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:	Sept 20, 2018
Subject:	NERT – GWETS Operation Monthly Report – August 2018

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 August 2018.

Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS and ion exchange (IX) system normally in August 2018. 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 181 gallons per minute (gpm). The flow rate to the FBR plant averaged approximately 1,005 gpm during August 2018. At the end of the month, the GW-11 Pond volume was at 34.8 million gallons (MG), which would allow 19.2 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 approximately 0.4 MG from the end of July 2018. 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 0.62 mg/L for the month. The influent perchlorate concentration to the FBR plant averaged 106 mg/L for the month, with a maximum concentration of 110 mg/L. In comparison, the influent perchlorate concentration to the FBRs for the month of July 2018 averaged 113 mg/l, with a maximum concentration of 120 mg/l. Fluctuations in the influent perchlorate concentrations are due to the changes in the AP-5 treatment feed rate and not a result of groundwater changes.

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. These tables also include data associated with the AP-5 decant liquids. 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 eleven diversions into GW-11 for the purposes of maintaining the GW-11 elevation level. Below is a description of the events that occurred:

- Effluent Diversion to GW-11 occurred on August 5, 2018 at 11:13pm to 4:30am to maintain the GW-11 elevation level. Approximately 325,000 gallons of Effluent were diverted to GW-11.
- Effluent Diversion to GW-11 occurred on August 7, 2018 at 11:18pm to 3:51am to maintain the GW-11 elevation level. Approximately 287,000 gallons of Effluent were diverted to GW-11.
- Effluent Diversion to GW-11 occurred on August 8, 2018 at 11:19pm to 4:46am to maintain the GW-11 elevation level. Approximately 341,000 gallons of Effluent were diverted to GW-11.
- Effluent Diversion to GW-11 occurred on August 9, 2018 at 11:22pm to 5:22am to maintain the GW-11 elevation level. Approximately 383,000 gallons of Effluent were diverted to GW-11.
- Effluent Diversion to GW-11 occurred on August 11, 2018 at 11:28pm to 5:28am to maintain the GW-11 elevation level. Approximately 378,000 gallons of Effluent were diverted to GW-11.
- Effluent Diversion to GW-11 occurred on August 18, 2018 at 11:18pm to 5:18am to maintain the GW-11 elevation level. Approximately 374,000 gallons of Effluent were diverted to GW-11.
- Effluent Diversion to GW-11 occurred on August 21, 2018 at 11:38pm to 5:28am to maintain the GW-11 elevation level. Approximately 353,000 gallons of Effluent were diverted to GW-11.
- Effluent Diversion to GW-11 occurred on August 26, 2018 at 11:56pm to 5:35am to maintain the GW-11 elevation level. Approximately 365,000 gallons of Effluent were diverted to GW-11.
- Effluent Diversion to GW-11 occurred on August 30, 2018 at 11:00pm to 5:00am to maintain the GW-11 elevation level. Approximately 389,000 gallons of Effluent were diverted to GW-11.

2. Biological Plant

Treatment of AP-5 water through the FBR Biological plant continued in the month of August starting with a flow rate of 1.5 gpm and increasing to a flow rate of 2.0 gpm throughout the month. This flow rate was necessary to maintain compliance with the reduced ammonia loading effluent limits for April through September specified in the NPDES permit.

There was one Influent diversion into GW-11 for maintenance purposes, one event that caused the extraction well fields and associated lift stations to be taken offline, two events that required an extraction well field to be taken offline for maintenance, and one event that required maintenance on an individual extraction well. Below is a description of the events that occurred:

Diversion Events

- Influent Diversion to GW-11 occurred on August 15, 2018 from 7:09am to 3:10pm due to a pre-planned plant shutdown maintenance event. Approximately 500,000 gallons of Influent were diverted to GW-11.

- Unplanned shutdown of the SWF, AWF, and their associated Lift Stations including the IX system at LS1 on August 11, 2018 from 8:42pm to August 11, 2018 11:11pm due to an adverse weather event that disrupted the electrical power supply. The IX system was restarted at 10:33pm.
- Unplanned shutdown of extraction well I-V beginning on August 11, 2018 at 9:48pm until August 12, 2018 at 1:35pm due to damage to the overload switch caused by the adverse weather event of August 11, 2018.
- Unplanned shutdown of the IWF on August 13, 2018 from 11:48am to 3:10pm due to maintenance efforts on the extraction well I-V.
- Shutdown of the IWF on August 22, 2018 from 9:41am to 10:41am due to maintenance efforts at the GWTP including evaluation of the P-1(a) pump and piping and the Clarifier tank.

