To:	Nevada Division of Environmental Protection Nevada Environmental Response Trust
Cc:	Nevada Environmental Response Trust Stakeholders
From:	Jeff Lambeth, Director of Operations
Date:	September 20, 2016
Subject:	NERT – GWETS Operation Monthly Report – September 2016

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 2016.

Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS normally in September 2016. The flow rate to the plant averaged approximately 930 gallons per minute (gpm) during September 2016. At the end of the month, the GW-11 Pond volume was at 48.2 million gallons (MG), which would allow 9.9 days of available additional storage in the event of an emergency plant shutdown with continued well field pumping. The water volume stored in the GW-11 Pond increased approximately 4.3 MG from the end of August. Figure 1 in this report depicts the actual GW-11 pond volumes and additional storage available.

The influent perchlorate concentration to the FBR plant averaged 78 mg/L for the month, with a maximum concentration of 87 mg/L.

Analytical data indicate that the permitted effluent discharges at GWETS Outfall 001 were within the NPDES permitted numerical discharge limits (Please see Attachment A, prepared by Ramboll Environ).

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.

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

- Complications caused by the Boatman bugs and excessive algae growth on the screens forced the plant operators to switch back and forth from the GW-11 pond and the TK-101 tanks for influent equalization. Effective 9/13, the GW-11 pond was taken out of service for the remainder of the month. The plant operators adjusted operations to compensate for ongoing influent equalization being performed by the TK-101 tanks.

2. Biological Plant

There were no significant plant interruptions. There was one unplanned diversion into GW-11 for the month of September. Below is a description of the short duration event that occurred:

- Diversion to GW-11 on September 5th at 8:00 pm. A total volume of approximately 231,170 gallons of water was diverted back to GW-11. Discharge to the LVW resumed at 1:55 am. The plant was bypassed for precautionary measures. FBR A was taken out of service for tank internals inspection. The contents of FBR A were transferred to FBR #4, and in the course of the transfer, ORP measurements from FBR #4 began to drop, so the plant was bypassed until samples could be collected and run on the in-house Ion Chromatograph (IC) to ensure the plant was in compliance before the water was returned to the LVW.

3. Spills

No reportable spills occurred in the month of September.

4. Maintenance

- Major maintenance performed by ETI in the month included:

  i. FCV-1120 - FBR 4 Feed Flow Control Valve. The control valve was leaking from the seal on the valve stem. The valve was replaced with an OEM 6'' Spears butterfly valve and returned to normal service.
  ii. I-J – Interceptor well. Well failure was diagnosed as a motor failure. The pump and motor were removed from the well and a new Franklin ½ hp motor was installed. All other hardware, as well as the pump, were in good working order and returned to normal service.
  iii. X-902 - East Filter Press. The air cylinders that actuate the plate shifter shafts were rebuilt. These cylinders are used to slide the plates open to release the solids from the clothes of the press.
  iv. FBR A was taken out of service to begin tank internals inspection.

v. P-302A – Installed spare motor on FBR 7/8 pump skid. Motor was reinstalled after the motor was dipped, baked, re-insulated and new bearings installed. Motor is in standby mode and ready for service. This work was performed as part of the electrical review that was completed by an outside electrical contractor inspecting all rotating plant equipment.

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

  i. Sequence and Alarm Test on all plant and lift station alarms. All signals were simulated related to the auto plant shutdown and automatic phone dialer to ensure the callout system is operational. No faults were found and the system is in good operational order.

  ii. Oil changes were completed on the DAF recycle pumps using standard gear oil. Non-conductive grease was used to grease the motors. A thorough inspection was conducted on each of the pump/motors with no faults found.

  iii. Inspections on each of the sump pumps around the plant and D-1 control building were conducted. The pits were cleaned out and the motors were greased and put back into service.

  iv. PC Well vaults and the ART wells vaults were inspected. The packing around the piping from PC-99r2 going to PC-99r3 was replaced to ensure no leaks. This was identified during the ECT audit and is now complete.

GWETS Upgrades and Facility Projects

The following is a summary of the initiatives in-progress during the reporting period at the direction of the Trust:

1. **AP-5 Solids Removal**
   Tetra Tech continued to move forward with the construction of the three large tanks associated with the AP-5 Solids Removal project.

2. **Lift Station #2 & #3**

   ETI continued the process of implementing infrastructure improvements at Lift Stations 2 and 3 as approved by NERT. All parts have been received and installation has begun. Installation of all the improvements should be completed by late-October

3. **Lift Station #1 upgrades**
   ETI continued the process of implementing infrastructure improvements at Lift Station 1 and the addition of an Ion Exchange system was approved by NERT. During the reporting period, ETI was in the procurement phase of the project and preliminary work will begin late October. Currently the project is scheduled to be complete by 12/31/16.

4. **IWF well modifications**
   A proposal for the IWF is being prepared to address the Trust's desire to improve the flow meter accuracy and installation of VFDs on the extraction pumps. This proposal was submitted by ETI Engineering to the Trust 9/26/16.

5. **Spill containment enhancements**
   A proposal for secondary containment modifications has been assembled by ETI Engineering and was submitted on 8/9/16.

6. **Chromium Treatment Plant**
   A proposal for the interim chromium treatment plant has been assembled by ETI Engineering and was submitted on 9/20/16. The Trust subsequently advised ETI that this project will be delayed until 2017 or as required to support ongoing remedial initiatives.

