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:	April 20, 2022
Subject:	NERT – GWETS Operation Monthly Report – March 2022

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 March 2022.

Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS and ion exchange (IX) system normally in March 2022. Flow from PC-120 and PC-121 were routed to the IX system, bypassing all flow meters associated with the FBR plant for the month of March whereas flow from PC-118, PC-119, and PC-133 were routed to the IX system intermittently. The flow rate to the IX system averaged approximately 226 gallons per minute (gpm). The flow rate to the FBR plant averaged approximately 1,022 gpm during March 2022. At the end of the month, the available GW-11 Pond volume was at 41.8 million gallons (MG), which would allow 14.3 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 February 2022; 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 1.1 mg/L for the month. The influent perchlorate concentration to the FBR plant averaged 50 mg/L for the month, with a maximum concentration of 57 mg/L. In comparison, the influent perchlorate concentration to the FBRs for the month of February 2022 averaged 58 mg/L, with a maximum concentration of 69 mg/L.

During February, flooding conditions occurred adjacent to the SWF as a result of the City of Henderson's (CoH) use of inactive Birding Ponds 10 through 13. ETI responded to ensure minimal impact to ongoing operations. Additional details are provided in Section 3 of 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 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 March.

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

- Effluent diversion to GW-11 occurred on March 8, 2022 from 6:00am to 6:15am due to maintenance activities on the pressurized air line at the DAF. Maintenance was completed and effluent was returned to the outfall. Approximately 25,000 gallons of water were diverted to GW-11.
- Effluent diversion to GW-11 occurred on March 9, 2022 from 10:04am to 11:15am due to a crack in the effluent pipeline at the pig launcher. The damaged piece was removed and a temporary spool piece was installed. Approximately 68,000 gallons of water were diverted to GW-11.
- Interceptor Well Field (IWF) extraction well shutdown occurred from March 28, 2022 from 11:10pm to March 29, 2022 at 10:10am due to a malfunctioning flow meter instrument. Maintenance was completed and the well was brought back online.
- Influent diversion occurred on March 30, 2022 from 2:37pm to 3:23pm as a precautionary measure due to high separator tank levels. Adjustments were made to the process and the plant was brought back online. Approximately 90,000 gallons of water were added to GW-11.

3. IX Treatment Plant

During the month of February, 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. To minimize the usage of resin, ETI routed water from extraction well PC-118 back to the FBRs for treatment. The CoH ceased discharging water to Birding Ponds 10 through 13 in February and ETI anticipates that conditions will

return to normal within the next two months.

4. Spills

There were no reportable spills in the month of March.

5. Maintenance

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

  I. Installed a new section of piping at the base of the conditioning tank.
  II. Installed a new ‘’wye’’ at the EQ area for the pig launcher.
  III. Installed a new actuator and positioner for the level control valve for separator 2.
  IV. Installed new sight glasses around the plant on the media return pumps.
  V. Installed new sight glasses on the DAF pressure tanks.
  VI. Installed a new check valve and piping for the discharge of pump P-1014.
  VII. Installed a new butterfly valve on the diversion piping from the reject tank to the filtrate tank.
  VIII. Tested the functionality of the T-205 tank. Replaced the air filter and regulator for the control valve.
  IX. Installed safety mirrors on the blind corners around the plant area.
  X. Swapped out the North DAF sludge pump due to a broken shaft.

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

  I. Grease the motors around the plant.
  II. Flushed the ORP/pH lines and sensors.
  III. Completed the installation of the safety signs around the plant.
  IV. Cleaned the filters on the air conditioners at the lift stations.
  V. Flushed all bed height pumps.
  VI. Cleaned and tested pressure gauges at the EQ area.
  VII. Finished pumping PC-120 and PC-121 well vaults.
  VIII. Inspected the grounding around the plant.
  IX. Inspected all slings, straps and safety harnesses around the plant.

