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:	October 20, 2020
Subject:	NERT – GWETS Operation Monthly Report – September 2020

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 September 2020.

Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS and ion exchange (IX) system normally in September 2020. 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 179 gallons per minute (gpm). The flow rate to the FBR plant averaged approximately 1,038 gpm during September 2020. At the end of the month, the GW-11 Pond volume was at 34.4 million gallons (MG), which would allow 19.5 days of available additional storage in the event of an emergency FBR plant shutdown with continued well field pumping. The water volume stored in the GW-11 Pond decreased by 0.4 MG from the end of August 2020. 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 0.28 mg/L for the month. The influent perchlorate concentration to the FBR plant averaged 59 mg/L for the month, with a maximum concentration of 63 mg/L. In comparison, the influent perchlorate concentration to the FBRs for the month of August 2020 averaged 59 mg/L, with a maximum concentration of 64 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 September.

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

- Well Shutdown of Interceptor Well Field (IWF) occurred on September 2, 2020 from 10:36am to 11:01am due to maintenance activities on the discharge piping for pump P-1A for the purposes of bypassing the Degassifier tank in order to conduct maintenance on the tank walls. Maintenance completed the bypass and the well field was brought back online.
- Well Shutdown of IWF occurred intermittently on September 4, 2020 from 9:03am to 9:11am, 1:11pm to 1:24pm, and 5:10pm to 5:15pm due to ongoing maintenance activities on the discharge piping for pump P-1A. Bypassing the Degassifier tank changed the flow characteristics for the GWTP. Adjustments were made and the well field was brought back online.
- Well Shutdown of IWF occurred on September 6, 2020 from 11:46am to 11:54am due to ongoing maintenance activities on the discharge piping for pump P-1A. Bypassing the Degassifier tank changed the flow characteristics for the GWTP. Adjustments were made and the well field was brought back online.
- Effluent diversion to GW-11 occurred on September 5, 2020 from 11:30pm to September 6, 2020 at 5:32am due to low GW-11 pond level. Approximately 382,000 gallons of water were diverted to GW-11.
- Well Shutdown of IWF occurred intermittently on September 7, 2020 from 5:50am to 5:56am, 11:53am to 11:59am, 3:52pm to 3:58pm, and 9:19pm to 9:24pm due to ongoing maintenance activities on the discharge piping for pump P-1A. Bypassing the Degassifier tank changed the flow characteristics for the GWTP. Adjustments were made and the well field was brought back online.
- Effluent diversion to GW-11 occurred on September 7, 2020 from 11:38pm to September 8, 2020 at 5:10am due to low GW-11 pond level. Approximately 365,000 gallons of water were diverted to GW-11.
- Well Shutdown of IWF occurred intermittently on September 8, 2020 from 3:57am to 4:03am, 8:00am to 8:05am, 10:21am to 10:28am, 12:26pm to 12:34pm, 2:08pm to 2:14pm, 3:43pm to 3:50pm, 5:20pm to 5:25pm, 6:47pm to 6:56pm, 8:18pm to 8:26pm, 9:46pm to 9:51pm, and 10:43pm to 10:50pm due to ongoing maintenance activities on the discharge piping for pump P-1A. Bypassing the Degassifier tank changed the flow characteristics for the GWTP. Adjustments were made and the well field was brought back online.
- Well Shutdown of Seep Well Field (SWF) occurred on September 8, 2020 from 8:13am to 7:27pm, due to NV Energy power outages. When power was restored the wells were reset and the well field brought back online.
- Effluent diversion to GW-11 occurred on September 8, 2020 from 11:36pm to September 9, 2020

5:38am due to low GW-11 pond level. Approximately 378,000 gallons of water were diverted to GW-11.