ECT Audit Findings

ETI has been addressing the recommendations provided in the Independent Audit of the GWETS performed by ECT. Table 3 summarizes the status of the ECT Audit findings.

Equipment Availability Tracking

ETI operators continue to update the equipment tracking form on a weekly basis at a minimum, 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)[4 5]**	**Chromium (TR) (mg/L)[4 5]**	**Chromium(VI) (mg/L)[4 5]**
SWF Total Extraction[2]	565[1]	10	ND	ND
AWF Total Extraction[2]	356[1]	88	0.23	0.35
IWF Total Extraction[2]	59[1]	650	8.1	12
GWTP Effluent[3]	65	658	0.97	ND
GW-11 Influent[2]	398	75	0.17	11
GW-11 Effluent/ FBR Influent[3]	930	78	0.046	0.044

Notes:

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

1: Sum of daily average flow for individual wells.

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

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

4: All concentrations reported are monthly flow weighted averages.

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

Table Updated: 10/19/2016

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	1,979	ND	ND
AWF Total Extraction	11,256	29	45
IWF Total Extraction	13,852	173	260
GWTP Effluent	15,447	23	ND
GW-11 Influent	10,776	24	11
GW-11 Effluent/FBR Influent	26,052	15	15

Notes:

TR = Total Recoverable.

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

Table 3 - Status of ECT Audit Recommendations

LS #1 and Seep Field			
Number	**Ranking**	**Issue Description**	**Status**
1	Priority A	Lift Station #1 should be evaluated for repair and upgrade. a. A high priority should be placed on abandoning and replacement of the flexible hoses and the aging parallel piping at Lift Station #1. b. Lift Station #1 should be re-evaluated to assure that the designs, and the materials of construction, are consistent with the current and future facility needs in full recognition that this operation is likely to continue for a significant period of time.	<u>*In Process*</u> *a. As part of the LS1/IX Upgrade, these hoses will be replaced with hard pipe manifold system.* The upgrade is currently in progress and this should be completed in 12/31/16. *b. The* materials of construction *have been evaluated and items that need upgrade will be replaced as part of the LS1/IX upgrade.* The upgrade is currently in progress and this should be completed in 12/31/16.
2	Priority A	The SWF vaults should be sealed using commercially available sealants used in Industry and wastewater treatment to prevent exfiltration.	<u>*Completed.*</u> *ETI inspected all Seep Well Field vaults and sealed all vault penetrations with recommended foam.*
3	Priority A	The SWF well fields should be inspected and aging wells replaced as practicable. Much of the above grade plumbing is old and unreliable. Also, some of the wells cycle on and off fairly rapidly. This would indicate that the groundwater has been lowered or more likely, the well screens have become fouled, limiting the flow into the well. The local hydrogeology around the rapidly dewatering wells should be analyzed and the wells should be replaced if it is determined that they have become fouled.	<u>*In Process*</u> *Removal of above grade piping at LS-1 will be completed as part of the IX Treatment System installation to be completed by 12/31/16. Aquifer testing of the SWF is currently ongoing as part of the COP. If necessary, well maintenance activities will be performed to improve well yield.*
4	Priority A	The Audit Team recommends that ETI consider using a screening process capable of managing a higher solids content to address issues including the Boatmen bug spawns.	<u>*Closed -*</u> *This issue occurs twice per year in spring and fall for a few weeks each time. ETI feels this is not necessary in light of future plans for the GW-11 pond, and this issue would be mitigated by those plans. Based on ETI's research, this is a common problem in ponds in the area.*

(Continued)

5	Priority A	The auditors observed an area where crystals of unknown nature have formed at PC-99 R2/R3. NERT should sample the observed crystals and analyze their composition at the earliest opportunity. The R3 well enclosure had standing water and crystals formed both inside and outside of the well vault. The Audit Team also noted a damp area extending from the R3 vault to about 10 to 15 feet from the enclosure. The Audit Team did not collect samples from the damp area or of the observed crystals. While it is possible that the observed crystals are not perchlorate but rather salts resulting from the extremely hard water in the area, with no data available, caution should be observed.	*In Process* *Crystals were hard water calcium from a leaking flange gasket. This area was cleaned and a new gasket was installed.* *NERT will collect sample of the salt crystals by mid-November 2016 for laboratory analysis.*
6	Priority B	A detailed inspection of the SWF underground piping should be performed to estimate the remaining useful life.	*In Process* *Removal of above grade piping at LS-1 will be completed as part of the IX Treatment System installation to be completed by 12/31/16. As part of the RI/FS NERT will re-evaluate the SWF and its conveyance piping.*
7	Priority B	All abandoned equipment should be removed from the operating areas of the operation. To be further examined by the Trust.	*Ongoing* *Abandoned equipment will be removed as various upgrades occur throughout the plant.*
8	Priority B	The access doors at the SWF vaults should be replaced with doors that have modern safety latches and are physically manageable in order to make inspection access easier for the operating staff.	*Closed* *ETI does not believe that modifications are necessary to operate the doors. Our staff believe they can safely operate the doors.*
9	Priority B	Concurrent with plans to expand the loading of perchlorate to the FBRs, the capacity of the solids handling systems in general, and the DAFs specifically, should be evaluated for upgrade.	*Closed* *Completed, both of the DAFs have recently been rehabilitated. The DAF design is more than adequate for the solids generated a full plant load.*
10	Priority B	The remaining Penn Valley Double Disc Pumps should be replaced with air-driven double diaphragm pumps as they fail. There should be a review of the need for additional process air to operate the new pumps.	*In Process* *Currently ETI is in progress with the pump replacements. Two of the 4 pumps have been replaced with air-driven diaphragm pumps, the remaining 2 Penn Valley Double Disc Pumps will be replaced as they fail.*