3. Spills

There were no reportable spills for the month of August.

4. Maintenance

- Major maintenance performed by ETI in the month included:

I. Installed a new 1'' pump for the bed height control for FBR 2.
II. Installed new discharge fittings on extraction well I-AD.
III. Replaced the suction disc on media return pump 1.
IV. Installed a new 1'' pump for the bed height control for FBR A.
V. Replaced the discharge check valve for the effluent caustic pump.
VI. Installed a new VFD for the effluent pump at GWTP.
VII. Installed a new discharge piping on FBR 5.
VIII. Installed new hose fittings, pump, pigtail, and motor in extraction well I-Q.
IX. Replaced the backflush line on the N.DAF sludge pump.
X. Installed a new Stabilized Lake Mead Water line for the wash down system of the DAF sludge boxes.
XI. Installed a new caustic line and fittings on the chemical metering pump.

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

I. Completed the rebuild of the spare bed height and media return pumps.
II. Pressure washed and re assembled the automatic strainers pulling from GW-11.
III. Performed quarterly service on the vertical turbine at lift station 2. This includes temperature readings, vibration tests and lubrication.
IV. Cleaned and re-installed the packing gland on the vertical turbine at lift station 1.
V. Visual inspection, vibration testing, and temperature checks of the coupling inserts were completed on the front stage recycle pumps and effluent pumps.
VI. Completed the infrared checks on all the electrical buckets looking for any loose connections.
VII. The filters were cleaned on the lift station air conditioner units.
VIII. Hampton Tedder (High Voltage Electrical contractor) completed the inspection on the main power switch coming into the plant.
IX. The discharge valves were actuated and serviced for proper function.

GWETS Upgrades and Facility Projects

Alumina Chlorohydrate (ACH) Pilot Study – At the direction of the Trust, ETI performed a pilot study that was completed in July 2018 to evaluate alternative coagulants in an effort to avoid the growth of iron bacteria within the Effluent pipeline. ETI has submitted the pilot report and updated the Operations and Maintenance Manual to include the use of Alumina Chlorohydrate as a coagulant. Following NDEP approval of the Revised Operations and Maintenance Manual, ETI will begin the transition to Alumina Chlorohydrate.

Geo-tube Pilot Study – At the direction of the Trust, ETI performed a pilot study to evaluate the use of Geo-tubes for sludge dewatering to increase the capacity of the Chromium Treatment Plant. The pilot test has been completed and the summary report was submitted to the Trust in July. The Trust is evaluating the findings of the pilot study report and whether infrastructure modifications at the Chromium Treatment Plant are appropriate at this time.

Equipment Availability Tracking

ETI operators continue to update the equipment tracking form on a weekly basis or whenever there is a change in the status of key equipment. During regular site visits, Tetra Tech field personnel verify the entries on the form, including both the operating status and confirmation of the inventory of required shelf spares. The equipment tracking form is included as Attachment B.

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)[6 7]**	**Chromium (TR) (mg/L)[6 7]**	**Chromium(VI) (mg/L)[6 7]**
SWF Total Extraction[1]	735 [5]	8.3	0.0016	0.0016
AWF Total Extraction[1]	466 [5]	76	0.16	0.17
IWF Total Extraction[1]	55 [5]	527	7.5	7.9
AP Area Total Extraction[1]	8.6 [5]	895	0.071	0.065
GWTP Effluent [2]	57	622	0.26	ND
GW-11 Influent[1]	6.7	52	0.37	0.021
FBR Influent[2 3]	1,005	106	0.021	0.016
T-205 Effluent (AP-5 Wash Water)[3 4]	1.8	15,725	NA	NA

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 TestAmerica.

2: Perchlorate, chromium TR and chromium (VI) sampled weekly, values reported from TestAmerica.

3: AP-5 Wash Water perchlorate data is also included in the GW-11 Effluent/ FBR Influent totals.

4: Flow weighted average concentration based on mass flow meter readings.

5: Sum of daily average flow for individual wells.

