Submitted to:

Florida Department of Environmental Protection

TENTH SEMI-ANNUAL WATER QUALITY MONITORING REPORT

J.E.D. Solid Waste Management Facility
Osceola County, Florida

Prepared by

Geosyntec consultants

14055 Riveredge Drive, Suite 300
Tampa, Florida 33637

Project Number FQ1512A
August 2009

Prepared for

WSI Waste Services, Inc.

Waste Services of Florida, Inc.
1501 Omni Way
St. Cloud, Florida

8/31/09

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1. INTRODUCTION

1.1 Terms of Reference

This report documents the implementation of the Water Quality Monitoring Plan (Plan) for the J.E.D. Solid Waste Management (JED) facility. The Plan was prepared as a part of the JED facility permit applications. The requirements for executing the Plan are presented in the Monitoring Plan Implementation Schedule (MPIS) of the current permit (Permit Numbers SC49-0199726-004 and SO49-0199726-005) that authorizes the development of Phases 1 through 3 at the JED facility. The current permit was issued by the Florida Department of Environmental Protection (FDEP) on 4 April 2008. The MPIS was revised to include electronic data reporting on 22 June 2009. This report presents the results for the 10th semi-annual water quality (groundwater and surface water) monitoring event conducted between 26 May 2009 and 2 June 2009.

This report was prepared on behalf of Waste Services Incorporated (WSI), parent company of Omni Waste of Osceola County, LLC, owner and operator of the JED facility by Mr. Kirk E. Wills of Geosyntec Consultants (Geosyntec). In accordance with Geosyntec's peer review procedures, Mr. Matthew Wissler, P.G. reviewed this report.

1.2 Overview

The Plan and the MPIS describe a water quality monitoring program at the JED facility with an intent to: (i) measure and report groundwater and surface water conditions for the monitoring network; (ii) monitor the groundwater flow direction; (iii) monitor the groundwater and surface water quality on a semi-annual basis; and (iv) monitor leachate quality on an annual basis. The 10th semi-annual water quality monitoring has been completed. This report includes presentation and discussions of the sample locations, sampling procedures, laboratory analyses and results, field data measurements, groundwater level measurements, groundwater flow direction, and surface water and leachate quality monitoring. In addition, this report includes a comparison of the analytical results of this sampling event to applicable Groundwater Cleanup Target Levels (GCTLs) as promulgated in Chapter 62-777, Florida Administrative Code (FAC).

1.3 Site Description

The JED facility is located in eastern Osceola County, Florida, west of highway U.S. 441, and approximately 6.5 miles south of Holopaw. The facility includes a Class I landfill, which is linked to highway U.S. 441 by a 2.86-mile access road. The JED facility comprises a total of approximately 2,179 acres. The landfill footprint at build-out is approximately 264 acres and consists of a total of 21 landfill cells that provide available waste capacity for a period of approximately 30 years. The FDEP issued a permit to construct and operate Phase 1 development of the JED facility in October 2003. Phase 1 development includes four landfill cells (Cells 1 through 4), located in the northern part of the landfill and covering approximately 53 acres. As part of Phase 1, forty-five (45) groundwater monitoring wells were installed in fifteen (15) clusters (MW-1 through MW-15) around the perimeter of the Phase 1 development area. The baseline water quality report for the Phase 1 monitoring well network was submitted to FDEP in May 2004. All components of the Phase 1 development have been constructed.

The FDEP issued a permit to construct and operate Phases 2 and 3 at the JED facility in March 2007. The development of Phases 2 and 3 includes six cells (Cells 5 through 10) with a total footprint of approximately 72 acres. As part of Phases 2 and 3 development, and as approved by FDEP, six (6) existing Phase 1 monitoring wells (MW-14 A, B, and C, and MW-15 A, B, and C), and ten (10) piezometers were decommissioned. The wells and piezometers were decommissioned to allow for construction of future cells, construction of a storm water retention basin located within Phases 2 and 3, and due to the proximity of piezometers to the new network wells installed. The decommissioning of the monitoring wells and piezometers was discussed in the Phases 2 and 3 baseline water quality report. For the development of Phases 2 and 3, twenty-four (24) additional groundwater monitoring wells were installed in eight (8) well clusters (MW-16 through MW-23) around the perimeter of the Phases 2 and 3 development areas in September 2007. The baseline water quality report for the Phases 2 and 3 monitoring well network was submitted to FDEP in January 2008.

The FDEP issued a permit to construct and operate Phases 1 through 3 with vertical expansion at the JED facility in April 2008. The MPIS was revised on 6 April 2009, updating the sample locations and sampling schedule. The MPIS was revised again on 22 June 2009 to include electronic data reporting requirements. For monitoring purposes, the JED facility was given the Water Assurance Compliance System (WACS) facility identification number 89544.

2. MONITORING WELL DETAILS

2.1 Well Layout and Construction

For the Phase 1 development, forty five (45) groundwater monitoring wells were installed in fifteen (15) clusters (MW-1 through MW-15) around the perimeter of the Phase 1 development area. Monitoring well clusters were located such that the spacing between well clusters was no greater than 500 ft, in accordance with the FDEP permit requirements. For development of Phases 2 and 3, twenty four (24) groundwater monitoring wells were installed in eight (8) clusters (MW-16 through MW-23) around the perimeter of the Phases 2 and 3 development areas. In accordance with the FDEP permit requirements, the monitoring well clusters were located such that the spacing between detection well clusters (MW-16 through MW-21) was approximately 500 feet, and the spacing between background well clusters (MW-22 and MW-23) was approximately 800 feet. Each monitoring well cluster consisted of three (3) groundwater monitoring wells installed (i) across the water table to monitor the upper limit of the surficial aquifer (identified as A-zone [shallow] wells); (ii) within the lower limit of the upper surficial aquifer above the intermediate clay layer (identified as C-zone [deep] wells); and (iii) at an intermediate depth between the shallow and deep wells (identified as B-zone [intermediate] wells).

A layout depicting the location of groundwater monitoring wells installed for Phases 2 and 3, the previously installed groundwater monitoring wells for Phase 1, and the piezometers installed as part of the hydro-geologic investigation are shown for the shallow zone ("A" wells) on Figure 1. As shown, groundwater monitoring well clusters MW-1 through MW-13 and MW-23 were installed along the top of the outer edge of the landfill perimeter berm. The ground surface at the location of the wells in the perimeter berm is at approximately Elevation 92 feet with respect to National Geodetic Vertical Datum of 1929 (NGVD, 1929). Groundwater monitoring well clusters MW-16 and MW-17 were installed along the outer edge of the landfill perimeter berm that serves as the initial storm water berm. The ground surface at these two well locations is at approximately Elevation 85 feet (NGVD, 1929). Groundwater monitoring well clusters MW-18 through MW-22 were installed along the interim Phase 3 storm water berm at the southern limit of the Phase 3 development at approximately elevation 84 feet (NGVD, 1929). The locations of each well, in Florida state plane coordinates and latitude/longitude, and elevation (NGVD, 1929) were surveyed by professional land surveyors licensed in the State of Florida.

Wells were constructed with 2-in diameter schedule 40 PVC casing. The well screens were 10-ft in length with #6-slot (0.006-in.). A 30/45 graded silica sand was placed

around the screen to a height of 2 to 3 ft above the top of the screen. A seal of 30/65 graded fine silica sand was placed above the sand filter around the screen. The remaining annular space from the top of the fine sand filter seal to the existing ground surface was grouted using a tremie pipe with a cement/bentonite mixture containing no more than 5 percent bentonite by dry weight. The PVC well casings were extended approximately 2.5 to 3 ft above the existing ground surface. Surface completion consisted of a protective steel or aluminum casing with a lockable cover set in a concrete pad. Each well was provided with a well cap, padlock, and an identification label. A summary of the monitoring well construction details are presented in Table 1.

2.2 Turbidity Issues

As discussed in the baseline water quality reports for the Phase 1 and Phases 2 and 3 monitoring networks, the formation around the screened intervals consists primarily of a fine, brown to dark brown, silty sand. Due to the subsurface formation properties, fine-grained and colloidal material are able to pass through the sand filter pack in many wells, primarily in the B-zone and C-zone wells. This is the case even though the wells are constructed using the smallest screen slot size (0.006 in.) commonly available. Most of the intermediate and deep wells had turbidity values in excess of the 20-NTU criterion even after extended well development and the removal of multiple well volumes.

The difficulty in attaining the desired turbidity criterion was originally discussed at a meeting between Geosyntec and FDEP on 12 January 2004 during the well development activities associated with the wells installed as part of the Phase 1 development. Geosyntec notified FDEP again on 14 September 2007 of the elevated turbidity levels even after extended well development during development of the Phases 2 and 3 monitoring wells. In accordance with these discussions, it was agreed to collect field-filtered (1-micron) and unfiltered samples for metals analyses for any sample with a turbidity value greater than 20 NTU. The data generated by the dual sampling is expected to help demonstrate: (i) what effect turbidity may have on metal analyses (i.e., compare total and dissolved metal concentrations); and (ii) whether groundwater samples with turbidities greater than 20 NTU showed higher concentrations of metals than those samples with turbidities less than 20 NTU.

3. MONITORING WELL SAMPLING

3.1 Sampling Locations and Procedures

In accordance with the current MPIS (revised 22 June 2009), twenty-six (26) monitoring wells installed as part of the Phase 1 development and seven (7) of the monitoring wells installed as part of the Phase 2 and 3 development were sampled. Low-flow sampling techniques were used for groundwater sample collection. Except for the turbidity considerations as described in the previous section, all groundwater sampling was performed in accordance with the current applicable FDEP Standard Operating Procedures (SOP's, February 2004) for groundwater sampling. Additionally for quality control (QC) purposes, one sample duplicate and one equipment blank were collected and analyzed.