(Continued)

11	Priority C	A hydraulic analysis should be performed from the discharge port of the variable frequency pumps to the discharge point at the Las Vegas Wash to identify (and eliminate) the areas of highest flow loss.	*Complete* *NERT has completed a pipeline flow evaluation and is planning infrastructure upgrades in 2017 to address this issue.*
12	Priority C	As the submersible pumps reach the end of their useful life, they should be replaced with more appropriate technology, such as vertical turbine pumps, for increased reliability and ease of service.	*In Process* *This is currently in progress as part of the LS2/LS3 infrastructure improvement project*. This project is currently in progress and should be completed by 10/31/16
Job Cal (Maintenance Management Program) and Data Control			
Number	**Ranking**	**Issue Description**	**Status**
1	Priority A	Incorporate all contractor supplied maintenance into the JobCal system.	*Complete* *All contractor supplied maintenance activities are being logged in the JobCal computer maintenance management system.*
2	Priority B	Improve detail captured in JobCal to include actual level of effort expended in repairs.	*Complete* *ETI has worked with the staff to improve the capture of information and detail that is logged into the JobCal computer maintenance management system.*
3	Priority B	Streamline the management of water quality data to assure accountability.	*Complete* *NERT has established a new data transfer protocol that streamlines the management of water quality data amongst the NERT team members. External accessibility will be improved with the implementation of GWETS/NET*
Operations Monitoring			
Number	**Ranking**	**Issue Description**	**Status**
1		Complete conversion of All SCADA systems to a single system – presumably the Siemens system.	*In Process* *The existing Chromium Treatment Plant control system will be replaced when this plant is upgraded or replaced.*
2		Incorporate online access and back-up to allow ETI experts to remotely observe and control operations.	*In Process* *GWETS/NET will provide remote access to operational data by NERT and ETI.*

(Continued)

Facilities Maintenance			
Number	**Ranking**	**Issue Description**	**Status**
1	Priority A	Infrared electrical surveys should continue to document any potential degradation of electrical and mechanical connections over time and use.	*Complete* *The initial plant survey was completed and actions where needed was taken. The next survey has been incorporated into Job Cal as a re-occurring (PM) event, and is scheduled again for December 2016.*
2	Priority A	The electrical grounding within the plant should also be reassessed to make sure that no ground faults are present.	*Complete* *ETI brought in a certified electrician who identified motor skids that were not properly grounded. Since then ETI has installed grounding where it was missing. Based on the site electrical drawings, all known discrepancies have been addressed.*
3	Priority A	Limit the length of wiring run from the VFD to the motor/pump units to a maximum of 150 feet.	*Complete* *Any VFD systems to be installed will have a limited cable run, less than 150 feet or based on manufacturers recommendations.*
4	Priority A	The motor bearings in motor units operated with VFDs should be lubricated utilizing conductive grease to prevent electrical arching within the motor bearings even if a ground fault occurs.	*Complete* *ETI is currently using conductive grease. The use of conductive grease is currently being logged into Job Cal.*
5	Priority A	Utilize full Asset Management Capabilities of Job Cal. As per above,	*Complete* *ETI has further leveraged Job Cal and will continue to expand its use in facility operations.*
6	Priority A	Incorporate age of equipment and expected serviceable life for all major equipment.	*Complete* *ETI has further leveraged Job Cal and will continue to expand its use in facility operations.*
7	Priority A	Incorporate all contractor supplied maintenance into the JobCal system.	*Complete* *ETI has further leveraged Job Cal and will continue to expand its use in facility operations.*
8	Priority B	Improve detail captured in JobCal to include actual level of effort	*Complete*

		expended in repairs.	*ETI has further leveraged Job Cal and will continue to expand its use in facility operations.*

(Continued)

Training			
Number	**Ranking**	**Issue Description**	**Status**
1	Priority B	Improved documentation of operator training is recommended. The operators have been taught how to operate the equipment but the documentation and supporting information for training provided and received was lacking – unlike the other training provided on-site.	*In Process* *ETI is continuing to improve new employee training and documentation of said program. The training program and the appropriate documentation will be complete by April 2017.*
HazWaste and Recycling			
Number	**Ranking**	**Issue Description**	**Status**
1	Priority B	Install a can puncturer and develop a program to handle aerosol cans to assure that the waste cans are "RCRA empty" at atmospheric pressure.	*Complete* *Complete and on-site.*
2	Priority B	Containers storing used oil should be labeled correctly and be moved to a location where they are protected from the elements.	*Complete*
3	Priority C	As a good management practice for CESQGs obtain an EPA identification number.	*Completed by NERT.*
4	Priority C	As a good management practice for CESQGs develop and maintain a waste manifest tracking log to manage all of the shipping and receiving manifests for all waste shipments.	*Completed by NERT*
5		Continue to manage universal waste per the universal waste requirements.	*Complete and Ongoing*
6	Priority C	Develop a more concise chemical inventory with annual capacities and usages for all applicable chemicals.	*In Progress* *All chemicals are inventoried each month. Usage of each chemical is logged into the HACH Wims Data Management software.*
7	Priority C	An applicability study should be completed to determine if the facility is subject to TRI Form R reporting.	*Closed* *After review, ETI does not see the need for this study and is in complete compliance with all reporting currently required.*

