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Technical Memorandum

Operable Unit 1 Source Area Treatment System Progress Report
March 2015 through August 2015
National Aeronautics and Space Administration
Jet Propulsion Laboratory, Pasadena, California

October 2015

This technical memorandum provides a summary of field, analytical, and operational data collected from March 1, 2015 through August 31, 2015, for the Operable Unit 1 (OU-1) source area treatment system. The OU-1 system is being implemented as part of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Program at the National Aeronautics and Space Administration (NASA) Jet Propulsion Laboratory (JPL) in Pasadena, California.

This memorandum summarizes system performance based on the extracted and reinjected groundwater volumes, as well as removal of volatile organic compounds (VOCs) and perchlorate. Other operational data presented in this memorandum include the performance of the biomass removal and backwash recovery system, reinjection well performance, and an evaluation of the water levels and water quality data collected within the OU-1 source area treatment zone. In addition, the following attachments are included:

- Attachment A: Laboratory Analytical Results
- Attachment B: Field Monitoring Results

SYSTEM PERFORMANCE SUMMARY

Table 1 summarizes the performance of the OU-1 system through August 31, 2015. Figure 1 presents the treatment process flow diagram.

Table 1. OU-1 System Operational Summary (through August 31, 2015)

Parameter	Units	EW-1	EW-2	EW-3	Total
Total Volume of Groundwater Extracted	Acre Feet	166	1,232	2,305	3,703
Total Volume of Wastewater to Sewer	Acre Feet	--	--	--	3.59
Mass of Perchlorate Removed	lb	231	669	938	1,838
Mass of CCl_4 Removed	lb	2.6	23.0	12.4	37.9
Mass of TCE Removed	lb	0.6	2.9	2.6	6.1

EW = extraction well; lb = pound; CCl_4 = carbon tetrachloride; TCE = trichloroethylene

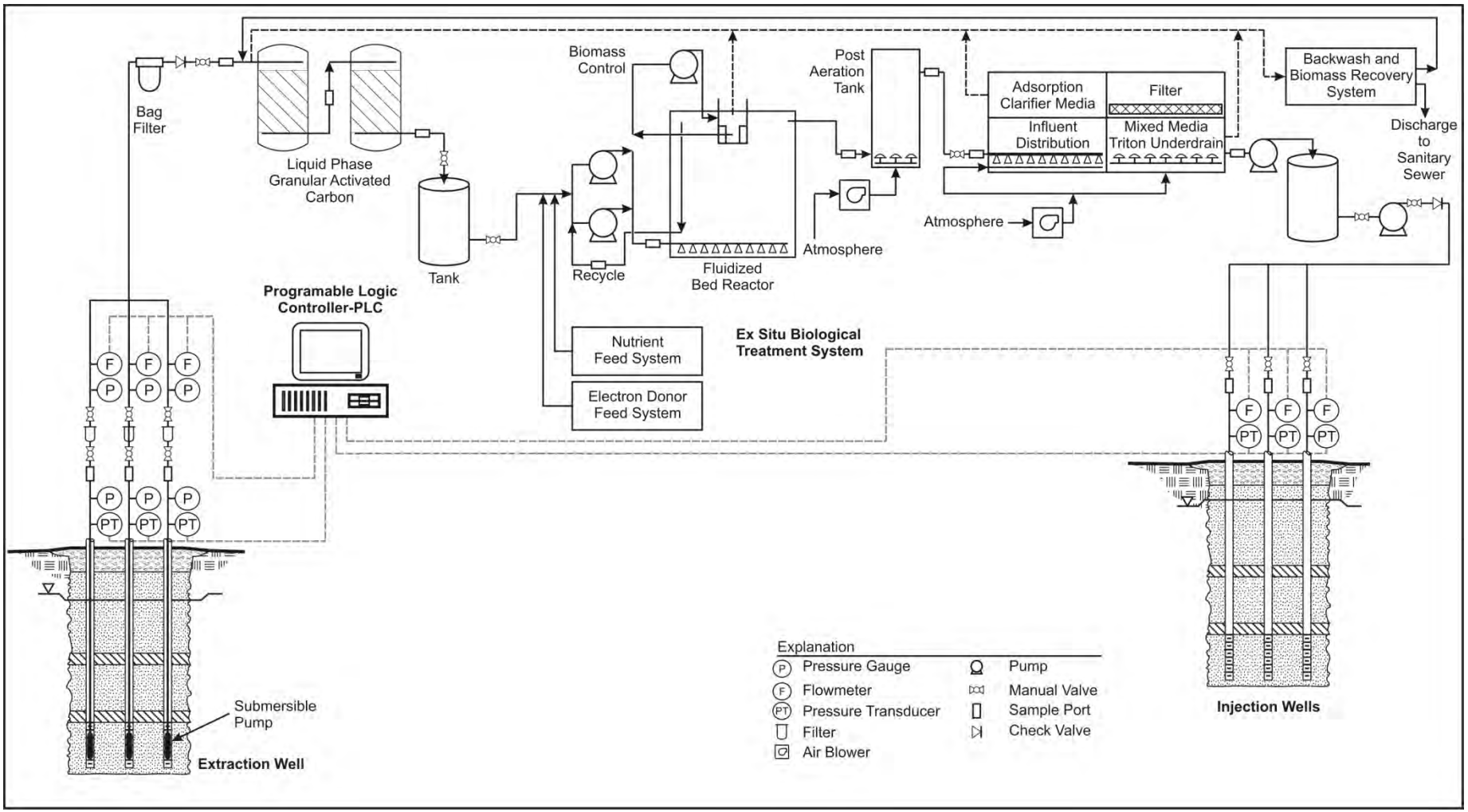


Figure 1. Process Flow Diagram

Additional information regarding system performance is summarized below and presented in more detail in the subsequent sections.

- **Extraction.** The OU-1 system operated at an average overall extraction flow rate of 251 gallons per minute (gpm) and has extracted approximately 3,703 acre-feet of water through August 31, 2015. Over the past 6 months, EW-1 was not operated due to low water levels associated with the drought in Southern California. The average flow rate from EW-2 during this reporting period was 117 gpm and the average flow rate from EW-3 was 134 gpm during this reporting period.

- **Reinjection.** During the past 6 months, sustained reinjection flow rates have averaged 73 gpm at Injection Well No. 1 (IW-1), 75 gpm at IW-2, and 103 gpm at IW-3. IW-3 has been in operation since January 2008 and is equipped with a 300 gpm extraction pump so that flow can be reversed periodically to help maintain injection capacity. In the past 6 months, no water was extracted from IW-3 due to the low water levels associated with the drought in Southern California.

- **Injection Well Rehabilitation.** During operation of the OU-1 treatment system, injection flow rates and wellhead pressures are monitored to evaluate injection well performance and efficiency. Observations of increased well head injection pressures and decreased injection flow rates result in scheduling rehabilitation activities. Well rehabilitation activities were not performed during this reporting period. Injection well performance will continue to be monitored and rehabilitation is anticipated to begin in December 2015.

- **Chlorination.** Chlorination of treated groundwater prior to reinjection was initiated on December 15, 2006, and has been successful in extending the time period between well rehabilitation events. Currently, residual chlorine levels in treated water are averaging 2.5 mg/L prior to reinjection. The sodium hypochlorite (12.5%) use rate is approximately 5-10 gallons per day (gpd) depending on extraction rates.

- **Mass Removal.** The cumulative chemical mass removed by the OU-1 system through the end of August 2015 was estimated at approximately 1,838 lb of perchlorate, 37.9 lb of CCl_4, and 6.1 lb of TCE. Between March 1, 2015 and August 31, 2015, the chemical mass removed by the OU-1 system was 34 lb of perchlorate, 0.6 lb of CCl_4, and no measurable TCE. Figure 2 shows the cumulative perchlorate removal for the OU-1 system since startup.

- **Hexavalent Chromium.** On July 1, 2014, the State Water Resources Control Board (Cal/EPA) established an MCL for hexavalent chromium of 10 µg/L. Since OU-1 system startup in 2005, hexavalent chromium has been sampled at the system inlet and system outlet on a quarterly basis. System inlet samples have ranged from 2.7 to 14 µg/L and averaged 5.6 µg/L over the past three years. During this reporting period, hexavalent chromium concentrations in samples collected from the plant inlet were 3.3 and 4.2 µg/L, and effluent samples were <2 µg/L. The OU-1 system appears to remove > 40% of the hexavalent chromium during treatment, with concentrations at the system outlet averaging 2.9 µg/L over the past three years. Since the treatment system effluent concentrations are below the MCL, treatment modifications are not required. Quarterly sampling for hexavalent chromium at the OU-1 system influent and effluent will continue.

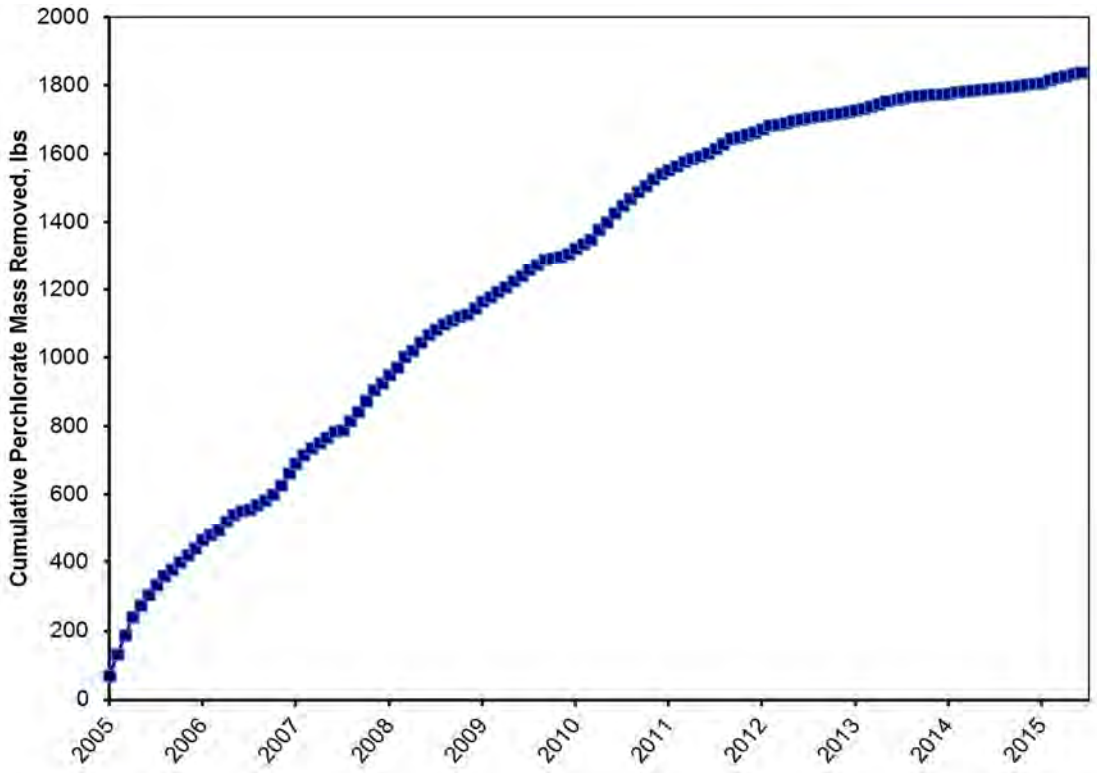


Figure 2. Cumulative Mass of Perchlorate Removed by the OU-1 System

- **New Lincoln Avenue Water Company (LAWC) Well.** As part of the JPL CERCLA program, NASA installed a new extraction well for LAWC, which will support treatment at the leading edge of the JPL chemical plume. Drilling associated with the new LAWC well began in March and well development activities began in April 2015. Groundwater removed from the new LAWC well as part of initial well development was transported to the OU-1 system for treatment. During this reporting period, approximately 285,700 gallons of water from the new LAWC well was treated by the OU-1 system. Water was stored in 21,000 gallon tanks near the facility and gradually introduced into the system. In association with this effort, JPL was issued an amended Los Angeles County Sanitation District (LACSD) permit (No. 007024), approving routine sanitary sewer discharges from OU-1 during operations involving temporary treatment of water from other locations within the JPL CERCLA site.

VOC REMOVAL BY LIQUID-PHASE GRANULAR ACTIVATED CARBON

Liquid-phase granular activated carbon (LGAC) vessels arranged in a lead-lag configuration are used to remove VOCs from extracted groundwater. Weekly samples are collected for VOC analysis at the LGAC lead vessel effluent (LGAC mid-point), and the fluidized bed reactor (FBR) effluent. Samples are collected quarterly for VOC analysis at the LGAC influent and at each of the three extraction wells (see Attachment A).

The total VOCs at the LGAC influent ranged from 5.9 to 8.0 µg/L during March 2015 through August 2015. The concentration of total VOCs has been steadily declining since they were first measured in 2005 (Figure 3). Since May 2007, concentrations of several disinfection byproducts have been detected in samples collected from the OU-1 extraction wells, and the disinfection byproducts currently make up approximately 95% of the VOCs entering the LGAC vessels. The disinfection byproducts are chloroform, bromodichloromethane, dibromochloromethane, and bromoform, and are associated with chlorination of injected water to control biofouling at the injection wells. Chloroform was also detected

prior to the start of chlorination; although, concentrations increased following chlorination. The total concentration of the disinfection byproducts has ranged from approximately 2 to 19 µg/L since initiating chlorination. Influent concentrations of TCE and CCl_4 remained low and stable over the past 6 months.

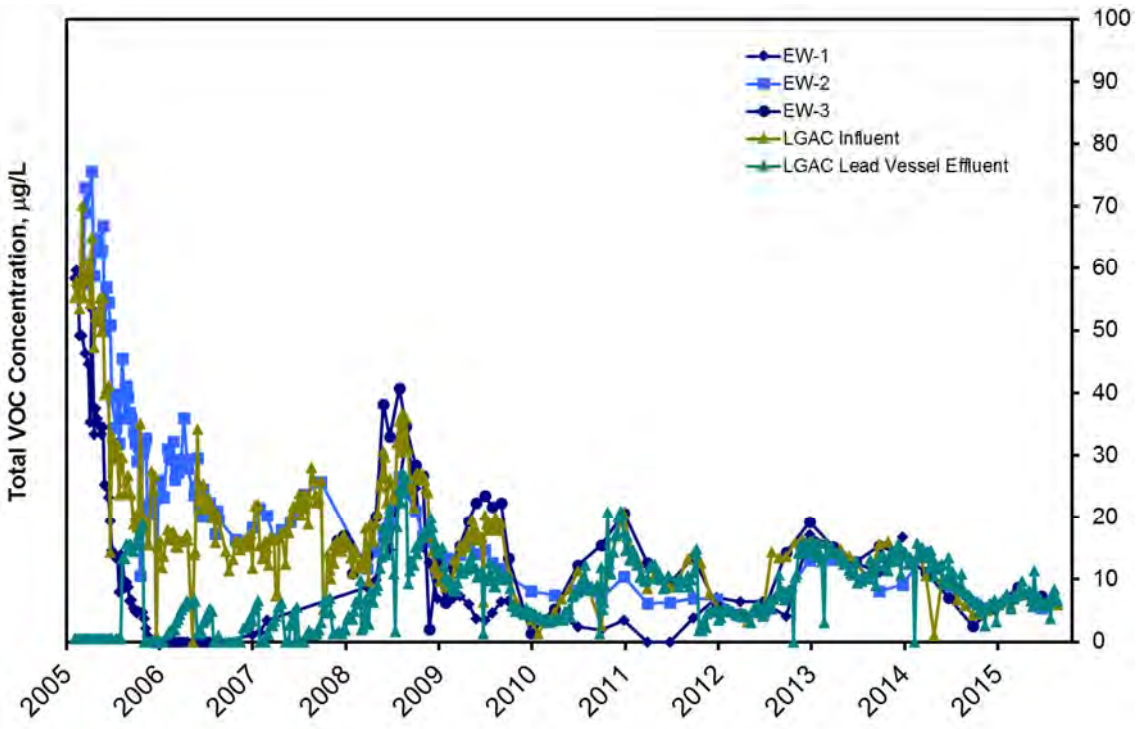


Figure 3. Total VOC Extraction Well Concentrations

The U.S. Environmental Protection Agency (EPA) published the Stage 1 Disinfectants/Disinfection Byproducts Rule[1] to regulate total trihalomethanes (disinfection byproducts) at a maximum allowable annual average level of 80 µg/L. The level of trihalomethanes recorded at the OU-1 extraction wells is currently 5.4 µg/L. The treatment system removes the disinfection byproducts and finished water concentrations were non-detect during this reporting period with the exception of five samples with very low chloroform concentrations ranging between 0.12J and 0.30J µg/L. Disinfection byproducts will continue to be monitored and evaluated over time based on the concentrations detected at the system extraction wells.

A LGAC media change-out was performed on the LGAC vessel GC-201B, on July 23, 2015. As part of the change-out, 10,000 lbs of virgin media was loaded into the LGAC vessel. Currently GC-201A is the lead vessel and GC-201B is the lag vessel.

Spent LGAC media and waste from vessel change-out were characterized and disposed at an approved facility. Waste characterization and manifest documentation were approved by JPL's environmental waste coordinator, Mark Araki.

[1] U.S. Environmental Protection Agency. 2003. *National Primary Drinking Water Regulations: Disinfectants and Disinfection Byproducts*, Volume 63, Number 241. December.

NITRATE AND PERCHLORATE REMOVAL BY THE FLUIDIZED BED REACTOR

Nitrate and perchlorate biodegradation occurs within the FBR when redox conditions are reducing (signified by a negative oxidation-reduction potential [ORP] and dissolved oxygen [DO] <1 mg/L) and with an adequate supply of electron donor (acetic acid) and nutrients (urea/diammonium phosphate). Treatment within the FBR produces biomass, carbon dioxide, water, nitrogen, and chloride. Nitrate and perchlorate removal through August 2015 is summarized in this section.

*Nitrate Removal***.** The concentration of nitrate in groundwater in the combined plant effluent has been declining over time (Figure 4). The nitrate concentration, which was more than 9 mg/L at the start of system operations in February 2005, has decreased to approximately 1.9 mg/L in August 2015, which is consistent with the concentration during the last reporting period.

Acetic acid demand within the FBR is determined by the concentration of DO, nitrate, and perchlorate found in extracted groundwater. Acetic acid dosage is manually adjusted on a weekly basis consistent with demand. The acetic acid dosage from March 1, 2015 through August 31, 2015 ranged from 4.56 to 8.08 gpd, with an average of 6.24 gpd. Acetic acid use has decreased slightly from previous years, which is consistent with the decrease in the concentration of perchlorate and nitrate.

Because nitrate must be removed before perchlorate can be removed, nitrate removal must be optimized. The concentration of nitrate at the FBR effluent was <0.10 mg/L (as NO_3-N) for all sampling events during this reporting period (see Figure 4).

