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

Summary of GWETS Operation

Envirogen Technologies, Inc. (ETI) mechanically operated the GWETS normally in November 2016. The average effluent flow rate was 935 gallons per minute (gpm) during November 2016. At the end of the month, the GW-11 Pond volume was at 40.8 million gallons (MG), which would allow 15.0 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 2.8 MG from the end of October 2016. Figure 1 in this report depicts the actual and projected GW-11 pond volumes and additional storage available.

The influent perchlorate concentration to the FBR plant averaged 85 mg/L for the month, with a maximum concentration of 95 mg/L. In comparison, the influent perchlorate concentration for the month of October 2016 averaged 86 mg/l, with a maximum concentration of 110 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

- Continued maintenance activities at the Lift Stations required the operators to use the GW-11 pond for influent equalization beginning 11-2-16. High winds and excessive algae forced the operators to switch back to using the TK-101 tanks for influent equalization beginning 11-27-16. The plant operators adjusted operations to compensate for the change in influent equalization.

2. Biological Plant

There were no significant plant interruptions. There were five unplanned diversions into GW-11 for the month of November. Below is a description of the short duration events that occurred:

- Effluent Diversion to GW-11 on November 1st at 7:45 am to 11:00am. The plant effluent was diverted for precautionary measures. Changes in flow characteristics from LS2 due to the newly installed VFD's caused an unexpected change in plant load. Adjustments were made to LS2 flow and the effluent was returned to the wash after in-house lab results confirmed compliance. A total of 169,617 gallons were diverted.
- Effluent Diversion to GW-11 on November 2nd at 2:00pm to 2:54pm. The plant effluent was diverted for precautionary measures. Maintenance activities on the GWTP required a change in the TK-101 influent equalization flow path to GW-11. This change in flow path created a sudden change in the plant load. Adjustments were made to plant operations and the effluent was returned to the wash after in-house lab results confirmed compliance. A total of 46,799 gallons were diverted.
- Effluent Diversion to GW-11 on November 15th at 10:15am to 1:10pm. The plant effluent was diverted due to maintenance activities on the effluent pipe line at LS1 as part of the upgrade project at that location. The effluent was returned to the wash upon completion of those specific activities. A total of 112,099 gallons were diverted.
- Influent Diversion to GW-11 on November 18th at 1:45pm to 3:15pm. The plant influent was diverted due to maintenance activities on the effluent diversion valve on the effluent pipe line at the EQ area. The plant influent was all directed to the GW-11 pond and the FBR's were put in recycle during the maintenance activities. No water was treated during the short duration of these activities.
- Effluent Diversion to GW-11 on November 18th at 4:30pm to 5:13pm. The plant effluent was diverted due to maintenance activities on the effluent pipeline air release valves (Combo valves). The effluent was returned to the wash upon completion of those activities. A total of 40,656 gallons were diverted.

3. Spills

There were two reportable spills in the month of November.

At 3:45 PM PDT on November 2, 2016, the influent tank overflowed due to a failing level sensor. This event was summarized in the Trust's letter to NDEP BWPC dated November 7, 2016 submitted consistent with permit requirements.

- On Friday November 18, 2016 the Trust received a call from Tetra Tech that there appeared to be an air and vacuum release valve (combo valve) leaking along the effluent pipeline. The Trust immediately contacted Envirogen at 4:24 pm and informed Envirogen that a problem had been reported along the pipeline. After inspection the Trust determined that 5 gallons of treated effluent had spilled from the valve access enclosure to the adjacent soil. This event was summarized in the Trust's letter to NDEP BWPC dated December 1, 2016 submitted consistent with permit requirements.

4. Maintenance

- Major maintenance performed by ETI in the month included:

I. GWTP AC-1 - Air Compressor- The electrical contactor switch failed. ETI replaced the switch with a new contactor and returned the air compressor back to normal operation.

II. MCC-4, EQ Area- ETI experienced a communication loss between the EQ Area and Control Room. The electrical grounding and wire connections were replaced and the system was returned to normal service.

III. GWTP MCC-4, EQ Area –The PLC Power Supply failed. ETI replaced the Power Supply and Profibus Card and the system was returned to normal service.