Figures

Operational Metrics

Nevada Environmental Response Trust
GW-11 Pond Volume
Update 9/27/2016

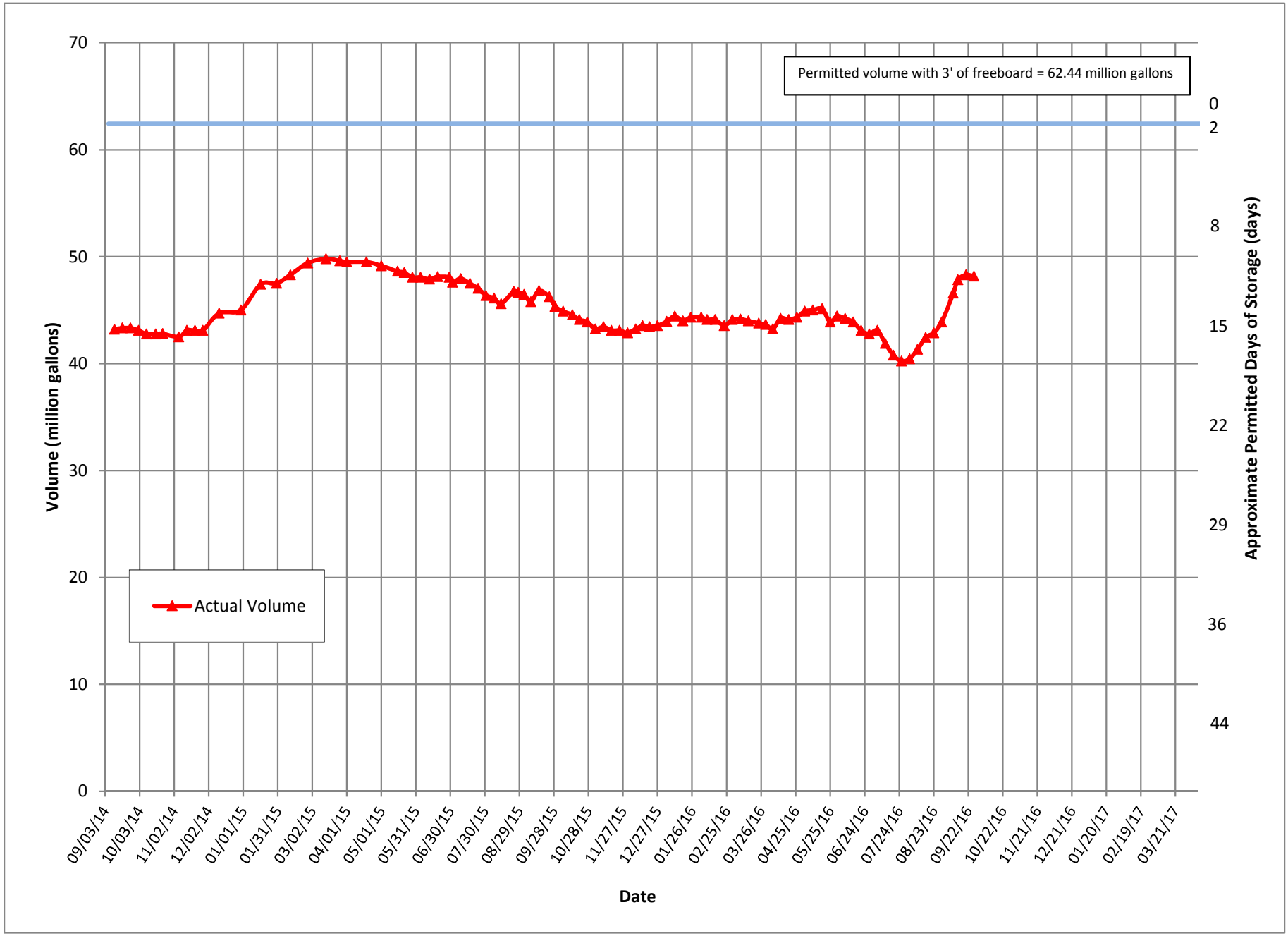
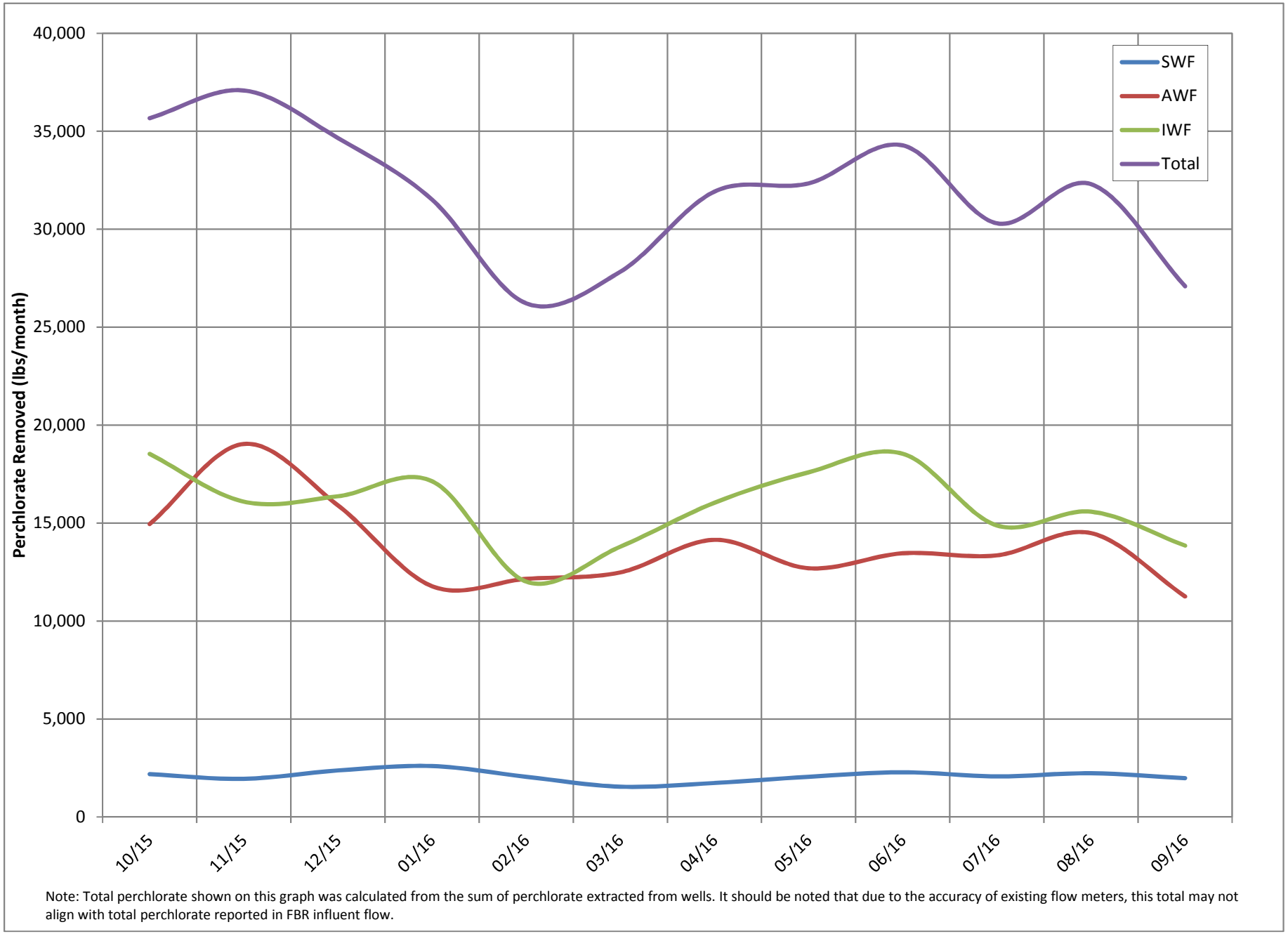