Peristaltic pumps were used to purge and sample all of the A-zone (shallow) groundwater monitoring wells and one of the B-zone (intermediate) groundwater monitoring wells (MW-5B). Stainless steel submersible pumps were used to purge and sample the remainder of the B-zone (intermediate) groundwater monitoring wells and the one C-zone (deep) groundwater well (MW-16C). New tubing (silicone and/or polyethylene) was used at each monitoring well location.

During the purging process, a YSI 556 water quality meter equipped with a flow-through cell was used to monitor the following field parameters: pH, temperature, field conductivity, ORP, and dissolved oxygen. Turbidity levels were measured using a LaMotte 2020e turbidity meter. Field parameters were recorded on sample collection forms, which are contained in Appendix A. When the field parameters stabilized within the acceptable tolerances required by the FDEP SOP, well purging was considered complete and groundwater samples were collected. For wells where the turbidity was not less than 20 NTU, stability was established by purging at least 5 well volumes and observing variations in the measured turbidity. For problematic wells, once the turbidity had stabilized and all other parameters conformed to the guidance set forth in the FDEP SOP's, samples were collected. A non-filtered and field-filtered (1-micron) metals sample was collected for each monitoring well where turbidity measurements exceeded the 20 NTU level.

For monitoring wells where peristaltic pumps were used, volatile organic compound (VOC) sample vials were filled by removing the down well sample tubing, disconnecting the tubing from the water quality meter flow through cell, and reversing the flow direction on the peristaltic pump.

For the monitoring wells that were purged and sampled with a submersible pump, all sample aliquots were filled directly from the down-well tubing.

The calibration of the water quality monitoring instruments was checked daily and re-calibrated when necessary. Water quality instrument calibration forms are presented in Appendix B. Samples were placed in coolers and packed with bagged ice for transport to the analytical laboratory. Chain-of-Custody (COC) forms were completed and accompanied the samples to the analytical laboratory. All COC forms have been included in Appendix C of this report. Trip blank samples accompanied all sample coolers with VOC samples. Temperature blanks were packed in each sample cooler. Security seals were affixed to every cooler shipped.

3.2 Sample Analyses

Samples were analyzed by Columbia Analytical Services, Inc. (Columbia) of Jacksonville, Florida in accordance with the National Environmental Laboratory Accreditation Conference (NELAC) standards. Columbia holds certification from the Florida Department of Health (FDOH) for the analytical test methods used for this project and is certified in the State of Florida for analysis of environmental samples.

Groundwater samples were analyzed by Columbia for total ammonia as nitrogen (N), chlorides, nitrate, total dissolved solids (TDS), iron, mercury, sodium, and the 40 CFR Part 258 Appendix I parameters. Other required parameters (i.e., pH; temperature; conductivity; turbidity; ORP; and dissolved oxygen) were measured in the field during collection of the groundwater samples.

4. GROUNDWATER ANALYTICAL RESULTS

4.1 Field Parameters

Table 2 provides a summary of the field measurements of selected water quality parameters utilized for determining sample stability for this semi-annual monitoring event.

4.2 Groundwater Monitoring Wells

The analytical laboratory report results and electronic data in the FDEP Adapt spreadsheet format for this groundwater sampling event have been transferred to a compact disc (CD) and are included in Appendix D. Analytical results have been summarized in Table 3 to show all parameters where a constituent concentration was reported above the GCTL. Any parameter exceeding the GCTL has been highlighted orange. The following discussion regarding groundwater quality is limited to those parameters where the GCTL was exceeded in at least one groundwater monitoring well and has been organized by analytical method.

Total Metals (Method 6020 and Method 7470 for Mercury)

Arsenic was detected (above the method reporting limit [MRL]) in nineteen (19) monitoring wells in concentrations ranging between 0.51 and 17.5 ug/L. All reported concentrations are less than the GCTL for arsenic of 10 ug/L except for MW-11A and 13A, where the reported concentrations were 12.7 and 17.5 ug/L, respectively. As discussed in the second biennial water quality monitoring report (September 2008), a positive correlation exists between iron and arsenic levels for monitoring wells at the site. This has been documented throughout the State of Florida, and is due to the fact that low levels of naturally occurring arsenic are bound up primarily by ferric (iron) hydroxides in many Florida soils. This has been discussed in previous correspondence with FDEP. The arsenic concentrations for MW-11A and MW-13A reported for the 10th semi-annual event are typical of previous monitoring events and summarized in Figure 2.

Iron was detected (above the MRL) in all thirty-three (33) monitoring wells sampled in concentrations ranging between 214 and 27,900 ug/L, and all but three (3) wells (MW-1B, 5A, and 5B) exceeded the GCTL of 300 ug/L. Iron has historically exceeded the GCTL in all wells at the site for all monitoring events including the baseline event. The

iron concentrations reported for the 10th semi-annual event are typical of previous monitoring events.

Ammonia-N (Method 350.1)

Ammonia-N was detected in all thirty-three (33) monitoring wells sampled in concentrations ranging between 0.083 mg/L and 13 mg/L. All reported concentrations are less than the GCTL for ammonia-N of 2.8 mg/L except for MW-3A, 4A, 5A, 8A, 9A, 10A, 11A, and 19A, where the reported concentrations ranged between 3.1 and 13 mg/L. Ammonia-N has historically exceeded the GCTL in these wells at the site for the previous monitoring events since the 1st and 2nd semi-annual water quality events including the baseline event for MW-5A and MW-19A. The ammonia concentrations reported for the 10th semi-annual event increased for MW-3A, MW-5A, MW-9A, and MW-10A and decreased for MW-4A, MW-11A and MW-19A from the 9th semi-annual event as denoted in Figure 3. The highest ammonia concentration detected in a baseline monitoring event was 16 mg/L in MW-19A. The ammonia concentrations detected in the 10th semi-annual event are all below this concentration.

40 CFR Part 258, Appendix I Volatile Compounds (Method 8260)

Benzene was detected (above the MRL) in one (1) well (MW-9A) at a concentration of 2.5, which is above the GCTL of 1.0 ug/L. Based on previous analytical laboratory results for MW-9A, a confirmational sample was not collected. Benzene has been detected in MW-9A since the 6th semi-annual event performed in February 2007 at concentrations ranging between 1.4 and 7.7 ug/L (Figure 4). The benzene concentration decreased from the 7.7 ug/L concentration reported for the 9th semi-annual event.

Vinyl chloride was detected in one (1) well (MW-9A) at a concentration of 1.1 ug/L, which is slightly above the GCTL of 1.0 ug/L. Based on previous analytical laboratory results for MW-9A, a confirmational sample was not collected. Vinyl chloride has been detected in MW-9A since the 6th semi-annual event performed in February 2007 at concentrations ranging between 2.1 and 3 ug/L (Figure 5). The vinyl chloride concentration decreased from the 2.1 ug/L concentration reported for the 9th semi-annual event.

As reported in the 6th semi-annual water quality monitoring report, the cause of the exceedances (benzene and vinyl chloride) appeared to be related to storm water issues. The slopes above the MW-9A location have since been covered with a geomembrane and soil cap as part of the Phase 1 partial closure project.

4.3 Data Validation

All analyses were performed within the method specified holding times.

An equipment blank was collected using the submersible pump set up used for collection of the groundwater sample at MW-4B. De-ionized water supplied by Columbia was pumped through the stainless steel submersible pump and down-well tubing and analyzed for the same parameters as the groundwater samples. All constituents analyzed for were below the method reporting limit for all analyses performed.

One blind field duplicate was collected: Dup-01 was a blind duplicate of sample MW-10A. A review of the analytical data shows that the blind duplicate sample data are in general agreement to the original sample data for all analytes.

4.4 Impact of Turbidity on Metals Concentrations

As discussed in Section 2.2 of this report, extended well development was not successful in clearing up some of the A-zone (shallow), B-zone (intermediate) and C-zone (deep) groundwater monitoring wells.

Turbidity levels were less than the FDEP guidance of 20 NTU in thirty-two (32) of the thirty-three (33) wells sampled, only MW-19A (71 NTU) exceeded the FDEP guidance of 20 NTU. A review of the analytical results for metals for MW-19A shows no significant difference between the dissolved and total metal concentrations. Historical data shows that the turbidity levels for the wells has improved over the course of the semi-annual water quality monitoring events and the need to continue collection of dissolved metal samples may not be necessary.

5. GROUNDWATER LEVEL MEASUREMENTS AND FLOW DIRECTION

5.1 Field Measurements

Groundwater level measurements were obtained on 26 May 2009 from Phases 1 through 3 groundwater monitoring wells and the remaining piezometers installed as part of the original site hydrogeological investigation. All groundwater levels measurements were made within an approximate 5-hr period. The groundwater level measurements from the monitoring wells and piezometers are presented in Table 4.

It should be noted that, as part of the site hydrogeological investigation, a total of 27 piezometers were installed. Two (2) piezometers (DP-1 and DP-2) located at the northern part of the site within Cell 1 footprint were decommissioned and abandoned on 3 October 2003 by Ambient Technologies, Inc. (ATI) of St. Petersburg, Florida. Two (2) additional piezometers (DP-3 and DP-4) located within Cell 3 footprint were decommissioned and abandoned on 16 January 2006 by National Environmental Technology, Inc (NET) Drilling Services of Dover, Florida. For the development of Phases 2 and 3, six (6) of the Phase 1 groundwater monitoring wells (MW-14A, 14B, 14C, 15A, 15B, and 15C) and ten (10) additional piezometers (DP-5, DP-6, DP-7, DP-8, DP-9, DP-10, DP-11, DP-12, DP-13, and SZ-1) were decommissioned and abandoned on 10 and 11 July 2007 by NET Drilling Services. Geosyntec monitored all monitoring well and piezometer decommissioning activities.