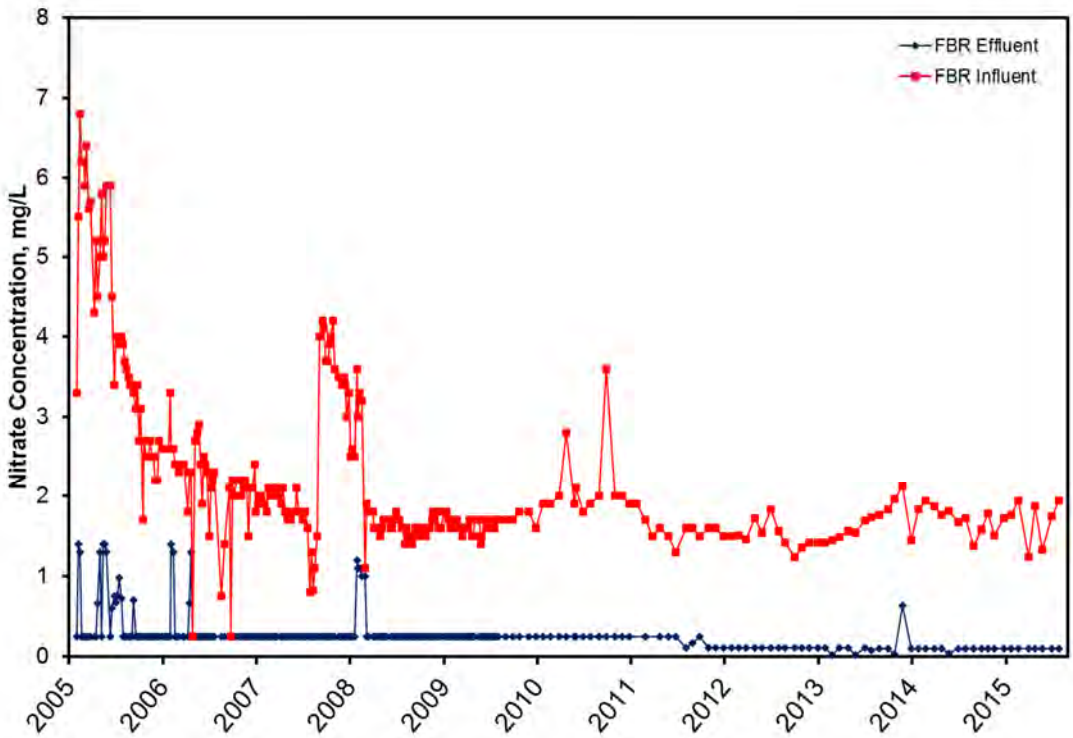


Figure 4. Nitrate Removal by the FBR

Perchlorate Removal. Perchlorate is analyzed in groundwater extracted from EW-1, EW-2, EW-3, and in the combined plant influent (Figure 5). Perchlorate concentrations in the combined plant influent ranged between < 4 µg/L and 100 µg/L during this reporting period. The concentration of perchlorate

in the combined influent has decreased from approximately 2,300 µg/L in February 2005 to 67 µg/L during the August 27, 2015 sampling event. Levels of perchlorate over the last six months have increased significantly from the previous reporting period.

Currently EW-1 continues to have low groundwater levels due to the drought, and has not been operated since January 16, 2014. Groundwater levels will continue to be evaluated and operation of EW-1 will recommence when the pump can be operated with sustained submergence.

Perchlorate was measured on a weekly basis at EW-2. The concentration of perchlorate in EW-2 during this reporting period ranged between 29 µg/L and 54 µg/L (average: 42.4 µg/L). The highest concentration was observed in April at 54 µg/L, and during the last sampling event of the reporting period (August 27, 2015) the concentration was 38 µg/L.

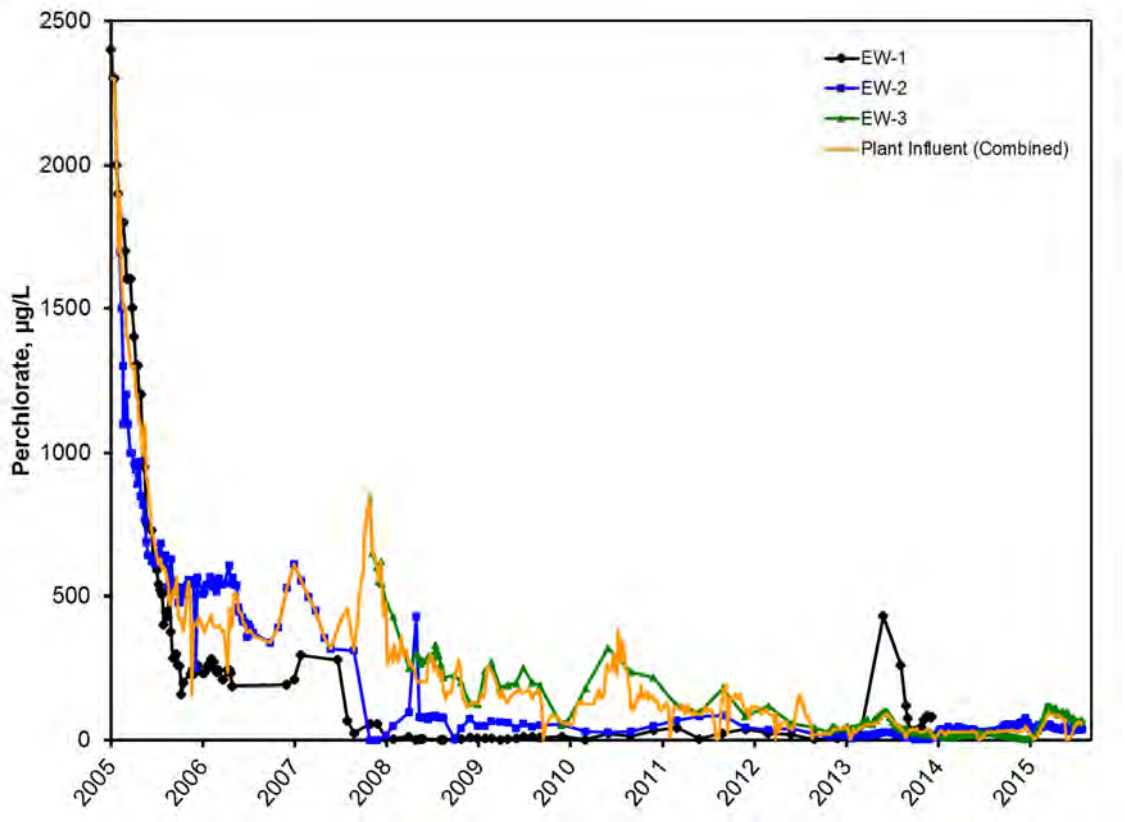


Figure 5. Influent Perchlorate Concentrations at EW-1, EW-2, EW-3 and the Combined Plant Influent

Perchlorate was measured on a weekly basis at EW-3. The concentration of perchlorate during this reporting period ranged between 33 µg/L and 120 µg/L (average: 83 µg/L). Perchlorate concentrations detected in EW-3 during the last sampling event of the reporting period (August 2015) was 70 µg/L.

The FBR effluent is sampled on a weekly basis (see Figure 6). All 25 sampling events over the past six months yielded no breakthrough of perchlorate above the method detection limit of 4.0 µg/L.

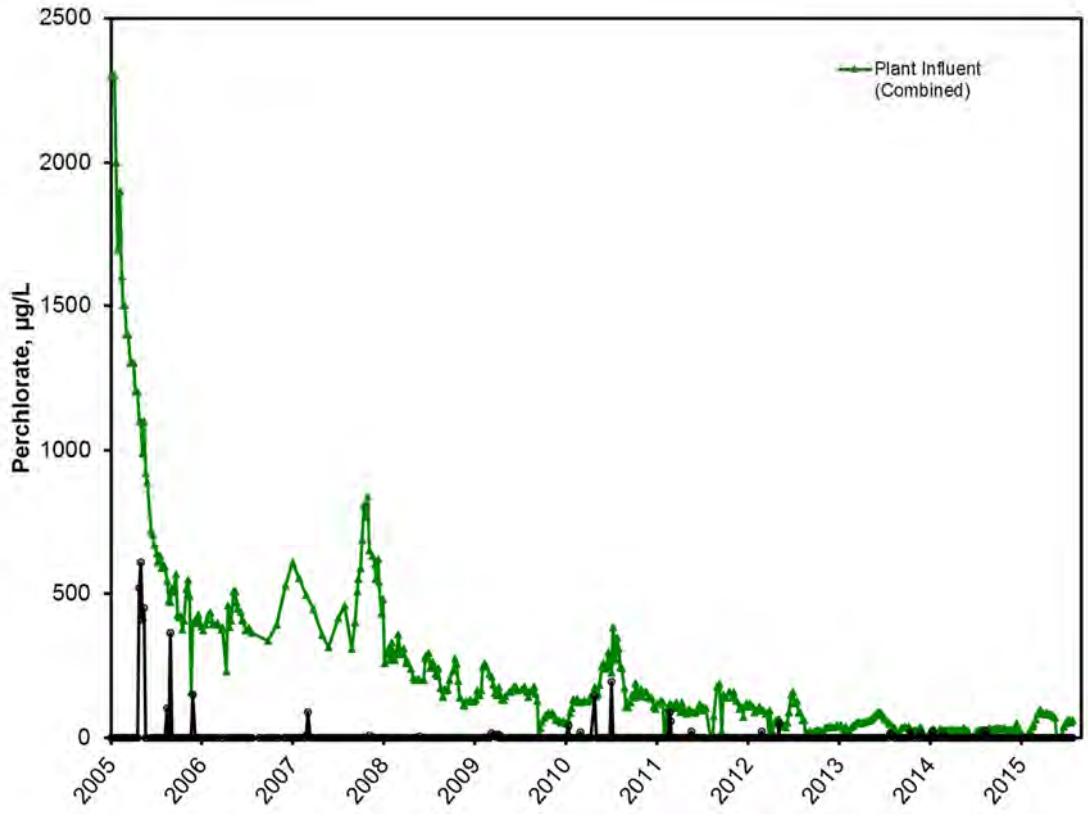


Figure 6. Perchlorate Removal by the FBR

ORP Conditions and Sulfate Reduction. The ORP values within the FBR averaged -112 millivolts (mV) during this reporting period (Attachment B). The ORP values were within the optimal range for nitrate and perchlorate removal.

Under normal operations, the FBR will convert small amounts of natural sulfate in the groundwater to dissolved hydrogen sulfide (H_2S). During certain non-optimal conditions, larger amounts of H_2S can be generated. H_2S has a noticeable odor at a threshold value of 0.0005 parts per million by volume (ppmv) in the ambient air based on data from the Agency for Toxic Substances and Disease Registry (ATSDR).

The total sulfide measurement in the water following FBR treatment is performed on site using a Hach™ spectrophotometer, which indicates the total quantity of H_2S, bisulfide, and metal sulfides in a sample. Based on the neutral pH of the treated water, it is assumed that the majority of the total sulfide is present in the form of H_2S. Sulfide levels in the FBR effluent water reached a concentration higher than the threshold level of 100 µg/L on one occasion over the past 6 months; however, the average over that time was 11 µg/L. The maximum concentration measured during this reporting period was 211 µg/L. The increases in sulfide production were attributed to an excess in electron donor (acetic acid) in the FBR as a result of changing influent concentrations. Acetic acid dosage was reduced to decrease production of H_2S, while still optimizing removal of nitrate and perchlorate.

As a precautionary measure, a carbon vessel is in place to ensure no H_2S releases into the ambient air. The vessel is located at the air exhaust of the aeration tank and typically needs changed out due to moisture content rather than H_2S saturation of the media. The daily H_2S monitoring at the carbon vessel effluent yielded H_2S concentrations of <1 ppmv between March 2015 and August 2015.

BIOMASS REMOVAL AND BACKWASH WATER RECOVERY

The biomass removal and backwash recovery system consists of a Trimite™ filter, backwash sump, and clarifier. The filter recovers biomass solids, reducing the turbidity of the treated water prior to reinjection, to protect injection wells. This process is monitored by testing the turbidity of the effluent from the filter using an in-line Hach™ turbidimeter. During this reporting period, the turbidity of the Trimite™ effluent was within the target operational range (see Figure 7). Turbidity ranged between 0.03 and 0.88 nephelometric turbidity units (NTU; average: 0.089 NTU).

The Trimite™ filter has been in operation for more than 10 years and the media is starting to show signs of wear. Typical operations of low turbidity water yield a media life-cycle of approximately 10 to 15 years according to the manufacturer; however, the age of the filter warrants careful monitoring. The filter media will continue to be cleaned and replaced, as required.

The total suspended solids (TSS) in the filter effluent were consistently 0.5 mg/L or less during this reporting period, representing effective TSS removal by the Trimite™ filter.

The backwash water from the Trimite™ filter is routed to the sump and pumped to the clarifier. After the biomass solids settle out in the clarifier, the clarified water (supernatant) is returned to the FBR inlet. No polymers and/or coagulant aids are being used in the clarifier. The clarifier solids are disposed of in the sanitary sewer in batch discharges of approximately 12,000 gallons once every 4 to 6 weeks. The volume of wastewater discharged to the sanitary sewer were recorded and reported to the Raymond Basin Management Board on a monthly basis.

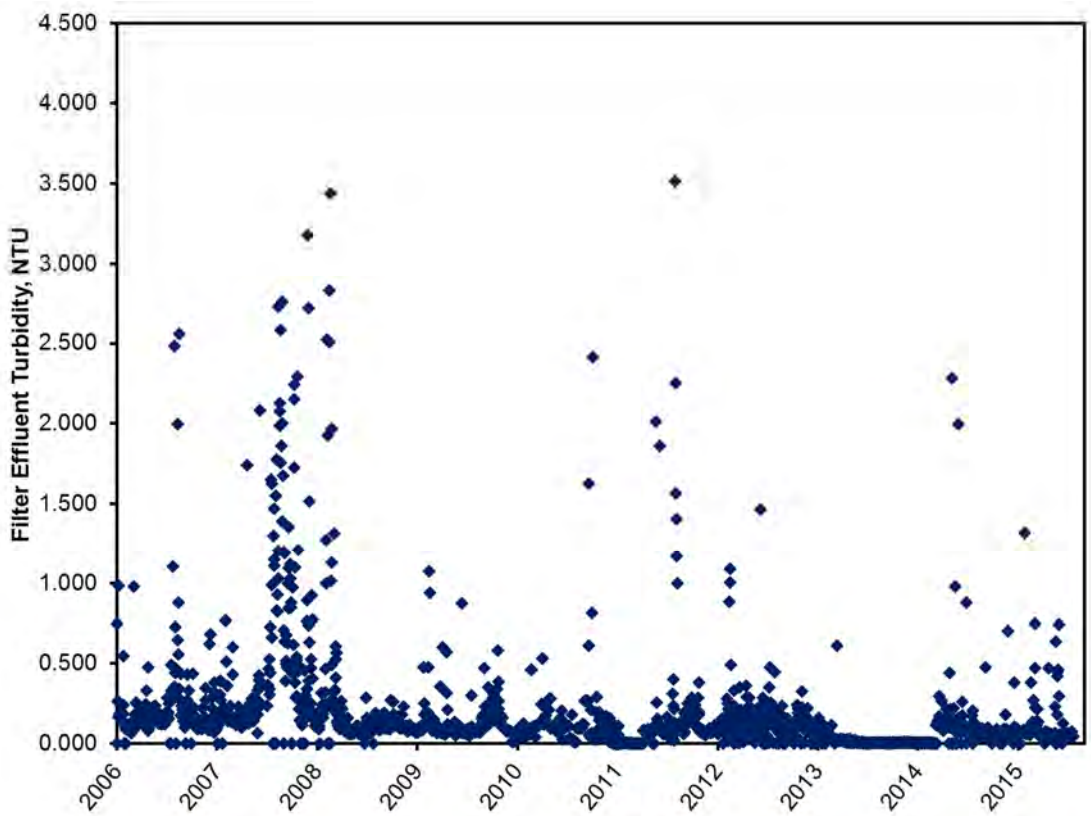


Figure 7. Trimite™ Filter Effluent Turbidity

HEXAVALENT CHROMIUM ASSESSMENT

On July 1, 2014, the State Water Resources Control Board (Cal/EPA) established an MCL for hexavalent chromium of 10 µg/L.

Since OU-1 system startup in 2005, hexavalent chromium has been sampled at the system inlet (GACIN) and system outlet (TFOUT) on a quarterly basis. GACIN samples have ranged from 2.7 to 14 µg/L and averaged 5.6 µg/L over the past three years. Hexavalent chromium concentrations have averaged 2.9 µg/L over the past three years at the OU-1 system outlet (TFOUT) which is below the State MCL. During this reporting period, hexavalent chromium concentrations at the system outlet averaged < 2.0 µg/L. Therefore, since the treatment system effluent concentrations are below the MCL, treatment changes are not required. Quarterly sampling for hexavalent chromium at the OU-1 system influent and effluent will continue.

Table 2 provides a summary of hexavalent chromium concentrations in samples collected at the source area treatment system between March 2015 and August 2015.

Table 2. Summary of Hexavalent Chromium Concentrations

Hexavalent Chromium (µg/L)		
Date	**GACIN**	**TFOUT**
3/23/2015	3.3	< 2.0
6/25/2015	4.2	< 2.0
Average:	**3.75**	**< 2.0**

WATER LEVEL AND WATER QUALITY ASSESSMENT

Groundwater elevation and chemical data are used to evaluate the impact of OU-1 system operations on the local aquifer. Groundwater elevations at select NASA JPL monitoring wells (MW-7, MW-8, MW-13, MW-16, and IRZ-IW2) are taken weekly as part of OU-1 system operations. During this reporting period, groundwater elevations have decreased an average of 12.2 feet, and have declined an average of 94 feet since April 2011. In addition, groundwater elevations are collected from the entire JPL monitoring well network on a quarterly basis. .

Historic elevation data (April 2004) indicate a steep southwest gradient from the mouth of the Arroyo Seco to the OU-1 system area coupled with a southeastern gradient from the northwestern portion of the JPL facility. Flow converges to the south of the treatment zone and migrates toward the south/southeast under a reduced gradient (Figure 8). The groundwater elevation contour map showing conditions in May 2015 (Figure 9) demonstrates groundwater flow is significantly affected by operation of the system, with a drawdown of roughly 10 to 20 ft observed in the extraction wells. Data indicate that the extraction wells effectively influence groundwater within a radius greater than 160 ft of the extraction wells.