- Well Shutdown of IWF occurred intermittently on September 9, 2020 from 1:10am to 1:18am, 1:27am to 1:33am, 2:38am to 2:43am, 3:52am to 3:59am, 5:04am to 5:10am, and 6:14am to 6:24am due to ongoing maintenance activities on the discharge piping for pump P-1A. Bypassing the Degassifier tank changed the flow characteristics for the GWTP. Adjustments were made and the well field was brought back online.
- Effluent diversion to GW-11 occurred on September 9, 2020 from 11:40pm to September 10, 2020 at 4:50am due to low GW-11 pond level. Approximately 340,000 gallons of water were diverted to GW-11.
- Well Shutdown of IWF occurred on September 13, 2020 from 2:59pm to 3:09pm due to ongoing maintenance activities on the discharge piping for pump P-1A. Bypassing the Degassifier tank changed the flow characteristics for the GWTP. Adjustments were made and the well field was brought back online.
- Effluent diversion to GW-11 occurred on September 21, 2020 from 11:19pm to September 22, 2020 4:22 am due to low GW-11 pond level. Approximately 338,000 gallons of water were diverted to GW-11.
- Influent diversion to GW-11 occurred on September 22, 2020 from 5:18am to 5:31am due to maintenance activities on the effluent pipeline. Approximately 14,000 gallons of water were diverted to GW-11.
- Effluent diversion to GW-11 occurred on September 22, 2020 from 2:03pm to 2:22pm due to maintenance efforts on the Sand Filter. Approximately 20,000 gallons of effluent were diverted to GW-11.
- Effluent diversion to GW-11 occurred on September 25, 2020 from 11:35pm to September 26, 2020 5:00am due to low GW-11 pond level. Approximately 351,000 gallons of water were diverted to GW-11.
- Effluent diversion to GW-11 occurred on September 29, 2020 from 11:26pm to September 30, 2020 5:07am due to low GW-11 pond level. Approximately 371,000 gallons of water were diverted to GW-11.

3. Spills

There were no reportable spills in the month of September.

4. Maintenance

- Major maintenance performed by ETI in the month included:

I. The combo valves were taken apart and cleaned and put back into service.
II. Replaced the flow meters on IWF extraction wells I-M and I-U. Installed a new .5 hp motor and fuses on IWF extraction well I-F.
III. Continued to replace the o - rings on the GWTP filter press plates.
IV. Replaced the piping on the discharge of the booster pump.
V. Replaced the wiring on the pond corner pumps.
VI. Drained the sand filter to clear out the sand cleaners from the airlifts.

VII. Replaced the West D-1 building sump pump with a larger pump and new larger piping.
VIII. Rebuilt the bed height pumps on FBRs A, 1, and 2.
IX. Changed the impeller on the LS1 flowmeter.
X. Installed a new wheel on the GW-11 emergency exit gate.

- Preventative Maintenance completed or being performed by ETI in the month included:

I. Changed the oil on the LS2 turbine.
II. Cleaned the filters on the LS3 A/C's.
III. Replaced the belts on the D-1 exhaust vents.
IV. Flushed the North D-1 building sump pit.
V. Flushed the ORP lines.
VI. Conducted the infrared checks on the MCC buckets.
VII. Cleaned the strainers on the FBR recycle pumps.
VIII. Greased the recycle pump motors.
IX. Inspected the front gate rollers and drive system.

GWETS Upgrades and Facility Projects

Unit 4 Chromium Water Treatment Plant – Envirogen received comments regarding the deliverable documents that were submitted to the Trust in July 2019 for this project. The revised documents dealing with the Controls Specification, Process Drawings, and Mechanical Details were re-submitted to the Trust in September. Envirogen is awaiting further direction from the Trust regarding this matter. The Trust has advised Envirogen that this project is on hold pending finalization and approval of the forthcoming Unit 4 Source Area In-Situ Bioremediation Work Plan.

GWETS Extension –The signed Work Authorization for engineering and fabrication of the GWETS Extension was returned to the Trust on January 28, 2020. Orders have been placed for the major equipment for the GWETS Extension with deliveries expected during the third and fourth quarters of 2020. Envirogen is currently awaiting Trust comment on the O&M Work Authorization proposal for the GWETS Extension.

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]	734[3]	8.0	0.0030	0.0027
AWF Total Extraction[1]	470[3]	66	0.15	0.15
IWF Total Extraction[1]	59[3]	460	6.6	6.7
AP Area Total Extraction[1]	10.1[3]	648	0.142	0.147
GWTP Effluent[2]	62	466	0.42	ND
GW-11 Influent[1]	0.14	61	0.11	0.004
FBR Influent[2]	1,038	59	0.024	0.016

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	2,115	0.81	0.73
AWF Total Extraction	11,119	25	25
IWF Total Extraction	9,825	140	143
AP Area Total Extraction	2,352	0.51	0.53
GWTP Effluent	10,349	9.4	ND
GW-11 Influent	3.1	0.006	0.0002
FBR Influent[1]	22,286	8.9	6.0

Notes:

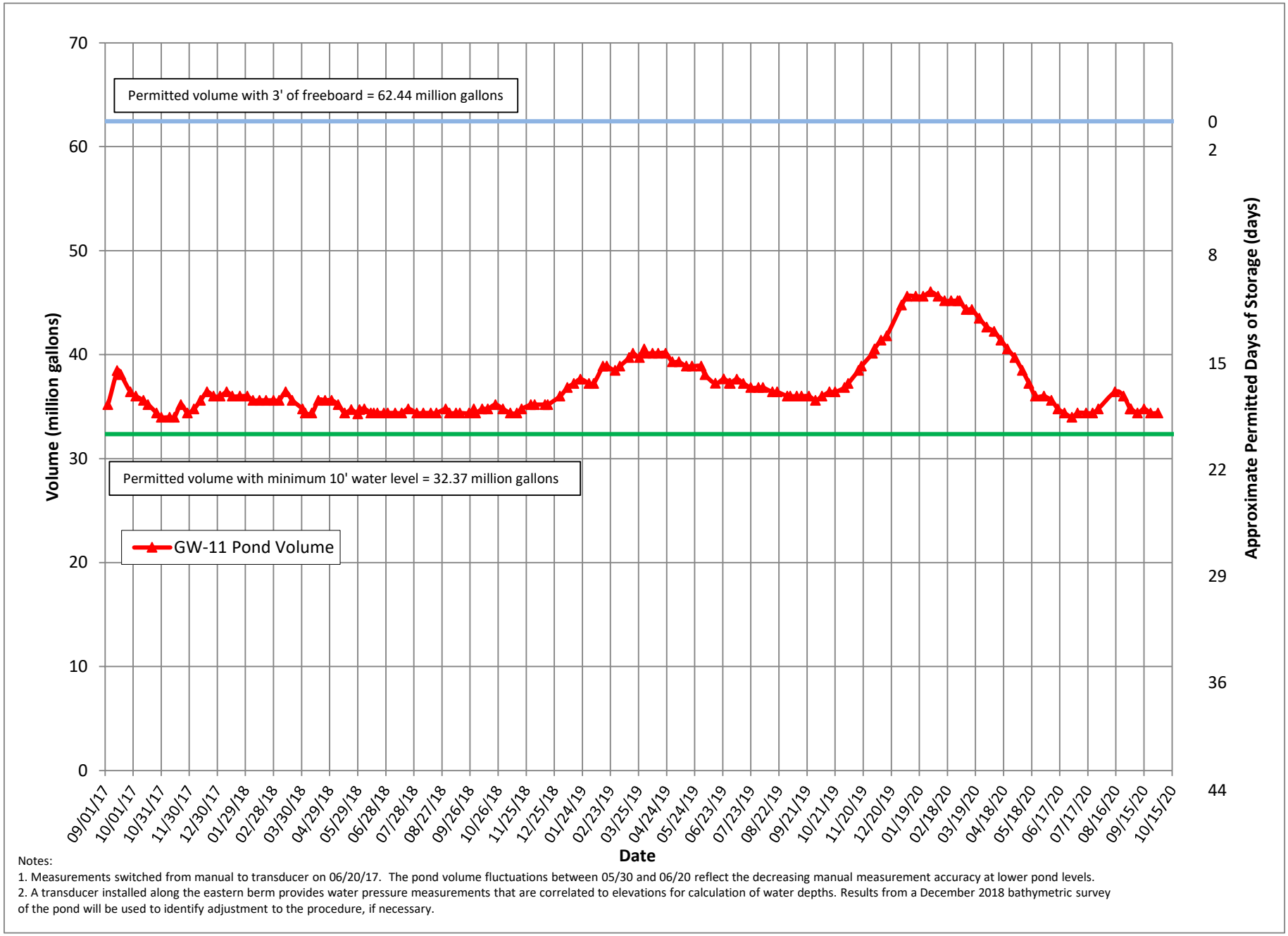
TR = Total Recoverable; NA = Not Analyzed.