6: All concentrations reported are monthly flow weighted averages.

7: 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)[3]**	**Chromium (TR) (lbs/month)[3]**	**Chromium (VI) (lbs/month)[3]**
SWF Total Extraction	2,273	0.43	0.44
AWF Total Extraction	13,209	28	30
IWF Total Extraction	10,887	155	162
AP Area Total Extraction	2,885	0.23	0.21
GWTP Effluent	13,157	5.6	ND
GW-11 Influent	130	0.92	0.05
FBR Influent[1]	39,730	7.9	6.0
T-205 Effluent (AP-5 Wash Water)[1 2]	10,292	NA	NA

Notes:

TR = Total Recoverable; NA = Not Analyzed.

1: AP-5 Wash Water perchlorate data is also included in the GW-11 Effluent/ FBR Influent totals.

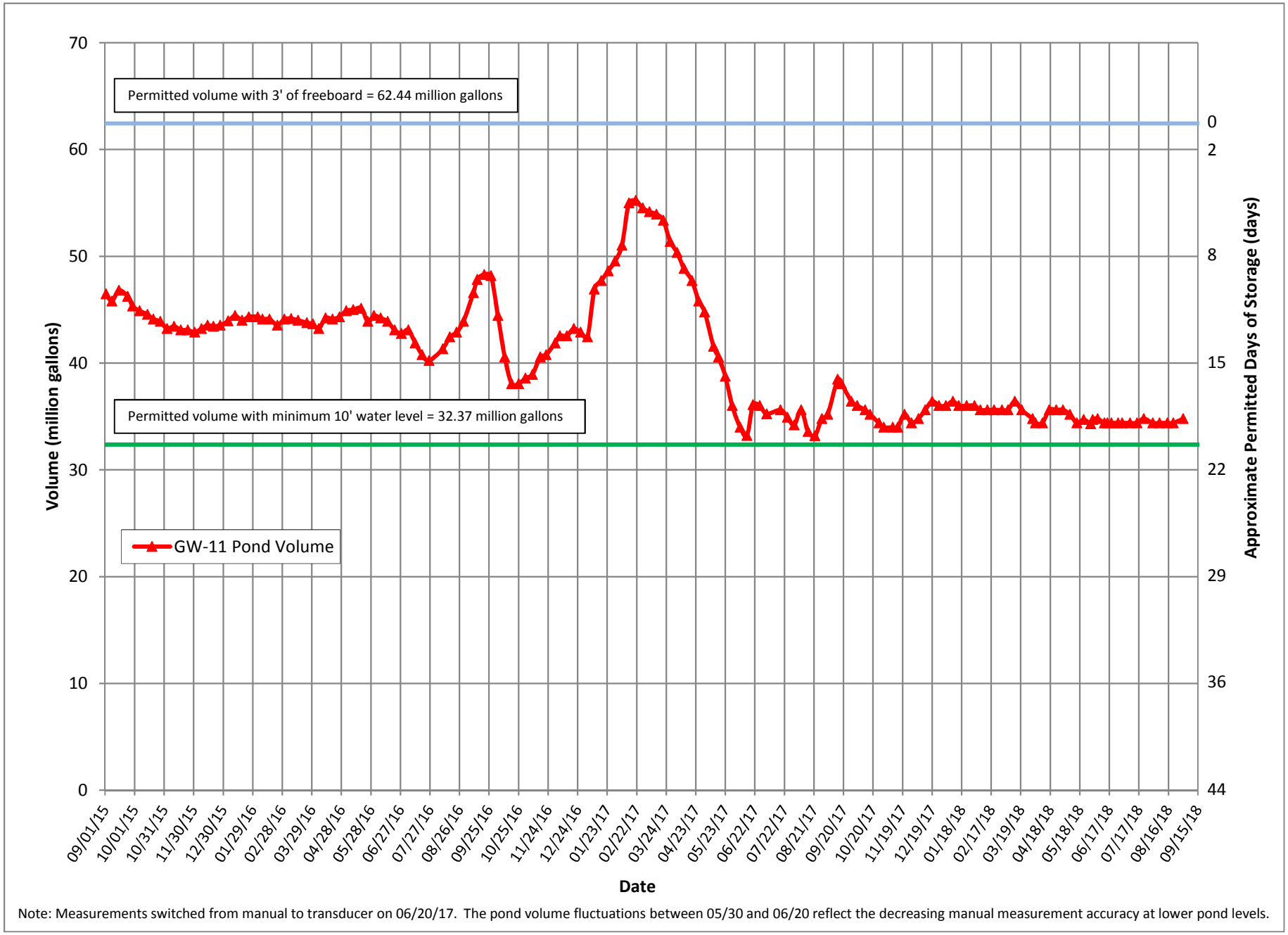
2: AP-5 Wash Water concentrations and mass flux are estimates based on mass flow meter readings.