5.2 Water Level Contours

The water level contour map prepared from groundwater level measurements from the upper surficial aquifer zone (i.e., A-zone) is presented in Figure 1.

Historically, the direction of the horizontal component of groundwater flow for all three zones is predominantly east-northeast towards Bull Creek. However, the dewatering operation for the Bronson's borrow area has created a localized groundwater depression on the west side of the Phase 1 & 2 development areas centered near MW-23 cluster. Groundwater flow along the western property boundary is predominantly west towards the dewatering area. Based on a review of the groundwater level elevation data collected from the remainder of the A-zone monitoring well network, the direction of the horizontal component of groundwater flow is predominantly east-northeast toward Bull Creek.

Comparison of water levels between the A, B and C wells shows a similar vertical gradient ($1E^{-3}$ ft/ft). These gradients are consistent with the regional gradient in the upper surficial

aquifer and indicate an interconnected, sluggish flow regime in the saturated zone above the Intermediate Confining Unit (ICU).

6 SURFACE WATER SAMPLING

6.1 Sampling Locations and Procedures

Two (2) surface water sampling locations established during the initial hydrogeological investigation were selected by FDEP for routine water quality monitoring. As stated in the Permit, surface water samples are only to be collected when there is flow in Bull Creek.

Collection of surface water samples commenced at the downstream monitoring station (SW-3) followed by the upstream monitoring location (SW-4). Bull Creek was observed to be flowing at the time of sampling. Surface water samples were collected from the approximate center of Bull Creek. A YSI 556 water quality meter was used to measure field parameters including temperature, pH, dissolved oxygen, conductivity, and ORP at each sampling location. Turbidity levels were measured using a LaMotte 2020e turbidity meter. Surface water samples were collected in accordance with FDEP surface water sampling SOPs.

6.2 Sample Analyses

Surface water samples were analyzed by Columbia in accordance with the NELAC standards for unionized ammonia, total hardness as $CaCO_3$, total organic carbon, chlorides, nitrate, TDS, total suspended solids (TSS), biological oxygen demand (BOD), chemical oxygen demand (COD), total nitrogen as N, nitrate as N, total phosphates as P, chlorophyll A, iron, mercury, fecal coli form, and the 40 CFR, Part 258 Appendix I parameters. Other required parameters (e.g., pH; temperature; conductivity; turbidity; ORP; and dissolved oxygen) were field measured during collection of the surface water samples.

6.3 Field Measurements and Analytical Results

Table 5 provides a summary of the final field parameter values and field data measured for the surface water samples.

The analytical results for the surface water samples collected are presented on a CD in Appendix D. Copies of the laboratory reports (PDF) and the electronic data files in the FDEP electronic validator spreadsheet format are included on the CD. Analytical results have been summarized in Table 5 to show all parameters where a constituent concentration was reported above the method detection limit and any parameter exceeding Surface Water Quality Criteria (SWQC) Class III concentrations.

The pH concentrations at SW-3 and 4 were both lower than the SWQC range of 6-8.5 standard units, but are consistent with normal ranges of pH as measured in rainfall (i.e., precipitation).

The dissolved oxygen concentrations were also below the SWQC level of 5 mg/L. Dissolved oxygen concentrations are affected by temperature and low dissolved oxygen levels are common during the warmer summer months.

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 Sampling Locations and Procedures

The existing monitoring well network is adequate for monitoring purposes and no changes are recommended.

7.2 Sample Analyses

The detections of ammonia, iron, and arsenic above the GCTLs in specific ground water monitoring wells have been discussed in detail in the 1st and 2nd Biennial Technical Reports on Water Quality (November 2006 and September 2008). Figures 2 and 3 show the data plots for the groundwater monitoring wells which have exceeded the GCTL for arsenic and ammonia, respectively. A figure has not been prepared for iron since almost every well has exceeded the GCTL in every monitoring event. We believe that the iron, arsenic and ammonia are naturally occurring and not related to the landfill. Our recommendation is to continue to monitor these constituents as part of the current MPIS.

Figure 4 shows the detected concentrations for benzene in MW-9A, and Figure 5 shows the detected concentrations for vinyl chloride in MW-9A. As shown on Figure 4 the benzene concentration for the 10th semi-annual event is lower than that for the previous two monitoring events (i.e., 8th and 9th semi-annual water quality events). Figure 5 shows that the vinyl chloride concentration for the 10th semi-annual event is lower than that for the previous four semi-annual events (6th, 7th, 8th, and 9th semi-annual water quality events) and was detected just above the GCTL. Our recommendation is to continue to monitor these two constituents as part of the current MPIS.

TABLES

Table 1 (1 of 3)

SUMMARY OF MONITORING WELL CONSTRUCTION DETAILS
TENTH SEMI-ANNUAL WATER QUALITY MONITORING EVENT
J.E.D. SOLID WASTE MANAGEMENT FACILITY

Well Designation	Latitude (NAD 1983)	Longitude (NAD 1983)	WACS ID	Date Installed	Top of Casing Elevation, TOC (feet)	Total Depth (feet BTOC)	Screen Setting				Sand Pack (feet BTOC)	Fine-Grained Sand Seal (feet BTOC)
							(feet BTOC)		(feet Elevation)			
							Top	Bottom	Top	Bottom		
MW-1A	28 03 48.55	81 05 59.88	19900	9-Dec-03	95.1	23.0	13.0	23.0	82.1	72.1	10.6	8.2
MW-2A	28 03 51.99	81 05 59.90	19903	10-Dec-03	95.2	22.6	12.6	22.6	82.6	72.6	10.3	8.9
MW-3A	28 03 55.34	81 05 59.91	19906	11-Dec-03	94.6	22.8	12.8	22.8	81.9	71.9	10.4	9.0
MW-4A	28 03 58.97	81 05 59.92	19909	12-Dec-03	95.5	23.1	13.1	23.1	82.4	72.4	10.8	9.4
MW-5A	28 04 02.92	81 05 59.95	19912	24-Nov-03	95.3	22.5	12.5	22.5	82.8	72.8	10.1	9.1
MW-6A	28 04 06.50	81 05 59.15	19915	25-Nov-03	94.7	22.6	12.6	22.6	82.2	72.2	10.6	8.6
MW-7A	28 04 07.13	81 05 54.78	19918	26-Nov-03	95.5	23.3	13.3	23.3	82.2	72.2	10.3	9.3
MW-8A	28 04 06.20	81 05 50.64	19921	5-Dec-03	94.7	22.5	12.5	22.5	82.2	72.2	10.2	8.6
MW-9A	28 04 04.34	81 05 46.60	19924	4-Dec-03	94.7	22.4	12.4	22.4	82.3	72.3	10.0	8.6
MW-10A	28 04 00.07	81 05 44.77	19927	3-Dec-03	96.3	22.1	12.1	22.1	84.1	74.1	9.8	7.6
MW-11A	28 03 55.43	81 05 43.27	19930	3-Dec-03	93.6	22.8	12.8	22.8	80.7	70.7	10.5	9.1
MW-12A	28 03 52.08	81 05 43.26	19933	2-Dec-03	95.1	23.0	13.0	23.0	82.1	72.1	10.7	9.3
MW-13A	28 03 48.67	81 05 43.25	19936	8-Dec-03	95.2	22.5	12.5	22.5	82.7	72.7	10.2	7.7
MW-14A	Monitoring Well Abandoned 10 July 2007											
MW-15A	Monitoring Well Abandoned 10 July 2007											
MW-16A	28 03 44.55	81 05 40.22	22342	21-Sep-07	88.69	18.63	8.1	18.1	80.6	70.6	6.1	5.1
MW-17A	28 03 42.38	81 05 35.42	22345	22-Sep-07	88.86	19.88	9.4	19.4	79.5	69.5	7.4	6.4
MW-18A	28 03 37.21	81 05 35.16	22348	11-Sep-07	87.56	17.70	7.2	17.2	80.4	70.4	5.2	4.2
MW-19A	28 03 33.40	81 05 39.60	22351	11-Sep-07	87.54	17.65	7.2	17.2	80.4	70.4	5.2	4.2
MW-20A	28 03 31.82	81 05 45.45	22354	19-Sep-07	87.12	17.93	7.4	17.4	79.7	69.7	5.4	4.4
MW-21A	28 03 32.10	81 05 52.48	22357	14-Sep-07	87.20	18.04	7.5	17.5	79.7	69.7	5.5	4.5
MW-22A	28 03 32.35	81 05 59.48	22360	14-Sep-07	87.71	18.00	7.5	17.5	80.2	70.2	5.5	4.5
MW-23A	28 03 42.41	81 05 59.79	22363	25-Sep-07	97.90	27.75	17.3	27.3	80.7	70.7	15.3	14.3

Table 1 (2 of 3)

SUMMARY OF MONITORING WELL CONSTRUCTION DETAILS
TENTH SEMI-ANNUAL WATER QUALITY MONITORING EVENT
J.E.D. SOLID WASTE MANAGEMENT FACILITY