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 9/30/2020

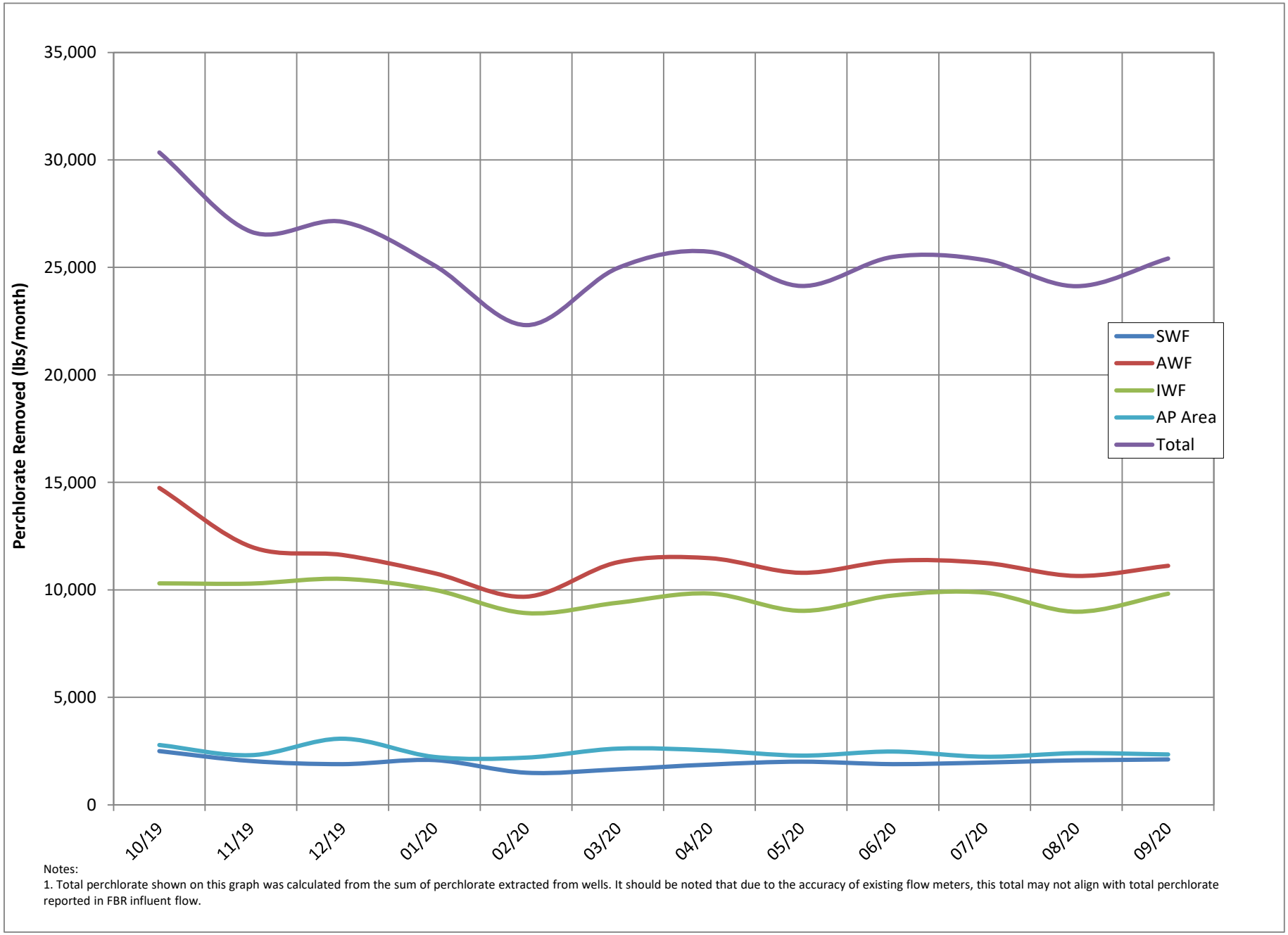


Notes:

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: 10/7/2020

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: 10/15/2020

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 2020	1.82	1.89	3	0.04	6.61	6.87	1.1	19	290	540	0.85	5.0	80	6	3.3	1.3	2.1	20	
February 2020	1.85	1.91	ND (<2.5)	0.019	6.68	6.91	ND (<0.25)	7.6	170	980	1.1	4.9	70	2.3	1.6	ND (<2.0)	ND (<2.0)	16	4,100
March 2020	1.86	1.91	ND (<2.5)	0.019	6.55	7.11	0.36	5.4	220	1,100	ND (<0.50)	7	110	1.3	1.7	ND (<2.0)	ND (<2.0)	15	
April 2020	1.85	1.88	ND (<2.5)	0.019	6.59	7.12	ND (<0.25)	6.4	160	1,300	ND (<0.50)	12	180	1.0	1.3	1.6	2.6	24	
May 2020	1.81	1.91	ND (<2.5)	0.019	6.51	6.98	ND (<0.25)	7.4	160	830	11	9	130	10	2.4	1.6	3.3	24	4,500
June 2020	1.73	1.88	ND (<2.5)	0.018	6.66	7.01	ND (<0.25)	7.5	160	820	1.1	8	120	4.5	1.3	2.0	4.0	27	
July 2020	1.62	1.87	ND (<2.5)	0.017	6.49	7.12	ND (<0.25)	5.8	150	930	1.6	7	80	8	2.0	3.4	8.7	52	
August 2020	1.65	1.85	ND (<2.5)	0.017	6.72	7.26	ND (<0.25)	17	100	1,000	6.4	8	90	7	1.3	ND (<2.0)	ND (<2.0)	13	4,100
September 2020 (month to date)	1.75	1.90	2.0	0.029	6.71	7.17	ND (<0.25)	7.0	120	1,100	2.1	8	120	1.4	1.5	2.5	4.3	32	