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

Figures

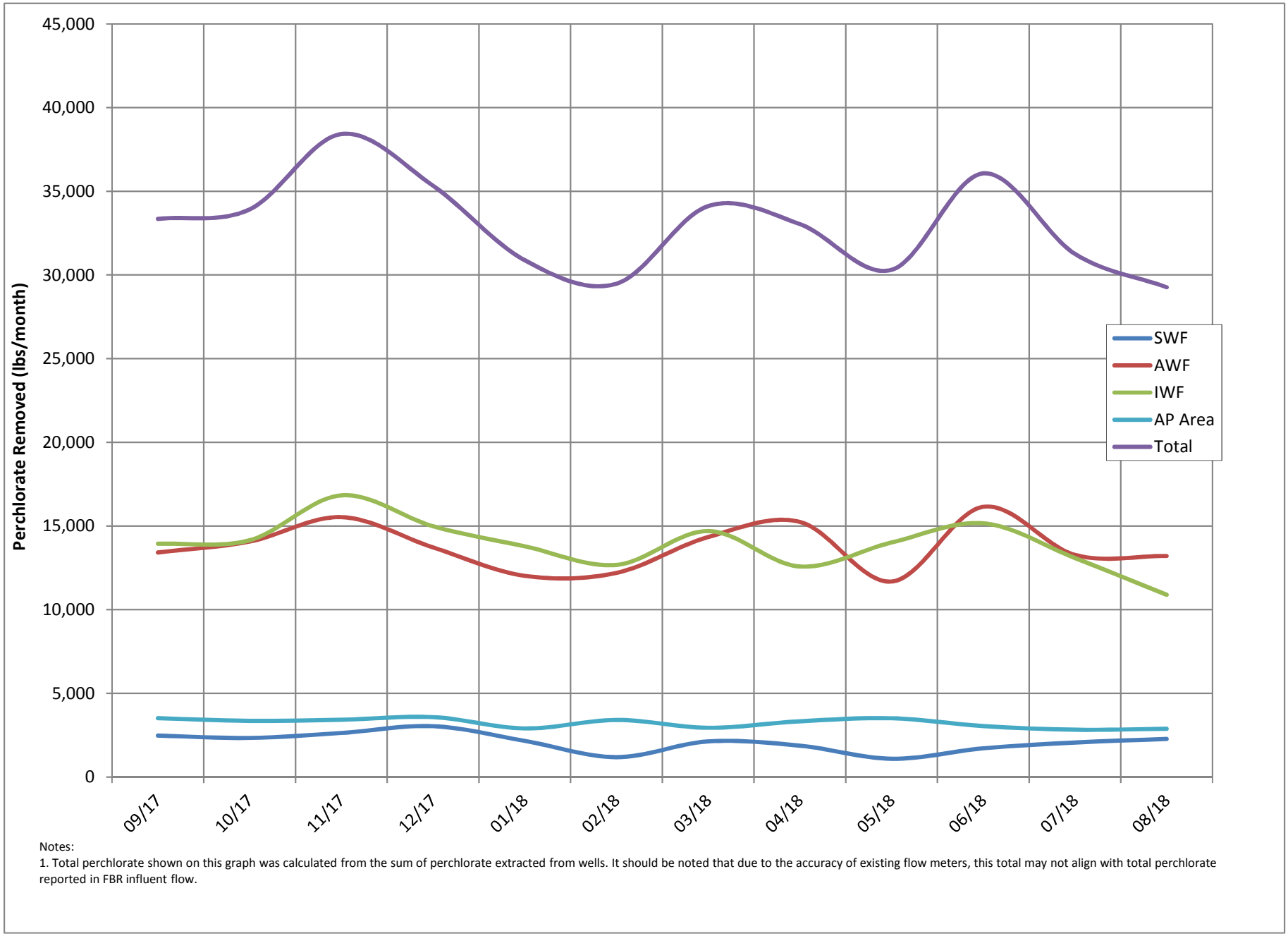
Operational Metrics

Nevada Environmental Response Trust
GW-11 Pond Volume
Update 8/31/2018



Note: 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.