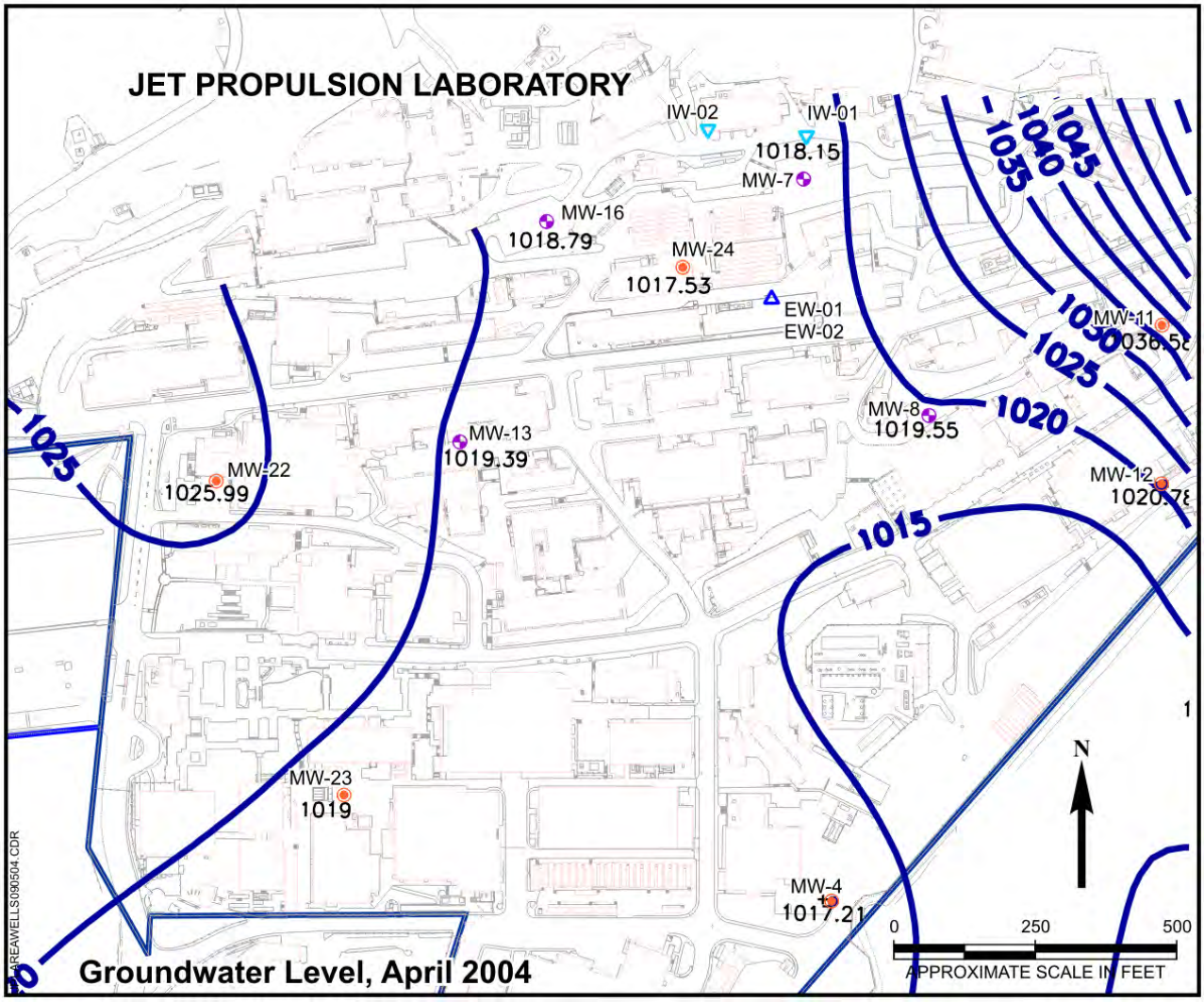


Figure 8. Groundwater Contour Map, April 2004 (Baseline before Extraction)

Figure 9. Groundwater Contour Map, May 2015 (with Extraction)

Isoconcentration contour maps (Figures 10 through 12) using data from NASA JPL's quarterly groundwater monitoring program are provided for TCE, CCl_4, and perchlorate for baseline conditions before operation (October/November 2004) and for the most recent monitoring data (July 2015). Table 3 provides a summary of current concentrations, historical highs, and baseline conditions for perchlorate, CCl_4 and TCE.

Table 3. OU-1 Source Area Monitoring Well Concentrations

Source Area Monitoring Well Concentrations		MW-7	MW-13	MW-16	MW-24
		µg/L			
Current Levels (July 2015)	Perchlorate	33	1,400	< 4.0	24
	CCl_4	<0.5	<0.5	<0.5	<0.5
	TCE	<0.5	<0.5	< 0.5	<0.5
Prior to OU-1 Startup	Perchlorate	4,810	51.5	322	4,880
	CCl_4	51.4	*0.4*	< 0.5	7.8
	TCE	8.7	1.4	< 0.5	1.6
Historic Highs	Perchlorate	13,300	2,100	13,100	4,880
	CCl_4	310	70	200	58
	TCE	48	73	43	15

Data collected during the quarterly groundwater monitoring indicate the following:

- The concentration of VOCs and perchlorate in the treatment zone (i.e., MW-7, MW-13, MW-16, and MW-24) has decreased significantly since system startup.
- Concentrations of TCE and CCl_4 in the treatment zone are non-detect and below the state and federal MCLs.
- Perchlorate concentrations in MW-7 and MW-24 have declined from 4,810 µg/L and 4,880 µg/L to concentrations of 33 µg/L and 24 µg/L, respectively.
- The perchlorate concentration in MW-13 was 1,400 µg/L in July 2015. Perchlorate levels in this well have varied widely since commencing operation of the OU-1 system and are currently below the historic high concentration (2,100 µg/L). This well is located near the edge of the treatment zone for the OU-1 system.
- The perchlorate concentration in MW-16 was non-detect during the July 2015 sampling event, with a reporting limit of 4.0 µg/L.
- Approximately 285,700 gallons of water from the new LAWC well was treated by the OU-1 system during this reporting period.

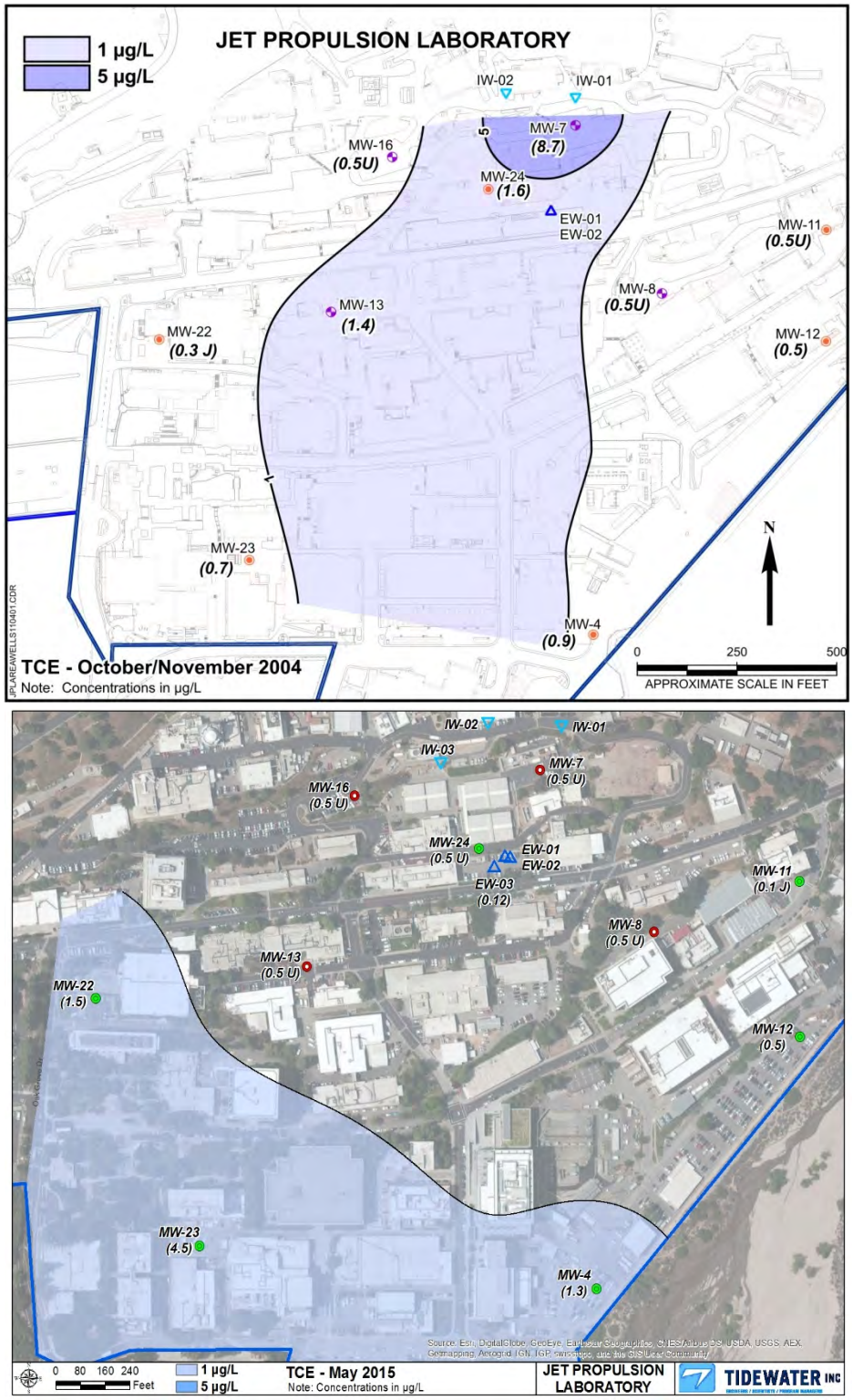
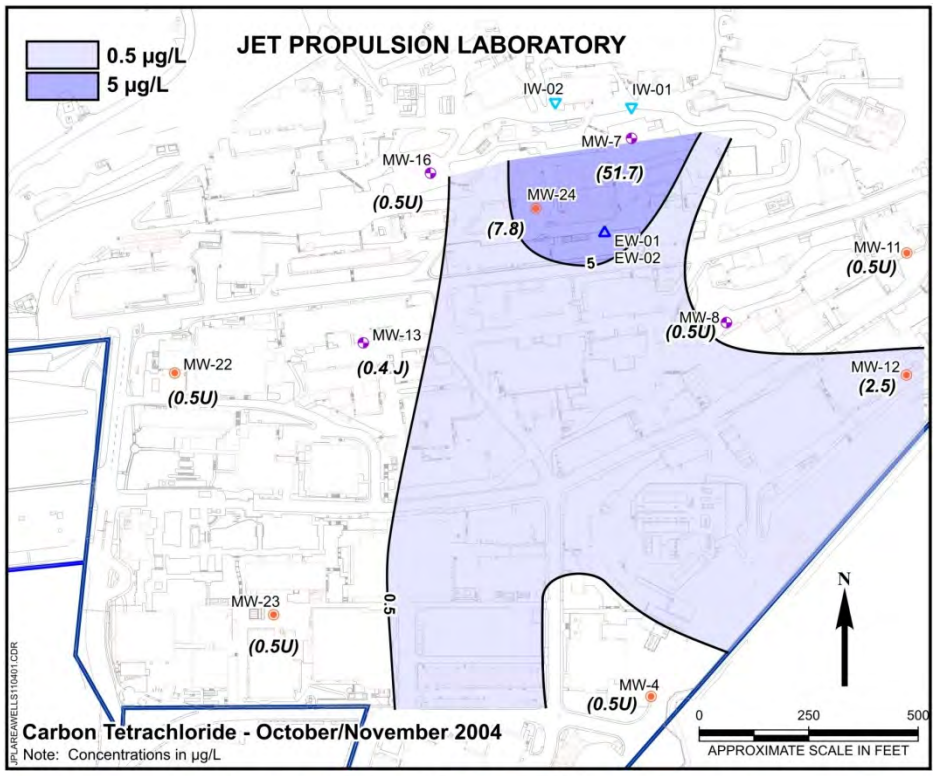


Figure 10. TCE in Groundwater before (October/November 2004) and during (May 2015) System Implementation



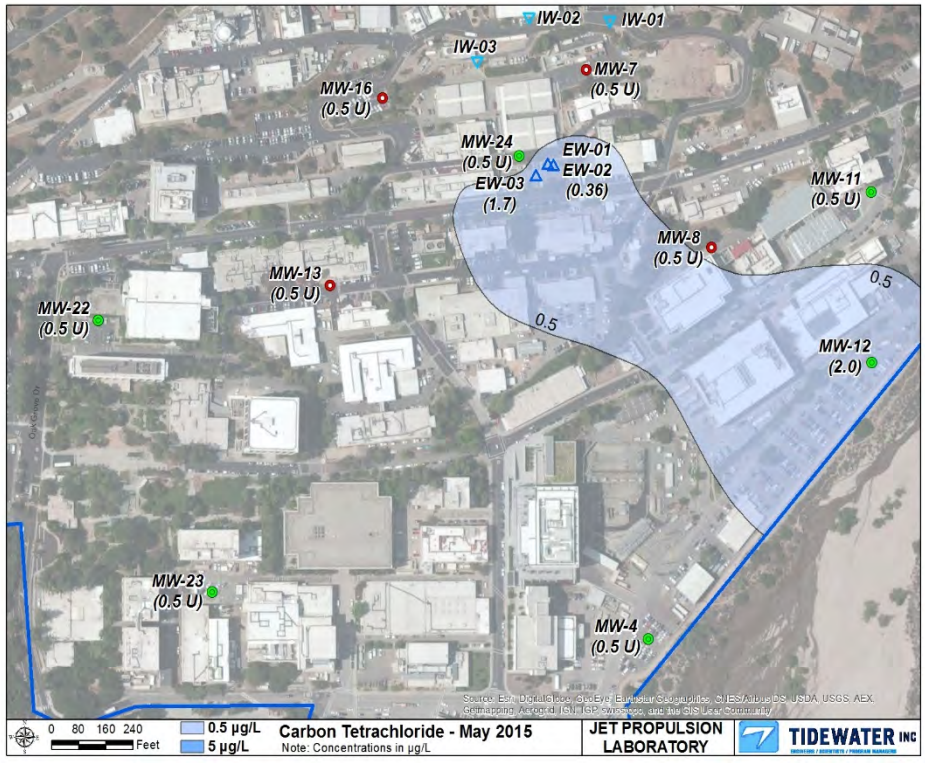


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Figure 11. Carbon Tetrachloride in Groundwater before (October/November 2004) and during (May 2015) System Implementation

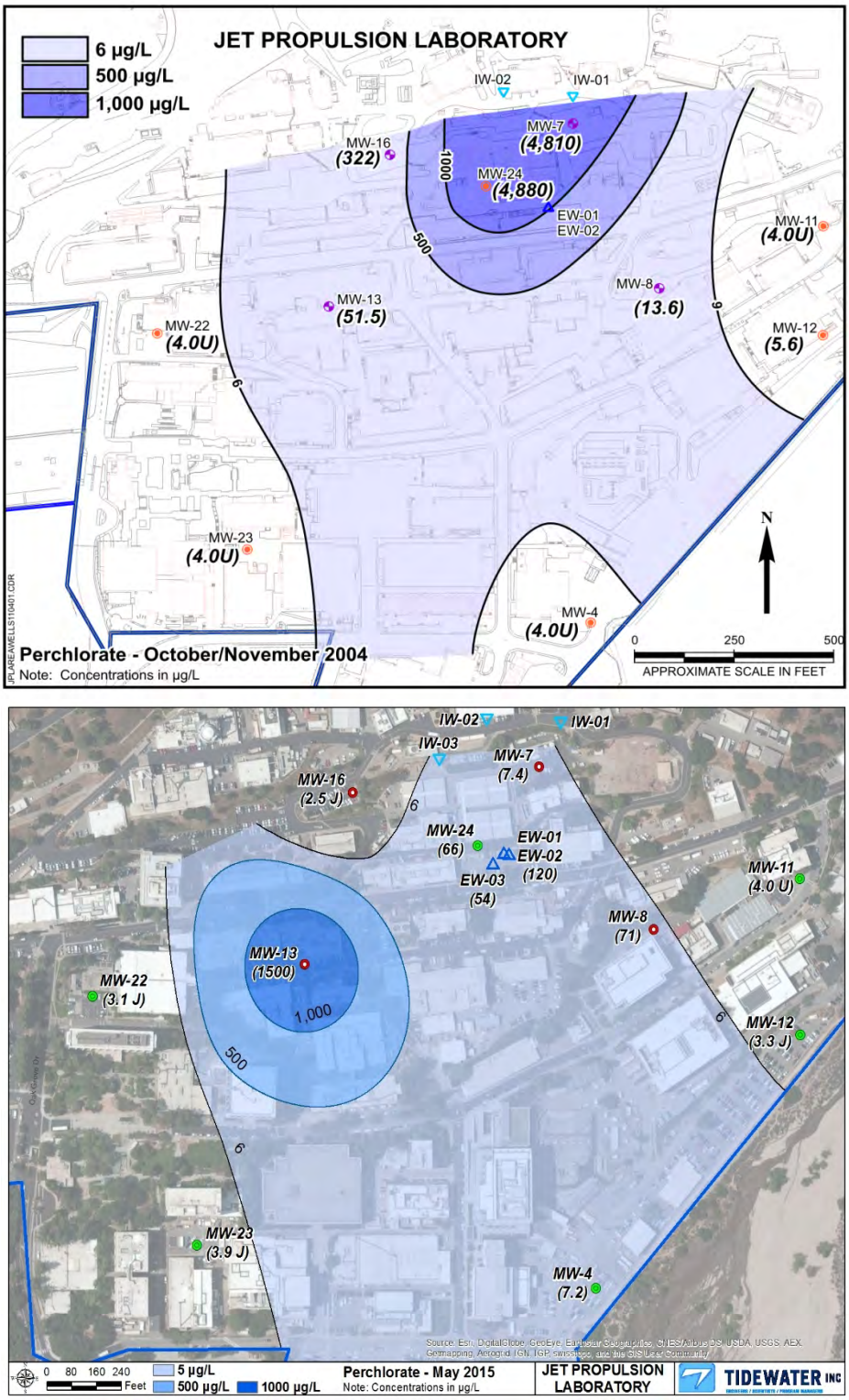

Figure 12. Perchlorate in Groundwater before (October/November 2004) and during (May 2015) System Implementation

CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations associated with the performance of the OU-1 system through August 31, 2015 are as follows:

- Approximately 37.9 lb of CCl_4 and 6.1 lb of TCE have been removed since the startup of the OU-1 system.
- Approximately 1,838 lb of perchlorate has been removed since the startup of the OU-1 system.
- The OU-1 system is operating effectively, reducing perchlorate and VOC concentrations in the treatment zone (represented by chemical concentrations in samples collected from EW-2, EW-3, MW-7, MW-13, MW-16, and MW-24).
- Sulfide production has been effectively controlled. In addition, the vapor phase treatment system continues to ensure that the system does not release any nuisance odors to the ambient air. H_2S concentrations in the ambient air are measured daily at locations within and nearby the OU-1 plant and continue to be below detection limits.
- 48,000 gallons, or approximately 0.15 acre-feet, of wastewater was sent to the sanitary sewer during this reporting period. Discharge volumes have been reported to the Raymond Basin Management Board.
- EW-1 remained shut down due to the drought in Southern California.
- Treatment system effluent hexavalent chromium concentrations were below the MCL of 10 µg/L during this reporting period. Quarterly sampling for hexavalent chromium at the OU-1 system influent and effluent will continue.
- Routine rehabilitation and well maintenance of IW-1, IW-2, and IW-3 is planned for December 2015.