Figure 2 - Historical Perchlorate Mass Flux



Note: 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: 10/13/2016

Attachment A

NPDES Tracking Sheet (Prepared by ENVIRON)

	Continuous		Daily samples, composited weekly		Weekly samples										Weekly samples, collected separately			Quarterly sample	
	Flow Rate		Perchlorate		pH	Hexavalent Chromium	Total Chromium	Total Suspended Solids (TSS)		Total Iron		Total Ammonia as N	Total Phosphorus as P		BOD_5 (inhibited)			Manganese	
	30-Day Avg. (MGD)	Daily Maximum (MGD)	30-Day Avg. (ug/L)	30-Day Avg. (lbs/day)	30-Day Avg. (S.U.)	Daily Max. (mg/L)	Daily Max. (mg/L)	30-Day Avg. (mg/L)	30-Day Avg. (lbs/day)	30-Day Avg. (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)	30-Day Avg. (mg/L)	30-Day Avg. (lbs/day)
	1.45	1.75	**18**	**0.22**	**6.5 to 9.0**	**0.01**	**0.1**	**135**	**1,634**	**10**	**121.03**	**40**	**20**		**25**	**40**	**254**	**5**	**60.52**
January 2016	1.28	1.39	1.3	0.013	6.89	0.00013	0.022	24	250	4.5	47	9	0.25		5.8	6.5	61	0.26	2.9
February 2016	1.34	1.41	1.3	0.014	6.96	0.00013	0.015	20	230	3.6	41	6	0.62		3.9	6.0	43		
March 2016	1.37	1.43	1.3	0.014	6.83	0.00013	0.027	21	240	3.1	35	13	1.9		4.3	5.8	49		
April 2016	1.36	1.44	1.3	0.014	6.84	0.00013	0.026	21	240	2.4	27	4.9	1.2		3.9	6.2	44		
May 2016	1.40	1.47	1.3	0.015	6.66	0.00013	0.019	22	260	2.7	32	3	0.8		4.7	6.7	54	0.22	2.5
June 2016	1.30	1.43	1.3	0.014	6.64	0.00013	0.014	11	130	1.6	18	7	1.0		1.7	3.5	19		
July 2016	1.26	1.39	1.3	0.013	6.69	0.00013	0.020	9	90	1.6	16	6	1.2		2.1	4.1	22		
August 2016	1.30	1.43	9	0.091	6.68	0.00013	0.016	12	130	1.5	16	7	0.9		5	13	53	0.22	2.3
September 2016 (month to date)	1.20	1.41	1.3	0.012	6.81	0.00013	0.023	20	210	2.9	31	4.2	0.82		2.9	4.4	30		