IV. GWTP P-7, Clarifier sludge recirculation pump – The pipe was clogged on the suction side of the pump. The clarifier was taken offline and drained to inspect the clogged line. The debris in the bottom of the vessel was removed and the system was put back into service.

V. ART-1, AWF extraction well - The well pump motor failed due to age and normal wear and tear. The system was removed, the pigtail and motor were replaced with the same size motor – 1 hp Franklin motor. The well was returned to normal service.

VI. D-501 – The DAF skimmer system required adjustment to the flight tension. Once the DAF vessel was drained and cleaned, the chain system was adjusted and several links, rollers, pins and shafts were replaced. The system was put back online with no further issues.

VII. P-501 – The DAF pressurization pump was removed due to repair the gearbox seals and a worn mechanical seal. The pump was sent to Motion Industries where the work was performed and the pump was put back into normal service.

VIII. T-501 – A new DAF pressurization tank was put into place to replace the rusted tank that showed signs of interior failure in the walls of the tank.

IX. I-Q, IWF extraction well - The well pump motor failed due to age and normal wear and tear. A new ½ hp Franklin motor was installed (the same model and size as previous), as well as, all new wiring. The well was returned to normal service.

X. I-AB, IWF extraction well - The originally installed discharge piping inside the well casing failed. The original piping was 1'' threaded SCH 40 PVC. The pipe was replaced with 1'' Boreline hose to match all the other IWF wells. There was no spill into the environment related to this repair. The pump was placed back into the well and is ready for service.

XI. P-102A, FBR Influent Pump - After discovering a leaking mechanical seal, the pump and motor were removed and sent to Motion Industries warranty work. This seal had been replaced three months prior. The repairs were expedited and the pump and motor were placed back into normal service.

XII. The Lift Station High High level switch at LS#2 – This switch was producing a false signal causing intermittent shutdowns of LS#3. The cause of the false signals was diagnosed as a corroded terminal block. The wiring was repaired stopping the false signal and the lift station was returned to normal operating service.

XIII. Combo Valves – One of the combo valves on the effluent pipeline had a small amount of debris in the rolling seal causing it not to seal completely. This allowed for a small amount of water to pass through. All water was contained within the valve box. Different rolling seals and floats were installed to better compensate for the low pressure in the line. The interval for inspecting the combo valves has also increased to monthly instead of quarterly.

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

I. Sequence Test-Test all Alarm. Tested all signals related to the automatic plant shutdown sequencing. No alarm or sequencing issues were noted.
II. ETI Calibrated and Standardized all FBR pH and ORP online analyzers.
III. LT-551, DAF. ETI Cleaned and calibrated level transmitter probe, cleaned sight glasses, checked gauges, and checked overall condition.
IV. All safety PM's were completed including ladders, slings, safety harnesses and extension cords.
V. Quarterly DAF vessel inspections were completed to ensure there are no faults or defects in the vessel itself. Both vessels were drained, pressure washed, and inspected. No faults were identified and the system was returned to normal service.
VI. The solids were removed from the degassifier tank at the GWTP.
VII. The Effluent Sand Filter was inspected for faults. The only fault identified was an airlift pump that had a bad glue joint that separated the air chamber from the lift. The joint was repaired and placed back into normal service.

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 #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 completed most of the site preparations and equipment has begun to be delivered. Currently the project is scheduled to be complete by December 31, 2016.
3. **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 and is currently under review by the Trust.

4. **Spill containment enhancements**
   A proposal for secondary containment modifications has been assembled by ETI Engineering and is currently under review by the Trust.

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. Progress is reported in the Status column. Updates from the prior reporting period appear in bold, underlined text.

