nutrient (Phos Acid) Feed Pump - P1524*	Running			
7.14	PID07B	*FBR 3 Electron Donor Assembly Pump - P733*	Running			
7.15	PID07B	*FBR 4 Electron Donor Assembly Pump - P734*	Running			
8		**Second Stage FBRs 5** & 6				
8.01	PID03A	*FBR 5*	Running			
8.02	PID03A	*FBR 6*	Running			
8.03	PID03C	*Second Stage Separator Tank - T3011*	Running		4	Installed a ladder to access the level control valve
8.04	PID03A	*Media Return Pump - P3011*	Running		3	The trunnions were replaced on the 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			
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		4	Installed a ladder to access the level control valve
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			
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			

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10		**Aeration and DAF System**				
10.01	PID04	*Aeration Tank*	In operation			
10.02	PID04	*Aeration Blower - B401*	Running			
10.03	PID04	*Bio filter*	In operation			
10.04	PID04	*Nutrient Solution*	Running			
10.05	PID04	*Bio filter Sump*				
10.06	PID04	*Nutrient Pump - P401*	Running			
10.07	PID04	*Bio filter Sump Pump - P402A*	Standby			
10.09	PID04	*Bio filter Blower*	Running			
10.10	PID05	*DAF Pressure Tanks*	In operation			
10.11	PID05	*DAF Vessel - D501*	Running			
10.12	PID05	*DAF Pressure Pump - P501*	Running			
10.13	PID05	*DAF Float Pump - P502*	Running			
10.14	PID05	*DAF Vessel - D551*	Running			
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*	In operation			
11.02	PID06	*Effluent Pump - P601*	Running		4	Installed the new seal and re-assembled the pump end for the pump.
11.03	PID06	*Effluent Pump - P602*				
12		**Sand Filter System**				
12.01	PID17	*Sand Filter*			2	Took the sand filter offline to clear the obstructions from the reject lines
12.02	PID17	*Filter Reject Tank*	In operation		4	Removed the solids from the tank.
12.03	PID17	*Filter Reject Pump - P1701A*	Standby			
12.04	PID17	*Filter Reject Pump - P1701B*	Running		3	Opened the casing and cleared the obstructions.
13		**Effluent Tank and Pumping**				
13.01	PID10C	*UV Effluent Tank*	Running			
13.02	PID10C	*Effluent Booster Pump - P1302A*	Running			
13.03	PID10C	*Effluent Booster Pump - P1302B*	Standby			
13.04	PID10C	*Area Around Effluent and North D-1*	Running			
14		**Solids Collection and Pressing System**				
14.01	PID16	*Sludge Storage Tank*	In operation			

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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
14.02	PID16	*Solids Storage Effluent Pump - P1601*	Running		2	Took the pump offline to repair the electrical connections on the motor.
14.03	PID16	*Solids Cond. Tank*	In operation			
14.04	PID09	*Sludge Mixer*	Running			
14.05	PID09	*Filter Press Pump - P901*	Running			
14.06	PID09	*Filter Press Pump - P902*				
14.07	PID09	*West Press*	Standby			
14.08	PID09	*East Press*	Running			
14.09	PID09	*Filtrate Tank*	In operation			
14.10	PID09	*Filtrate Tank Effluent (recycle) Pump - P903*	Running			
		Chemical Systems				
15		**Electron Donor System**				
15.01	PID07B	*Electron Donor Tank*	In operation			
15.02	PID07B	*Booster Pump P739A*	Running			
15.03	PID07B	*Booster Pump P739B*	Standby			
17	PID07C	*Micro Nutrient System*	In operation		2	The new pump and tubing was installed.
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			
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			
		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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