Daily Grab Sample Dates	Composite Sample Date		ug/L	lbs/day	Sample Date	S.U.	mg/L	mg/L	mg/L	lbs/day	mg/L	lbs/day		mg/L	lbs/day		mg/L	lbs/day	Sample Date	mg/L		lbs/day	mg/L	lbs/day
1/3 - 1/9	1/9/2016	ND (<2.5)	1.3	0.013	1/4/2016	6.92	ND (<0.00025)	0.0070	18	193	3.9	42	--	0.32	3.4	--	0.028	0.30	1/6/2016	5.7		61		
1/10 - 1/16	1/16/2016	ND (<2.5)	1.3	0.013	1/11/2016	7.02	ND (<0.00025)	0.022	25	260	5.0	52	--	1.8	19	ND (<0.025)	0.013	0.13	1/13/2016	6.5		68		
1/17 - 1/23	1/23/2016	ND (<2.5)	1.3	0.013	1/19/2016	6.62	ND (<0.00025)	0.016	30	311	5.1	53	--	0.96	9.9	ND (<0.025)	0.013	0.13	1/20/2016	6.0		62		
1/24 - 1/30	1/30/2016	ND (<2.5)	1.3	0.014	1/25/2016	7.01	ND (<0.00025)	0.014	23	255	3.8	42	--	0.19	2.1	--	0.040	0.44	1/27/2016	4.8		53	0.26	2.9
1/31 - 2/6	2/6/2016	ND (<2.5)	1.3	0.014	2/1/2016	6.94	ND (<0.00025)	0.015	35	394	4.5	51	--	0.18	2.0	--	0.059	0.66	2/3/2016	6.0		68		
2/7 - 2/13	2/13/2016	ND (<2.5)	1.3	0.014	2/9/2016	7.18	ND (<0.00025)	0.013	16	181	3.8	43	--	0.98	11	--	0.059	0.67	2/10/2016	2.5		28		
2/13 - 2/20	2/20/2016	ND (<2.5)	1.3	0.014	2/15/2016	6.82	ND (<0.00025)	0.0092	14	158	2.8	32	--	0.33	3.7	--	0.048	0.54	2/17/2016	3.4		38		
2/21 - 2/27	2/27/2016	ND (<2.5)	1.3	0.014	2/22/2016	6.91	ND (<0.00025)	0.013	16	181	3.4	38	--	0.50	5.6	--	0.054	0.61	2/24/2016	3.5		40		
2/28 - 3/5	3/5/2016	ND (<2.5)	1.3	0.014	3/1/2016	7.11	ND (<0.00025)	0.0092	12	132	2.0	22	--	1.9	21	--	0.062	0.68	3/2/2016	3.3		36		
3/6 - 3/12	3/12/2016	ND (<2.5)	1.3	0.014	3/7/2016	6.91	ND (<0.00025)	0.012	18	202	2.6	29	--	1.4	16	--	0.096	1.1	3/9/2016	2.7		30		
3/13 - 3/19	3/19/2016	ND (<2.5)	1.3	0.015	3/14/2016	6.68	ND (<0.00025)	0.026	33	388	4.1	48	--	0.71	8.3	--	0.23	2.7	3/16/2016	5.8		68		
3/20 - 3/26	3/26/2016	ND (<2.5)	1.3	0.015	3/21/2016	6.81	ND (<0.00025)	0.023	22	256	4.1	48	--	0.45	5.2	--	0.32	3.7	3/23/2016	5.5		64		
3/27 - 4/2	4/2/2016	ND (<2.5)	1.3	0.014	3/28/2016	6.65	ND (<0.00025)	0.027	19	213	2.6	29	--	1.2	13	--	0.12	1.3	3/30/2016	4.1		46		
4/3 - 4/9	4/9/2016	ND (<2.5)	1.3	0.014	4/6/2016	6.71	ND (<0.00025)	0.013	14	160	2.6	30	--	0.37	4.2	--	0.060	0.69	4/6/2016	1.4		16		
4/10 - 4/16	4/16/2016	ND (<2.5)	1.3	0.014	4/11/2016	6.82	ND (<0.00025)	0.017	23	254	3.5	39	--	0.48	5.3	--	0.11	1.2	4/13/2016	6.0		66		
4/17 - 4/23	4/23/2016	ND (<2.5)	1.3	0.014	4/18/2016	6.82	ND (<0.00025)	0.026	25	281	2.8	32	--	0.44	5.0	--	0.17	1.9	4/20/2016	6.2		70		
4/24 - 4/30	4/30/2016	ND (<2.5)	1.3	0.015	4/25/2016	7.02	ND (<0.00025)	0.011	21	245	0.70	8.2	--	0.44	5.1	--	0.092	1.1	4/27/2016	2.1		24		
5/1 - 5/7	5/7/2016	ND (<2.5)	1.3	0.014	5/2/2016	6.84	ND (<0.00025)	0.019	25	289	2.9	34	ND(<0.10)	0.05	0.58	--	0.089	1.0	5/4/2016	3.9		45	0.22	2.5
5/8 - 5/14	5/14/2016	ND (<2.5)	1.3	0.014	5/9/2016	6.64	ND (<0.00025)	0.0078	22	254	2.6	30	--	0.27	3.1	--	0.075	0.87	5/11/2016	2.5		29		