Well Designation	Latitude (NAD 1983)	Longitude (NAD 1983)	WACS ID	Date Installed	Top of Casing Elevation, TOC (feet)	Total Depth (feet BTOC)	Screen Setting				Sand Pack (feet BTOC)	Fine-Grained Sand Seal (feet BTOC)
							(feet BTOC)		(feet Elevation)			
							Top	Bottom	Top	Bottom		
MW-1B	28 03 48.59	81 05 59.89	19901	9-Dec-03	95.0	47.9	37.9	47.9	57.1	47.1	35.6	33.1
MW-2B	28 03 51.94	81 05 59.90	19904	10-Dec-03	95.2	48.3	38.3	48.3	56.9	46.9	36.0	34.6
MW-3B	28 03 55.31	81 05 59.91	19907	11-Dec-03	94.7	47.6	37.6	47.6	57.1	47.1	35.3	33.9
MW-4B	28 03 59.01	81 05 59.92	19910	12-Dec-03	95.2	47.4	37.4	47.4	57.8	47.8	35.1	33.5
MW-5B	28 04 02.88	81 05 59.95	19913	24-Nov-03	95.3	47.1	37.1	47.1	58.2	48.2	34.4	32.7
MW-6B	28 04 06.48	81 05 59.18	19916	25-Nov-03	94.6	47.4	37.4	47.4	57.2	47.2	34.9	33.5
MW-7B	28 04 07.13	81 05 54.81	19919	26-Nov-03	95.3	47.5	37.5	47.5	57.8	47.8	34.5	33.5
MW-8B	28 04 06.19	81 05 50.60	19922	5-Dec-03	94.6	49.6	39.6	49.6	55.0	45.0	37.1	35.6
MW-9B	28 04 04.31	81 05 46.56	19925	4-Dec-03	94.6	49.1	39.1	49.1	55.5	45.5	36.8	35.3
MW-10B	28 04 00.04	81 05 44.75	19928	3-Dec-03	96.2	48.3	38.3	48.3	58.0	48.0	35.9	33.9
MW-11B	28 03 55.40	81 05 43.27	19931	2-Dec-03	93.6	47.9	37.9	47.9	55.7	45.7	35.5	34.0
MW-12B	28 03 52.05	81 05 43.27	19934	1-Dec-03	95.0	49.0	39.0	49.0	56.1	46.1	36.6	35.1
MW-13B	28 03 48.64	81 05 43.24	19937	8-Dec-03	95.1	47.2	37.2	47.2	58.0	48.0	34.8	33.4
MW-14B	Monitoring Well Abandoned 10 July 2007											
MW-15B	Monitoring Well Abandoned 10 July 2007											
MW-16B	28 03 44.52	81 05 40.17	22343	21-Sep-07	88.73	38.09	27.6	37.6	61.1	51.1	25.6	24.6
MW-17B	28 03 42.35	81 05 35.36	22346	20-Sep-07	88.79	40.18	29.7	39.7	59.1	49.1	27.7	26.7
MW-18B	28 03 37.16	81 05 35.19	22349	11-Sep-07	87.43	37.80	27.3	37.3	60.1	50.1	25.3	24.3
MW-19B	28 03 33.38	81 05 39.66	22352	11-Sep-07	87.64	37.73	27.2	37.2	60.4	50.4	25.2	24.2
MW-20B	28 03 31.82	81 05 45.51	22355	19-Sep-07	87.27	37.76	27.3	37.3	60.0	50.0	25.3	24.3
MW-21B	28 03 32.09	81 05 52.55	22358	17-Sep-07	87.23	37.63	27.1	37.1	60.1	50.1	25.1	24.1
MW-22B	28 03 32.36	81 05 59.54	22361	14-Sep-07	87.69	37.96	27.5	37.5	60.2	50.2	25.5	24.5
MW-23B	28 03 42.46	81 05 59.79	22364	25-Sep-07	97.91	42.75	32.3	42.3	65.7	55.7	30.3	29.3

Table 1 (3 of 3)

SUMMARY OF MONITORING WELL CONSTRUCTION DETAILS
TENTH SEMI-ANNUAL WATER QUALITY MONITORING EVENT
J.E.D. SOLID WASTE MANAGEMENT FACILITY

Well Designation	Latitude (NAD 1983)	Longitude (NAD 1983)	WACS ID	Date Installed	Top of Casing Elevation, TOC (feet)	Total Depth (feet BTOC)	Screen Setting				Sand Pack (feet BTOC)	Fine-Grained Sand Seal (feet BTOC)
							(feet BTOC)		(feet Elevation)			
							Top	Bottom	Top	Bottom		
MW-1C	28 03 48.63	81 05 59.88	19902	9-Dec-03	95.2	75.2	65.2	75.2	30.0	20.0	62.9	61.4
MW-2C	28 03 51.90	81 05 59.89	19905	10-Dec-03	95.3	68.4	58.4	68.4	36.9	26.9	56.1	53.7
MW-3C	28 03 55.28	81 05 59.91	19908	11-Dec-03	94.7	68.7	58.7	68.7	36.0	26.0	56.3	54.8
MW-4C	28 03 59.04	81 05 59.92	19911	12-Dec-03	95.4	72.5	62.5	72.5	32.9	22.9	61.2	59.6
MW-5C	28 04 02.83	81 05 59.95	19914	24-Nov-03	95.4	73.0	63.0	73.0	32.4	22.4	60.7	58.7
MW-6C	28 04 06.46	81 05 59.22	19917	25-Nov-03	94.6	73.2	63.2	73.2	31.4	21.4	60.2	57.7
MW-7C	28 04 07.13	81 05 54.86	19920	25-Nov-03	94.9	73.3	63.3	73.3	31.6	21.6	60.3	59.3
MW-8C	28 04 06.17	81 05 50.55	19923	5-Dec-03	94.5	73.9	63.9	73.9	30.6	20.6	61.6	59.8
MW-9C	28 04 04.29	81 05 46.53	19926	4-Dec-03	94.5	73.8	63.8	73.8	30.8	20.8	61.4	59.4
MW-10C	28 04 00.01	81 05 44.74	19929	3-Dec-03	96.4	73.7	63.7	73.7	32.7	22.7	61.4	60.0
MW-11C	28 03 55.36	81 05 43.26	19932	2-Dec-03	93.7	73.4	63.4	73.4	30.3	20.3	61.0	59.6
MW-12C	28 03 52.01	81 05 43.26	19935	1-Dec-03	95.1	73.6	63.6	73.6	31.5	21.5	60.2	58.7
MW-13C	28 03 48.60	81 05 43.25	19938	8-Dec-03	95.0	73.0	63.0	73.0	32.1	22.1	60.7	58.2
MW-14C	Monitoring Well Abandoned 10 July 2007											
MW-15C	Monitoring Well Abandoned 10 July 2007											
MW-16C	28 03 44.50	81 05 40.11	22344	21-Sep-07	88.8	67.7	57.2	67.2	31.6	21.6	55.2	54.2
MW-17C	28 03 42.31	81 05 35.31	22347	20-Sep-07	88.9	67.3	56.8	66.8	32.0	22.0	54.8	53.8
MW-18C	28 03 37.10	81 05 35.22	22350	12-Sep-07	87.4	67.2	56.7	66.7	30.8	20.8	54.7	53.7
MW-19C	28 03 33.37	81 05 39.72	22353	10-Sep-07	87.4	66.7	56.2	66.2	31.2	21.2	54.2	53.2
MW-20C	28 03 31.82	81 05 45.57	22356	18-Sep-07	87.4	66.8	56.3	66.3	31.1	21.1	54.3	53.3
MW-21C	28 03 32.10	81 05 52.61	22359	17-Sep-07	87.1	62.6	52.1	62.1	35.1	25.1	50.1	49.1
MW-22C	28 03 32.36	81 05 59.60	22362	13-Sep-07	87.6	67.3	56.8	66.8	30.8	20.8	54.8	53.8
MW-23C	28 03 42.51	81 05 59.80	22365	24-Sep-07	97.9	67.1	56.6	66.6	41.4	31.4	54.6	53.6