Attachment A
Laboratory Analytical Results

Table A-1. Laboratory Analytical Data OU-1 Treatment System - March 2015

Sampling Date		3/5/2015					3/10/2015					3/19/2015					3/23/2015							
Sample Locations		GACMID	FBR Inlet	FBR Outlet	EW-2	EW-3	GACMID	FBR Inlet	FBR Outlet	EW-2	EW-3	GACMID	FBR Inlet	FBR Outlet	EW-2	EW-3	GACIN	GACMID	FBR Inlet	FBR Outlet	TFIN	TFOUT	EW-2	EW-3
Parameter	Unit																							
Perchlorate	µg/L	-	20/20	<4.0	48	33	-	26/27	<4.0	52	40	-	40/40	<4.0	45	59	<4.0	-	48/45	<4.0	-	-	48	71
Hexavalent Chromium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.3	-	-	-	-	<2.0	-	-
Chloride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85	-	-	-	-
Nitrite (NO2-N)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<170	-	-	-	-
Nitrate (NO3-N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.94/1.92	<0.10	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49	-	-	-	-
TDS	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	520	-	-
TSS	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	2.3	<0.50	-	-
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.10	-	-	-	0.6	0.11	-	-
1,1-Dichloroethene	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-	<0.50	0.21
Chloroform	µg/L	5.7	-	<0.50	-	-	5.5	-	<0.50	-	-	5.3	-	<0.50	-	-	4.4	5.4	-	<0.50	-	-	5	4.1
Carbon Tetrachloride	µg/L	0.69	-	<0.50	-	-	0.4	-	<0.50	-	-	0.69	-	<0.50	-	-	1.2	0.77	-	<0.50	-	-	0.76	1.7
Trichloroethene	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-	0.09	0.12
Bromodichloromethane	µg/L	1	-	<0.50	-	-	0.94	-	<0.50	-	-	1.2	-	<0.50	-	-	1.3	1.3	-	<0.50	-	-	1.4	1.4
Dibromochloromethane	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	0.14	-	<0.50	-	-	0.36	0.19	-	<0.50	-	-	0.46	0.23
Tetrachloroethene	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	0.76	<0.50	-	<0.50	-	-	0.41	0.97
Bromoform	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-	<0.50	<0.50
Trichlorofluoromethane	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-	<0.50	<0.50
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-	<0.50	<0.50
Total VOCs	**µg/L**	**7.39**	**-**	**0**	**-**	**-**	**6.84**	**-**	**0**	**-**	**-**	**7.33**	**-**	**0**	**-**	**-**	**8.02**	**7.66**	**-**	**0**	**-**	**-**	**8.12**	**8.73**
1,4-Dioxane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	<1.0	-	-	<1.0	<1.0

Table A-2. Laboratory Analytical Data OU-1 Treatment System - April 2015

Sampling Date		4/2/2015					4/9/2015					4/16/2015					4/22/2015					5/1/2015					
Sample Locations		GACMID	FBR Inlet	FBR Outlet	EW-2	EW-3	GACMID	FBR Inlet	FBR Outlet	EW-2	EW-3	GACMID	FBR Inlet	FBR Outlet	EW-2	EW-3	GACMID	FBR Inlet	FBR Outlet	EW-2	EW-3	GACIN	GACMID	FBR Inlet	FBR Outlet	EW-2	EW-3
Parameter	Unit																										
Perchlorate	µg/L	-	66/71	<4.0	50	100	-	85/80	<4.0	53	120	-	97/90	<4.0	54	110	-	93/92	<4.0	52	120	-	-	88/100	<4.0	45	100
Hexavalent Chromium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	86/86	87	-	-
Nitrite (NO2-N)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70/71	<170	-	-
Nitrate (NO3-N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.24/1.24	<0.10	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51/51	57	-	-
TDS	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	0.18	-	<0.50	-	-
Chloroform	µg/L	5.4	-	<0.50	-	-	6.7	-	<0.50	-	-	5.9	-	<0.50	-	-	5.3	-	<0.50	-	-	4.4	5.2	-	0.17	-	-
Carbon Tetrachloride	µg/L	0.87	-	<0.50	-	-	1.4	-	<0.50	-	-	0.94	-	<0.50	-	-	1.1	-	<0.50	-	-	1.0	1.1	-	<0.50	-	-
Trichloroethene	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	0.15	<0.50	-	<0.50	-	-
Bromodichloromethane	µg/L	1.3	-	<0.50	-	-	1.4	-	<0.50	-	-	1.2	-	<0.50	-	-	1.2	-	<0.50	-	-	0.98	1.2	-	<0.50	-	-
Dibromochloromethane	µg/L	<0.50	-	<0.50	-	-	0.15	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
Tetrachloroethene	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	0.92	<0.50	-	<0.50	-	-
Bromoform	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
Trichlorofluoromethane	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
Total VOCs	**µg/L**	**7.57**	**-**	**0**	**-**	**-**	**9.65**	**-**	**0**	**-**	**-**	**8.04**	**-**	**0**	**-**	**-**	**7.60**	**-**	**0**	**-**	**-**	**7.45**	**7.68**	**-**	**0.17**	-	-
1,4-Dioxane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A-3. Laboratory Analytical Data OU-1 Treatment System - May 2015

Sampling Date		5/7/2015					5/14/2015					5/21/2015					5/28/2015					
Sample Locations		GACMID	FBR Inlet	FBR Outlet	EW 2	EW 3	GACMID	FBR Inlet	FBR Outlet	EW 2	EW 3	GACMID	FBR Inlet	FBR Outlet	EW 2	EW 3	GACIN	GACMID	FBR Inlet	FBR Outlet	EW 2	EW 3
Parameter	Unit																					
Perchlorate	µg/L	-	82/87	<4.0	43	110	-	86/83	<4.0	40	110	-	85/87	<4.0	39	100	-	-	85/75	<4.0	38	87
Hexavalent Chromium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	83/83	84	-	-
Nitrite (NO2-N)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<170	<170	-	-
Nitrate (NO3-N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.87/1.83	<0.10	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54/54	55	-	-
TDS	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	µg/L	0.18	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
Chloroform	µg/L	5.6	-	0.16	-	-	4.4	-	<0.50	-	-	3.8	-	0.13	-	-	3.9	8.0	-	<0.50	-	-
Carbon Tetrachloride	µg/L	1.1	-	<0.50	-	-	1.2	-	<0.50	-	-	1	-	<0.50	-	-	1.1	2.2	-	<0.50	-	-
Trichloroethene	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
Bromodichloromethane	µg/L	1.2	-	<0.50	-	-	0.92	-	<0.50	-	-	0.81	-	<0.50	-	-	0.53	1.2	-	<0.50	-	-
Dibromochloromethane	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
Tetrachloroethene	µg/L	0.14	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	0.55	<0.50	-	<0.50	-	-
Bromoform	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
Trichlorofluoromethane	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
Total VOCs	**µg/L**	**8.22**	**-**	**0.16**	**-**	**-**	**6.52**	**-**	**0**	**-**	**-**	**5.61**	**-**	**0.13**	**-**	**-**	**6.08**	**11.4**	**-**	**0**	-	-
1,4-Dioxane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A-4. Laboratory Analytical Data OU-1 Treatment System - June 2015

Sampling Date		6/4/2015					6/11/2015					6/18/2015					6/25/2015							
Sample Locations		GACMID	FBR Inlet	FBR Outlet	EW-2	EW-3	GACMID	FBR Inlet	FBR Outlet	EW-2	EW-3	GACMID	FBR Inlet	FBR Outlet	EW-2	EW-3	GACIN	GACMID	FBR Inlet	FBR Outlet	TFIN	TFOUT	EW-2	EW-3
	Unit																							
Perchlorate	µg/L	-	78/74	<4.0	41	100	-	75/75	<4.0	36	97	-	71/72	<4.0	46	86	39	-	<4.0	<4.0	-	-	39	96
Hexavalent Chromium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.2	-	-	-	-	<2.0	-	-
Chloride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	130	-	-	-	-
Nitrite (NO2-N)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<170	-	-	-	-
Nitrate (NO3-N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.33/1.33	<0.10	-	-	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74	-	-	-	-
TDS	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	650	-	-
TSS	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	0.82	<0.50	-	-
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	-	2.4	1.3	-	-
1,1-Dichloroethene	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-	<0.50	<0.50
Chloroform	µg/L	4.4	-	0.12	-	-	5.2	-	<0.50	-	-	5.1	-	<0.50	-	-	4.4	5.1	-	<0.50	-	-	4.2	4.7
Carbon Tetrachloride	µg/L	1.0	-	<0.50	-	-	1.3	-	<0.50	-	-	1.1	-	<0.50	-	-	0.74	0.25	-	<0.50	-	-	0.36	1.1
Trichloroethene	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	0.10	<0.50	-	<0.50	-	-	<0.50	<0.50
Bromodichloromethane	µg/L	0.74	-	<0.50	-	-	0.76	-	<0.50	-	-	0.70	-	<0.50	-	-	0.43	0.59	-	<0.50	-	-	0.42	0.47
Dibromochloromethane	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-	<0.50	<0.50
Tetrachloroethene	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	0.71	<0.50	-	<0.50	-	-	0.38	1.1
Bromoform	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-	<0.50	<0.50
Trichlorofluoromethane	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-	<0.50	<0.50
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-	<0.50	<0.50
Total VOCs	**µg/L**	**6.14**	**-**	**0.12**	**-**	**-**	**7.26**	**-**	**0**	**-**	**-**	**6.9**	**-**	**0**	**-**	**-**	**6.38**	**5.94**	**-**	**0**	**-**	**-**	**5.36**	**7.37**
1,4-Dioxane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	<1.0	-	-	<1.0	0.49

Table A-5. Laboratory Analytical Data OU-1 Treatment System - July 2015

Sampling Date		7/2/2015					7/9/2015					7/16/2015					7/23/2015					7/30/2015					
Sample Locations		GACMID	FBR Inlet	FBR Outlet	EW-2	EW-3	GACMID	FBR Inlet	FBR Outlet	EW-2	EW-3	GACMID	FBR Inlet	FBR Outlet	EW-2	EW-3	GACMID	FBR Inlet	FBR Outlet	EW-2	EW-3	GACIN	GACMID	FBR Inlet	FBR Outlet	EW-2	EW-3
Parameter	Unit																										
Perchlorate	µg/L	-	1.8/2.4	<4.0	36	94	-	4.0/3.3	<4.0	29	73	-	15/16	<4.0	33	74	-	39/46	<4.0	48	78	-	-	50/53	<4.0	36	59
Hexavalent Chromium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	87/87	87	-	-
Nitrite (NO2-N)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<170	<170	-	-
Nitrate (NO3-N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.74/1.74	<0.10	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57/57	56	-	-
TDS	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
Chloroform	µg/L	5.2	-	<0.50	-	-	4.9	-	<0.50	-	-	5.4	-	<0.50	-	-	5.3	-	<0.50	-	-	4.5	3.3	-	<0.50	-	-
Carbon Tetrachloride	µg/L	<0.50	-	<0.50	-	-	0.23	-	<0.50	-	-	0.39	-	<0.50	-	-	0.31	-	<0.50	-	-	1.7	<0.50	-	<0.50	-	-
Trichloroethene	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	-	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
Bromodichloromethane	µg/L	0.58	-	<0.50	-	-	0.54	-	<0.50	-	-	0.63	-	<0.50	-	-	0.63	-	<0.50	-	-	0.27	0.35	-	<0.50	-	-
Dibromochloromethane	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
Tetrachloroethene	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	0.41	<0.50	-	<0.50	-	-
Bromoform	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
Trichlorofluoromethane	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
Total VOCs	**µg/L**	**5.78**	**-**	**0**	**-**	**-**	**5.67**	**-**	**0**	**-**	**-**	**6.42**	**-**	**0**	**-**	**-**	**6.24**	**-**	**0**	**-**	**-**	**6.88**	**3.65**	**-**	**0**	-	-
1,4-Dioxane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A-6. Laboratory Analytical Data OU-1 Treatment System - August 2015

Sampling Date		8/6/2015					8/13/2015					8/20/2015					8/27/2015					
Sample Locations	Unit	GACMID	FBR Inlet	FBR Outlet	EW 2	EW 3	GACMID	FBR Inlet	FBR Outlet	EW 2	EW 3	GACMID	FBR Inlet	FBR Outlet	EW 2	EW 3	GACIN	GACMID	FBR Inlet	FBR Outlet	EW 2	EW 3
Perchlorate	µg/L	-	58/61	<4.0	38	67	-	66/62	<4.0	36	66	-	55/63	<4.0	35	64	-	-	61/67	<4.0	38	70
Hexavalent Chromium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	86/85	87	-	-
Nitrite (NO2-N)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<170	<170	-	-
Nitrate (NO3-N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.94/1.94	<0.10	-	-
Sulfate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55/55	54	-	-
TDS	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	0.11	-	<0.50	-	-
Chloroform	µg/L	5.7	-	<0.50	-	-	6.2	-	<0.50	-	-	5.8	-	<0.50	-	-	4.4	5.4	-	0.30	-	-
Carbon Tetrachloride	µg/L	1.5	-	<0.50	-	-	1.5	-	<0.50	-	-	0.58	-	<0.50	-	-	0.78	0.56	-	<0.50	-	-
Trichloroethene	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
Bromodichloromethane	µg/L	0.67	-	<0.50	-	-	0.67	-	<0.50	-	-	0.63	-	<0.50	-	-	0.26	0.5	-	<0.50	-	-
Dibromochloromethane	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
Tetrachloroethene	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	0.44	<0.50	-	<0.50	-	-
Bromoform	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
Trichlorofluoromethane	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	-	<0.50	-	-	<0.50	<0.50	-	<0.50	-	-
Total VOCs	**µg/L**	**7.87**	**-**	**0**	**-**	**-**	**8.37**	**-**	**0**	**-**	**-**	**7.01**	**-**	**0**	**-**	**-**	**5.88**	**6.57**	**-**	**0.3**	**-**	-
1,4-Dioxane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A-7. Laboratory Analytical Data OU-1 Treatment System - Metals

Sampling Date		3/23/2015		6/25/2015	
Sampling Location		GACIN	TFOUT	GACIN	TFOUT
Parameter	Unit				
Beryllium	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium	mg/L	26	26	28	27
Calcium	mg/L	78	76	85	79
Vanadium	mg/L	0.0048	0.0023	0.0045	*0.0028*
Chromium	mg/L	0.0047	0.0012	0.0017	*<0.0030*
Hexavalent Chromium	µg/L	3.3	<2.0	4.2	<2.0
Manganese	mg/L	<0.0010	<0.0010	<0.0010	0.022
Iron	mg/L	<0.050	<0.050	<0.050	0.051
Cobalt	mg/L	*0.0052*	0.00011	*<0.0010*	*0.00011*
Nickel	mg/L	*0.0017*	*0.0020*	0.0016	0.0038
Copper	mg/L	*0.0052*	*0.0120*	0.00061	0.0037
Zinc	mg/L	0.0078	*0.0110*	<0.010	0.0056
Arsenic	mg/L	*<0.0020*	<0.0020	<0.0020	0.0012
Selenium	mg/L	<0.0020	<0.0020	<0.0020	<0.0020
Molybdenum	mg/L	0.0052	0.0066	0.0049	0.010
Silver	mg/L	<0.0010	0.0011	<0.0010	<0.0010
Cadmium	mg/L	<0.0010	<0.0010	<0.0010	<0.0010
Antimony	mg/L	*<0.0020*	*0.00062*	0.00012	0.0011
Barium	mg/L	0.11	0.11	0.11	0.15
Mercury	mg/L	0.0017	*<0.00020*	0.0015	*0.000040*
Thallium	mg/L	<0.0010	0.00013	<0.0010	<0.0010
Lead	mg/L	0.00022	0.00047	*<0.0010*	*0.00017*

*Lab Qualifier S05

Attachment B
Field Monitoring Results

Table B-1. OU-1 On Site Water Quality Log Comparison Sheet FBR Influent and Effluent

Date	DO In	DO Out	ORP In	ORP Out	ClO4 In[a]	ClO4 Out[a]	Nitrate-N In	Nitrate-N Out
d/m/y	mg/L	mg/L	mV	mV	mg/L	mg/L	mg/L	mg/L
Avg.	1.21	0.17	108	-113	0.39	0.09	1.6	0.4
Std.	0.56	0.47	76	83	1.48	0.07	0.4	0.3
Max.	4.19	3.13	293	115	13.00	0.60	2.4	1.0
Min.	0.20	0.01	-150	-294	0.14	0.02	0.3	0.1
3/2/2015	1.1	0.04	205	-115	0.35	0.08	1.8	--
3/3/2015	1.07	0.09	162	-210	0.32	0.11	1.6	0.1
3/4/2015	1.69	0.09	100	-205	0.28	0.09	1.6	--
3/5/2015	1.07	0.05	120	-221	0.3	0.08	1.6	0.4
3/6/2015	--	--	--	--	--	--	--	--
3/9/2015	1.03	0.07	109	-187	0.32	0.08	1.8	--
3/10/2015	1.1	0.05	101	-63	0.3	0.11	1.1	0.4
3/11/2015	1.08	0.06	109	-178	0.29	0.08	1.7	--
3/12/2015	1.07	0.09	103	-177	0.22	0.09	1.7	0.3
3/13/2015	1.05	0.08	113	-63	0.3	0.08	1.5	--
3/16/2015	1.03	0.06	189	-65	0.34	0.13	1.6	--
3/17/2015	1.11	0.05	134	-62	0.3	0.08	1.8	0.7
3/18/2015	0.88	0.06	56	-79	0.31	0.11	1.8	--
3/19/2015	1.63	0.07	70	-207	0.33	0.08	1.6	0.4
3/20/2015	1.69	0.07	65	-98	0.3	0.06	1.1	--
3/23/2015	1.47	0.07	182	-108	0.28	0.08	1.9	--
3/24/2015	1.32	0.06	86	-61	0.27	0.11	2	0.3
3/25/2015	0.95	0.06	126	-78	0.27	0.09	1.7	--
3/26/2015	0.94	0.05	137	-27	0.28	0.1	2	0.1
3/27/2015	0.97	0.07	112	-58	0.27	0.08	1.5	--
3/30/2015	1.02	0.05	244	-188	0.22	0.11	2	--
3/31/2015	1.11	0.06	141	-189	0.27	0.08	2.2	0.3
4/1/2015	1.14	0.06	123	-41	0.28	0.09	2	--
4/2/2015	1.07	0.07	130	-172	0.26	0.08	2.1	0.7
4/3/2015	1.55	0.06	102	-110	0.2	0.06	1.4	--
4/6/2015	1.09	0.07	281	-16	0.21	0.11	1.5	--
4/7/2015	1.21	0.09	120	-237	0.2	0.11	1.7	0.3
4/8/2015	1.1	0.12	90	-121	0.18	0.08	0.6	--
4/9/2015	1.54	0.05	93	-212	0.2	0.1	1.3	0.5
4/10/2015	1.63	0.09	81	-139	0.22	0.08	1.5	--
4/13/2015	1.73	0.07	118	-172	0.33	0.18	1.2	--
4/14/2015	1.4	0.06	117	-134	0.3	0.11	1.8	0.1
4/15/2015	1.58	0.11	72	-84	0.31	0.18	1.7	--
4/16/2015	1.47	0.05	105	-145	0.28	0.11	1.7	0.1