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
12/29 - 1/4	1/4/2020	4.4	4.4	0.063	12/30/2019	6.63	ND (<0.25)	4.6	300	63	4.5	14	196	--	4.5	63	--	0.27	3.8	12/30/2019	ND (<2.0)	1.0	14		
1/5 - 1/11	1/11/2020	12, <0.079	6	0.09	1/6/2020	6.61	ND (<0.25)	2.7	290	58	0.85	4.9	70	--	0.85	12	--	0.22	3.1	1/8/2020	ND (<2.0)	1.0	15		
1/12 - 1/18	1/18/2020	ND (<2.5)	1.3	0.019	1/13/2020	6.63	ND (<0.25)	19	210	66	ND (<0.50)	3.2	49	--	0.25	3.8	ND(<0.025)	0.013	0.19	1/15/2020	ND (<2.0)	1.0	16		
1/19 - 1/25	1/25/2020	ND (<2.5)	1.3	0.019	1/20/2020	6.87	ND (<0.25)	5.8	210	140	ND (<0.50)	9.2	142	--	0.16	2.5	--	0.12	1.9	1/22/2020		2.1	32		
1/26 - 2/1	2/1/2020	ND (<2.5)	1.3	0.019	1/27/2020	6.76	1.1	ND (<2.5)	200	540	ND (<0.50)	2.7	41	--	0.35	5.4	--	0.51	7.8	1/29/2020	ND (<2.0)	1.0	15		
2/2 - 2/8	2/8/2020	ND (<2.5)	1.3	0.019	2/3/2020	6.91	ND (<0.25)	3.3^{+} 3.0	150	980	1.1	6.7	103	--	0.11	1.7	--	0.093	1.4	2/6/2020	ND (<2.0)	1.0	16	2/4/2020	4,100
2/9 - 2/15	2/15/2020	ND (<2.5)	1.3	0.019	2/10/2020	6.68	ND (<0.25)	7.6	170	820	ND (<0.50)	6.4	97	--	0.18	2.7	--	0.095	1.4	2/12/2020	ND (<2.0)	1.0	15		
2/16 - 2/22	2/22/2020	ND (<2.5)	1.3	0.019	2/17/2020	6.87	ND (<0.25)	4.5	160	510	ND (<0.50)	3.0	46	--	0.15	2.3	--	0.12	1.8	2/19/2020	ND (<2.0)	1.0	15		
2/23 - 2/29	2/29/2020	ND (<2.5)	1.3	0.020	2/24/2020	6.81	ND (<0.25)	3.6	140	770	ND (<0.50)	3.5	54	--	0.17	2.6	--	0.11	1.7	2/26/2020	ND (<2.0)	1.0	16		
3/1 - 3/7	3/7/2020	ND (<2.5)	1.3	0.020	3/2/2020	7.01	ND (<0.25)	4.8	190	920	ND (<0.50)	5.8	91	--	0.17^{++}	2.7	--	0.13	2.0	3/4/2020	ND (<2.0)	1.0	15		
3/8 - 3/14	3/14/2020	ND (<2.5)	1.3	0.019	3/9/2020	6.55	ND (<0.25)	4.7	220	890	ND (<0.50)	6.1	96	--	0.12^{++}	1.9	--	0.11	1.7	3/12/2020	ND (<2.0)	1.0	15		
3/15 - 3/21	3/21/2020	ND (<2.5)	1.3	0.019	3/16/2020	7.11	ND (<0.25)	5.4	190	1,100	ND (<0.50)	11	173	ND (<0.10)	0.05^{++}	0.79	--	0.077	1.2	3/18/2020	ND (<2.0)	1.0	16		
3/22 - 3/28	3/28/2020	ND (<2.5)	1.3	0.019	3/23/2020	6.74	ND (<0.25)	3.6	220	1,000	ND (<0.50)	6.2	97	--	0.14^{++}	1.5	--	0.13	2.0	3/25/2020	ND (<2.0)	1.0	15		
3/29 - 4/4	4/4/2020	ND (<2.5)	1.3	0.019	3/30/2020	6.61	0.36	3.5	140	740	ND (<0.50)	5.5	86	ND (<0.10)	0.05^{++}	0.76	--	0.082	1.3	4/1/2020	ND (<2.0)	1.0	15		
4/5 - 4/11	4/11/2020	ND (<2.5)	1.3	0.019	4/6/2020	7.12	ND (<0.25)	6.2	160	1,200	ND (<0.50)	12	187	--	0.19^{++}	1.9		0.12	1.9	4/8/2020		2.6	41		
4/12 - 4/18	4/18/2020	ND (<2.5)	1.3	0.019	4/13/2020	7.08	ND (<0.25)	6.4	110	1,300	ND (<0.50)	14	217	ND (<0.10)	0.05^{++}	0.77	--	0.063	1.0	4/15/2020		2.2	34		
4/19 - 4/25	4/25/2020	ND (<2.5)	1.3	0.020	4/20/2020	6.93	ND (<0.25)	5.6	150	1,200	ND (<0.50)	13	203	ND (<0.10)	0.05^{++}	0.78	--	0.084	1.3	4/22/2020	ND (<2.0)	1.0	16		
4/26 - 5/2	5/2/2020	ND (<2.5)	1.3	0.019	4/27/2020	6.59	ND (<0.25)	3.3	130	860	ND (<0.50)	8.4	129	ND (<0.10)	0.05^{++}	0.77	--	0.074	1.1	4/29/2020	ND (<2.0)	1.0	15		
5/3 - 5/9	5/9/2020	ND (<2.5)	1.3	0.019	5/4/2020	6.98	ND (<0.25)	7.4^{+} 4.0	160	440	ND (<0.50)	5.1	81	--	0.15^{++}	10.1	--	0.083	1.3	5/6/2020	ND (<2.0)	1.0	16	5/7/2020	4,500