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.

Updated: 9/18/2018

Attachment A

NPDES Tracking Sheet (Prepared by ENVIRON)

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 2018	1.80	1.88	0.5	0.0075	6.70	7.02	0.49	18	600	3,900	14	17	260	170	1.9	2.9	3.9	45	4,600
February 2018	1.83	1.88	1.5	0.022	6.81	6.87	ND (<0.25)	8.2	590	2,300	12	16	230	150	1.5	2.9	4.0	43	
March 2018	1.79	1.89	0.5	0.0075	6.76	7.19	ND (<0.25)	15	430	2,600	10	13	200	50	2.6	2.8	4.1	43	
April 2018	1.68	1.81	0.5	0.0070	6.60	7.30	ND (<0.25)	8.7	380	1,100	0.89	9	130	3	2.3	1.9	2.7	27	4,000
May 2018	1.69	1.85	0.8	0.012	6.89	7.00	ND (<0.25)	9.4	370	2,400	1.6	10	140	3.2	2.2	1.4	2.2	19	
June 2018	1.69	1.94	4	0.058	6.61	6.98	ND (<0.25)	9.0	370	230	1.4	8	110	8	2.1	1.7	3.0	24	
July 2018	1.65	1.86	0.5	0.0069	6.70	7.0	1.6	4.0	420	1,300	0.83	6.9	100	3.5	1.3	1.6	2.1	19	4,500
August 2018 (month to date)	1.67	1.85	0.5	0.0069	6.60	6.76	ND (<0.25)	2.8	370	1,300	1.6	9	120	2.5	2.5	1.9	2.1	24	
September 2018 (month to date)	1.43	1.85	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
12/31 - 1/6	1/6/2018	ND (<1.0)	0.5	0.0077	1/2/2018	7.02	ND (<0.25)	6.6	600	1,600	14	12	185	--	12	183^{++}	--	0.082	1.3	1/3/2018	2.2		33		
1/7 - 1/13	1/13/2018	ND (<1.0)	0.5	0.0072	1/8/2018	6.86	ND (<0.25)	4.8	600	2,800	11	18	263	--	11	160	--	0.13	1.9	1/10/2018	3.2		48		
1/14 - 1/20	1/20/2018	ND (<1.0)	0.5	0.0076	1/15/2018	6.70	0.25	5.7	550	1,100	11	7.9	122	--	10	142^{++}	--	0.11	1.7	1/17/2018	3.9		58		
1/21 - 1/27	1/27/2018	ND (<1.0)	0.5	0.0076	1/22/2018	6.83	0.49	18	530	3,900	12	26	401	--	11	170^{++}	--	0.18	2.8	1/24/2018	2.3		36		
1/29 - 2/3	2/3/2018	ND (<1.0)	0.5	0.0077	1/29/2018	6.72	ND (<0.25)	11	580	3,800	9.8	21	316	--	8.9	134	--	0.11	1.7	1/31/2018	3.1		47		
2/4 - 2/10	2/10/2018	ND (<1.0)	0.5	0.0076	2/5/2018	6.87	ND (<0.25)	5.4	580	960	12	6.9	104	--	9.9	150^{++}	--	0.047	0.71	2/7/2018	2.6		40	2/5/2018	4,600
2/11 - 2/17	2/17/2018	3.1	3.1	0.048	2/12/2018	6.81	ND (<0.25)	6.8	590	1,300	12	7.0	106	--	10	151	--	0.0555	0.840	2/14/2018	2.3		35		