Date	DO In	DO Out	ORP In	ORP Out	ClO4 In[a]	ClO4 Out[a]	Nitrate-N In	Nitrate-N Out
d/m/y	mg/L	mg/L	mV	mV	mg/L	mg/L	mg/L	mg/L
4/17/2015	1.59	0.06	109	-109	0.37	0.18	1.4	--
4/20/2015	1.93	0.84	293	-30	--	--	0.3	--
4/21/2015	0.6	0.01	107	-102	--	--	2.3	0.5
4/22/2015	0.81	0.05	88	-224	--	--	1.7	--
4/23/2015	1.25	0.05	59	-235	--	--	1.4	0.1
4/24/2015	0.59	0.06	142	-294	--	--	1.5	--
4/27/2015	1.67	0.12	87	-110	--	--	1.7	--
4/28/2015	1.34	0.07	102	-89	--	--	1.3	1
4/29/2015	1.17	0.04	-90	-199	--	--	1	--
4/30/2015	0.89	0.04	-101	-191	--	--	1.7	0.3
5/1/2015	0.58	0.04	-140	-143	--	--	1.1	--
5/4/2015	0.98	0.08	72	-159	--	--	1.5	--
5/5/2015	1.22	0.03	80	-172	--	--	1.5	0.5
5/6/2015	1.25	0.03	55	-109	--	--	1.6	--
5/7/2015	1.42	0.05	69	-103	--	--	1.9	0.5
5/8/2015	1.53	0.06	96	-143	--	--	1.6	--
5/11/2015	0.87	0.04	142	-23	--	--	1.7	--
5/12/2015	0.87	0.04	96	-110	--	--	1.9	0.8
5/13/2015	1.13	0.04	40	-181	--	--	1.5	--
5/14/2015	0.94	0.04	122	-165	--	--	1.5	0.4
5/15/2015	0.77	0.07	96	-129	--	--	1.4	--
5/18/2015	0.5	0.04	236	-88	--	--	1.7	--
5/19/2015	0.63	0.04	200	-172	--	--	1.7	0.1
5/20/2015	0.76	0.03	74	-120	--	--	1.8	--
5/21/2015	0.7	0.02	21	-216	--	--	1.6	0.5
5/22/2015	0.64	0.03	138	-222	--	--	1.8	--
5/25/2015	--	--	--	--	--	--	--	--
5/26/2015	0.55	0.04	257	-214	--	--	1.1	0.3
5/27/2015	0.96	0.04	41	-178	--	--	1.6	--
5/28/2015	0.74	0.06	149	-184	--	--	2.2	0.2
5/29/2015	2.12	0.08	68	-183	--	--	1.8	--
6/1/2015	0.9	0.08	271	-13	--	--	1.7	--
6/2/2015	1.3	0.19	155	-245	--	--	0.9	0.1
6/3/2015	1.41	0.23	87	-192	0.28	0.03	1.2	--
6/4/2015	1.19	0.27	105	-236	0.26	0.02	2.2	0.2
6/5/2015	1.66	0.38	50	-166	0.18	0.11	1.6	--
6/8/2015	1.16	0.07	101	-20	0.14	0.04	1.6	--
6/9/2015	1.25	0.07	43	-220	0.18	0.6	1.3	0.8
6/10/2015	1.22	0.07	9	-78	0.18	0.04	1.8	--
6/11/2015	0.95	0.08	47	-133	0.18	0.04	1.6	0.6

Date	DO In	DO Out	ORP In	ORP Out	ClO4 In[a]	ClO4 Out[a]	Nitrate-N In	Nitrate-N Out
d/m/y	mg/L	mg/L	mV	mV	mg/L	mg/L	mg/L	mg/L
6/12/2015	0.98	0.07	264	-150	0.18	0.06	1.5	--
6/15/2015	1.17	0.09	--	--	0.18	0.06	1.9	--
6/16/2015	1.8	0.08	--	--	0.19	0.08	1.5	0.1
6/17/2015	1.89	0.09	--	--	0.18	0.08	2.2	0.5
6/18/2015	0.79	0.09	--	--	13	0.06	1.5	0.3
6/19/2015	0.86	0.08	--	--	0.16	0.08	2.1	0.5
6/22/2015	1.03	0.06	--	--	0.16	0.09	1.1	0.1
6/23/2015	0.79	0.09	--	--	0.16	0.08	1.9	0.1
6/24/2015	0.86	0.08	--	--	0.18	0.08	0.4	0.9
6/25/2015	1.15	0.09	--	--	0.16	0.08	2.1	0.6
6/26/2015	4.19	0.05	33	-191	0.16	0.09	1.6	--
6/29/2015	0.77	0.02	101	-245	0.14	0.06	1.7	--
6/30/2015	0.2	0.02	116	-143	0.14	0.06	1.4	0.1
7/1/2015	0.59	0.01	-90	-187	0.14	0.06	1.7	--
7/2/2015	1.65	0.02	74	-165	0.16	0.08	1.6	0.5
7/3/2015	--	--	--	--	--	--	--	--
7/6/2015	--	--	--	--	--	--	--	--
7/7/2015	2.85	0.68	-150	-98	0.18	0.08	2.1	0.1
7/8/2015	0.98	0.23	-142	-83	0.18	0.09	2.4	--
7/9/2015	0.3	0.06	87	-129	0.17	0.08	0.9	0.5
7/10/2015	1.09	0.04	97	-133	0.16	0.08	1.5	--
7/13/2015	0.59	0.06	76	-10	0.18	0.08	1.7	--
7/14/2015	0.96	0.04	71	-9	0.16	0.08	1.5	0.1
7/15/2015	1.18	0.12	87	-79	0.16	0.08	1.8	--
7/16/2015	1.27	0.12	100	-90	0.18	0.09	1.5	0.3
7/17/2015	1.25	0.5	71	-72	0.15	0.08	1.6	--
7/20/2015	1.06	0.02	152	-167	0.18	0.09	1.7	--
7/21/2015	0.22	0.07	128	-192	0.16	0.06	1.8	0.4
7/22/2015	1.22	0.13	130	-114	0.18	0.08	1.7	--
7/23/2015	1.33	0.13	137	-72	0.18	0.08	1.2	0.7
7/24/2015	--	--	--	--	--	--	--	--
7/27/2015	1.22	0.02	85	-66	0.16	0.06	1.7	--
7/28/2015	1.04	0.15	78	-19	0.16	0.08	1.6	0.3
7/29/2015	1.07	0.06	89	-63	0.18	0.06	1.7	--
7/30/2015	1	0.32	99	-68	0.18	0.06	1.6	0.1
7/31/2015	0.7	0.1	95	-29	0.18	0.08	1	--
8/3/2015	1.04	0.01	158	73	0.14	0.06	2.4	--
8/4/2015	1.08	0.05	124	-104	--	--	1.8	0.6
8/5/2015	1.01	0.06	136	-146	--	--	1.7	--
8/6/2015	1.35	0.06	131	-133	--	--	1.6	0.7

Date	DO In	DO Out	ORP In	ORP Out	ClO4 In[a]	ClO4 Out[a]	Nitrate-N In	Nitrate-N Out
d/m/y	mg/L	mg/L	mV	mV	mg/L	mg/L	mg/L	mg/L
8/7/2015	1.41	0.04	150	-135	--	--	2.2	--
8/10/2015	1.02	0.11	198	-88	--	--	2.3	--
8/11/2015	1.01	0.09	172	-83	--	--	1.4	0.2
8/12/2015	1.06	0.01	147	37	--	--	2.2	--
8/13/2015	1.56	0.05	97	-19	--	--	1.6	0.4
8/14/2015	2.7	2.88	143	93.1	--	--	1.5	--
8/17/2015	3.21	0.07	164	67	--	--	2.1	--
8/18/2015	2.25	0.05	145	-24	--	--	0.3	0.1
8/19/2015	2.86	3.13	210	115	--	--	2.1	--
8/20/2015	1.89	2.71	167	108	--	--	1.2	0.4
8/21/2015	2.1	1.7	179	96	--	--	1.5	--
8/24/2015	1.05	0.03	163	-28	--	--	1.7	--
8/25/2015	1.13	0.04	174	-22	--	--	1.7	1.1
8/26/2015	1.15	0.04	177	-14	--	--	1.7	--
8/27/2015	0.44	0.02	85	-60	--	--	2.2	0.5
8/28/2015	0.92	0.08	52	-60	--	--	2.5	--
8/31/2015	0.74	0.05	123	-76	--	--	1.8	--

Note:
(a) The ion selective probe for perchlorate is calibrated to <0.1 mg/L.
(b) A dash signifies parmeters that were not read.

Table B-2. OU-1 On Site Water Quality Log Sheet Combined Well Influent

Date	Time	PH	Temperature	Conductivity	DO	ORP	ClO4[a]	Nitrate-N
d/m/y			°C	µS/cm	mg/L	mV	mg/L	mg/L
Avg.		7.06	23.26	730	3.52	162	0.27	1.7
Std.		0.13	0.16	45	0.82	54	0.09	0.3
Max.		7.42	23.60	928	5.71	311	0.43	2.4
Min.		6.42	22.77	630	1.57	56	0.15	1.0
3/2/2015	13:34	7.05	22.96	732	4.08	227	0.41	--
3/3/2015	12:32	6.89	23.07	741	3.95	201	0.39	1.8
3/4/2015	11:57	7.06	23.15	734	3.97	145	0.39	--
3/5/2015	8:24	7.14	22.98	732	3.96	145	0.39	1.6
3/6/2015	--	--	--	--	--	--	--	--
3/9/2015	13:30	7.03	23.19	725	4.05	130	0.39	--
3/10/2015	13:33	6.96	23.27	738	4.08	122	0.39	1.7
3/11/2015	13:28	6.98	23.11	736	4.17	126	0.36	--
3/12/2015	13:32	6.82	23.3	735	4.15	119	0.38	1.5
3/13/2015	13:29	6.97	23.34	748	4.19	119	0.39	--
3/16/2015	13:24	7.08	23.38	725	3.98	208	0.38	--
3/17/2015	13:35	7.14	23.32	735	3.96	166	0.39	2.1
3/18/2015	13:25	7.15	23.21	723	3.84	151	0.39	--
3/19/2015	11:22	7.2	23.16	733	4.07	137	0.37	1.2
3/20/2015	13:28	7.19	23.25	723	3.98	136	0.36	--
3/23/2015	13:46	7	23.22	729	3.46	225	0.36	--
3/24/2015	13:31	7.05	23.27	733	3.44	178	0.38	1.5
3/25/2015	13:23	6.95	23.31	720	3.53	141	0.39	--
3/26/2015	13:25	6.97	23.41	716	3.5	142	0.39	2.4
3/27/2015	13:15	7	23.38	725	3.58	119	0.38	--
3/30/2015	13:37	6.98	23.33	740	3.47	296	0.37	--
3/31/2015	13:27	7.04	23.28	721	3.52	158	0.39	1.6
4/1/2015	13:29	7.09	23.24	720	3.61	138	0.38	--
4/2/2015	13:26	7.04	23.26	740	3.7	129	0.39	1.8
4/3/2015	13:24	7.03	23.33	721	3.58	124	0.37	--
4/6/2015	13:40	6.8	23.16	715	3.59	294	0.22	--
4/7/2015	8:18	7.19	23.06	723	3.65	159	0.23	1.8
4/8/2015	10:15	7.23	23.07	725	3.66	126	0.2	--
4/9/2015	8:18	7.19	22.97	729	3.54	141	0.22	1.7
4/10/2015	8:40	7.31	22.95	739	3.66	119	0.23	--
4/13/2015	12:14	7.01	23.31	733	3.53	140	0.4	--
4/14/2015	13:22	6.96	23.36	714	3.62	132	0.38	2
4/15/2015	12:58	7.03	23.35	729	3.74	118	0.39	--
4/16/2015	8:59	7.12	23.15	743	3.64	128	0.39	1.8

Date	Time	PH	Temperature	Conductivity	DO	ORP	ClO4[a]	Nitrate-N
d/m/y			°C	µS/cm	mg/L	mV	mg/L	mg/L
4/17/2015	10:23	7.1	23.25	750	3.76	134	0.43	--
4/20/2015	7:50	7.14	22.98	745	3.89	292	--	--
4/21/2015	13:26	7.13	23.16	748	3.66	132	--	1.8
4/22/2015	8:40	7.13	22.77	744	3.82	142	--	--
4/23/2015	9:36	7.14	23.04	745	3.88	116	--	1.9
4/24/2015	9:13	7.17	22.98	744	3.72	108	--	--
4/27/2015	10:07	7	23.22	739	3.55	140	--	--
4/28/2015	8:18	7.05	23.25	737	3.69	100	--	1.4
4/29/2015	8:30	7.07	23.24	731	3.73	96	--	--
4/30/2015	8:05	7.1	23.12	740	3.63	82	--	1.4
5/1/2015	8:35	7.07	23.27	735	3.81	93	--	--
5/4/2015	10:55	7.1	23.12	715	3.1	119	--	--
5/5/2015	8:37	7.16	22.98	736	3.19	123	--	2.1
5/6/2015	13:28	7.14	23.09	736	3.08	122	--	--
5/7/2015	13:28	7.14	23.08	733	3.13	119	--	1.6
5/8/2015	13:21	7.13	23.02	733	3.18	117	--	--
5/11/2015	13:26	6.94	23.33	733	2.35	156	--	--
5/12/2015	13:31	7.08	23.25	738	2.36	135	--	1.7
5/13/2015	11:11	7.13	23.17	732	2.36	133	--	--
5/14/2015	13:20	7.16	22.91	733	2.35	135	--	2.2
5/15/2015	11:04	7.11	23.03	743	2.37	133	--	--
5/18/2015	13:49	7.04	23.15	732	2.02	254	--	--
5/19/2015	13:23	7.1	23.3	729	1.77	200	--	1.7
5/20/2015	13:26	7.12	23.27	734	1.7	167	--	--
5/21/2015	14:05	7.18	23.11	734	1.57	156	--	1.8
5/22/2015	13:29	7.2	23.02	732	1.73	143	--	--
5/25/2015	HOLIDAY	--	--	--	--	--	--	--
5/26/2015	13:29	7.04	23.24	739	1.98	275	--	1.4
5/27/2015	13:22	7.04	23.24	749	2.1	222	--	--
5/28/2015	13:27	6.8	23.29	739	2.13	160	--	1.7
5/29/2015	8:00	6.77	23.07	713	3.33	176	--	--
6/1/2015	13:39	7.1	23.33	728	2.54	311	--	--
6/2/2015	8:58	7.08	23.19	723	2.9	240	--	2.3
6/3/2015	13:24	7.07	23.05	750	2.86	141	0.16	--
6/4/2015	13:30	7.09	23.02	740	3.07	127	0.22	1.1
6/5/2015	13:23	7.42	23.25	749	3.5	101	0.2	--
6/8/2015	13:27	6.74	23.37	745	3.2	237	0.26	--
6/9/2015	13:25	6.97	23.25	741	3.17	117	0.28	1.9
6/10/2015	13:29	7.04	23.18	728	2.17	79	0.25	--
6/11/2015	13:25	7.01	23.14	750	2.79	56	0.28	1.3

Date	Time	PH	Temperature	Conductivity	DO	ORP	ClO4[a]	Nitrate-N
d/m/y			°C	µS/cm	mg/L	mV	mg/L	mg/L
6/12/2015	11:45	7	23.18	732	2.94	212	0.27	--
6/15/2015	9:57	6.93	23.20	761	2.77	--	0.24	--
6/16/2015	13:25	6.96	23.50	762	2.53	--	0.22	1.3
6/17/2015	13:19	6.74	23.50	757	2.01	--	0.22	--
6/18/2015	13:15	6.86	23.50	754	2.86	--	0.15	1.6
6/19/2015	13:10	6.96	23.60	757	1.77	--	0.18	--
6/22/2015	13:35	6.42	23.6	731	2.67	--	0.18	--
6/23/2015	13:15	6.77	23.5	738	1.77	--	0.18	1.5
6/24/2015	13:20	6.73	23.5	730	2.13	--	0.2	--
6/25/2015	13:15	6.94	23.6	753	2.88	--	0.18	1.6
6/26/2015	13:01	7.02	23.39	637	5.42	231	0.18	--
6/29/2015	13:20	7.14	23.4	657	4.8	181	0.16	--
6/30/2015	13:28	7.12	23.4	639	4.77	148	0.16	1.6
7/1/2015	13:30	7.11	23.35	659	4.96	171	0.16	--
7/2/2015	13:23	7.13	23.41	682	4.8	103	0.18	1.9
7/3/2015	--	--	--	--	--	--	--	--
7/6/2015	--	--	--	--	--	--	--	--
7/7/2015	13:35	7.08	23.52	710	4.36	91	0.2	1.8
7/8/2015	10:55	7.12	23.34	690	4.36	132	0.22	--
7/9/2015	13:24	7.13	23.2	715	4.59	143	0.2	1.5
7/10/2015	10:20	7.11	23.1	710	4.36	144	0.22	--
7/13/2015	13:21	7.15	23.38	720	5.06	127	0.22	--
7/14/2015	11:20	7.13	23.42	724	4.52	72	0.2	1.4
7/15/158	13:20	7.14	23.44	730	4.94	123	0.18	--
7/16/2015	13:22	7.14	23.42	711	4.83	131	0.2	2.2
7/17/2015	13:20	7.15	23.4	734	4.89	132	0.18	--
7/20/2015	13:25	7.02	23.26	714	3.37	206	0.22	--
7/21/2015	13:16	7.05	23.23	711	3.77	160	0.2	2
7/22/2015	14:12	7.06	23.33	730	3.68	175	0.21	--
7/23/2015	13:23	6.97	23.39	724	3.77	177	0.2	1
7/24/2015	--	--	--	--	--	--	--	--
7/27/2015	13:21	7.07	23.4	723	3.49	136	0.2	--
7/28/2015	13:33	7.05	23.42	726	4.01	125	0.18	1.8
7/29/2015	13:22	7.09	23.42	713	3.95	144	0.2	--
7/30/2015	13:19	7.02	23.41	723	3.99	129	0.2	1.8
7/31/2015	13:37	7.04	23.42	728	3.93	127	0.22	--
8/3/2015	13:20	7.23	23.39	718	3.87	219	0.16	--
8/4/2015	13:18	7.23	23.43	720	3.98	186	--	1.3
8/5/2015	9:34	7.23	23.31	730	3.73	190	--	--
8/6/2015	8:30	7.25	23.34	712	3.73	177	--	1.1

Date	Time	PH	Temperature	Conductivity	DO	ORP	ClO_4[a]	Nitrate-N
d/m/y			°C	µS/cm	mg/L	mV	mg/L	mg/L
8/7/2015	7:42	7.2	23.18	727	3.61	175	--	--
8/10/2015	9:20	7.24	23.18	722	3.62	206	--	--
8/11/2015	13:24	7.25	23.4	707	3.98	254	--	1.4
8/12/2015	13:35	7.2	23.48	734	3.49	194	--	--
8/13/2015	13:17	7.2	23.48	733	3.87	184	--	1.3
8/14/2015	0:00	7.11	23.39	722	4.57	205	--	--
8/17/2015	9:15	7.05	23.32	922	5.71	216	--	--
8/18/2015	7:30	7.01	23.19	928	3.87	278	--	1.9
8/19/2015	8:10	7.02	23.21	926	4.02	278	--	--
8/20/2015	7:50	7.03	23.19	925	3.81	230	--	1.6
8/21/2015	8:45	7.16	23.21	634	3.89	228	--	--
8/24/2015	12:14	7.14	23.52	636	3.79	232	--	--
8/25/2015	9:25	7.14	23.29	636	3.55	244	--	1.8
8/26/2015	8:59	7.13	23.23	630	3.89	254	--	--
8/27/2015	12:48	7.14	23.51	634	3.68	149	--	1.8
8/28/2015	10:17	7.16	23.38	635	3.04	104	--	--
8/31/2015	8:38	7.16	23.31	636	3.44	186	--	--

Note:

(a) The ion selective probe for perchlorate is calibrated to <0.1 mg/L.

(b) A dash signifies parmeters that were not read.