Table 2

SUMMARY OF FINAL FIELD PARAMETER RESULTS AND FIELD DATA
TENTH SEMI-ANNUAL WATER QUALITY MONITORING EVENT

Monitoring Well	Temperature (°C)	pH (Standard Units)	Specific Conductance (mS/cm) [1]	Turbidity (NTUs) [2]	Oxidation-Reduction Potential (mV) [3]	DO (mg/L) [4]	Purging Method
MW-1A	25.57	4.73	0.143	0	-41.6	0.23	Peristaltic Pump
MW-2A	25.25	4.82	0.19	0.1	-43.1	0.21	Peristaltic Pump
MW-3A	24.92	4.93	0.491	0	-138	0.3	Peristaltic Pump
MW-4A	23.84	4.53	0.318	0.1	-111.5	0.23	Peristaltic Pump
MW-5A	26.38	4.42	0.32	3.7	-44.7	0.39	Peristaltic Pump
MW-6A	24.92	4.99	0.247	0	-86.9	0.33	Peristaltic Pump
MW-7A	24.45	5.31	0.188	0	-144.1	0.59	Peristaltic Pump
MW-8A	25.47	4.94	0.273	0	-74	0.4	Peristaltic Pump
MW-9A	25.79	4.8	0.168	1.1	-82.6	0.54	Peristaltic Pump
MW-10A	26.29	5.22	0.156	1.9	-25.2	0.22	Peristaltic Pump
MW-11A	26.43	5.55	0.208	1.1	-49.2	0.16	Peristaltic Pump
MW-12A	24.6	5.37	0.206	0	-64.8	0.17	Peristaltic Pump
MW-13A	23.72	5.34	0.155	7.1	-42.3	0.35	Peristaltic Pump
MW-16A	23	5.45	0.115	11.8	88.1	0.34	Peristaltic Pump
MW-19A	26.1	5.85	0.307	71	-69.4	0.13	Peristaltic Pump
MW-23A	30.42	4.41	0.493	13	-2.8	0.25	Peristaltic Pump
MW-1B	24.81	5.0	0.046	0	-107.9	0.08	Submersible Pump
MW-2B	24.3	4.92	0.062	2	-93.4	0.05	Submersible Pump
MW-3B	24.9	4.76	0.155	1	-97	0.19	Submersible Pump
MW-4B	24.36	4.32	0.485	0.2	-75.6	0.11	Submersible Pump
MW-5B	25.5	4.7	0.066	0.2	-53.3	0.33	Peristaltic Pump
MW-6B	24.43	5.13	0.056	5.5	-77.9	0.2	Submersible Pump
MW-7B	24.3	5.03	0.109	17.1	-110.2	0.41	Submersible Pump
MW-8B	24.93	5.3	0.064	20	-66.8	0.2	Submersible Pump
MW-9B	25.41	5.01	0.092	14	-85.9	0.36	Submersible Pump
MW-10B	25.06	5.14	0.084	0.9	-130.8	0.12	Submersible Pump
MW-11B	25.23	5.21	0.099	8.5	-108.2	0.12	Submersible Pump
MW-12B	24.66	5.02	0.101	4	-64.4	0.08	Submersible Pump
MW-13B	24.19	4.98	0.068	17.9	-64.6	0.13	Submersible Pump
MW-16B	23.56	5.16	0.084	16.8	-148.3	0.08	Submersible Pump
MW-19B	26.49	5.14	0.129	17.6	-127	0.06	Submersible Pump
MW-23B	24.87	4.69	0.085	0.5	-91.5	0.11	Submersible Pump
MW-16C	23.55	5.23	0.108	4.1	-97.3	0.09	Submersible Pump

Notes:

[1] mS/cm = milli Siemens per centimeter

[2] NTU = Nephelometric Turbidity Units

[3] mV = millivolts

[4] mg/L = milligram per liter

Table 3

J.E.D. Solid Waste Management Facility

Summary of Parameters Exceeding GCTLs for
10th Semi-Annual WQ Monitoring Event

Well ID	Vinyl Chloride GCTL (ug/L)	Benzene GCTL (ug/L)	Arsenic GCTL (ug/L)	Iron GCTL (ug/L)	Ammonia GCTL (mg/L)
	1	**1**	**10**	**300**	**2.8**
MW-1A	ND	ND	0.95	1,340	1.7
MW-1B	ND	ND	ND	214	0.085
MW-2A	ND	ND	1.24	11,100	1.3
MW-2B	ND	ND	ND	875	0.16
MW-3A	ND	ND	0.68	2,210	6.4
MW-3B	ND	ND	0.33 i	1,830	0.17
MW-4A	ND	ND	1.39	1,690	5.8
MW-4B	ND	ND	1.12	7,560	2.3
MW-5A	ND	0.65 i	1.72	293	13
MW-5B	ND	ND	0.49 i	290	0.17
MW-6A	ND	ND	3.38	5,460	1.3
MW-6B	ND	ND	0.79	965	0.19
MW-7A	ND	ND	6.98	2,760	2.2
MW-7B	ND	ND	1.76	1,520	0.16
MW-8A	ND	ND	0.53	3,450	3.1
MW-8B	ND	ND	0.24 i	859	0.14
MW-9A	1.1	2.5	2.42	1,380	6.8
MW-9B	ND	ND	0.38 i	998	0.2
MW-10A	ND	0.96 i	1.57	1,570	8.4
MW-10B	ND	ND	ND	538	0.12
MW-11A	ND	0.62 i	12.7	16,800	4.7
MW-11B	ND	ND	0.57	565	0.083
MW-12A	ND	ND	6.79	27,900	1.2
MW-12B	ND	ND	0.46 i	1,130	0.16
MW-13A	ND	0.65 i	17.5	17,800	1.5
MW-13B	ND	ND	0.32 i	868	0.15
MW-16A	ND	ND	0.40 i	1,350	0.29
MW-16B	ND	ND	0.26 i	1,780	0.25
MW-16C	ND	ND	ND	1,140	0.15
MW-19A	ND	ND	3.98	3,320	7.3
MW-19B	ND	ND	0.51	873	0.13
MW-23A	ND	ND	0.35 i	5,640	1.2
MW-23B	ND	ND	ND	510	0.12

Estimated value - reported bewteen MDL and MRL

Detect

Exceeds GCTL

Table 4

(1 of 3)

GROUNDWATER LEVEL MEASUREMENTS
TENTH SEMI-ANNUAL WATER QUALITY MONITORING EVENT
J.E.D. SOLID WASTE MANAGEMENT FACILITY

Site Name: JED Solid Waste Management Facility
Location: Osceola County, Florida
Date: 26-May-2009
Sampling Personnel: Joe Terry
Field Conditions: clear, ~80°F

Well ID	Time	TOC Elevation	Depth to Water (ft)	Well Depth (ft)	GW Elevation	Field Observations
DP-1	Piezometer Abandoned 03 October 2003					
DP-2	Piezometer Abandoned 03 October 2003					
DP-3	Piezometer Abandoned 16 January 2006					
DP-4	Piezometer Abandoned 16 January 2006					
DP-5	Piezometer Abandoned 10 July 2007					
DP-6	Piezometer Abandoned 10 July 2007					
DP-7	Piezometer Abandoned 10 July 2007					
DP-8	Piezometer Abandoned 10 July 2007					
DP-9	Piezometer Abandoned 10 July 2007					
DP-10	Piezometer Abandoned 10 July 2007					
DP-11	Piezometer Abandoned 10 July 2007					
DP-12	Piezometer Abandoned 10 July 2007					
DP-13	Piezometer Abandoned 11 July 2007					
DP-14	10:00	82.0	3.07	18.6	78.90	
DP-15	10:00	82.0	3.22	53.7	78.76	protective casing lid broken
DP-16	10:38	82.6	3.16	18.5	79.41	protective casing hinge rusted
DP-17	10:38	82.6	3.20	53.7	79.38	protective casing hinge rusted
DP-18	11:52	84.4	5.20	52.9	79.18	protective casing rusted, lid broken
DP-19	11:52	84.3	5.07	18.4	79.27	protective casing lid broken
DP-20	14:55	83.1	2.90	18.4	80.17	protective casing lid broken
DP-21	14:55	83.0	3.06	53.7	79.94	
DP-22	10:05	81.0	2.68	18.6	78.32	protective casing lid broken
DP-23	10:05	81.3	2.66	53.8	78.61	
DP-24	10:41	82.2	3.00	18.6	79.22	protective casing lid broken
SZ-1	Piezometer Abandoned 10 July 2007					
SZ-2	14:55	83.2	5.42	75.4	77.74	protective casing lid broken
SZ-3	10:05	81.3	3.76	78.9	77.51	protective casing lid broken
MW-1A	13:05	95.1	20.06	23.0	75.06	protective casing rusting inside
MW-1B	13:05	95.0	19.97	47.9	75.03	protective casing rusting inside and dented
MW-1C	13:05	95.2	20.08	74.4	75.10	protective casing rusting inside
MW-2A	13:15	95.2	17.87	22.6	77.34	protective casing rusting inside, lid broken
MW-2B	13:15	95.2	17.86	48.1	77.31	protective casing rusting inside, lid broken
MW-2C	13:15	95.3	18.10	68.4	77.22	protective casing rusting inside
MW-3A	13:20	94.6	16.03	22.8	78.61	protective casing rusting inside
MW-3B	13:20	94.7	16.08	47.7	78.60	protective casing rusting inside
MW-3C	13:20	94.7	16.25	68.8	78.41	protective casing rusting inside, lid broken

Table 4

(2 of 3)

GROUNDWATER LEVEL MEASUREMENTS
TENTH SEMI-ANNUAL WATER QUALITY MONITORING EVENT
J.E.D. SOLID WASTE MANAGEMENT FACILITY

Site Name: JED Solid Waste Management Facility
Location: Osceola County, Florida
Date: 26-May-2009
Sampling Personnel: Joe Terry
Field Conditions: clear, ~80°F

Well ID	Time	TOC Elevation	Depth to Water (ft)	Well Depth (ft)	GW Elevation	Field Observations
MW-4A	13:30	95.5	16.46	23.1	79.02	
MW-4B	13:30	95.2	16.18	47.4	79.00	
MW-4C	13:30	95.4	16.64	72.6	78.75	
MW-5A	13:35	95.3	16.11	22.5	79.21	
MW-5B	13:35	95.3	16.51	47.1	78.79	
MW-5C	13:35	95.4	16.81	73.0	78.58	
MW-6A	13:43	94.7	16.15	22.6	78.57	
MW-6B	13:43	94.6	16.03	47.5	78.57	
MW-6C	13:43	94.6	16.04	73.1	78.54	
MW-7A	13:48	95.5	16.02	23.3	79.46	
MW-7B	13:48	95.3	15.88	48.0	79.39	
MW-7C	13:48	94.9	16.06	73.4	78.87	
MW-8A	13:57	94.7	14.93	22.5	79.74	
MW-8B	13:57	94.6	14.91	49.3	79.67	
MW-8C	13:57	94.5	15.25	73.8	79.25	
MW-9A	14:02	94.7	15.04	22.4	79.62	
MW-9B	14:02	94.6	15.12	49.1	79.51	
MW-9C	14:02	94.5	15.58	74.7	78.96	
MW-10A	14:10	96.3	17.45	22.1	78.80	protective casing hinge rusted
MW-10B	14:10	96.2	17.37	48.3	78.86	protective casing hinge rusted
MW-10C	14:10	96.4	17.89	74.9	78.47	protective casing hinge rusted
MW-11A	14:15	93.6	15.30	22.8	78.26	protective casing rusting inside
MW-11B	14:15	93.6	15.33	47.9	78.26	protective casing rusting inside
MW-11C	14:15	93.7	15.41	73.6	78.24	protective casing rusting inside
MW-12A	14:20	95.1	16.95	23.0	78.15	protective casing rusting inside
MW-12B	14:20	95.0	16.94	49.0	78.07	protective casing rusting inside
MW-12C	14:20	95.1	17.05	73.6	78.05	protective casing rusting inside
MW-13A	14:28	95.2	17.45	22.5	77.74	protective casing rusting inside
MW-13B	14:28	95.1	17.36	47.3	77.76	protective casing rusting inside
MW-13C	14:28	95.0	17.25	73.0	77.79	protective casing rusting inside
MW-14A	Monitoring Well Abandoned 10 July 2007					
MW-14B	Monitoring Well Abandoned 10 July 2007					
MW-14C	Monitoring Well Abandoned 10 July 2007					
MW-15A	Monitoring Well Abandoned 10 July 2007					
MW-15B	Monitoring Well Abandoned 10 July 2007					
MW-15C	Monitoring Well Abandoned 10 July 2007					