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

Facility Projects

1. Chromium Treatment Subsystem – Envirogen received a Work Authorization for this scope in February 2022. The 90 percent design for the Chromium Treatment Subsystem was submitted to NDEP on March 18, 2022. NDEP requested submittal of the 100 percent design on March 29, 2022. Envirogen is currently finalizing the 100 percent design package for submittal in April 2022. Envirogen has been targeting May 2022 to complete the modifications required to treat groundwater extracted as part of the Unit 4 Source Area In-Situ Bioremediation Treatability Study as well as the flow currently routed to the existing Chromium Treatment Plant (i.e. GWTP) from the IWF and AP Area wells. With the current supply chain issues, Envirogen will move as quickly as possible but expects the completion date to move out to early July. Currently Envirogen procurement is complete and some preliminary work has begun at the site.

2. Treatment System Extension (TSE) – Envirogen has delivered all of the contracted equipment for the GWETS extension. TSE construction and system start-up is being facilitated by Arcadis through terms with the Trust and began in December 2021. ETI will incorporate a summary of the treatment operations once the system becomes operational (anticipated to occur in 4Q 2022).

3. 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. Attachment C contains a status summary prepared by the Trust of all agreed upon items. Specific details on in-progress items are provided below:

    I. (WA 21-02) East Air Compressor - Complete

    II. (WA 21-03) Wiring at Lift Station 3

        1. 90% of the work in field is complete, awaiting AC units (a long lead item). Anticipating a May 2022 completion.

    III. (WA 21-04) Motor Control Center at Lift Station 1

        1. Work started, but delayed due to City flooding the seep area, also impacting Lift Station 1. MCC & major equipment has been delivered.

    IV. (WA 21-05) Replacement of Safety Shower System

        1. Installation in progress, estimated completion Q2 2022

    V. (WA 21-06) Influent Pipeline Combination Valves

        1. Work started, but delayed due to City flooding the seep area (couldn't turn off well field with the current flooding)

    VI. (WA 21-07) Replacement of all pH and ORP probes. Authorization received from the Trust. Procurement/planning in progress.

    VII. (WA 21-08) Wiring IWF wells

        1. New wire has been installed at the wells, awaiting new starters to be delivered. Expected delivery in the April/May timeframe. Getting ready to run the new power line from the D-1 Building.

    VIII. (WA 21-09) Siemens controls upgrade

        1. Spare parts being received.

    IX. (WA 22-01) DAF Pilot

        1. Tentative date of delivery 4/19/22 & operational by 4/22/22

    X. (WA 22-02) Sludge Pump and Bins

        1. Equipment is on order and starting to arrive onsite.

    XI. (WA 22-03) Influent and Effluent Pump Motors

        1. Equipment is on order, awaiting delivery.

    XII. (WA 22-04) FBR Skid Upgrades

        1. Equipment is on order, awaiting delivery.

    XIII. (WA 22-05) Large Valve Upgrades

1. Equipment is on order, awaiting delivery

XIV. (WA 22-07) LS2 Pump Replacement

1. Equipment is on order, awaiting delivery

4. 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. Envirogen has begun this process by taking FBR A out of service.

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]	763[3]	3.9	ND	0.00080
AWF Total Extraction[1]	496[3]	54	0.12	0.13
IWF Total Extraction[1]	55[3]	412	5.6	5.2
AP Area Total Extraction[1]	8.1[3]	597	0.16	0.16
GWTP Effluent[2]	59	428	0.33	ND
GW-11 Influent[1]	0.040	46	0.25	0.041
FBR Influent[2]	1,022	50	0.035	0.040

Notes:

TR = Total Recoverable; 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	1,124	ND	0.23
AWF Total Extraction	9,959	23	24
IWF Total Extraction	8,498	116	107
AP Area Total Extraction	1,806	0.48	0.48
GWTP Effluent	9,388	7.3	ND
GW-11 Influent	0.69	0.0037	0.00061
FBR Influent[1]	19,112	13	15

Notes:

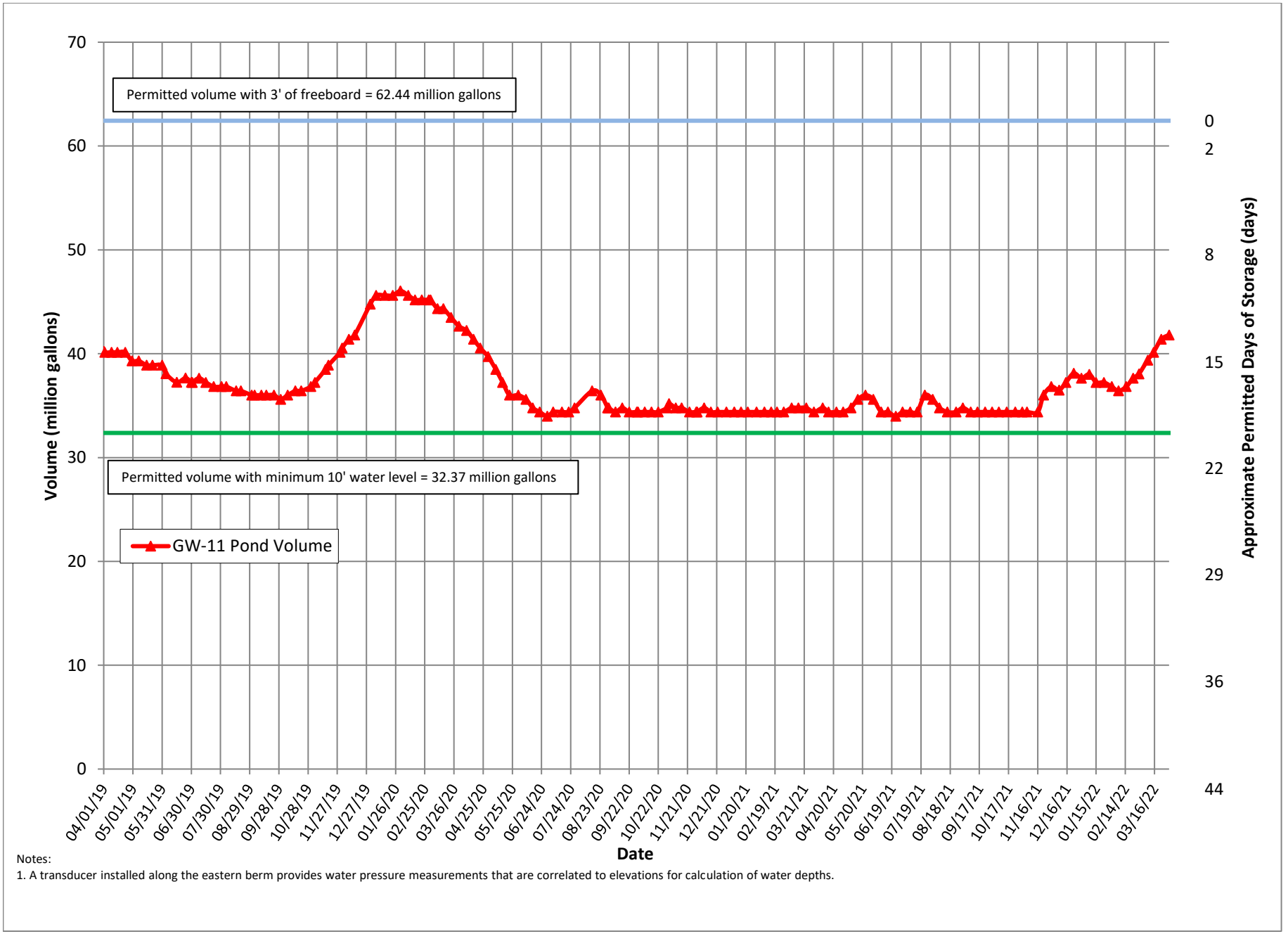
TR = Total Recoverable.