5/10 - 5/16	5/16/2020	ND (<2.5)	1.3	0.020	5/11/2020	6.51	ND (<0.25)	6.8	150	690	ND (<0.50)	9.4	146	--	0.14	2.2	--	0.12	1.9	5/13/2020	ND (<2.0)	1.0	16		
5/17 - 5/23	5/23/2020	ND (<2.5)	1.3	0.019	5/18/2020	6.98	ND (<0.25)	4.6	140	600	1.9	6.1	94	--	1.9	29	--	0.20	3.1	5/20/2020	ND (<2.0)	1.0	15		
5/24 - 5/30	5/30/2020	ND (<2.5)	1.3	0.017	5/26/2020	6.98	ND (<0.25)	6.6	120	830	11	14	208	--	0.51	7.6	--	0.22	3.3	5/27/2020		3.3	50		
5/31 - 6/6	6/6/2020	ND (<2.5)	1.3	0.018	6/1/2020	6.80	ND (<0.25)	7.5	110	740	0.58	11	162	--	0.58	8.5	--	0.12	1.8	6/3/2020		2.1	32		
6/7 - 6/13	6/13/2020	ND (<2.5)	1.3	0.018	6/9/2020	6.66	ND (<0.25)	3.8	110	410	ND (<0.50)	4.6	69	--	0.18	2.7	--	0.073	1.1	6/10/2020	ND (<2.0)	1.0	15		
6/14 - 6/20	6/20/2020	ND (<2.5)	1.3	0.019	6/15/2020	6.87	ND (<0.25)	5.3	150	820	1.1	7.8	117	--	0.16	2.4	--	0.013	0.19	6/17/2020	ND (<2.0)	1.0	15		
6/21 - 6/27	6/27/2020	ND (<2.5)	1.3	0.017	6/22/2020	6.92	ND (<0.25)	7.3	160	780	ND (<0.50)	8.4	125	--	0.26	3.9	--	0.12	1.8	6/24/2020		4.0	44		
6/28 - 7/4	7/4/2020	ND (<2.5)	1.3	0.017	6/29/2020	7.01	ND (<0.25)	5.9	99	710	ND (<0.50)	9.9	145	--	0.33	4.8	--	0.12	1.8	7/1/2020	ND (<2.0)	1.0	15		
7/5 - 7/11	7/11/2020	ND (<2.5)	1.3	0.017	7/6/2020	6.98	ND (<0.25)	5.8	87	930	1.6	12	146	--	1.6	20	--	0.25	3.1	7/8/2020	ND (<2.0)	1.0	15		
7/12 - 7/18	7/18/2020	ND (<2.5)	1.3	0.017	7/13/2020	6.49	ND (<0.25)	4.1	120	680	ND (<0.50)	7.2	84	--	0.30	3.5	--	0.089	1.04	7/15/2020		2.5	38		
7/19 - 7/25	7/25/2020	ND (<2.5)	1.3	0.016	7/20/2020	7.10	ND (<0.25)	4.7	110	470	0.51	3.9	60	--	0.51	7.8	--	0.096	1.5	7/22/2020		3.8	59		
7/26 - 8/1	8/1/2020	ND (<2.5)	1.3	0.017	7/27/2020	7.12	ND (<0.25)	ND (<2.5)	150	510	ND (<0.50)	3.2	48	--	0.16	2.4	--	0.150	2.2	7/29/2020		8.7	133		
8/2 - 8/8	8/8/2020	ND (<2.5)	1.3	0.015	8/3/2020	6.72	ND (<0.25)	3.6	94	730	ND (<0.50)	8.1	98	--	0.20	2.4	--	0.077	0.93	8/5/2020	ND (<2.0)	1.0	12		
8/9 - 8/15	8/15/2020	ND (<2.5)	1.3	0.016	8/10/2020	6.86	ND (<0.25)	6.0* 9.6	100	1,000	6.4	19	170	--	6.4^{++}	57	--	0.35	3.1	8/12/2020	ND (<2.0)	1.0	10	8/10/2020	4,100
8/16 - 8/22	8/22/2020	ND (<2.5)	1.3	0.019	8/17/2020	7.26	ND (<0.25)	17	85	88	ND (<0.50)	2.8	43	--	0.38^{++}	5.8	--	0.11	1.7	8/19/2020	ND (<2.0)	1.0	15		
8/23 - 8/29	8/29/2020	ND (<2.5)	1.3	0.018	8/24/2020	6.76	ND (<0.25)	6.0	57	350	1.1	3.9	60	ND (<0.10)	0.05^{++}	0.77	--	0.039	0.60	8/26/2020	ND (<2.0)	1.0	15		
8/30 - 9/5	9/5/2020	ND (<2.5)	1.3	0.019	8/31/2020	6.91	ND (<0.25)	4.4	81	610	1.2	6.3	96	--	0.13^{++}	2.0	ND(<0.025)	0.013	0.19	9/2/2020		4.3	66		
9/6 - 9/12	9/12/2020	1.2	1.2	0.016	9/9/2020	6.71	ND (<0.25)	4.0	110	530	2.1	6.6	72	--	0.15	1.6	ND(<0.025)	0.013	0.14	9/9/2020	ND (<2.0)	1.0	11		
9/13 - 9/19	9/19/2020	3.9	3.9	0.059	9/14/2020	6.78	ND (<0.25)	5.4	100	810	ND (<0.50)	7.1	108	--	0.11	1.7	--	0.13	2.0	9/16/2020		2.4	36		
9/20 - 9/26	9/26/2020	1.5	1.5	0.022	9/21/2020	6.86	ND (<0.25)	7.0	120	1,100	ND (<0.50)	12	186	--	0.10	1.6	--	0.13	2.0	9/23/2020	ND (<2.0)	1.0	15		
9/27 - 10/3	10/3/2020	NA	NA	NA	9/28/2020	7.17	ND (<0.25)	4.5	110	670	ND (<0.50)	6.2	95	ND (<0.10)	0.05	0.77	--	0.12	1.8	9/30/2020		4.0	NA		
					10/5/2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10/7/2020		NA	NA		