Table 4

(3 of 3)

GROUNDWATER LEVEL MEASUREMENTS
TENTH SEMI-ANNUAL WATER QUALITY MONITORING EVENT
J.E.D. SOLID WASTE MANAGEMENT FACILITY

Site Name: JED Solid Waste Management Facility **Sampling Personnel:** Joe Terry
Location: Osceola County, Florida **Field Conditions:** clear, ~80°F
Date: 26-May-2009

Well ID	Time	TOC Elevation	Depth to Water (ft)	Well Depth (ft)	GW Elevation	Field Observations
MW-16A	9:30	88.69	9.82	18.63	78.87	
MW-16B	9:30	88.73	9.91	38.09	78.82	
MW-16C	9:30	88.77	10.17	67.65	78.60	
MW-17A	9:40	88.86	9.25	19.88	79.61	
MW-17B	9:40	88.79	9.41	40.18	79.38	
MW-17C	9:40	88.85	9.62	67.33	79.23	
MW-18A	10:46	87.56	7.98	17.70	79.58	
MW-18B	10:46	87.43	7.88	37.80	79.55	
MW-18C	10:46	87.42	7.86	67.15	79.56	
MW-19A	10:33	87.54	7.61	17.65	79.93	
MW-19B	10:33	87.64	7.70	37.73	79.94	
MW-19C	10:33	87.44	7.61	66.70	79.83	
MW-20A	11:40	87.12	6.90	17.93	80.22	
MW-20B	11:40	87.27	7.13	37.76	80.14	
MW-20C	11:40	87.35	7.50	66.75	79.85	
MW-21A	11:44	87.20	7.31	18.04	79.89	
MW-21B	11:44	87.23	7.37	37.63	79.86	
MW-21C	11:44	87.13	7.47	62.57	79.66	
MW-22A	11:58	87.71	11.06	18.00	76.65	
MW-22B	11:58	87.69	11.10	37.96	76.59	
MW-22C	11:58	87.55	10.41	67.25	77.14	
MW-23A	12:54	97.90	26.23	27.75	71.67	
MW-23B	11:54	97.91	26.20	42.75	71.71	
MW-23C	11:54	97.93	26.16	67.05	71.77	

Staff Gauge	Time	Elevation
SW-3	15:15	73.6
SW-4	14:40	77.7

Table 5

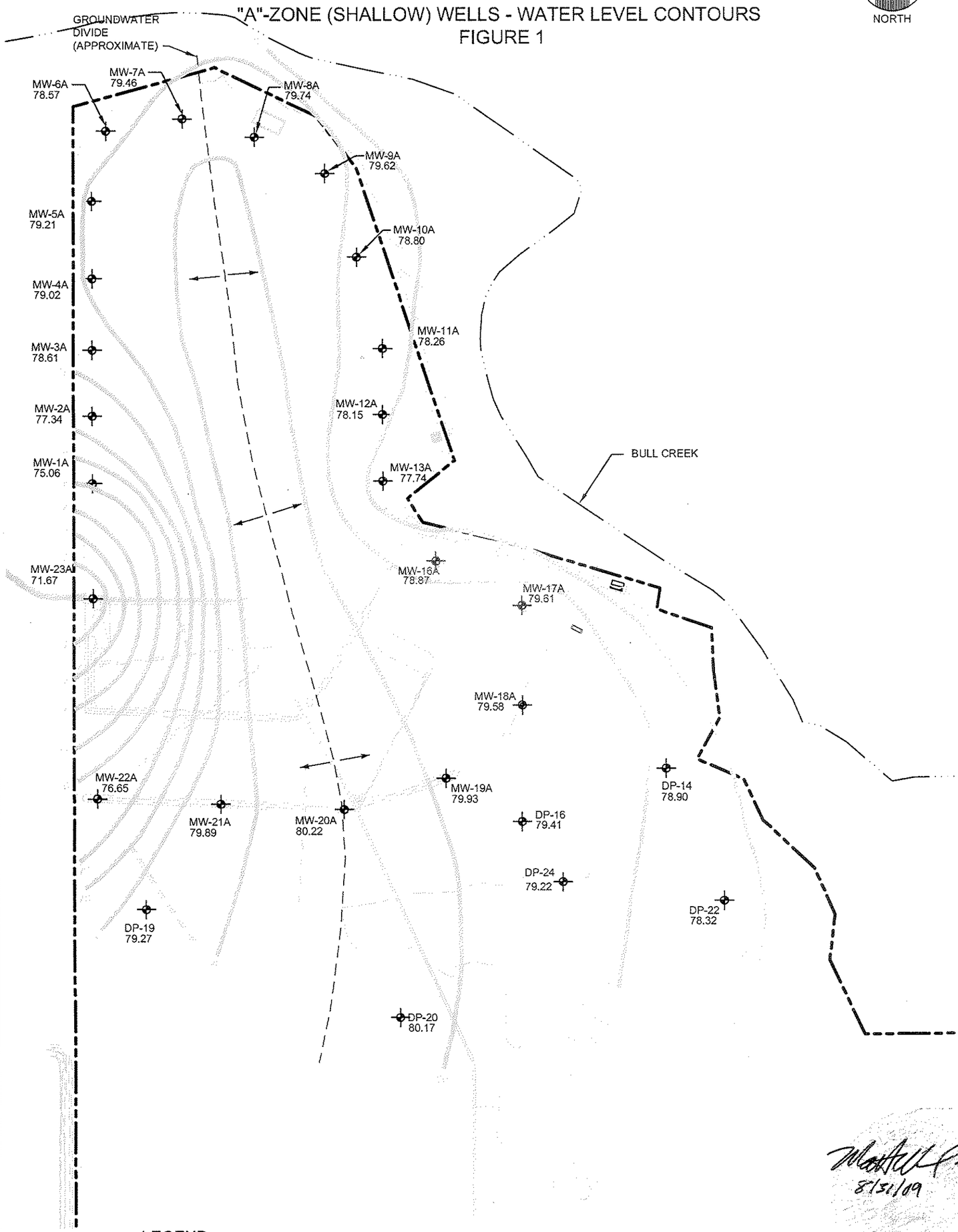
SUMMARY OF SURFACE WATER FIELD MEASUREMENTS AND ANALYTICAL RESULTS
TENTH SEMI-ANNUAL WATER QUALITY MONITORING REPORT
J.E.D. SOLID WASTE MANAGEMENT FACILITY

Parameter	Analytical Method	Units	FL-SWQC Class III	Monitoring Location	
				SW-3	SW-4
Arsenic	6020	ug/L	50	1.4	1.27
Barium	6020	ug/L	-	14.1	12.7
Tetrachloroethene (PCE)	8260B	ug/L	8.85	2.6	BMRL (2)
BOD	405.1	mg/L	-	11	BMRL (2)
Chlorophyll a	SM 10200H	mg/m^3	-	3.3	3.7
COD	410.2	mg/L	-	160	94
Fecal Coli form	SM 9222D	# /100mL	800	48	600
Hardness as CaCO3	6010B	mg/L	-	22.4	21.3
Iron	6010B	mg/L	1	1.06	0.947
Nitrogen, Total as N	351.2/300.0	mg/L	-	1.6	1.5
Organic Carbon, Total	415.1	mg/L	-	34	25
Phosphorus, Total	365.1	mg/L	-	0.16	0.16
Total Dissolved Solids	160.1	mg/L	-	130	97
Total Suspended Solids	160.2	mg/L	-	ND (3)	BMRL (2)
Dissolved Oxygen	Field Measurement	mg/L	5	2.16	1.98
pH	Field Measurement	std units	6-8.5	5.64	5.88
Temperature	Field Measurement	°C	-	23.43	24.08
Conductivity	Field Measurement	uS/cm	< 50% above background or 1275, whichever is >	116	107
Turbidity	Field Measurement	NTU	< 29 above background	0.6	2.2
Water Elevation (1)	Field Measurement	ft	-	73.6	77.7

Notes (1): Surface Water Elevations referenced to NGVD 1929
(2) BMRL = Below Method Reporting Limit
(3) ND = Non Detect

FIGURES

10th MONITORING (MAY 2009)
J.E.D. SOLID WASTE MANAGEMENT FACILITY
WACS FACILITY ID 89455
"A"-ZONE (SHALLOW) WELLS - WATER LEVEL CONTOURS
FIGURE 1