Table B-3. OU-1 On Site Water Quality Log Sheet FBR Influent

Date	Time	PH	Temperature	Conductivity	DO	ORP	ClO4[a]	Sulfide	Nitrate-N	Nitrite-N	Sulfate
d/m/y			°C	µS/cm	mg/L	mV	mg/L	µg/L	mg/L	mg/L	mg/L
Avg.		7.08	23.52	743	1.21	107	0.39	5	1.6	0.015	48
Std.		0.14	0.39	35	0.56	76	1.48	6	0.4	0.024	5
Max.		7.79	24.58	892	4.19	293	13.00	35	2.5	0.120	61
Min.		6.72	22.61	630	0.20	-150	0.14	0	0.3	0.001	40
3/2/2015	13:34	7.09	22.9	733	1.1	205	0.35	--	1.8	--	--
3/3/2015	12:32	6.99	23.31	742	1.07	162	0.32	0	1.6	0.006	44
3/4/2015	11:57	7.12	23.27	737	1.69	100	0.28	--	1.6	--	--
3/5/2015	8:24	7.12	23.07	735	1.07	120	0.3	1	1.6	0.008	44
3/6/2015	--	--	--	--	--	--	--	--	--	--	--
3/9/2015	13:30	7.02	23.54	735	1.03	109	0.32	--	1.8	--	--
3/10/2015	13:33	7.01	23.56	736	1.1	101	0.3	6	1.1	0.005	43
3/11/2015	13:28	7.05	23.2	735	1.08	109	0.29	--	1.7	--	--
3/12/2015	13:32	6.95	23.67	736	1.07	103	0.22	4	1.7	0.009	40
3/13/2015	13:29	6.97	23.61	736	1.05	113	0.3	--	1.5	--	--
3/16/2015	13:24	7.02	23.79	737	1.03	189	0.34	--	1.6	--	--
3/17/2015	13:35	7.07	23.64	739	1.11	134	0.3	0	1.8	0.007	40
3/18/2015	13:25	7.13	23.36	743	0.88	56	0.31	--	1.8	--	--
3/19/2015	11:22	7.15	23.35	744	1.63	70	0.33	1	1.6	0.005	40
3/20/2015	13:28	7.11	23.58	742	1.69	65	0.3	--	1.1	--	--
3/23/2015	13:46	7	23.47	740	1.47	182	0.28	--	1.9	--	--
3/24/2015	13:31	7.1	23.58	741	1.32	86	0.27	9	2	0.005	43
3/25/2015	13:23	6.95	23.67	740	0.95	126	0.27	--	1.7	--	--
3/26/2015	13:25	6.95	23.78	739	0.94	137	0.28	1	2	0.006	44
3/27/2015	13:15	6.97	23.81	740	0.97	112	0.27	--	1.5	--	--
3/30/2015	13:37	6.95	23.65	741	1.02	244	0.22	--	2	--	--
3/31/2015	13:27	7.02	23.59	742	1.11	141	0.27	6	2.2	0.005	42
4/1/2015	13:29	7.06	23.52	742	1.14	123	0.28	--	2	--	--
4/2/2015	13:26	7.04	23.48	735	1.07	130	0.26	3	2.1	0.003	46
4/3/2015	13:24	7.08	23.68	744	1.55	102	0.2	--	1.4	--	--
4/6/2015	13:40	6.91	23.29	745	1.09	281	0.21	--	1.5	--	--
4/7/2015	8:18	7.13	22.89	746	1.21	120	0.2	3	1.7	0.011	47
4/8/2015	10:15	7.15	23.16	741	1.1	90	0.18	--	0.6	--	--
4/9/2015	8:18	7.26	22.91	743	1.54	93	0.2	2	1.3	0.01	40
4/10/2015	8:40	7.29	22.74	744	1.63	81	0.22	--	1.5	--	--
4/13/2015	12:14	7.03	23.53	744	1.73	118	0.33	--	1.2	--	--
4/14/2015	13:22	6.97	23.6	738	1.4	117	0.3	5	1.8	0.006	44
4/15/2015	12:58	7.07	23.57	750	1.58	72	0.31	--	1.7	--	--
4/16/2015	8:59	7.11	23.22	752	1.47	105	0.28	3	1.7	0.11	46
4/17/2015	10:23	7.09	23.54	750	1.59	109	0.37	--	1.4	--	--
4/20/2015	7:50	7.12	22.89	747	1.93	293	--	--	0.3	--	--
4/21/2015	13:26	7.1	23.04	781	0.6	107	--	3	2.3	0.026	51
4/22/2015	8:40	7.1	22.93	746	0.81	88	--	--	1.7	--	--
4/23/2015	9:36	7.17	22.94	753	1.25	59	--	15	1.4	0.014	45
4/24/2015	9:13	7.19	22.77	776	0.59	142	--	--	1.5	--	--
4/27/2015	10:07	7.01	23.47	743	1.67	87	--	--	1.7	--	--
4/28/2015	8:18	7.12	23.14	762	1.34	102	--	2	1.3	0.022	52
4/29/2015	8:30	7.12	23.12	757	1.17	-90	--	--	1	--	--

Date	Time	PH	Temperature	Conductivity	DO	ORP	ClO4[a]	Sulfide	Nitrate-N	Nitrite-N	Sulfate
d/m/y			°C	µS/cm	mg/L	mV	mg/L	µg/L	mg/L	mg/L	mg/L
4/30/2015	8:05	7.16	23.14	754	0.89	-101	--	4	1.7	0.029	53
5/1/2015	8:35	7.15	23.27	762	0.58	-140	--	--	1.1	--	--
5/4/2015	10:55	7.08	23.01	738	0.98	72	--	--	1.5	--	--
5/5/2015	8:37	7.18	22.87	782	1.22	80	--	4	1.5	0.008	45
5/6/2015	13:28	7.14	23.01	746	1.25	55	--	--	1.6	--	--
5/7/2015	13:28	7.14	23.1	742	1.42	69	--	4	1.9	0.006	51
5/8/2015	13:21	7.12	22.91	741	1.53	96	--	--	1.6	--	--
5/11/2015	13:26	7.01	23.63	737	0.87	142	--	--	1.7	--	--
5/12/2015	13:31	7.06	23.44	741	0.87	96	--	4	1.9	0.007	48
5/13/2015	11:11	7.08	23.29	747	1.13	40	--	--	1.5	--	--
5/14/2015	13:20	7.14	22.61	737	0.94	122	--	1	1.5	0.007	44
5/15/2015	11:04	7.13	23	741	0.77	96	--	--	1.4	--	--
5/18/2015	13:49	7.03	23.32	742	0.5	236	--	--	1.7	--	--
5/19/2015	13:23	7.06	23.5	748	0.63	200	--	1	1.7	0.006	47
5/20/2015	13:26	7.11	23.44	747	0.76	74	--	--	1.8	--	--
5/21/2015	14:05	7.17	23.14	744	0.7	21	--	6	1.6	0.006	51
5/22/2015	13:29	7.15	22.97	746	0.64	138	--	--	1.8	--	--
5/25/2015	HOLIDAY	--	--	--	--	--	--	--	--	--	--
5/26/2015	13:29	7.07	23.46	749	0.55	257	--	1	1.1	0.008	45
5/27/2015	13:22	7.05	23.52	751	0.96	41	--	--	1.6	--	--
5/28/2015	13:27	6.72	23.6	751	0.74	149	--	1	2.2	0.006	49
5/29/2015	8:00	6.72	23.06	730	2.12	68	--	--	1.8	--	--
6/1/2015	13:39	7.02	23.63	744	0.9	271	--	--	1.7	--	--
6/2/2015	8:58	7.01	23.31	750	1.3	155	--	4	0.9	0.005	53
6/3/2015	13:24	7.05	23.04	752	1.41	87	0.28	--	1.2	--	--
6/4/2015	13:30	7.14	22.88	750	1.19	105	0.26	5	2.2	0.009	43
6/5/2015	13:23	7.79	23.56	755	1.66	50	0.18	--	1.6	--	--
6/8/2015	13:27	7.01	24.1	756	1.16	101	0.14	--	1.6	--	--
6/9/2015	13:25	6.95	23.64	749	1.25	43	0.18	1	1.3	0.007	41
6/10/2015	13:29	7.01	23.38	728	1.22	9	0.18	--	1.8	--	--
6/11/2015	13:25	7	23.21	740	0.95	47	0.18	0	1.6	0.007	46
6/12/2015	11:45	6.92	23.3	743	0.98	264	0.18	--	1.5	--	--
6/15/2015	9:57	6.9	23.6	763	1.17	--	0.18	--	1.9	--	--
6/16/2015	13:25	6.87	24.2	762	1.8	--	0.19	4	1.5	0.016	55
6/17/2015	13:19	6.85	24.3	757	1.89	--	0.18	--	2.2	--	--
6/18/2015	13:15	6.82	24.3	755	0.79	--	13	6	1.5	0.09	49
6/19/2015	13:10	7.04	24.3	759	0.86	--	0.16	--	2.1	--	--
6/22/2015	13:35	6.8	24	734	1.03	--	0.16	--	1.1	--	--
6/23/2015	13:15	6.76	24	757	0.79	--	0.16	19	1.9	0.12	44
6/24/2015	13:20	7.76	24.1	751	0.86	--	0.18	--	0.4	--	--
6/25/2015	13:15	7.05	24.1	750	1.15	--	0.16	1	2.1	0.004	52
6/26/2015	13:01	7.16	23.93	742	4.19	33	0.16	--	1.6	--	--
6/29/2015	13:20	7.12	23.8	735	0.77	101	0.14	--	1.7	--	--
6/30/2015	13:28	7.1	23.85	711	0.2	116	0.14	1	1.4	0.009	55
7/1/2015	13:30	7.03	23.82	744	0.59	-90	0.14	--	1.7	--	--
7/2/2015	13:23	7.1	23.79	734	1.65	74	0.16	4	1.6	0.003	54
7/3/2015	--	--	--	--	--	--	--	--	--	--	--
7/6/2015	--	--	--	--	--	--	--	--	--	--	--
7/7/2015	13:35	7.16	24.06	769	2.85	-150	0.18	19	2.1	0.012	53

Date	Time	PH	Temperature	Conductivity	DO	ORP	ClO4[a]	Sulfide	Nitrate-N	Nitrite-N	Sulfate
d/m/y			°C	µS/cm	mg/L	mV	mg/L	µg/L	mg/L	mg/L	mg/L
7/8/2015	10:55	7.09	23.55	761	0.98	-142	0.18	--	2.4	--	--
7/9/2015	13:24	7.13	23.27	721	0.3	87	0.17	6	0.9	0.004	44
7/10/2015	10:20	7.11	23.18	727	1.09	97	0.16	--	1.5	--	--
7/13/2015	13:21	7.11	23.86	734	0.59	76	0.18	--	1.7	--	--
7/14/2015	11:20	6.95	24.58	742	0.96	71	0.16	35	1.5	0.001	49
7/15/158	13:20	7.15	23.91	740	1.18	87	0.16	--	1.8	--	--
7/16/2015	13:22	7.14	23.92	741	1.27	100	0.18	1	1.5	0.009	52
7/17/2015	13:20	7.14	23.97	747	1.25	71	0.15	--	1.6	--	--
7/20/2015	13:25	7.05	23.61	740	1.06	152	0.18	--	1.7	--	--
7/21/2015	13:16	7.01	23.35	739	0.22	128	0.16	3	1.8	0.016	46
7/22/2015	14:12	7.06	23.61	745	1.22	130	0.18	--	1.7	--	--
7/23/2015	13:23	7.06	23.67	684	1.33	137	0.18	6	1.2	0.011	50
7/24/2015	--	--	--	--	--	--	--	--	--	--	--
7/27/2015	13:21	7.13	23.9	740	1.22	85	0.16	--	1.7	--	--
7/28/2015	13:33	7.07	23.99	746	1.04	78	0.16	2	1.6	0.013	48
7/29/2015	13:22	7.04	23.82	742	1.07	89	0.18	--	1.7	--	--
7/30/2015	13:19	7.06	24	744	1	99	0.18	4	1.6	0.015	61
7/31/2015	13:37	7.05	23.88	746	0.7	95	0.18	--	1	--	--
8/3/2015	13:20	7.22	23.93	740	1.04	158	0.14	--	2.4	--	--
8/4/2015	13:18	7.21	24.03	742	1.08	124	--	4	1.8	0.009	50
8/5/2015	9:34	7.21	23.59	745	1.01	136	--	--	1.7	--	--
8/6/2015	8:30	7.23	23.57	745	1.35	131	--	1	1.6	0.007	46
8/7/2015	7:42	7.24	23.75	740	1.41	150	--	--	2.2	--	--
8/10/2015	9:20	7.22	23.28	744	1.02	198	--	--	2.3	--	--
8/11/2015	13:24	7.22	23.82	743	1.01	172	--	4	1.4	0.012	56
8/12/2015	13:35	7.23	23.98	748	1.06	147	--	--	2.2	--	--
8/13/2015	13:17	7.23	24.14	741	1.56	97	--	5	1.6	0.012	59
8/14/2015	0:00	7.11	24.01	692	2.7	143	--	--	1.5	--	--
8/17/2015	9:15	7.07	23.75	862	3.21	164	--	--	2.1	--	--
8/18/2015	7:30	7.02	23.27	887	2.25	145	--	9	0.3	0.007	43
8/19/2015	8:10	7.05	23.31	855	2.86	210	--	--	2.1	--	--
8/20/2015	7:50	7.02	23.23	892	1.89	167	--	4	1.2	0.013	51
8/21/2015	8:45	7.16	23.24	630	2.1	179	--	--	1.5	--	--
8/24/2015	12:14	7.11	24.00	639	1.05	163	--	--	1.7	--	--
8/25/2015	9:25	7.12	23.61	639	1.13	174	--	7	1.7	0.019	53
8/26/2015	8:59	7.11	23.58	639	1.15	177	--	--	1.7	--	--
8/27/2015	12:48	7.07	23.98	637	0.44	85	--	0	2.2	0.006	44
8/28/2015	10:17	7.13	23.86	637	0.92	52	--	--	2.5	--	--
8/31/2015	8:38	7.12	23.5	637	0.74	123	--	--	1.8	--	--

Note:

(a) The ion selective probe for perchlorate is calibrated to <0.1 mg/L.

(b) A dash signifies parmeters that were not read.

Table B-4. OU-1 On Site Water Quality Log Sheet FBR Skid On-Line			
Date	Time	PH	Temperature
d/m/y			°C
Avg.		6.82	24.41
Std.		0.08	0.38
Max.		7.44	25.70
Min.		6.73	23.10
3/2/2015	13:34	6.8	24.1
3/3/2015	12:32	6.8	24.2
3/4/2015	11:57	6.8	24.2
3/5/2015	8:24	6.81	23.9
3/6/2015	--	--	--
3/9/2015	13:30	6.82	24.5
3/10/2015	13:33	6.81	24.5
3/11/2015	13:28	6.8	24.1
3/12/2015	13:32	6.8	24.5
3/13/2015	13:29	6.81	24.7
3/16/2015	13:24	6.82	24.6
3/17/2015	13:35	6.81	24.6
3/18/2015	13:25	6.76	24.3
3/19/2015	11:22	6.81	24.1
3/20/2015	13:28	6.79	24.3
3/23/2015	13:46	6.79	24.7
3/24/2015	13:31	6.78	24.4
3/25/2015	13:23	6.79	24.6
3/26/2015	13:25	6.81	24.7
3/27/2015	13:15	6.8	24.6
3/30/2015	13:37	6.8	24.6
3/31/2015	13:27	6.79	24.5
4/1/2015	13:29	6.78	24.4
4/2/2015	13:26	6.79	24.4
4/3/2015	13:24	6.79	24.5
4/6/2015	13:40	6.81	24.2
4/7/2015	8:18	6.82	23.5
4/8/2015	10:15	6.84	23.1
4/9/2015	8:18	6.79	24.2
4/10/2015	8:40	6.84	24.4
4/13/2015	12:14	6.77	24.3
4/14/2015	13:22	6.79	24.5
4/15/2015	12:58	6.81	24.4
4/16/2015	8:59	6.83	24.3
4/17/2015	10:23	6.78	24.3

Date	Time	PH	Temperature
d/m/y			°C
4/20/2015	7:50	--	--
4/21/2015	13:26	7.11	23.9
4/22/2015	8:40	6.73	23.9
4/23/2015	9:36	6.82	23.8
4/24/2015	9:13	6.81	23.9
4/27/2015	10:07	6.92	24.2
4/28/2015	8:18	7.44	24.4
4/29/2015	8:30	6.83	24.1
4/30/2015	8:05	6.99	24.3
5/1/2015	8:35	6.93	24.1
5/4/2015	10:55	6.9	23.4
5/5/2015	8:37	6.83	23.8
5/6/2015	13:28	6.79	24
5/7/2015	13:28	6.77	24
5/8/2015	13:21	6.77	23.9
5/11/2015	13:26	6.78	24.5
5/12/2015	13:31	6.76	24.3
5/13/2015	11:11	6.76	24.2
5/14/2015	13:20	6.77	23.7
5/15/2015	11:04	6.77	23.9
5/18/2015	13:49	6.79	24.2
5/19/2015	13:23	6.76	24.4
5/20/2015	13:26	6.77	24.3
5/21/2015	14:05	6.76	24.1
5/22/2015	13:29	6.77	23.9
5/25/2015	HOLIDAY	--	--
5/26/2015	13:29	6.77	24.4
5/27/2015	13:22	6.77	24.4
5/28/2015	13:27	6.76	24.5
5/29/2015	8:00	6.77	24.4
6/1/2015	13:39	6.77	24.5
6/2/2015	8:58	6.76	24.2
6/3/2015	13:24	6.77	24
6/4/2015	13:30	6.77	23.9
6/5/2015	13:23	6.77	24.3
6/8/2015	13:27	6.79	24.9
6/9/2015	13:25	6.77	24.6
6/10/2015	13:29	6.77	24.3
6/11/2015	13:25	6.76	24.1
6/12/2015	11:45	6.76	24.2

Date	Time	PH	Temperature
d/m/y			°C
6/15/2015	9:57	6.75	24.3
6/16/2015	13:25	6.75	24.6
6/17/2015	13:19	6.76	24.7
6/18/2015	13:15	6.77	24.8
6/19/2015	13:10	6.77	24.8
6/22/2015	13:35	6.77	24.8
6/23/2015	13:15	6.77	24.5
6/24/2015	13:20	7.09	24.8
6/25/2015	13:15	6.98	24.8
6/26/2015	13:01	6.89	24.8
6/29/2015	13:20	6.84	24.6
6/30/2015	13:28	6.82	24.6
7/1/2015	13:30	6.75	24.9
7/2/2015	13:23	6.75	25.1
7/3/2015	--	--	--
7/6/2015	--	--	--
7/7/2015	13:35	6.92	25
7/8/2015	10:55	6.94	24.5
7/9/2015	13:24	6.89	24.2
7/10/2015	10:20	6.84	24.5
7/13/2015	13:21	6.82	24.7
7/14/2015	11:20	6.74	25.7
7/15/158	13:20	6.85	24.7
7/16/2015	13:22	6.81	24.8
7/17/2015	13:20	6.81	24.8
7/20/2015	13:25	6.8	24.5
7/21/2015	13:16	6.8	24.2
7/22/2015	14:12	6.81	24.5
7/23/2015	13:23	6.82	24.5
7/24/2015	--	--	--
7/27/2015	13:21	6.85	25.1
7/28/2015	13:33	6.84	24.9
7/29/2015	13:22	6.8	24.7
7/30/2015	13:19	6.82	24.8
7/31/2015	13:37	6.83	24.8
8/3/2015	13:20	6.82	24.9
8/4/2015	13:18	6.84	24.9
8/5/2015	9:34	6.84	24.5
8/6/2015	8:30	6.81	24.3
8/7/2015	7:42	6.82	24.2

Date	Time	PH	Temperature
d/m/y			°C
8/10/2015	9:20	6.8	24.2
8/11/2015	13:24	6.87	24.7
8/12/2015	13:35	6.89	25
8/13/2015	13:17	6.85	25.1
8/14/2015		6.83	24.7
8/17/2015	9:15	6.76	24.6
8/18/2015	7:30	6.76	24.1
8/19/2015	8:10	6.79	24.1
8/20/2015	7:50	6.78	24.1
8/21/2015	8:45	6.8	24.1
8/24/2015	12:14	6.89	24.5
8/25/2015	9:25	6.77	25
8/26/2015	8:59	6.79	24.5
8/27/2015	12:48	6.77	24.9
8/28/2015	10:17	6.8	24.6
8/31/2015	8:38	6.8	24.2

Note:
A dash signifies parmeters that were not read.