Note: All analytical responsibilities are performed by TestAmerica Laboratories, Inc. (TestAmerica) in Irvine, California, unless otherwise indicated.
$^{+}$ Additional Quarterly sample collected this week.
$^{++}$ Additional samples were collected and analyzed for ammonia during this week and results were included in the 30-day average loading calculation.
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)
J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.
-- = 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: October 9, 2020

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		1	Power loss from NV Energy caused the LS to go down. Once the power was re-established by NV Energy the LS was back online.
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	The combo valves were taken apart and cleaned and put back into service.
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		3	Replaced the flow meter on I-M and on I-U. installed a new .5 hp motor and fuses on I-F
4.02		*Ferrous Sulfate Feed System*	Running			
4.03		*Polymer Feed System*	Running			
4.04		*Clarifier*	In operation			
4.05		*Filter Press*	Running		2	The O-rings are continuing to be replaced on the plates.
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		2	The piping was replaced on the discharge of the booster pump.
5		**Equalization Area and GW-11 Pond**				
5.01	PID10A	*Pond GW-11*	In operation		3	The wiring was replaced on the pond corner pumps.
5.02	PID10A	*Pond Water Pump - P101A*	Running			
5.03	PID10A	*Pond Water Pump - P101B*	Standby			
5.04	PID10A	*Equalization Tanks*	In operation			