8/31/09

LEGEND

76.27 MW-7A	MONITORING WELL GROUNDWATER ELEVATION*
75.85 DP-16	PIEZOMETER GROUNDWATER ELEVATION*
	GROUNDWATER CONTOUR

* WATER LEVEL MEASUREMENTS FROM 26 MAY 2009 SITE WIDE SURVEY

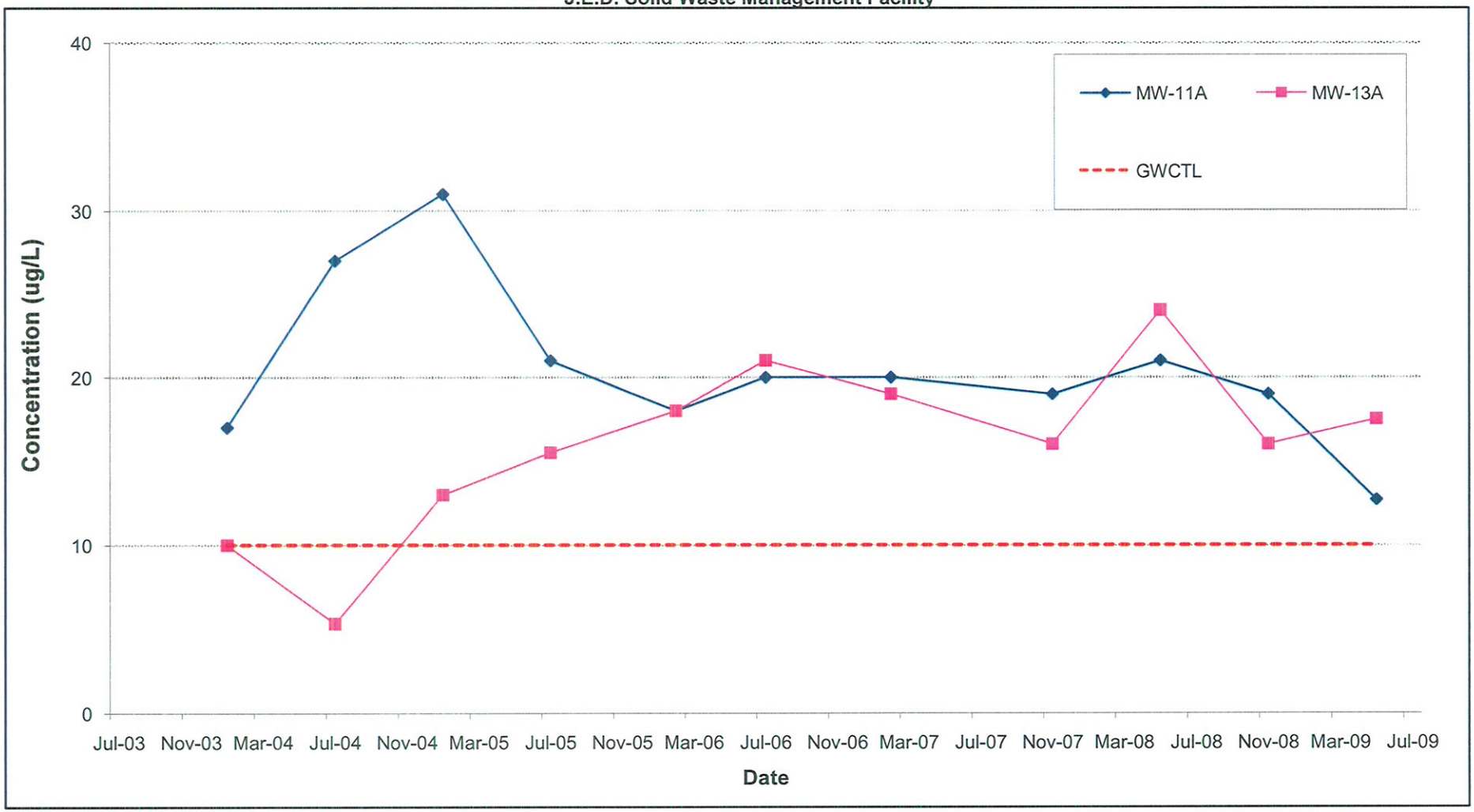
0 500' 1000'
SCALE IN FEET

Geosyntec consultants
TAMPA, FL

DATE:	JULY 2009	FILE NO.	FQ1512.01F05
PROJECT NO.	FQ1512A	FIGURE NO.	1

H:_CADD (PROJECTS)\JUED LANDFILL\COA\FQ1512\FQ1512.01\FQ1512.01F05.DWG (5 December 2008) cvickers

Figure 2
Groundwater Trends - Arsenic
10th Semi-Annual Water Quality Monitoring Report
J.E.D. Solid Waste Management Facility



Notes:

GWCTL = Groundwater Cleanup Target Level (10 ug/L)

Open symbols indicate non-detects and closed symbols indicate detections.

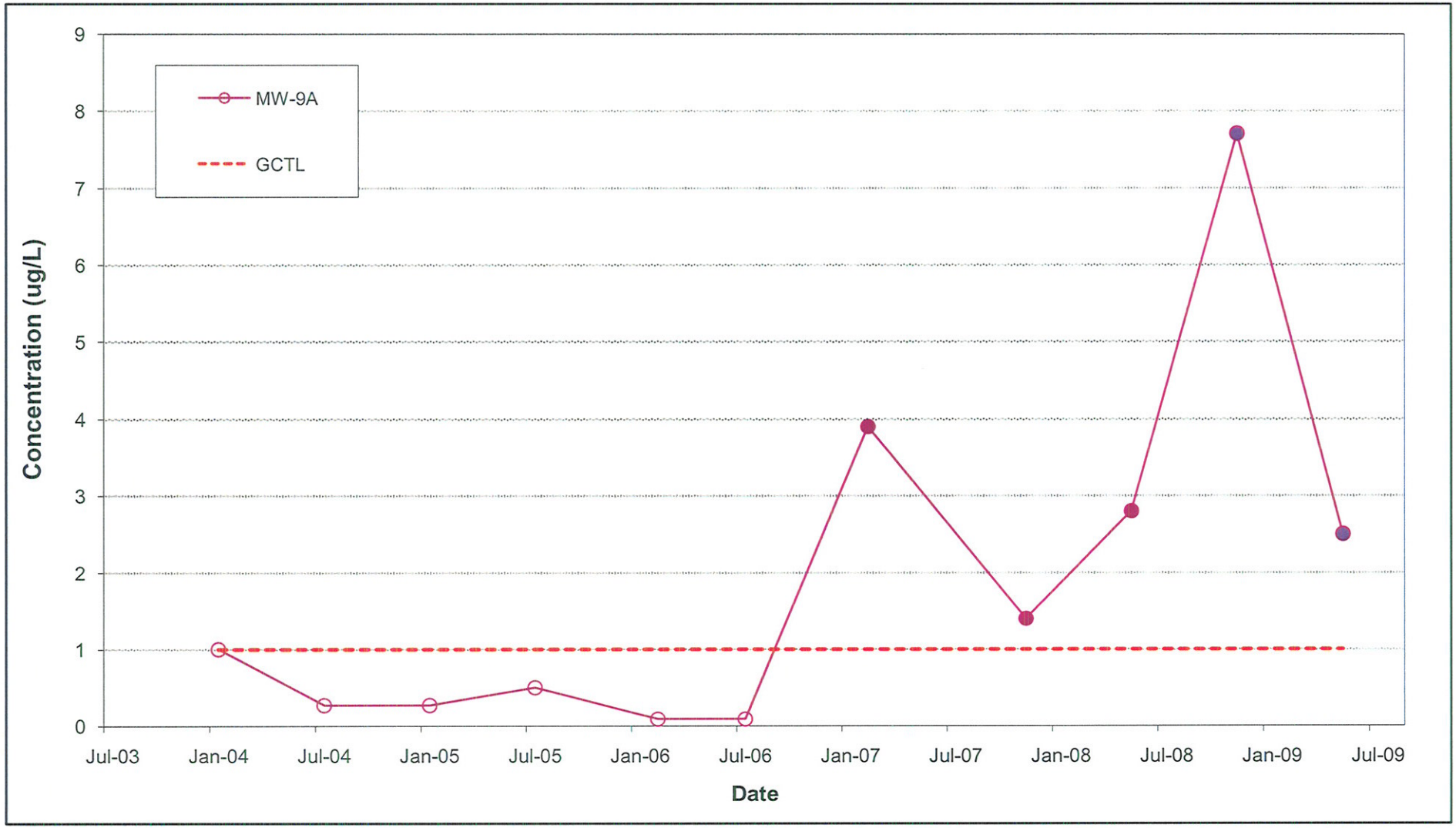
Figure 3
Groundwater Trends - Ammonia-N
10th Semi-Annual Water Quality Monitoring Report
J.E.D. Solid Waste Management Facility

Notes:

GWCTL = Groundwater Cleanup Target Level (2.8 mg/L)

Open symbols indicate non-detects and closed symbols indicate detections.