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]	549[1]	10	ND	0.00030
AWF Total Extraction[2]	377[1]	114	0.30	0.32
IWF Total Extraction[2]	59[1]	765	8.0	8.3
IRM Total Extraction	1.0	2,173	NA	0.033
GWTP Effluent[3]	65	832	0.29	ND
GW-11 Influent[2]	797	97	0.11	0.067
GW-11 Effluent/ FBR Influent[3]	935	85	0.059	0.032

Notes:

TR = Total Recoverable; NA = Not Analyzed; 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: 12/20/2016

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	2,008	0.00	0.06
AWF Total Extraction	15,583	41	44
IWF Total Extraction	16,233	170	177
IRM Total Extraction	1,141	NA	0.02
GWTP Effluent	19,671	6.9	0.00
GW-11 Influent	27,895	32	19
GW-11 Effluent/FBR Influent	28,675	20	11

Notes:

TR = Total Recoverable: NA = Not Analyzed.

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.	*In Process* *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 following 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.	*Completed. 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.	*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. Aquifer evaluation 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.	*Closed - 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.*
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 collected a soil sample immediately below the salt crystals previously observed on November 18, 2016 for laboratory analysis. During the sampling event NERT discovered that the salt crystals were no***

			longer present on the side of the well vault. Salt crystals in this area tend to be transient in nature. The analytical results indicate the presence of perchlorate in soil at a concentration of 19 mg/kg. This concentration is below the NDEP's Residential Basic Comparison Level. However, this situation will be further evaluated as part of the Phase 2 Remedial Investigation.
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 immediately following 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.*
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.	*Complete* *Vertical turbine pumps were installed as part of the upgrade project for both LS-3 and LS-2.*

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

Notes:

Changes in activity status from the prior month are displayed in the Status column with **bold, underlined font**.