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

Figures

Operational Metrics

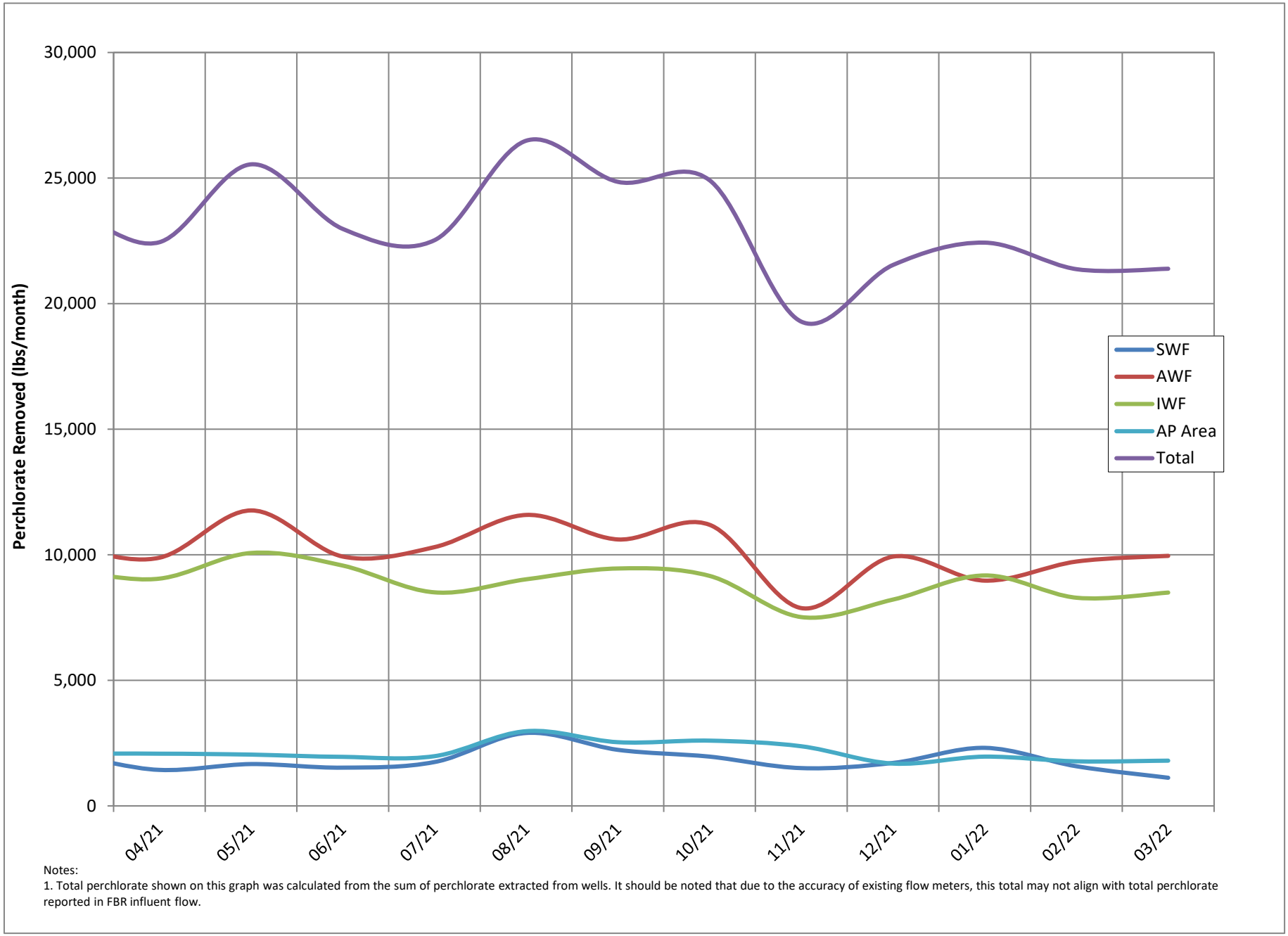
Figure 1 - GW-11 Pond Volume Through 03/31/2022