5/15 - 5/21	5/21/2016	ND (<2.5)	1.3	0.014	5/16/2016	6.51	ND (<0.00025)	0.011	20	231	3.2	37	--	0.18	2.1	--	0.085	0.98	5/18/2016	6.7		77		
5/22 - 5/28	5/28/2016	ND (<2.5)	1.3	0.015	5/23/2016	6.60	ND (<0.00025)	0.011	29	349	3.4	41	ND(<0.10)	0.05	0.60	--	0.067	0.81	5/25/2016	5.5		66		
5/29 - 6/4	6/4/2016	ND (<2.5)	1.3	0.014	5/31/2016	6.72	ND (<0.00025)	0.0063	15	172	1.6	18	--	0.94	11	--	0.047	0.54	6/1/2016	1.2		14		
6/5 - 6/11	6/11/2016	ND (<2.5)	1.3	0.013	6/6/2016	6.69	ND (<0.00025)	0.0030	3.7	39	0.43	4.6	--	0.34	3.6	--	0.027	0.29	6/8/2016	ND(<0.50)	0.25	2.7		
6/12 - 6/18	6/18/2016	ND (<2.5)	1.3	0.014	6/13/2016	6.68	ND (<0.00025)	0.0049	6.9	75	1.3	14	--	0.22	2.4	--	0.046	0.50	6/15/2016	1.8		20		
6/19 - 6/25	6/25/2016	ND (<2.5)	1.3	0.013	6/20/2016	6.62	ND (<0.00025)	0.0078	10	106	1.3	14	--	0.31	3.3	--	0.12	1.3	6/22/2016	1.7		18		
6/26 - 7/2	7/2/2016	ND (<2.5)	1.3	0.014	6/27/2016	6.57	ND (<0.00025)	0.014	25	280	3.5	39	--	1.5	16.8	--	0.17	1.9	6/29/2016	3.5		39		
7/3 - 7/9	7/9/2016	ND (<2.5)	1.3	0.014	7/4/2016	6.51	ND (<0.00025)	0.0049	2.6	28	1.1	12	--	0.18	1.9	--	0.12	1.3	7/6/2016	1.5		16		
7/10 - 7/16	7/16/2016	ND (<2.5)	1.3	0.013	7/11/2016	6.78	ND (<0.00025)	0.0035	4.5	47	1.1	12	--	0.32	3.4	--	0.040	0.42	7/13/2016	0.97		10		
7/17 - 7/23	7/23/2016	ND (<2.5)	1.3	0.014	7/18/2016	6.75	ND (<0.00025)	0.0078	9.0	93	1.4	15	--	1.4	15	--	0.19	2.0	7/20/2016	4.1		43		
7/24 - 7/30	7/30/2016	ND (<2.5)	1.3	0.013	7/25/2016	6.72	ND (<0.00025)	0.020	19	196	2.7	28	--	0.30	3.1	--	0.10	1.0	7/27/2016	2.0		21		
7/31 - 8/6	8/6/2016	39*	39	0.402	8/1/2016	6.82	ND (<0.00025)	0.0069	4.2	43	0.69	7.1	--	0.30	3.1	--	0.053	0.55	8/3/2016	3.2		33	0.22	2.3
8/7 - 8/13	8/13/2016	ND (<2.5)	1.3	0.014	8/8/2016	6.69	ND (<0.00025)	0.016	21	232	2.4	27	--	0.37	4.1	--	0.070	0.77	8/10/2016	3.6		40		
8/14 - 8/20	8/20/2016	ND (<2.5)	1.3	0.014	8/15/2016	6.65	ND (<0.00025)	0.0050	5.0	54	0.70	7.6	--	0.38	4.1	--	0.047	0.51	8/17/2016	13		141		
8/21 - 8/27	8/27/2016	ND (<2.5)	1.3	0.014	8/22/2016	6.68	ND (<0.00025)	0.0064	5.8	65	0.10	1.1	--	0.52	5.8	--	0.061	0.68	8/24/2016	4.0		45		
8/28 - 9/3	9/3/2016	ND (<2.5)	1.3	0.012	8/29/2016	6.54	ND (<0.00025)	0.011	25	248	3.7	37	--	1.6	16	--	0.18	1.8	8/31/2016	0.85		8.4		
9/4 - 9/10	9/10/2016	ND (<2.5)	1.3	0.012	9/5/2016	6.79	ND (<0.00025)	0.023	26	246	3.2	30	--	0.65	6.2	--	0.080	0.76	9/7/2016	4.4		42		
9/11 - 9/17	9/17/2016	ND (<2.5)	1.3	0.013	9/12/2016	6.93	ND (<0.00025)	0.0062	17	176	2.9	30	--	0.37	3.8	--	0.073	0.76	9/14/2016	1.4		15		
9/18 - 9/24	9/24/2016	NA	NA	NA	9/19/2016	6.72	ND (<0.00025)	0.0078	18	211	2.7	32	--	0.22	2.6	--	0.080	0.94	9/21/2016	2.8		33		
					9/26/2016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9/28/2016	NA		NA		