2/18 - 2/24	2/24/2018	ND (<1.0)	0.5	0.0077	2/19/2018	6.86	ND (<0.25)	7.0	550	2,300	12	16	240	--	10	150	--	0.11	1.7	2/21/2018	2.8		43		
2/25 - 3/3	3/3/2018	1.7	1.7	0.024	2/26/2018	6.84	ND (<0.25)	8.2	550	1,700	12	33	481	--	6.9	101	--	0.19	2.8	2/28/2018	4.0		55		
3/4 - 3/10	3/10/2018	ND (<1.0)	0.5	0.0073	3/5/2018	6.96	ND (<0.25)	11	430	2,600	9.8	18	269	--	8.3	124	--	0.24	3.6	3/7/2018	4.1		60		
3/11 - 3/17	3/17/2018	ND (<1.0)	0.5	0.0076	3/12/2018	6.76	ND (<0.25)	7.1	360	2,100	10	17	258	--	8.6	130^{++}	--	0.22	3.3	3/14/2018	3.7		58		
3/18 - 3/24	3/24/2018	ND (<1.0)	0.5	0.0075	3/19/2018	7.14	ND (<0.25)	15	290	2,300	ND (<0.50)	12	175	--	0.39	5.7	--	0.11	1.6	3/21/2018	2.5		38		
3/25 - 3/31	3/31/2018	ND (<1.0)	0.5	0.0076	3/26/2018	7.19	ND (<0.25)	3.6	340	890	ND (<0.50)	5.9	90	--	0.45	6.0	--	0.13	2.0	3/28/2018	0.95		14		
4/1 - 4/7	4/7/2018	ND (<1.0)	0.5	0.0073	4/2/2018	7.30	ND (<0.25)	5.2	150	1,100	0.75	21	313	--	0.75	11	--	0.29	4.3	4/4/2018	1.7		25		
4/8 - 4/14	4/14/2018	ND (<1.0)	0.5	0.0066	4/9/2018	6.74	ND (<0.25)	4.1	300	1,100	0.89	7.4	100	--	0.14	1.9^{++}	--	0.17	2.3	4/11/2018	2.2		31		
4/15 - 4/21	4/21/2018	ND (<1.0)	0.5	0.0070	4/16/2018	6.60	ND (<0.25)	8.7	380	560	ND (<0.50)	3.3	44	--	0.18	2.4	--	0.14	1.9	4/18/2018	2.7		37		
4/22 - 4/28	4/28/2018	ND (<1.0)	0.5	0.0070	4/23/2018	6.91	ND (<0.25)	5.3	290	480	ND (<0.50)	6.1	89	ND (<0.10)	0.050	0.73^{++}	--	0.16	2.3	4/25/2018	0.90		13		
4/29 - 5/5	5/5/2018	2.0	2.0	0.030	4/30/2018	6.97	ND (<0.25)	5.1	300	1,000	ND (<0.50)	5.6	80	--	0.19	2.7	--	0.057	0.82	5/2/2018	2.0		30	5/1/2018	4,000
5/6 - 5/12	5/12/2018	ND (<1.0)	0.5	0.0072	5/7/2018	7.00	ND (<0.25)	8.0	360	2,300	1.6	13	157	--	0.53	8.1^{++}	--	0.37	4.5	5/9/2018	2.2		34		
5/13 - 5/19	5/19/2018	ND (<1.0)	0.5	0.0069	5/14/2018	6.89	ND (<0.25)	7.6	280	2,400	ND (<0.50)	13	192	--	0.11	1.6^{++}	--	0.11	1.6	5/16/2018	1.1		13		
5/20 - 5/26	5/26/2018	ND (<1.0)	0.5	0.0069	5/21/2018	6.94	ND (<0.25)	9.4	350	1,700	ND (<0.50)	12	177	ND (<0.10)	0.050	0.74^{++}	--	0.086	1.3	5/23/2018	1.2		15		