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

Figure Updated: 4/6/2022

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: 4/27/2022

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**
December 2021	1.78	1.88	1.0	0.015	6.5	6.6	ND (<0.50)	26	94	1,400	0.26	ND(<10)	70	1.4	6.2	11	43	160	3,200
January 2022	1.85	1.92	0.70	0.011	7.0	7.4	ND (<0.50)	12	61	1,100	0.88	10	150	2.1	6.9	ND (<5.0)	ND (<5.0)	39	
February 2022	1.77	1.95	2.2	0.033	6.8	7.5	ND (<0.50)	7.4	78	1,200	1.6	17	240	2.6	6.1	ND (<5.0)	ND (<5.0)	38	3,800
March 2022 (month to date)	1.70	1.84	2.3	0.031	6.5	7.2	ND (<0.50)	2.1	170	1,200	2.9	12	170	1.5	8	ND (<5.0)	ND (<5.0)	35	

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
11/28 - 12/4	12/4/2021	0.91 J	0.91	0.013																	12/1/2021	ND (<5.0)	2.5	36		
12/5 - 12/11	12/11/2021	ND (<0.31)	0.16	0.0024	12/6/2021	6.6	ND (<0.50)	ND (<0.85)	94	830	0.26	ND(<10)	5	77	--	0.098	1.5	--	0.49	7.5	12/8/2021	ND (<5.0)	2.5	38		
12/12 - 12/18	12/18/2021	ND (<0.31)	0.16	0.0022	12/13/2021	6.6	ND (<0.50)	2.7	78	940	0.26	ND(<10)	5	72	--	0.11	1.6	--	0.43	6.2	12/15/2021	43		640		
12/19 - 12/25	12/25/2021	3.7	3.7	0.055	12/20/2021	6.5	ND (<0.50)	26	49	1,400	0.25	ND(<10)	5	58	--	0.092	1.1	--	0.48	5.6	12/22/2021	ND (<5.0)	2.5	39		
12/26 - 1/1	1/1/2022	ND (<0.31)	0.16	0.0024	12/27/2021	6.5	ND (<0.50)	1.7	23	450	0.26	ND(<10)	5	78	--	0.091	1.4	--	0.34	5.3	12/29/2021	ND (<5.0)	2.5	39		
1/2 - 1/8	1/8/2022	ND (<0.31)	0.16	0.0024	1/3/2022	7.0	ND (<0.50)	4.8	11	910	0.35	14		220	--	0.13	2.0	--	0.47	7.4	1/5/2022	ND (<5.0)	2.5	39		
1/9 - 1/15	1/15/2022	0.61 J	0.61	0.0094	1/10/2022	7.4	ND (<0.50)	2.2	38	600	0.41	ND(<10)	5	78	--	0.18	2.8	--	0.25	3.9	1/12/2022	ND (<5.0)	2.5	38		
1/16 - 1/22	1/22/2022	0.52 J	0.52	0.0081	1/17/2022	7.2	ND (<0.50)	12	55	1,100	0.64	19		301	--	0.16	2.5	--	0.73	12	1/19/2022	ND (<5.0)	2.5	39		
1/23 - 1/29	1/29/2022	1.5	1.5	0.023	1/24/2022	7.0	ND (<0.50)	1.4	61	530	0.63	ND(<10)	5	78	--	0.10	1.6	--	0.34	5.3	1/26/2022	ND (<5.0)	2.5	39		
1/30 - 2/5	2/5/2022	3.8	3.8	0.059	1/31/2022	7.2	ND (<0.50)	3.1	56	720	0.88	ND(<10)	5	78	--	0.084	1.3	--	0.41	6.4	2/2/2022	ND (<5.0)	2.5	40		
2/6 - 2/12	2/12/2022	ND (<0.31)	0.16	0.0024	2/7/2022	7.5	ND (<0.50)	4.2	69	730	1.6	16		249	--	0.17	2.7	--	0.38	5.9	2/9/2022	ND (<5.0)	2.5	41	2/9/2022	3,800
2/13 - 2/19	2/19/2022	3.9	3.9	0.056	2/14/2022	6.8	ND (<0.50)	2.1	69	840	0.94	13		191	--	0.25	3.7	--	0.40	5.9	2/16/2022	ND (<5.0)	2.5	36		
2/20 -2/26	2/26/2022	0.91 J	0.91	0.013	2/22/2022	7.3	ND (<0.50)	2.5	65	1,000	1.4	21		302	--	0.18	2.6	--	0.42	6.0	2/23/2022	ND (<5.0)	2.5	36		
2/27 - 3/5	3/5/2022	ND (<0.31)	0.16	0.0020	2/28/2022	7.2	ND (<0.50)	7.4	78	1,200	1.6	16		222	--	0.10	1.4	--	0.46	6.4	3/2/2022	ND (<5.0)	2.5	34		
3/6 - 3/12	3/12/2022	7.4	7.4	0.097	3/7/2022	7.2	ND (<0.50)	1.1	85	1,200	1.9	14		191	--	0.23	3.1	--	1.2	16	3/9/2022	ND (<5.0)	2.5	32		
3/13 - 3/19	3/19/2022	ND (<0.31)	0.16	0.0020	3/14/2022	6.5	ND (<0.50)	1.1	50	860	1.1	13		173	--	0.076	1.0	--	0.43[+]	5.7	3/16/2022	ND (<5.0)	2.5	37		
3/20 - 3/26	3/26/2022	1.6	1.6	0.021	3/21/2022	7.1	ND (<0.50)	1.8	170	660	2.9	ND(<10)	5	74	--	0.053	0.79	--	0.40	5.9	3/23/2022	ND (<5.0)	2.5	37		
3/27 - 4/2	4/2/2022	NA	NA	NA	3/28/2022	6.7	ND (<0.50)	2.1	160	820	2.5	15		230	--	0.074	1.1	--	0.45	6.9	3/30/2022	ND (<5.0)	2.5	NA		
					4/4/2022	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	4/6/2022	NA		NA		