Note: All analytical responsibilities are performed by TestAmerica Laboratories, Inc. (TestAmerica) in Irvine, California, unless otherwise indicated.
* = The 39 ug/L result is believed to be from cross-contamination during compositing of the sample. Following reciept of the 39 ug/L sample result, the 7 individual daily effluent samples collected between 7/31 and 8/6, as well as a new 7-day composite sample were submitted for perchlorate analysis. All re-analyzed effluent samples were non-detect for perchlorate.

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
Last Updated: September 30, 2016

Attachment B

Equipment Tracking Form

Sub-System	P&ID	Description	Status	Checked	Criticality	Notes
		Main Plant Equipment				
1		**Seep Wells and Lift Station 1**				
1.01		*Seep Well Field, 9 wells*	Running			
1.02		*Lift Station 1 Lift Pump A*	Running			
1.03		*Lift Station 1 Lift Pump B*	Standby			
1.04		*Area in and around Lift Station 1*	Running			
2		**Athens Road Wells and Lift Station** 3				
		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	The motor and pump were pulled after discovering the breaker kept tripping out. The old 1 hp motor was removed and a new 3/4 hp was installed in its place. The 1 hp motor was oversized for the requested flow rate. A new pigtail was also installed since the old wiring was saturated and ready to fail. A new ½ hp was installed on I-J.
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*	Standby			
4.08		*Interceptor Booster Pump B*	Running			
4.09		*Area In And Around GWTP*	Running			

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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*	Running		2	The motor and pump were re-installed and aligned. New Gaskets and hardware was also installed. The pump is online and ready for service.
5.07	PID10A	*Raw Water Feed Pump - P102B*	Standby			
5.08	PID10A	*F-101 Filters*	Running		2	The motor and gear box were removed to repair damaged and worn hardware and shaft pins.
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*	Standby		3	The vessel is empty and an in-house inspection was completed. A contractor has been called to complete a more in-depth inspection and quote for repairs.
6.02	PID14	*Separator Tank - 1401*	Standby			
6.03	PID14	*Media Return Pump - P 1401*	Standby		3	The belts have been replaced prior to failing.
6.04	PID14	*P1401A*	Standby			
6.05	PID01A	*P1401B*	Standby			
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*	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			

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Sub-System	P&ID	Description	Status	Checked	Criticality	Notes
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		2	A new pH probe was installed, as well as, a new cable and transmitter.
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 – P302A*	Standby		2	Replaced suction spool piece that had a small drip leak.
7.08	PID07A	*FBR 3 pH Feed Pump - P713*	Off			
7.09	PID07A	*FBR 4 pH Feed Pump - P714*	Off			
7.10	PID07A	*FBR 3 Nutrient (Urea) Feed Pump - P723*	Off			
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*	Running			
8.07	PID03A	*Second Stage FBR Pump - P301A*	Standby		3	The motor was picked up from Henderson Electric and re-installed and is ready for service. This was a condition based repair. The motor still functioned but was serviced because of the hours used.
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			

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Sub-System	P&ID	Description	Status	Checked	Criticality	Notes
11		**Pumping System (Old Effluent)**				
11.01	PID06	*Effluent Tank 601*	In operation			
11.02	PID06	*Effluent Pump - P601*	Standby			
11.03	PID06	*Effluent Pump - P602*	Running			
12		**Sand Filter System**				
12.01	PID17	*Sand Filter*	Running			
12.02	PID17	*Filter Reject Tank*	In operation		2	A new 3'' butterfly valve was installed on the discharge side of the pump.
12.03	PID17	*Filter Reject Pump - P1701A*	Running			
12.04	PID17	*Filter Reject Pump - P1701B*	Running		2	The pump was removed to replace the impeller. Upon opening the pump a seal was worn. Waiting for parts to complete rebuild of the pump.
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		2	New cooling blower motors have been ordered as the existing are starting to show signs of wear.
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			
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*	Running			
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			

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Sub-System	P&ID	Description	Status	Checked	Criticality	Notes
		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			
17.00	PID07C	*Micro Nutrient System*	In operation			
18.00	PID07C	*Hydrogen Peroxide System*	In operation			
19.00	PID07C	*De-Foam System*	In operation			
20.00	PID15	*Nutrient (Phosphoric Acid) System* (Tank only - pumps included in FBRs)	In operation			
21.00	PID07A	*Nutrient (Urea) System* (Tank only - pumps included in FBRs)	In operation			
22.00	PID07A	*pH System* (Tank and effluent pH feed pump only - other pumps included in FBRs)	In operation			
23.00	PID07C	*Ferric Chloride System*	In operation			
24.00	PID07B	*Polymer Systems - DAF*	In operation			
25.00	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			
27.00	PID16	*Oxygen System*	In operation			
28.00	PID16	*GWETS Plant Controls/ Siemens Controls*	In operation			
29.00	PID16	*Well Control System/ Allen Bradley Controls*	In operation			
30.00	PID16	*MCC FBR Pad*	In operation			
31.00	PID16	*MCC in D-1*	In operation		2	A concrete slab was poured to ensure no debris could enter the MCC from old doors that was a part old an old system.
32.00	PID16	*MCC in EQ area*	In operation			

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Sub-System	P&ID	Description	Status	Checked	Criticality	Notes
		Miscellaneous				
33.00		*Operations Office/Network*	In operation			
34.00		*Laboratory Analyzers*	In operation			
35.00		*Security Systems*	In operation			
		Shelf Spares				
		Media Return Pump Rebuild Kit	In stock			Spare media return parts have been received and a spare pump has been rebuilt ready for service on the shelf.
		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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