Table B-5. OU-1 On Site Water Quality Log Sheet FBR Effluent

Date	Time	PH	Temperature	Conductivity	DO	ORP	ClO4[a]	Sulfide	Nitrate-N	Nitrite-N	Sulfate	Ammonia-N	PO_4	Filtered TOC
d/m/y			°C	µS/cm	mg/L	mV	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Avg.		7.09	23.74	745	0.17	-112	0.09	11	0.4	0.006	46	1.89	3.88	4.8
Std.		0.13	0.47	42	0.47	83	0.07	31	0.3	0.005	5	0.41	19.81	1.0
Max.		7.86	24.87	953	3.13	115	0.60	211	1.1	0.040	55	3.30	144.00	7.9
Min.		6.70	22.61	593	0.01	-294	0.02	0	0.1	0.001	36	0.19	0.90	3.4
3/2/2015	13:34	7.15	23.07	741	0.04	-115	0.08	--	--	--	--	--	--	--
3/3/2015	12:32	7.16	23.5	742	0.09	-210	0.11	3	0.1	0.005	55	1.7	1.02	4
3/4/2015	11:57	7.1	23.55	745	0.09	-205	0.09	--	--	--	--	--	--	--
3/5/2015	8:24	7.18	23.2	749	0.05	-221	0.08	5	0.4	0.006	39	1.9	1.07	3.9
3/6/2015	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/9/2015	13:30	7.1	23.81	747	0.07	-187	0.08	--	--	--	--	--	--	--
3/10/2015	13:33	7.06	23.85	748	0.05	-63	0.11	3	0.4	0.005	43	1.8	1.04	3.6
3/11/2015	13:28	7.11	23.42	744	0.06	-178	0.08	--	--	--	--	--	--	--
3/12/2015	13:32	7.03	23.96	750	0.09	-177	0.09	4	0.3	0.008	36	1.9	1.07	3.5
3/13/2015	13:29	7.02	24.1	745	0.08	-63	0.08	--	--	--	--	--	--	--
3/16/2015	13:24	7.1	24.1	743	0.06	-65	0.13	--	--	--	--	--	--	--
3/17/2015	13:35	7.16	23.92	750	0.05	-62	0.08	3	0.7	0.006	39	1.9	1.13	5.1
3/18/2015	13:25	7.1	23.62	746	0.06	-79	0.11	--	--	--	--	--	--	--
3/19/2015	11:22	7.16	23.51	750	0.07	-207	0.08	6	0.4	0.003	38	1.9	1.05	4.3
3/20/2015	13:28	7.14	23.8	744	0.07	-98	0.06	--	--	--	--	--	--	--
3/23/2015	13:46	7.02	23.66	752	0.07	-108	0.08	--	--	--	--	--	--	--
3/24/2015	13:31	7.07	23.79	748	0.06	-61	0.11	6	0.3	0.004	42	1.7	1.04	6.3
3/25/2015	13:23	7.02	23.95	753	0.06	-78	0.09	--	--	--	--	--	--	--
3/26/2015	13:25	7.01	24.14	742	0.05	-27	0.1	3	0.1	0.003	39	2.4	1.06	4.2
3/27/2015	13:15	6.99	24.15	748	0.07	-58	0.08	--	--	--	--	--	--	--
3/30/2015	13:37	7.06	23.96	752	0.05	-188	0.11	--	--	--	--	--	--	--
3/31/2015	13:27	7.08	23.86	748	0.06	-189	0.08	9	0.3	0.006	42	1.8	1.03	3.7
4/1/2015	13:29	7.09	23.78	743	0.06	-41	0.09	--	--	--	--	--	--	--
4/2/2015	13:26	7.12	23.72	750	0.07	-172	0.08	16	0.7	0.005	42	2	1.08	4.4
4/3/2015	13:24	7.07	23.45	746	0.06	-110	0.06	--	--	--	--	--	--	--
4/6/2015	13:40	6.97	23.53	752	0.07	-16	0.11	--	--	--	--	--	--	--
4/7/2015	8:18	7.13	22.61	746	0.09	-237	0.11	2	0.3	0.004	40	1.7	1.01	5.3
4/8/2015	10:15	7.19	22.94	749	0.12	-121	0.08	--	--	--	--	--	--	--
4/9/2015	8:18	7.19	23.18	746	0.05	-212	0.1	4	0.5	0.004	42	1.9	1.06	4.8
4/10/2015	8:40	7.26	22.68	753	0.09	-139	0.08	--	--	--	--	--	--	--
4/13/2015	12:14	6.99	23.62	737	0.07	-172	0.18	--	--	--	--	--	--	--
4/14/2015	13:22	7.03	23.85	740	0.06	-134	0.11	4	0.1	0.004	45	1.7	0.94	4
4/15/2015	12:58	7.06	23.8	764	0.11	-84	0.18	--	--	--	--	--	--	--
4/16/2015	8:59	7.1	23.41	760	0.05	-145	0.11	1	0.1	0.005	46	1.9	1.8	5.8
4/17/2015	10:23	7.06	23.84	753	0.06	-109	0.18	--	--	--	--	--	--	--
4/20/2015	7:50	7.12	23.07	746	0.84	-30	--	--	--	--	--	--	--	--
4/21/2015	13:26	7.29	23.21	845	0.01	-102	--	10	0.5	0.004	45	2	1.08	5.8
4/22/2015	8:40	6.98	22.99	757	0.05	-224	--	--	--	--	--	--	--	--
4/23/2015	9:36	7.04	22.95	748	0.05	-235	--	211	0.1	0.001	43	1.9	0.9	5.9
4/24/2015	9:13	7.1	22.99	750	0.06	-294	--	--	--	--	--	--	--	--
4/27/2015	10:07	7.18	23.65	760	0.12	-110	--	--	--	--	--	--	--	--
4/28/2015	8:18	7.39	23.03	783	0.07	-89	--	6	1	0.007	50	1.7	1.06	4.7
4/29/2015	8:30	7.12	23.21	759	0.04	-199	--	--	--	--	--	--	--	--
4/30/2015	8:05	7.12	23.21	755	0.04	-191	--	10	0.3	0.004	48	2.3	1.09	4.9
5/1/2015	8:35	7.19	23.32	770	0.04	-143	--	--	--	--	--	--	--	--
5/4/2015	10:55	7.17	23.06	755	0.08	-159	--	--	--	--	--	--	--	--
5/5/2015	8:37	7.15	22.94	771	0.03	-172	--	9	0.5	0.004	44	2	1.17	4
5/6/2015	13:28	7.12	23.22	754	0.03	-109	--	--	--	--	--	--	--	--
5/7/2015	13:28	7.11	23.25	746	0.05	-103	--	4	0.5	0.006	49	1.9	1.05	4.5
5/8/2015	13:21	7.09	23.07	744	0.06	-143	--	--	--	--	--	--	--	--
5/11/2015	13:26	7.05	23.99	748	0.04	-23	--	--	--	--	--	--	--	--
5/12/2015	13:31	7.08	23.64	747	0.04	-110	--	4	0.8	0.01	45	2	1.05	4.4
5/13/2015	11:11	7.07	23.51	751	0.04	-181	--	--	--	--	--	--	--	--
5/14/2015	13:20	7.14	22.7	744	0.04	-165	--	4	0.4	0.005	41	1.9	1.01	4.3
5/15/2015	11:04	7.13	23.13	750	0.07	-129	--	--	--	--	--	--	--	--
5/18/2015	13:49	7.07	23.49	747	0.04	-88	--	--	--	--	--	--	--	--
5/19/2015	13:23	7.12	23.8	747	0.04	-172	--	5	0.1	0.007	51	1.8	1.05	5.6
5/20/2015	13:26	7.13	23.66	751	0.03	-120	--	--	--	--	--	--	--	--
5/21/2015	14:05	7.15	23.34	751	0.02	-216	--	4	0.5	0.004	47	1.7	1.08	4.3
5/22/2015	13:29	7.17	23.09	748	0.03	-222	--	--	--	--	--	--	--	--
5/25/2015	HOLIDAY	--	--	--	--	--	--	--	--	--	--	--	--	--
5/26/2015	13:29	7.11	23.7	752	0.04	-214	--	6	0.3	0.003	41	2.2	1.14	4
5/27/2015	13:22	7.07	23.71	753	0.04	-178	--	--	--	--	--	--	--	--
5/28/2015	13:27	6.89	23.89	748	0.06	-184	--	7	0.2	0.007	51	1.6	1.05	3.8
5/29/2015	8:00	6.72	23.23	740	0.08	-183	--	--	--	--	--	--	--	--
6/1/2015	13:39	7.39	23.92	755	0.08	-13	--	--	--	--	--	--	--	--
6/2/2015	8:58	7.15	23.53	752	0.19	-245	--	4	0.1	0.004	48	1.9	1.11	3.9
6/3/2015	13:24	7.08	23.19	742	0.23	-192	0.03	--	--	--	--	--	--	--
6/4/2015	13:30	7.15	23.06	758	0.27	-236	0.02	2	0.2	0.003	51	1.8	1.03	4.1
6/5/2015	13:23	7.86	23.71	751	0.38	-166	0.11	--	--	--	--	--	--	--
6/8/2015	13:27	7.01	24.4	752	0.07	-20	0.04	--	--	--	--	--	--	--
6/9/2015	13:25	6.93	23.97	744	0.07	-220	0.6	2	0.8	0.006	49	1.9	1.1	4.1
6/10/2015	13:29	6.94	23.65	743	0.07	-78	0.04	--	--	--	--	--	--	--
6/11/2015	13:25	6.97	23.39	734	0.08	-133	0.04	1	0.6	0.007	52	1.6	1.13	3.4
6/12/2015	11:45	6.85	23.53	717	0.07	-150	0.06	--	--	--	--	--	--	--
6/15/2015	9:57	6.81	23.8	768	0.09	--	0.06	--	--	--	--	--	--	--

Date	Time	PH	Temperature	Conductivity	DO	ORP	ClO4[a]	Sulfide	Nitrate-N	Nitrite-N	Sulfate	Ammonia-N	PO_4	Filtered TOC
d/m/y			°C	µS/cm	mg/L	mV	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
6/16/2015	13:25	6.8	24.3	756	0.08	--	0.08	6	0.1	0.006	47	2.2	1.08	5.1
6/17/2015	13:19	6.7	24.5	758	0.09	--	0.08	--	0.5	--	--	--	--	--
6/18/2015	13:15	6.93	24.5	760	0.09	--	0.06	6	0.3	0.009	49	1.7	1.05	5
6/19/2015	13:10	6.97	24.5	766	0.08	--	0.08	--	0.5	--	--	--	--	--
6/22/2015	13:35	6.82	24.4	757	0.06	--	0.09	--	0.1	--	--	--	--	--
6/23/2015	13:15	6.79	24.4	749	0.09	--	0.08	2	0.1	0.006	49	1.1	1.02	4.6
6/24/2015	13:20	7.08	24.4	759	0.08	--	0.08	--	0.9	--	--	--	--	--
6/25/2015	13:15	6.96	24.4	732	0.09	--	0.08	4	0.6	0.003	39	2.1	1.35	4.5
6/26/2015	13:01	7.12	24.27	754	0.05	-191	0.09	--	--	--	--	--	--	--
6/29/2015	13:20	7.11	24.13	694	0.02	-245	0.06	--	--	--	--	--	--	--
6/30/2015	13:28	7.13	24.18	692	0.02	-143	0.06	49	0.1	0.003	50	2.4	1.19	5.1
7/1/2015	13:30	7.04	24.17	729	0.01	-187	0.06	--	--	--	--	--	--	--
7/2/2015	13:23	7.1	24.14	719	0.02	-165	0.08	78	0.5	0.006	43	1.8	1.18	4.1
7/3/2015	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7/6/2015	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7/7/2015	13:35	7.22	24.37	778	0.68	-98	0.08	12	0.1	0.003	54	3.3	1.4	6.1
7/8/2015	10:55	7.25	23.75	780	0.23	-83	0.09	--	--	--	--	--	--	--
7/9/2015	13:24	7.17	23.5	724	0.06	-129	0.08	11	0.5	0.007	51	1.7	1.25	4.6
7/10/2015	10:20	7.15	23.44	720	0.04	-133	0.08	--	--	--	--	--	--	--
7/13/2015	13:21	7.09	24.22	711	0.06	-10	0.08	--	--	--	--	--	--	--
7/14/2015	11:20	7	24.87	750	0.04	-9	0.08	18	0.1	0.004	48	2	1.27	4.7
7/15/158	13:20	7.13	24.15	730	0.12	-79	0.08	--	--	--	--	--	--	--
7/16/2015	13:22	7.1	24.2	729	0.12	-90	0.09	6	0.3	0.006	49	1.7	1.13	4.4
7/17/2015	13:20	7.1	24.27	741	0.5	-72	0.08	--	--	--	--	--	--	--
7/20/2015	13:25	7.01	23.87	730	0.02	-167	0.09	--	--	--	--	--	--	--
7/21/2015	13:16	7.02	23.67	735	0.07	-192	0.06	0	0.4	0.001	44	1.7	1.08	4.1
7/22/2015	14:12	7.03	23.89	735	0.13	-114	0.08	--	--	--	--	--	--	--
7/23/2015	13:23	7.04	23.92	681	0.13	-72	0.08	4	0.7	0.003	48	1.8	1.11	6.6
7/24/2015	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7/27/2015	13:21	7.08	24.32	725	0.02	-66	0.06	--	--	--	--	--	--	--
7/28/2015	13:33	7.11	24.36	752	0.15	-19	0.08	9	0.3	0.003	51	2	1.13	4.7
7/29/2015	13:22	7.03	24.13	737	0.06	-63	0.06	--	--	--	--	--	--	--
7/30/2015	13:19	7.03	24.26	746	0.32	-68	0.06	8	0.1	0.005	44	1.5	1.12	4.8
7/31/2015	13:37	7.08	24.3	746	0.1	-29	0.08	--	--	--	--	--	--	--
8/3/2015	13:20	7.28	24.23	754	0.01	73	0.06	--	--	--	--	--	--	--
8/4/2015	13:18	7.28	24.31	741	0.05	-104	--	2	0.6	0.008	46	1.9	1.17	4.2
8/5/2015	9:34	7.19	23.86	742	0.06	-146	--	--	--	--	--	--	--	--
8/6/2015	8:30	7.22	23.75	745	0.06	-133	--	4	0.7	0.004	55	2.1	1.23	4.6
8/7/2015	7:42	7.22	23.72	742	0.04	-135	--	--	--	--	--	--	--	--
8/10/2015	9:20	7.20	23.52	746	0.11	-88	--	--	--	--	--	--	--	--
8/11/2015	13:24	7.29	24.13	754	0.09	-83	--	4	0.2	0.008	48	1.8	1.19	4.1
8/12/2015	13:35	7.28	24.37	758	0.01	37	--	--	--	--	--	--	--	--
8/13/2015	13:17	7.27	24.49	755	0.05	-19	--	2	0.4	0.007	50	1.5	1.25	4.8
8/14/2015	0:00	7.16	24.33	620	2.88	93.1	--	--	--	--	--	--	--	--
8/17/2015	9:15	7.04	24.01	950	0.07	67	--	--	--	--	--	--	--	--
8/18/2015	7:30	7.00	23.42	953	0.05	-24	--	6	0.1	0.04	52	2.9	144	7.7
8/19/2015	8:10	7.11	23.55	765	3.13	115	--	--	--	--	--	--	--	--
8/20/2015	7:50	7.05	23.38	825	2.71	108	--	4	0.4	0.013	49	0.19	1.45	7.9
8/21/2015	8:45	7.17	23.38	593	1.7	96	--	--	--	--	--	--	--	--
8/24/2015	12:14	7.12	24.31	646	0.03	-28	--	--	--	--	--	--	--	--
8/25/2015	9:25	7.1	23.79	646	0.04	-22	--	4	1.1	0.002	50	2.2	1.37	6.6
8/26/2015	8:59	7.1	23.89	640	0.04	-14	--	--	--	--	--	--	--	--
8/27/2015	12:48	7.06	24.34	644	0.02	-60	--	0	0.5	0.001	43	2.1	1.23	4.1
8/28/2015	10:17	7.09	23.97	642	0.08	-60	--	--	--	--	--	--	--	--
8/31/2015	8:38	7.08	23.6	638	0.05	-76	--	--	--	--	--	--	--	--

Note:
(a) The ion selective probe for perchlorate is calibrated to <0.1 mg/L.
(b) A dash signifies parmeters that were not read.