Note: All analytical responsibilities are performed by TestAmerica Laboratories, Inc. (TestAmerica) in Irvine, California, 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)
-- = 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: April 8, 2022

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	Pumped water from the well vaults on PC-121 and PC-120 after the increase of the seep well field level.
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			
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		2	Replaced the .5 hp motor on I-L.
4.02		*Ferrous Sulfate Feed System*	Running		4	Replaced the tubing on the pump head.
4.03		*Polymer Feed System*	Running			
4.04		*Clarifier*	In operation			
4.05		*Filter Press*	Running		2	Installed a new air regulator that feeds the hydraulic pump.
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		1	The pig launcher piping split causing a slow leak in containment. The pipe was removed and a new spool piece was installed while a new section of pipe Was assembled. The new piping section was installed.
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*			2	Assembled hardware to assist in pulling the motor away from the pump.
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			
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			
7.04	PID01B	*Media Return Pump - P2012*	Running			
7.05	PID01B	*First Stage FBR Pump - P1013*	Running			

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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
7.06	PID01B	*First Stage FRB Pump - P1014*	Running		1	Replaced the leaking spool pipe on the discharge along with the check valve.
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			
8.04	PID03A	*Media Return Pump - P3011*	Running		3	Installed a new sight glass for the discharge of 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			
9.04	PID03B	*Media Return Pump - P3012*	Running		3	Installed a new sight glass for the discharge of the pump.
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			