Figures

Operational Metrics

Nevada Environmental Response Trust
GW-11 Pond Volume
Update 11/22/2016

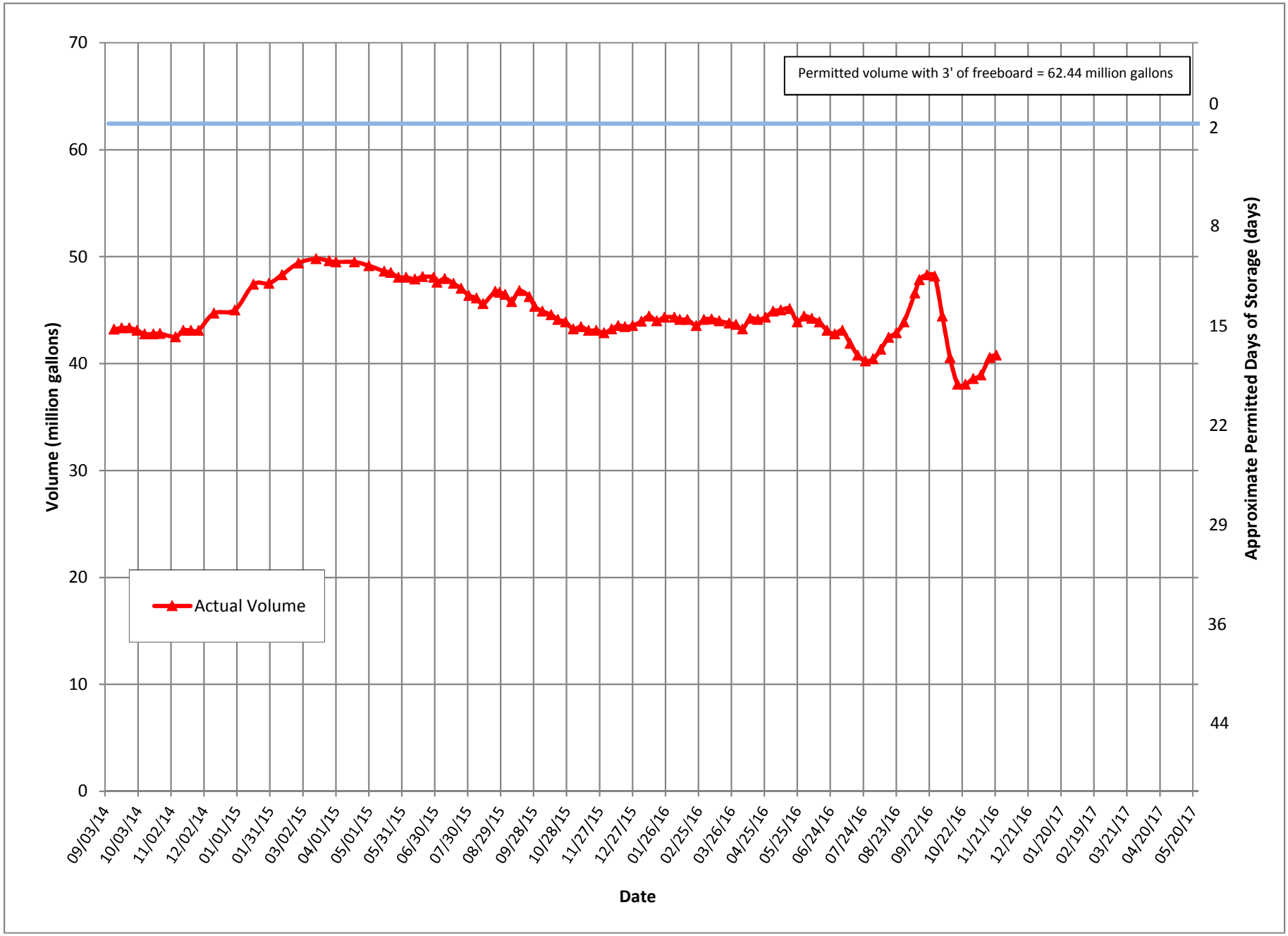
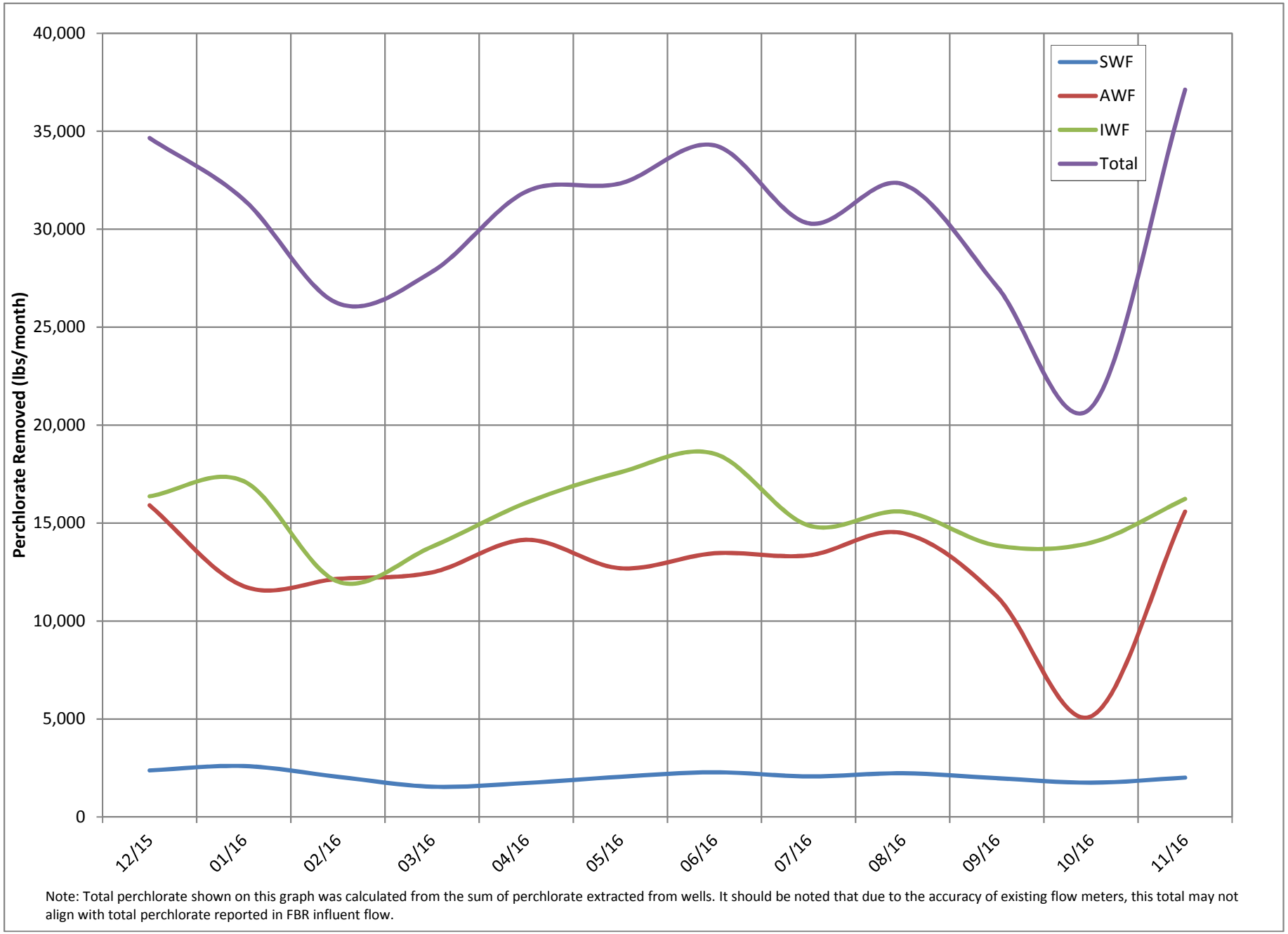