Table B-6. OU-1 On Site Water Quality Log Sheet Combined Wellhead Effluent

Date	Time	PH	Temperature	Conductivity	DO	ORP	ClO4[a]	Nitrate-N
d/m/y			°C	µS/cm	mg/L	mV	mg/L	mg/L
Avg.		6.92	24.26	724	1.81	718	0.49	
Std.		0.51	0.73	166	5.25	75		
Max.		7.37	25.42	797	24.65	870	0.49	735.0
Min.		5.38	23.10	7	0.15	450	0.49	735.0
3/2/2015	13:34	--	--	--	--	--	--	--
3/3/2015	12:32	--	--	--	--	--	--	--
3/4/2015	11:57	--	--	--	--	--	--	--
3/5/2015	8:24	--	--	--	--	--	--	--
3/6/2015	--	--	--	--	--	--	--	--
3/9/2015	13:30	--	--	--	--	--	--	--
3/10/2015	13:33	--	--	--	--	--	--	--
3/11/2015	13:28	--	--	--	--	--	--	--
3/12/2015	13:32	--	--	--	--	--	--	--
3/13/2015	13:29	6.83	24.81	755	0.59	733	--	--
3/16/2015	13:24	--	--	--	--	--	--	--
3/17/2015	13:35	--	--	--	--	--	--	--
3/18/2015	13:25	--	--	--	--	--	--	--
3/19/2015	11:22	--	--	--	--	--	--	--
3/20/2015	13:28	7.03	24.39	754	1.06	728	--	--
3/23/2015	13:46	--	--	--	--	--	--	--
3/24/2015	13:31	--	--	--	--	--	--	--
3/25/2015	13:23	--	--	--	--	--	--	--
3/26/2015	13:25	--	--	--	--	--	--	--
3/27/2015	13:15	6.89	25.1	755	0.63	747	--	--
3/30/2015	13:37	--	--	--	--	--	--	--
3/31/2015	13:27	--	--	--	--	--	--	--
4/1/2015	13:29	--	--	--	--	--	--	--
4/2/2015	13:26	--	--	--	--	--	--	--
4/3/2015	13:24	--	--	6.9	24.65	758	0.49	735
4/6/2015	13:40	--	--	--	--	--	--	--
4/7/2015	8:18	--	--	--	--	--	--	--
4/8/2015	10:15	--	--	--	--	--	--	--
4/9/2015	8:18	--	--	--	--	--	--	--
4/10/2015	8:40	7.25	24.09	762	0.52	713	--	--
4/13/2015	12:14	--	--	--	--	--	--	--
4/14/2015	13:22	--	--	--	--	--	--	--
4/15/2015	12:58	--	--	--	--	--	--	--
4/16/2015	8:59	--	--	--	--	--	--	--

Date	Time	PH	Temperature	Conductivity	DO	ORP	ClO4[a]	Nitrate-N
d/m/y			°C	µS/cm	mg/L	mV	mg/L	mg/L
4/17/2015	10:23	6.88	24.43	765	0.19	704	--	--
4/20/2015	7:50	--	--	--	--	--	--	--
4/21/2015	13:26	--	--	--	--	--	--	--
4/22/2015	8:40	--	--	--	--	--	--	--
4/23/2015	9:36	--	--	--	--	--	--	--
4/24/2015	9:13	7.19	23.1	772	0.22	450	--	--
4/27/2015	10:07	--	--	--	--	--	--	--
4/28/2015	8:18	--	--	--	--	--	--	--
4/29/2015	8:30	--	--	--	--	--	--	--
4/30/2015	8:05	--	--	--	--	--	--	--
5/1/2015	8:35	7.07	23.87	782	0.15	746	--	--
5/4/2015	10:55	--	--	--	--	--	--	--
5/5/2015	8:37	--	--	--	--	--	--	--
5/6/2015	13:28	--	--	--	--	--	--	--
5/7/2015	13:28	--	--	--	--	--	--	--
5/8/2015	13:21	7.13	23.29	755	0.81	756	--	--
5/11/2015	13:26	--	--	--	--	--	--	--
5/12/2015	13:31	--	--	--	--	--	--	--
5/13/2015	11:11	--	--	--	--	--	--	--
5/14/2015	13:20	--	--	--	--	--	--	--
5/15/2015	11:04	7.12	23.34	760	0.44	745	--	--
5/18/2015	13:49	--	--	--	--	--	--	--
5/19/2015	13:23	--	--	--	--	--	--	--
5/20/2015	13:26	--	--	--	--	--	--	--
5/21/2015	14:05	--	--	--	--	--	--	--
5/22/2015	13:29	7.19	23.2	770	0.21	744	--	--
5/25/2015	HOLIDAY	--	--	--	--	--	--	--
5/26/2015	13:29	--	--	--	--	--	--	--
5/27/2015	13:22	--	--	--	--	--	--	--
5/28/2015	13:27	--	--	--	--	--	--	--
5/29/2015	8:00	6.97	23.62	754	0.66	765	--	--
6/1/2015	13:39	--	--	--	--	--	--	--
6/2/2015	8:58	--	--	--	--	--	--	--
6/3/2015	13:24	--	--	--	--	--	--	--
6/4/2015	13:30	--	--	--	--	--	--	--
6/5/2015	13:23	5.38	24.16	763	1.24	699	--	--
6/8/2015	13:27	--	--	--	--	--	--	--
6/9/2015	13:25	--	--	--	--	--	--	--
6/10/2015	13:29	--	--	--	--	--	--	--
6/11/2015	13:25	--	--	--	--	--	--	--

Date	Time	PH	Temperature	Conductivity	DO	ORP	ClO4[a]	Nitrate-N
d/m/y			°C	µS/cm	mg/L	mV	mg/L	mg/L
6/12/2015	11:45	6.01	23.84	766	0.22	870	--	--
6/15/2015	9:57	--	--	--	--	--	--	--
6/16/2015	13:25	--	--	--	--	--	--	--
6/17/2015	13:19	--	--	--	--	--	--	--
6/18/2015	13:15	--	--	--	--	--	--	--
6/19/2015	13:10	--	--	--	--	--	--	--
6/22/2015	13:35	--	--	--	--	--	--	--
6/23/2015	13:15	--	--	--	--	--	--	--
6/24/2015	13:20	--	--	--	--	--	--	--
6/25/2015	13:15	--	--	--	--	--	--	--
6/26/2015	13:01	7.1	25	773	0.17	620	--	--
6/29/2015	13:20	--	--	--	--	--	--	--
6/30/2015	13:28	--	--	--	--	--	--	--
7/1/2015	13:30	--	--	--	--	--	--	--
7/2/2015	13:23	--	--	--	--	--	--	--
7/3/2015	--	--	--	--	--	--	--	--
7/6/2015	--	--	--	--	--	--	--	--
7/7/2015	13:35	--	--	--	--	--	--	--
7/8/2015	10:55	--	--	--	--	--	--	--
7/9/2015	13:24	--	--	--	--	--	--	--
7/10/2015	10:20	6.1	25.42	750	0.67	722	--	--
7/13/2015	13:21	--	--	--	--	--	--	--
7/14/2015	11:20	--	--	--	--	--	--	--
7/15/158	13:20	--	--	--	--	--	--	--
7/16/2015	13:22	--	--	--	--	--	--	--
7/17/2015	13:20	7.18	24.95	766	1.29	719	--	--
7/20/2015	13:25	--	--	--	--	--	--	--
7/21/2015	13:16	--	--	--	--	--	--	--
7/22/2015	14:12	--	--	--	--	--	--	--
7/23/2015	13:23	--	--	--	--	--	--	--
7/24/2015	--	--	--	--	--	--	--	--
7/27/2015	13:21	--	--	--	--	--	--	--
7/28/2015	13:33	--	--	--	--	--	--	--
7/29/2015	13:22	--	--	--	--	--	--	--
7/30/2015	13:19	--	--	--	--	--	--	--
7/31/2015	13:37	7.17	25.04	768	0.96	718	--	--
8/3/2015	13:20	--	--	--	--	--	--	--
8/4/2015	13:18	--	--	--	--	--	--	--
8/5/2015	9:34	--	--	--	--	--	--	--
8/6/2015	8:30	--	--	--	--	--	--	--

Date	Time	PH	Temperature	Conductivity	DO	ORP	ClO4[a]	Nitrate-N
d/m/y			°C	µS/cm	mg/L	mV	mg/L	mg/L
8/7/2015	7:42	7.37	23.79	797	1.94	706	--	--
8/10/2015	9:20	--	--	--	--	--	--	--
8/11/2015	13:24	--	--	--	--	--	--	--
8/12/2015	13:35	--	--	--	--	--	--	--
8/13/2015	13:17	--	--	--	--	--	--	--
8/14/2015	0:00	7.23	25.04	769	0.56	714	--	--
8/17/2015	9:15	--	--	--	--	--	--	--
8/18/2015	7:30	--	--	--	--	--	--	--
8/19/2015	8:10	--	--	--	--	--	--	--
8/20/2015	7:50	--	--	--	--	--	--	--
8/21/2015	8:45	--	--	--	--	--	--	--
8/24/2015	12:14	--	--	--	--	--	--	--
8/25/2015	9:25	--	--	--	--	--	--	--
8/26/2015	8:59	--	--	--	--	--	--	--
8/27/2015	12:48	--	--	--	--	--	--	--
8/28/2015	10:17	7.3	24.72	657	0.9	713	--	--
8/31/2015	8:38	--	--	--	--	--	--	--

Note:

(a) The ion selective probe for perchlorate is calibrated to <0.1 mg/L

(b) A dash signifies parmeters that were not read.

Table B-7. Daily System Readings										
Date	Time	EW-1	EW-2	EW-3	IW-1	IW-2	IW-3	T-501 Chlorination	Acetic Acid	Turbidity
d/m/y		GPM	GPM	GPM	GPM	GPM	GPM	mg/l	GPD	mg/L
Avg.			125	140	82	86	131	2.2	6.21	0.117
Max.		0	140	152	129	117	240	3.2	8.08	1.321
Min.		0	105	119	55	64	15	1.1	4.56	0.032
3/2/2015	8:55	--	134	146	78	97	93	--	5.52	0.075
3/3/2015	8:28	--	132	150	92	79	163	--	5.52	0.065
3/4/2015	8:50	--	132	148	89	87	166	--	5.76	0.068
3/5/2015	9:00	--	134	145	80	109	164	--	6.00	0.073
3/6/2015	--	--	--	--	--	--	--	--	--	--
3/9/2015	9:50	--	134	144	85	88	105	--	6.00	0.064
3/10/2015	8:53	--	132	145	77	93	109	--	6.00	0.073
3/11/2015	8:25	--	135	146	68	94	105	--	6.00	0.075
3/12/2015	8:40	--	131	149	83	89	136	--	6.00	0.077
3/13/2015	9:35	--	131	146	68	84	143	1.8	6.00	0.079
3/16/2015	8:40	--	136	143	68	104	184	--	6.00	0.08
3/17/2015	8:38	--	132	147	70	93	101	--	6.24	0.085
3/18/2015	9:50	--	131	148	98	80	58	--	6.24	1.321
3/19/2015	8:13	--	132	149	70	94	143	--	6.24	0.065
3/20/2015	9:40	--	133	143	85	105	79	1.8	6.24	0.065
3/23/2015	9:39	--	130	152	85	90	125	--	6.24	0.061
3/24/2015	8:10	--	131	147	63	97	115	--	6.24	0.082
3/25/2015	8:15	--	131	149	94	81	190	--	6.24	0.067
3/26/2015	8:23	--	134	145	71	86	95	--	6.24	0.064
3/27/2015	9:21	--	132	148	72	86	93	1.7	6.48	0.069
3/30/2015	10:40	--	134	148	87	91	105	--	6.48	0.06
3/31/2015	8:13	--	132	151	90	87	111	--	6.24	0.071
4/1/2015	8:25	--	134	146	81	97	172	--	6.24	0.072
4/2/2015	8:10	--	140	148	69	66	170	--	6.24	0.063
4/3/2015	11:00	--	132	149	81	101	131	1.5	6.24	0.058
4/6/2015	9:35	--	132	147	61	82	125	--	6.24	0.057
4/7/2015	7:45	--	135	149	83	92	161	--	6.48	0.071
4/8/2015	8:25	--	132	150	80	89	142	--	6.24	0.104
4/9/2015	8:30	--	131	143	77	98	101	--	6.24	0.113
4/10/2015	9:45	--	123	143	62	99	75	1.1	6.24	0.382
4/13/2015	8:26	--	125	143	64	87	142	--	6.24	0.126
4/14/2015	8:05	--	125	142	68	82	175	--	6.24	0.133
4/15/2015	7:42	--	125	138	64	90	133	--	6.24	0.084
4/16/2015	7:37	--	120	141	78	81	170	--	6.24	0.136
4/17/2015	9:58	--	114	130	63	94	77	2.9	6.24	0.271
4/20/2015	7:30	--	114	119	77	95	101	--	6.24	0.076
4/21/2015	8:50	--	--	127	55	87	15	--	6.24	0.077
4/22/2015	8:35	--	122	139	76	98	97	--	6.24	0.225

Date	Time	EW-1	EW-2	EW-3	IW-1	IW-2	IW-3	T-501 Chlorination	Acetic Acid	Turbidity
d/m/y		GPM	GPM	GPM	GPM	GPM	GPM	mg/l	GPD	mg/L
4/23/2015	9:05	--	117	131	72	93	180	--	6.24	0.747
4/24/2015	8:40	--	113	122	82	97	152	2.5	6.24	0.472
4/27/2015	9:00	--	127	143	92	117	236	--	6.24	0.129
4/28/2015	7:35	--	125	138	88	87	118	--	6.24	0.117
4/29/2015	7:42	--	123	138	95	81	176	--	6.24	0.143
4/30/2015	7:35	--	122	136	98	84	141	--	6.24	0.214
5/1/2015	8:00	--	117	130	81	86	163	1.7	6.24	0.093
5/4/2015	8:35	--	105	120	88	102	122	--	6.24	0.135
5/5/2015	9:00	--	123	143	90	91	152	--	6.24	0.073
5/6/2015	8:35	--	121	144	84	81	148	--	6.24	0.058
5/7/2015	8:15	--	120	136	91	73	101	--	6.24	0.059
5/8/2015	9:15	--	122	140	81	89	116	2.6	6.24	0.052
5/11/2015	8:26	--	122	142	86	88	128	--	6.24	0.051
5/12/2015	8:40	--	124	138	90	72	177	--	6.48	0.046
5/13/2015	8:20	--	124	140	88	90	144	--	6.48	0.051
5/14/2015	8:37	--	123	139	92	86	61	--	6.24	0.053
5/15/2015	9:10	--	124	140	90	97	136	2.6	6.24	0.056
5/18/2015	11:45	--	122	136	83	93	110	--	6.24	0.042
5/19/2015	8:33	--	124	138	99	83	137	--	6.48	0.047
5/20/2015	8:35	--	123	139	90	83	104	--	6.24	0.044
5/21/2015	8:45	--	122	139	88	82	165	--	6.24	0.048
5/22/2015	9:00	--	123	139	88	67	164	2.7	6.24	0.049
5/25/2015	HOLIDAY	--	--	--	--	--	--	--	--	--
5/26/2015	9:05	--	124	140	75	75	180	--	6.24	0.073
5/27/2015	8:15	--	121	139	84	73	127	--	6.24	0.06
5/28/2015	8:30	--	120	137	90	92	186	--	6.24	0.062
5/29/2015	7:45	--	122	142	89	89	164	2.1	6.24	0.074
6/1/2015	9:50	--	119	138	90	87	123	--	6.24	0.055
6/2/2015	8:33	--	117	138	80	81	78	--	5.76	0.07
6/3/2015	8:55	--	119	136	96	72	88	--	6.00	0.056
6/4/2015	8:30	--	121	134	110	78	84	--	6.00	0.06
6/5/2015	9:15	--	120	134	100	77	160	1.9	6.00	0.073
6/8/2015	8:55	--	120	143	100	81	74	--	6.00	0.47
6/9/2015	8:40	--	124	137	100	86	86	--	6.72	0.054
6/10/2015	8:20	--	123	139	92	80	162	--	6.00	0.042
6/11/2015	8:25	--	124	133	93	72	155	--	6.72	0.047
6/12/2015	9:35	--	121	141	129	66	152	2.2	6.72	0.048
6/15/2015	8:44	--	125	144	76	70	162	--	6.00	0.052
6/16/2015	8:45	--	126	138	102	85	116	--	6.72	0.06
6/17/2015	8:45	--	123	140	83	93	143	--	6.72	0.047
6/18/2015	8:27	--	125	146	84	88	176	--	6.00	0.054
6/19/2015	9:00	--	125	140	91	103	181	2.5	6.00	0.044
6/22/2015	9:00	--	125	137	83	96	96	--	6.00	0.044

Date	Time	EW-1	EW-2	EW-3	IW-1	IW-2	IW-3	T-501 Chlorination	Acetic Acid	Turbidity
d/m/y		GPM	GPM	GPM	GPM	GPM	GPM	mg/l	GPD	mg/L
6/23/2015	7:20	--	127	145	76	72	160	--	6.00	0.032
6/24/2015	8:35	--	128	141	81	80	85	--	6.00	0.032
6/25/2015	8:48	--	127	145	81	79	109	--	7.20	0.05
6/26/2015	9:20	--	127	142	72	75	177	2.5	6.00	0.049
6/29/2015	8:53	--	128	141	80	94	153	--	6.00	0.056
6/30/2015	8:30	--	127	144	86	96	175	--	5.52	0.064
7/1/2015	12:57	--	127	143	80	88	104	--	5.52	0.23
7/2/2015	8:40	--	126	142	90	86	87	--	5.52	0.64
7/3/2015	9:20	--	--	--	--	--	--	--	--	--
7/6/2015	8:00	--	--	--	--	--	--	--	--	--
7/7/2015	10:30	--	125	132	63	82	155	--	4.56	0.422
7/8/2015	10:30	--	125	144	82	81	161	--	4.56	0.446
7/9/2015	8:53	--	126	143	90	82	131	--	4.56	0.183
7/10/2015	9:35	--	124	144	78	90	127	2.5	4.56	0.462
7/13/2015	9:05	--	126	137	80	82	122	--	4.56	0.743
7/14/2015	11:10	--	119	139	72	113	112	--	6.72	0.295
7/15/2015	8:20	--	124	142	87	77	124	--	6.72	0.058
7/16/2015	8:20	--	126	142	96	75	125	--	6.72	0.056
7/17/2015	9:15	--	124	137	73	72	117	2.2	6.72	0.053
7/20/2015	9:30	--	124	139	78	64	137	--	6.72	0.05
7/21/2015	8:30	--	122	140	88	71	104	--	6.00	0.052
7/22/2015	8:45	--	122	134	72	78	134	--	6.00	0.052
7/23/2015	8:20	--	122	138	76	78	129	--	6.00	0.049
7/24/2015	--	--	--	--	--	--	--	--	--	--
7/27/2015	9:30	--	116	132	99	108	240	--	6.00	0.124
7/28/2015	8:35	--	118	135	80	80	113	--	6.00	0.049
7/29/2015	8:45	--	116	129	75	80	114	--	6.24	0.051
7/30/2015	8:43	--	125	144	72	83	139	--	6.24	0.047
7/31/2015	9:10	--	127	140	81	81	125	1.7	6.24	0.046
8/3/2015	9:35	--	127	140	83	80	120	--	6.24	0.048
8/4/2015	8:45	--	128	139	76	79	134	--	6.48	0.056
8/5/2015	8:20	--	127	142	78	86	127	--	6.48	0.065
8/6/2015	9:20	--	124	139	74	86	136	--	6.48	0.061
8/7/2015	7:25	--	123	139	91	95	186	2.4	6.48	0.065
8/10/2015	9:00	--	123	145	74	83	109	--	6.24	0.063
8/11/2015	8:40	--	124	139	76	76	131	--	6.24	0.054
8/12/2015	8:35	--	123	138	81	85	117	--	6.48	0.063
8/13/2015	8:38	--	126	141	75	82	132	--	8.08	0.055
8/14/2015	7:30	--	124	143	91	90	102	--	--	0.062
8/17/2015	7:15	--	121	137	72	73	113	--	--	0.052
8/18/2015	7:10	--	121	137	66	93	165	--	--	0.046
8/19/2015	7:50	--	123	141	78	81	145	--	--	0.044
8/20/2015	8:20	--	125	138	83	73	124	--	--	0.046

Date	Time	EW-1	EW-2	EW-3	IW-1	IW-2	IW-3	T-501 Chlorination	Acetic Acid	Turbidity
d/m/y		GPM	GPM	GPM	GPM	GPM	GPM	mg/l	GPD	mg/L
8/21/2015	8:00	--	123	141	76	78	145	--	--	0.046
8/24/2015	10:05	--	124	138	77	79	112	--	7.20	0.051
8/25/2015	9:00	--	124	139	82	77	109	--	7.20	0.053
8/26/2015	8:45	--	124	139	94	89	100	--	7.20	0.074
8/27/2015	9:45	--	124	139	77	81	106	--	7.20	0.041
8/28/2015	9:30	--	126	140	89	84	97	3.2	7.20	0.041
8/31/2015	8:40	--	126	136	89	76	121	--	7.20	0.045