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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
9.13	PID07B	*FBR 8 Electron Donor Assembly Pump - P738*	Running			
10		**Aeration and DAF System**				
10.01	PID04	*Aeration Tank*	In operation			
10.02	PID04	*Aeration Blower - B401*	Running			
10.03	PID04	*Bio filter*	In operation			
10.04	PID04	*Nutrient Solution*	Running			
10.05	PID04	*Bio filter Sump*				
10.06	PID04	*Nutrient Pump - P401*	Running			
10.07	PID04	*Bio filter Sump Pump - P402A*	Standby			
10.09	PID04	*Bio filter Blower*	Running			
10.10	PID05	*DAF Pressure Tanks*	In operation		4	Installed new sight glasses for the level control system.
10.11	PID05	*DAF Vessel - D501*	Running			
10.12	PID05	*DAF Pressure Pump - P501*	Running			
10.13	PID05	*DAF Float Pump - P502*	Running			
10.14	PID05	*DAF Vessel - D551*	Running			
10.15	PID05	*DAF Pressure Pump - P551*	Running			
10.16	PID05	*DAF Float Pump - P552*	Running		3	Pulled and replaced the sludge pump due to a broken shaft.
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*				
12.02	PID17	*Filter Reject Tank*	In operation			
12.03	PID17	*Filter Reject Pump - P1701A*	Standby			
12.04	PID17	*Filter Reject Pump - P1701B*	Running			
13		**Effluent Tank and Pumping**				
13.01	PID10C	*UV Effluent Tank*	Running			
13.02	PID10C	*Effluent Booster Pump - P1302A*	Running			
13.03	PID10C	*Effluent Booster Pump - P1302B*	Standby			
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			
14.02	PID16	*Solids Storage Effluent Pump - P1601*	Running		3	The level sensor failed. A sight glass was installed. A new radar sensor was then installed as well.
14.03	PID16	*Solids Cond. Tank*	In operation			

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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
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		2	The press was offline to be pressure washed.
14.08	PID09	*East Press*	Running			
14.09	PID09	*Filtrate Tank*	In operation		1	Installed a new valve with a chain fall for safer access to divert the flow as needed.
14.10	PID09	*Filtrate Tank Effluent (recycle) Pump - P903*	Running		3	The seal is leaking from the pump end. New parts have been ordered.
		Chemical Systems				
15		**Electron Donor System**				
15.01	PID07B	*Electron Donor Tank*	In operation			
15.02	PID07B	*Booster Pump P739A*	Running			
15.03	PID07B	*Booster Pump P739B*	Standby			
17	PID07C	*Micro Nutrient System*	In operation			
18	PID07C	*Hydrogen Peroxide System*	In operation			
19	PID07C	*De-Foam System*	In operation			
20	PID15	*Nutrient (Phosphoric Acid) System (Tank only - pumps included in FBRs)*	In operation			
21	PID07A	*Nutrient (Urea) System (Tank only - pumps included in FBRs)*	In operation			
22	PID07A	*pH System (Tank and effluent pH feed pump only - other pumps included in FBRs)*	In operation			
23	PID07C	*Ferric Chloride*	In operation			
24	PID07B	*Polymer Systems - DAF*	In operation			
25	PID09	*Polymer System - Solids Dewatering (2 tanks, 2 centrifugal pumps, mixer, volumetric feeder)*	In operation			
		Utility Systems				
26		**Compressed Air System**				
26.01	PID08	*West Compressor*	Running			
26.02	PID08	*East Compressor*	Running			
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			
26.07	PID08	*Particulate Filter*	In operation			
27	PID16	*Oxygen System*	In operation			

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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
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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Attachment C