Figure 2 - Historical Perchlorate Mass Flux



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: 12/20/2016

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	0.09	6.68	0.00013	0.016	12	130	1.5	16	7	0.9		5	13	53	0.22	2.2
September 2016	1.21	1.43	1.3	0.013	6.84	0.00013	0.023	21	200	3.0	30	3.7	0.78		3.8	6.7	37		
October 2016	1.15	1.29	1.3	0.012	6.87	0.00013	0.0051	13	130	1.2	12	2.4	0.81		4.7	6.5	45	0.26	2.2
November 2016 (month to date)	1.29	1.36	1.3	0.013	6.89	0.00013	0.039	70	760	5.2	56	2.6	1.1		6.1	8.6	66		

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	0.40	8/1/2016	6.82	ND (<0.00025)	0.0069	4.2	43	0.69	7.1	--	0.30	3.1	--	0.053	0.54	8/3/2016	3.2		33	0.22	2.2
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	ND (<2.5)	1.3	0.015	9/19/2016	6.72	ND (<0.00025)	0.0078	18	209	2.7	31	--	0.22	2.6	--	0.080	0.93	9/21/2016	2.8		33		
9/25 - 10/1	10/1/2016	ND (<2.5)	1.3	0.011	9/26/2016	6.93	ND (<0.00025)	0.0075	21	186	3.1	27	--	0.25	2.2	--	0.078	0.69	9/28/2016	6.7		59		
10/2 - 10/8	10/8/2016	ND (<2.5)	1.3	0.011	10/3/2016	6.95	ND (<0.00025)	ND (<0.0025)	3.1	26	0.55	4.6	--	0.29	2.5	--	0.12	1.01	10/5/2016	4.6		39	0.26	2.2
10/9 - 10/15	10/15/2016	ND (<2.5)	1.3	0.013	10/10/2016	6.54	ND (<0.00025)	0.0036	24	246	1.8	18	--	0.25	2.6	--	0.065	0.67	10/12/2016	5.9		60		
10/16 - 10/22	10/22/2016	ND (<2.5)	1.3	0.012	10/17/2016	6.94	ND (<0.00025)	0.0051	21	202	1.3	13	--	0.19	1.8	--	0.097	0.94	10/19/2016	6.5		63		
10/23 - 10/29	10/29/2016	ND (<2.5)	1.3	0.013	10/24/2016	6.96	ND (<0.00025)	0.0077	8.4	88	1.2	13	--	0.30	3.1	--	0.081	0.85	10/26/2016	1.9		20		
10/30 - 11/5	11/5/2016	ND (<2.5)	1.3	0.013	10/31/2016	6.95	ND (<0.00025)	0.0076	6.3	66	1.2	12	--	0.21	2.2	--	0.055	0.57	11/2/2016	2.2		23		
11/6 - 11/12	11/12/2016	ND (<2.5)	1.3	0.014	11/7/2016	6.88	ND (<0.00025)	0.041	71	798	5.1	57	ND(<0.10)	0.05	0.56	--	0.11	1.2	11/9/2016	7.0		79		
11/13 - 11/19	11/19/2016	ND (<2.5)	1.3	0.013	11/14/2016	6.90	ND (<0.00025)	0.037	69	723	5.3	56	--	0.45	4.7	--	0.10	1.0	11/16/2016	8.6		90		
11/20 - 11/26	11/26/2016	NA	NA	NA	11/21/2016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11/23/2016	6.6		72		
					11/28/2016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11/30/2016	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: December 2, 2016