5/27 - 6/2	6/2/2018	ND (<1.0)	0.5	0.0071	5/29/2018	6.98	ND (<0.25)	ND(<2.5)	370	100	1.1	2.3	28	--	0.33	4.0^{++}	--	0.13	1.6	5/30/2018	ND (<0.50)	0.25	3.8		
6/3 - 6/9	6/9/2018	14**	14	0.21	6/4/2018	6.98	ND (<0.25)	4.6	320	81	ND (<0.50)	6.5	104	ND (<0.10)	0.050	0.80^{++}	--	0.14	2.2	6/6/2018	3.0		48		
6/10 - 6/16	6/16/2018	ND (<1.0)	0.5	0.0069	6/11/2018	6.89	ND (<0.25)	5.4	370	96	0.85	7.2	105	--	0.11	1.6^{++}	--	0.16	2.3	6/13/2018	1.9		22		
6/17 - 6/23	6/23/2018	ND (<1.0)	0.5	0.0068	6/18/2018	6.61	ND (<0.25)	9.0	360	230	1.4	14	162	--	1.4	16^{++}	--	0.17	2.0	6/20/2018	0.83		11		
6/24 - 6/30	6/30/2018	ND (<1.0)	0.5	0.0067	6/25/2018	6.76	ND (<0.25)	4.4	310	95	ND (<0.50)	4.0	58	ND (<0.10)	0.050	0.73^{++}	--	0.13	1.9	6/27/2018	1.1		16		
7/1 - 7/7	7/7/2018	ND (<1.0)	0.5	0.0070	7/2/2018	6.89	ND (<0.25)	4.0	340	91	ND (<0.50)	5.2	76	--	0.11	1.6	--	0.14	2.1	7/5/2018	1.6		19		
7/8 - 7/14	7/14/2018	ND (<1.0)	0.5	0.0069	7/9/2018	6.81	ND (<0.25)	2.8	380	520	ND (<0.50)	4.1	61	--	0.27	4.0^{++}	--	0.096	1.4	7/11/2018	2.1		26		
7/15 - 7/21	7/21/2018	ND (<1.0)	0.5	0.0066	7/16/2018	7.0	ND (<0.25)	3.6	320	850	ND (<0.50)	6.6	75	--	0.22	2.5^{++}	--	0.052	0.59	7/18/2018	1.1		17		
7/22 - 7/28	7/28/2018	ND (<1.0)	0.5	0.0071	7/23/2018	6.83	ND (<0.25)	3.9	340	940	0.83	9.0	133	--	0.19	2.8^{++}	--	0.072	1.1	7/25/2018	1.5		13		
7/29 - 8/4	8/4/2018	ND (<1.0)	0.5	0.0071	7/30/2018	6.70	1.6	3.5	420	1,300	ND (<0.50)	9.4	146	--	0.12	1.9	--	0.072	1.1	8/1/2018	2.1		31	8/6/2018	4,500
8/5 - 8/11	8/11/2018	ND (<1.0)	0.5	0.0066	8/6/2018	6.64	ND (<0.25)	ND (<2.5)	330	1,100	ND (<0.50)	9.0	108	--	0.30	3.6^{++}	--	0.025	0.30	8/8/2018	1.8		22		
8/12 - 8/18	8/18/2018	ND (<1.0)	0.5	0.0070	8/13/2018	6.63	ND (<0.25)	ND(<2.5)	350	1,200	1.0	7.1	104	--	0.21	3.1^{++}	--	0.068	0.99	8/15/2018	1.8		23		
8/19 - 8/25	8/25/2018	ND (<1.0)	0.5	0.0069	8/20/2018	6.60	ND (<0.25)	2.8	370	1,300	1.2	8.4	124	--	0.17	2.5^{++}	--	0.52	7.7	8/22/2018	1.9		21		
8/26 - 9/1	9/1/2018	NA	NA	NA	8/27/2018	6.76	ND (<0.25)	2.5	370	1,100	1.6	11	130	--	0.55	6.5^{++}	--	0.091	1.1	8/29/2018	NA		NA		
					9/4/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9/5/2018	NA		NA		