Facility Repair/Replacement Project Status

GWETS AMENDMENT 8 REPAIR/REPLACEMENT STATUS

PREPARED BY NEVADA ENVIRONMENTAL RESPONSE TRUST

	ITEM	RESOLUTION	WORK AUTHORIZATION	STATUS AS OF 3/31/22
1	Dissolved Air Floatation (DAF) Vessels	ETI to pilot an alternate technology (AquaDisk filters) and make a recommendation	ETI WA 22-01 $58,203 *Executed 1/13/22*	Work has started, ordered parts and services. Tentative date of delivery 4/19/22 & operational by 4/22/22.
2	DAF Pump Skid Rebuild	On-hold pending outcome of DAF pilot and evaluation of plant hydraulics	N/A	N/A
3	Main Influent Pipeline Air/Vacuum Release Valves	ETI to replace valves and valve boxes as required	ETI WA 21-06 $40,535 *Executed 12/21*	Work started but delayed due to seeping groundwater conditions at the Seep Well Field caused by the City's use of numerous previously unused infiltration ponds.
4	In-kind Replacement of GWTP	GWTP replacement not required due to design/build of Chromium Treatment Subsystem	N/A	N/A
5	Wiring at Lift Station #3 (controls)	ETI to replace wiring as required	ETI WA 21-03 $60,035 *Executed 11/21*	90% of the work in field is complete, awaiting AC units (a long lead item). Anticipating a May 2022 completion.
6	Wiring at Lift Station #1 (wells)	Project on hold due to potential modification of the SWF with ROD or due to Cadence Sports Park. NERT will authorize interim repairs if necessary.	N/A	N/A
7	Motor Control Center at Lift Station #1	ETI to replace as required	ETI WA 21-04 $186,315 *Executed 12/21*	Work started, but delayed due to City flooding the seep area, also impacting Lift Station 1. MCC & major equipment has been delivered.
8	IWF Wiring	ETI to replace as required	ETI WA 21-08 $436,481 *Executed 12/21*	New wire has been installed at the wells, awaiting new starters to be delivered. Expected delivery April/May timeframe. Getting ready to run the new power line from the D-1 Building.
9	FBR Skid Equipment Replacements	ETI to replace what is immediately required in lieu of complete replacements	ETI WA 22-04 $142,061 *Executed 2/4/22*	Equipment is on order and starting to arrive onsite.
10	Influent / Effluent Pump Motors	ETI to procure additional motors for more frequent rotation	ETI WA 22-03 $31,800 *Executed 2/4/22*	Equipment is on order, awaiting delivery.
11	Overhaul Lift Station #2 West Wet Well Turbine	ETI to overhaul as required	ETI WA 22-07 $97,304 *Executed 3/7/22*	Equipment is on order, awaiting delivery.

GWETS AMENDMENT 8 REPAIR/REPLACEMENT STATUS

PREPARED BY NEVADA ENVIRONMENTAL RESPONSE TRUST

ITEM		RESOLUTION	WORK AUTHORIZATION	STATUS AS OF 3/31/22
12	Replacement of Safety Showers	ETI to replace safety shower system in batches over ~2 years	ETI WA 21-05 $131,899 *Executed 11/21*	6 of the 11 showers have been installed, the 3rd phase is set to be completed in May.
13	East Air Compressor	ETI to replace as required	ETI WA 21-02 $29,784 *Executed 10/21*	Compressor installed. Project complete.
14	pH and ORP Probes	ETI to replace certain probes as required throughout FBR plant	ETI WA 21-07 $108,893 *Executed 11/21*	Procurement and installation planning underway. Estimated completion by June 2022
15	Exterior Shell of Ethanol Storage Tank	ETI to repair as required	-	Submittal of draft Work Authorization for Trust review by 6/30/22.
16	FBR Containment Pad Concrete	ETI to monitor status of affected areas. NERT will authorize interim repairs if necessary.	N/A	N/A
17	Siemens Control System Repairs	Spare parts and software updates to be procured in lieu of a complete system replacement.	ETI WA 21-09 $103,061 *Executed 11/21*	Procurement and installation planning underway. Spare parts currently arriving. Work expected to be completed by 6/30.
18	Sludge Pump and Sludge Bins	ETI to replace as required	ETI WA 22-02 $102,183 *Executed 2/7/22*	Equipment is on order and starting to arrive onsite.
19	Lift Station Repairs	ETI to replace as required	ETI WA 22-05 $20,738 *Executed 2/4/22*	Equipment is on order and starting to arrive onsite.
20	D-1 Asbestos Evaluation	NERT to complete an asbestos survey	TT WA 21-12 $7,400 *Executed 11/21*	Survey complete. Report complete and forwarded to ETI.