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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	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*	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*			1	The overload was replaced as well as the fuses. The seal water solenoid was also replaced.
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			

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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
7.03	PID02B	*First Stage Separator Tank - T2012*	Running			
7.04	PID01B	*Media Return Pump - P2012*	Running			
7.05	PID01B	*First Stage FBR Pump - P1013*	Running			
7.06	PID01B	*First Stage FRB Pump - P1014*	Running			
7.07	PID01B	*First Stage FBR Pump - P102A*	Running			
7.08	PID07A	*FBR 3 pH Feed Pump - P713*	Running			
7.09	PID07A	*FBR 4 pH Feed Pump - P714*	Running			
7.10	PID07A	*FBR 3 Nutrient (Urea) Feed Pump - P723*				
7.11	PID07A	*FBR 4 Nutrient (Urea) Feed Pump - P 724*	Off			
7.12	PID15	*FBR 3 Nutrient (Phos Acid) Feed Pump - P1523*	Running			
7.13	PID15	*FBR 4 Nutrient (Phos Acid) Feed Pump - P1524*	Running			
7.14	PID07B	*FBR 3 Electron Donor Assembly Pump - P733*	Running			
7.15	PID07B	*FBR 4 Electron Donor Assembly Pump - P734*	Running			
8		**Second Stage FBRs 5** & 6				
8.01	PID03A	*FBR 5*	Running			
8.02	PID03A	*FBR 6*	Running			
8.03	PID03C	*Second Stage Separator Tank - T3011*	Running			
8.04	PID03A	*Media Return Pump - P3011*	Running			
8.05	PID03A	*Second Stage FBR Pump - P3015*	Running			
8.06	PID03A	*Second Stage FBR Pump - P3016*	Standby			
8.07	PID03A	*Second Stage FBR Pump - P301A*	Running			
8.08	PID07A	*FBR 5 pH Feed Pump - P715*	Off			
8.09	PID07A	*FBR 6 pH Feed Pump - P716*	Off			
8.1	PID07A	*FBR 5 Nutrient (Urea) Feed Pump - P725*	Off			
8.11	PID07A	*FBR 6 Nutrient (Urea) Feed Pump - P726*	Off			
8.12	PID07B	*FBR 5 Electron Donor Assembly Pump - P735*	Running			
8.13	PID07B	*FBR 6 Electron Donor Assembly Pump - P736*	Running			
9		**Second Stage FBRs 7** & 8				
9.01	PID03B	*FBR 7*	Running			
9.02	PID03B	*FBR 8*	Running			
9.03	PID03D	*Second Stage Separator Tank - T3012*	Running			
9.04	PID03B	*Media Return Pump - P3012*	Running			
9.05	PID03B	*Second Stage FBR Pump - P3017*	Running			
9.06	PID03B	*Second Stage FBR Pump - P3018*	Running			
9.07	PID03B	*Second Stage FBR Pump - P302A*	Running			
9.08	PID07A	*FBR 7 pH Feed Pump - P717*	Off			

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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			
10		**Aeration and DAF System**				
10.01	PID04	*Aeration Tank*	In operation			
10.02	PID04	*Aeration Blower - B401*	Running		3	The belt was replaced on the motor
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		3	The solenoids were replaced on the tank level blowdown. The level controller was also reset
10.11	PID05	*DAF Vessel - D501*	Running			
10.12	PID05	*DAF Pressure Pump - P501*	Running		2	Replaced the breaker and cover on the pressure pump motor.
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			
11.03	PID06	*Effluent Pump - P602*	Standby			
12		**Sand Filter System**				
12.01	PID17	*Sand Filter*			2	The vessel was drained to clear out the sand cleaners from the airlifts
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			

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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
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		3	The ISEP was replaced with a larger pump and new larger piping.
14		**Solids Collection and Pressing System**				
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			
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			
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			

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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			
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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