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			A new saddle was installed to tie in the piping from PC-99r2 into the casing of PC-99r3.
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			The upgrades around the lift station have begun to include new lighting, controls, piping for the IX unit, containment and removal of old piping and controls.
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			The 6" steel swing check valve was removed and serviced for proper operation by Raphael Const.
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		1	The combo valve inspection frequency has changed to monthly as a result of the faulty combo valve found on 11-18. New seats and floats were installed to adjust for the low pressure on the line at that point.
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		2	LSHH float switch had a poor communication connection causing a false signal to show up. The terminal block it was attached to was bypassed and the wires were connected directly inside of the junction box. The false signal has since stopped. There is no risk bypassing the terminal block.
4		**Interceptor Wells and Cr Treatment Plant**				
4.01		*IWF Well Field, 30 wells*	Running		3	The piping on I-AB was broken off due to the faulty installation by the original contractors. This is not a well that pumps daily. The 1"PVC SCH 40 piping was removed and replaced with 1" Boreline hose. A new 1/2 hp Franklin motor was installed on I-Q. This was an old motor that was worn. (Same size and model of motor as on the rest of the well field.)
4.02		*Ferrous Sulfate Feed System*	Running			
4.03		*Polymer Feed System*	Running			

Status Codes
Running - Unit is in operation
Standby - Spare or duplicate, not currently in operation
Maintenance - Out of service for maintenance
Off - Not currently needed for use, but can be placed in service

Criticality Codes
1= Critical - Cannot continue with operation until repairs made
2 = Important - Can still operate safely and in compliance with permits, but risks are increased
3 = Moderate - Work needs to be performed, but plant can still operate with redundancy that is in place
4 = Low – Minor repairs that in no way alter the performance of the plant

Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
4.04		*Clarifier*	In operation		1	The clarifier was taken offline to remove debris from the base of the tank that is used for transferring sludge to the conditioning tank. The settling tubes were also removed and inspected. A new 3'' Spears butterfly valve was installed at the base of the vessel in place of the work 3'' steel wafer valve. Solids were also removed from the degassifier tank and transferred into totes which was later processed through GWTP.
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		3	The contactor for the air compressor switch failed. A new part was ordered and installed. During the down time the back up compressor was put online and supplied the plant with the necessary air to operate.
5		**Equalization Area and GW-11 Pond**				
5.01	PID10A	*Pond GW-11*	In operation			
5.02	PID10A	*Pond Water Pump - P101A*	Running		2	The pump was re-installed with new motor bearings and mechanical seal after a leak was found at the seal. Faulty motor bearings were the cause of the seal failure. The pump is back in operation.
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*	Standby			
5.07	PID10A	*Raw Water Feed Pump - P102B*	Running			
5.08	PID10A	*F-101 Filters*	Running		3	New parts have been ordered to repair the shaft collars where the shaft joins to the motor gearbox.
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*			2	The FBR was taken offline to inspect and locate any possible discrepancies on the vessel.
6.02	PID14	*Separator Tank - 1401*				
6.03	PID14	*Media Return Pump - P 1401*				

Status Codes
Running - Unit is in operation
Standby - Spare or duplicate, not currently in operation
Maintenance - Out of service for maintenance
Off - Not currently needed for use, but can be placed in service

Criticality Codes
1= Critical - Cannot continue with operation until repairs made
2 = Important - Can still operate safely and in compliance with permits, but risks are increased
3 = Moderate - Work needs to be performed, but plant can still operate with redundancy that is in place
4 = Low – Minor repairs that in no way alter the performance of the plant

Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
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		3	The media return pump was reinstalled and put back into service.
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		3	A new 2 hp Baldor motor was installed on the bed height control pump to replaced the existing that was worn but still functional.
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			

Status Codes

Running - Unit is in operation
Standby - Spare or duplicate, not currently in operation
Maintenance - Out of service for maintenance
Off - Not currently needed for use, but can be placed in service

Criticality Codes

1= Critical - Cannot continue with operation until repairs made
2 = Important - Can still operate safely and in compliance with permits, but risks are increased
3 = Moderate - Work needs to be performed, but plant can still operate with redundancy that is in place
4 = Low – Minor repairs that in no way alter the performance of the plant

Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
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			
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			
10.03	PID04	*Biofilter*	In operation			
10.04	PID04	*Nutrient Solution*	Running			

Status Codes

Running - Unit is in operation
Standby - Spare or duplicate, not currently in operation
Maintenance - Out of service for maintenance
Off - Not currently needed for use, but can be placed in service

Criticality Codes

1= Critical - Cannot continue with operation until repairs made
2 = Important - Can still operate safely and in compliance with permits, but risks are increased
3 = Moderate - Work needs to be performed, but plant can still operate with redundancy that is in place
4 = Low – Minor repairs that in no way alter the performance of the plant

Sub-System	P&ID	Description	Status[1]	Checked	Criticality[2]	Notes
10.05	PID04	*Biofilter Sump*	Running			
10.06	PID04	*Nutrient Pump - P401*	Running			
10.07	PID04	*Biofilter Sump Pump - P402A*	Standby			
10.09	PID04	*Biofilter Blower*	Running			
10.10	PID05	*DAF Pressure Tanks*	In operation		2	A new pressure tank was installed due to damage to the old vessel that was at risk.
10.11	PID05	*DAF Vessel - D501*	Running		2	The vessel was drained and inspected. A patch was welded on a portion of the vessel (not submerged in water). Parts were replaced on the skimmer system to include rubber flaps, rollers and links connecting the chain system.
10.12	PID05	*DAF Pressure Pump - P501*	Running		2	The pressure pump was taken out to have the gearbox seals replaced and the mechanical seal repaired. This was caused by wear and tear over the years of service.
10.13	PID05	*DAF Float Pump - P502*	Running			The pump was replaced with the spare pump during the service of the vessel and the old one was taken to the maintenance shop to be rebuilt.
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*	Running			
12.02	PID17	*Filter Reject Tank*	In operation			
12.03	PID17	*Filter Reject Pump - P1701A*	Standby			
12.04	PID17	*Filter Reject Pump - P1701B*	Running		3	A new mechanical seal was replaced on 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			
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			

Status Codes

Running - Unit is in operation
Standby - Spare or duplicate, not currently in operation
Maintenance - Out of service for maintenance
Off - Not currently needed for use, but can be placed in service

Criticality Codes

1= Critical - Cannot continue with operation until repairs made
2 = Important - Can still operate safely and in compliance with permits, but risks are increased
3 = Moderate - Work needs to be performed, but plant can still operate with redundancy that is in place
4 = Low – Minor repairs that in no way alter the performance of the plant

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

Status Codes

Running - Unit is in operation
Standby - Spare or duplicate, not currently in operation
Maintenance - Out of service for maintenance
Off - Not currently needed for use, but can be placed in service

Criticality Codes

1= Critical - Cannot continue with operation until repairs made
2 = Important - Can still operate safely and in compliance with permits, but risks are increased
3 = Moderate - Work needs to be performed, but plant can still operate with redundancy that is in place
4 = Low – Minor repairs that in no way alter the performance of the plant

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

Status Codes

Running - Unit is in operation
Standby - Spare or duplicate, not currently in operation
Maintenance - Out of service for maintenance
Off - Not currently needed for use, but can be placed in service

Criticality Codes

1= Critical - Cannot continue with operation until repairs made
2 = Important - Can still operate safely and in compliance with permits, but risks are increased
3 = Moderate - Work needs to be performed, but plant can still operate with redundancy that is in place
4 = Low – Minor repairs that in no way alter the performance of the plant