Note: All analytical responsibilities are performed by TestAmerica Laboratories, Inc. (TestAmerica) in Irvine, California, unless otherwise indicated.

$^{++}$ 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.

** Following an initial detection of 27 µg/L of perchlorate in the 7-day composite sample, a second 7-day composite sample for this period was analyzed for perchlorate, as well as all 7 individual daily samples. The second 7-day composite sample, as well as all individual daily samples, were ND (<2.5 µg/L) for perchlorate. The listed concentratoin is the average of the two 7-day composite samples (27 µg/L and half the detection limit [1.25 µg/L]).

Last Updated: September 7, 2018

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		4	Installed a vent on the MCC to help cool the cabinet
2		**Athens Road Wells and Lift Station** 3				
2.01		*Athens Road Well Field, 9 wells*	Running		3	The new mag meter was installed on ART-4
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		3	Installed a new blower on the A/C unit for the VFD cabinet.
4		**Interceptor Wells and Cr Treatment Plant**				
4.01		*IWF Well Field, 30 wells*	Running		2	I-Q was re-installed. New discharge fittings were installed on I-AD.
4.02		*Ferrous Sulfate Feed System*	Running			
4.03		*Polymer Feed System*	Running			
4.04		*Clarifier*	In operation			
4.05		*Filter Press*	Running			
4.06		*GWTP Effluent Tank*	In operation			
4.07		*Interceptor Booster Pump A*	Running			
4.08		*Interceptor Booster Pump B*	Standby			
4.09		*Area In And Around GWTP*	Running		2	While the power was taken down, a new UPS was installed in the MCC for backup for the PLC rack
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			
5.06	PID10A	*Raw Water Feed Pump - P102A*				

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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		4	A new pressure gauge was installed on the inlet side of the GAC's
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*			3	A new bed height pump was installed
6.02	PID14	*Separator Tank - 1401*				
6.03	PID14	*Media Return Pump - P 1401*			3	The pump was replaced and a spare was assembled.
6.04	PID14	*P1401A*				
6.05	PID01A	*P1401B*				
6.06	PID01A	*FBR 1*	Running			
6.07	PID02A	*FBR 2*	Running		4	A new 1" bed height pump was installed
6.08	PID01A	*First Stage Separator Tank - T2011*	Running			
6.09	PID01A	*Media Return Pump - P2011*	Running		3	The media return pump was removed and the system was flushed. The suction disc was replaced
6.10	PID01A	*First Stage FBR Pump - P1011*	Standby			
6.11	PID01A	*First Stage FBR Pump - P1012*	Running			
6.12	PID01A	*First Stage FRB Pump - P101A*	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			

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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
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		1	The discharge piping was replaced. The old flange ring was cracked.
8.02	PID03A	*FBR 6*	Running			
8.03	PID03C	*Second Stage Separator Tank - T3011*	Running			
8.04	PID03A	*Media Return Pump - P3011*	Running			
8.05	PID03A	*Second Stage FBR Pump - P3015*	Running			
8.06	PID03A	*Second Stage FBR Pump - P3016*	Standby			
8.07	PID03A	*Second Stage FBR Pump - P301A*	Running			
8.08	PID07A	*FBR 5 pH Feed Pump - P715*	Off			
8.09	PID07A	*FBR 6 pH Feed Pump - P716*	Off			
8.1	PID07A	*FBR 5 Nutrient (Urea) Feed Pump - P725*	Off			
8.11	PID07A	*FBR 6 Nutrient (Urea) Feed Pump - P726*	Off			
8.12	PID07B	*FBR 5 Electron Donor Assembly Pump - P735*	Running			
8.13	PID07B	*FBR 6 Electron Donor Assembly Pump - P736*	Running			
9		**Second Stage FBRs 7** & 8				
9.01	PID03B	*FBR 7*	Running			
9.02	PID03B	*FBR 8*	Running			
9.03	PID03D	*Second Stage Separator Tank - T3012*	Running			
9.04	PID03B	*Media Return Pump - P3012*	Running			
9.05	PID03B	*Second Stage FBR Pump - P3017*	Running			
9.06	PID03B	*Second Stage FBR Pump - P3018*	Running			
9.07	PID03B	*Second Stage FBR Pump - P302A*	Running			
9.08	PID07A	*FBR 7 pH Feed Pump - P717*	Off			
9.09	PID07A	*FBR 8 pH Feed Pump - P718*	Off			
9.10	PID07A	*FBR 7 Nutrient (Urea) Feed Pump - P727*	Off			

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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
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			
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		3	Welded a patch repair on the sludge box
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*				
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			

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14.02	PID16	*Solids Storage Effluent Pump - P1601*	Running			
14.03	PID16	*Solids Cond. Tank*	In operation		3	The valves were actuated and the stems were removed to improve their function
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 System*	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		2	The system was taken offline to replace the coupling insert for the transfer pump
		Utility Systems				
26		**Compressed Air System**				
26.01	PID08	*West Compressor*	Running			
26.02	PID08	*East Compressor*	Running		2	Air Center replaced the tubing and fittings for the oil cooler
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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Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
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		1	The power was taken down to complete the high voltage inspection of the electrical buckets
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			Spares are on the shelf
		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			Spares are on the shelf.

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