Figure 4
Groundwater Trends - Benzene
10th Semi-Annual Water Quality Monitoring Report
J.E.D. Solid Waste Management Facility

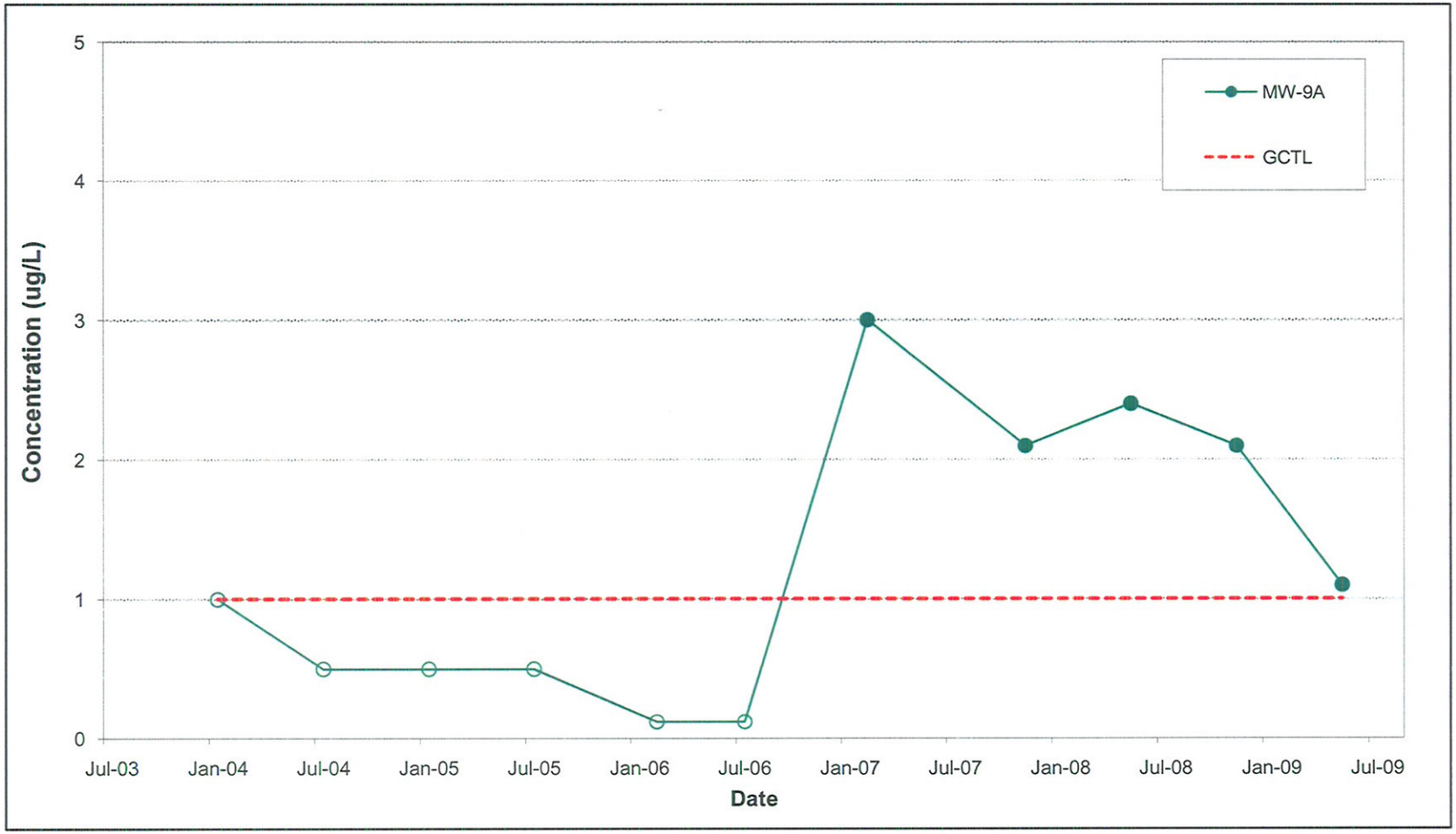


Notes:

GWCTL = Groundwater Cleanup Target Level (1 ug/L)

Open symbols indicate non-detects and closed symbols indicate detections.

Figure 5
Groundwater Trends - Vinyl Chloride
10th Semi-Annual Water Quality Monitoring Report
J.E.D. Solid Waste Management Facility



Notes:

GWCTL = Groundwater Cleanup Target Level (1 ug/L)

Open symbols indicate non-detects and closed symbols indicate detections.

APPENDIX A

Field Sampling Forms

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 27 May 2009 Sampled By: J. Terry

Station (Well No.): MW-1A WACS ID: 19900 Purge Method: Pump ☒ Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic

Pump (Make & Model): Geopump II/ PA Hurricane Purge Rate: 0.05 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173A L

Water Level Meter: Solinst Time @ Start of Purging: 1135 Time @ End of Purging: 1243 Total Purging Time: 68 min

Depth of Pump or Intake Tubing: 22 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
1227	2.60	2.60	25.43	4.79	0.142	0.0	-18.6	0.34	clear	20.38	
1238	0.55	3.15	25.59	4.68	0.142	0.0	-37.2	0.23	clear	20.38	
1243	0.25	3.40	25.57	4.73	0.188	0.0	-41.6	0.23	clear	20.38	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three.(3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-1A Time Collected: 1245 Comments: initial turbidity 0 NTU

Well No.: MW-1A

Well Inspection

Field Conditions/Observations: Clear, ~86°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: ✓ Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 20.11 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 23.00 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 20.38 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.27 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: rancid

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (23 - 20.11) x 0.16 = 0.5 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.25 in. x *(D)* 0.25 in. x *(L)* 37 ft.) + *(Fc)* 0.25 gal = 0.35 gal

3 Well/Equipment Volumes = 1.1 gallons Purged Volume (actual): 3.4 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer X Peristaltic Pump ___ Submersible Pump Sample Rate: 0.05 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 5208 151 2483) ___ Other (_____)

Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 27 May 2009 Sampled By: J. Terry

Station (Well No.): MW-1B WACS ID: 19901 Purge Method: Pump ☒ Bailer ☐ Pump Type: X Submersible (Teflon X SS Other) Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.13 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173A M

Water Level Meter: Solinst Time @ Start of Purging: 1150 Time @ End of Purging: 1258 Total Purging Time: 68 min

Depth of Pump or Intake Tubing: 43 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
1234	5.72	5.72	24.80	4.92	0.046	0.0	-96.6	0.10	Clear	20.15	
1240	0.78	6.50	24.78	4.91	0.046	0.0	-98.7	0.10	Clear	20.15	
1258	2.34	8.84	24.81	5.00	0.046	0.0	-107.9	0.08	Clear	20.15	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-1B Time Collected: 1300 Comments: Initial turbidity 1.0 NTU

Well No.: MW-18

Well Inspection

Field Conditions/Observations: Clear, ~86°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01 ft)

Depth to Water (initial): 20.00 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 47.90 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 20.15 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.15 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: Sulfur-like

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (47.9 - 20) x 0.16 = 4.5 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.375 in. x *(D)* 0.375 in. x *(L)* 55 ft.)+ *(Fc)* 0.25 gal = 0.6 gal

3 Well/Equipment Volumes = 1.8 gallons Purged Volume (actual): 8.84 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer ___ Peristaltic Pump X Submersible Pump Sample Rate: 0.09 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 1Z0815124183) ___ Other (_____)

Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 27 May 2009 Sampled By: J. Terry

Station (Well No.): MW-2A WACS ID: 19903 Purge Method: Pump ☒ Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.04 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AL

Water Level Meter: Solinst Time @ Start of Purging: 1205 Time @ End of Purging: 1345 Total Purging Time: 100 min

Depth of Pump or Intake Tubing: 20 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
1330	3.40	3.40	25.23	4.81	0.190	1.6	-25.5	0.32	Clear	18.13	
1340	0.40	3.80	25.26	4.82	0.191	0.5	-31.3	0.22	clear	18.13	
1345	0.20	4.00	25.25	4.82	0.190	0.1	-43.1	0.21	clear	18.13	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-2A Time Collected: 1347 Comments: initial turbidity 0.2 NTU

Well No.: MW-21

Well Inspection

Field Conditions/Observations: clear, ~86°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 18.10 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 22.60 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 18.13 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.03 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: rancid

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (22.6 - 18.1) x 0.16 = 0.72 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.25 in. x *(D)* 0.25 in. x *(L)* 20 ft.)+ *(Fc)* 0.25 gal = 0.33 gal

3 Well/Equipment Volumes = 1.0 gallons Purged Volume (actual): 4.0 gallons

Purge Water Contained? ___ Yes X No Container Used; ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer X Peristaltic Pump ___ Submersible Pump Sample Rate: 0.041 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, Cl, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 1Z0815T24183) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 27 May 2009 Sampled By: J. Terry

Station (Well No.): MW-2B WACS ID: 19904 Purge Method: Pump ☒ Bailer ☐ Pump Type: ✓ Submersible (Teflon ✓ SS Other) Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.20 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173A M

Water Level Meter: Solinst Time @ Start of Purging: 1210 Time @ End of Purging: 1400 Total Purging Time: 110 min

Depth of Pump or Intake Tubing: 43 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
1335	17.00	17.00	24.39	5.01	0.063	2.8	-97.4	0.06	clear	18.25	
1343	1.60	18.60	24.28	5.02	0.063	2.3	-104.3	0.06	clear	18.25	
1400	3.40	22.00	24.30	4.92	0.062	2.0	-93.4	0.05	clear	18.25	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-2B Time Collected: 1405 Comments: Initial turbidity 95 NTU

Well No.: MW-2B

Well Inspection

Field Conditions/Observations: Misty, ~86°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 17.97 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 48.30 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 18.25 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.28 ft. (Depth to Water (initial) -- Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: Sulfur-like

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (48.3 - 17.97) x 0.16 = 4.9 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.375in. x *(D)* 0.375in. x *(L)* 53 ft.)+ *(Fc)* 0.25 gal = 0.6 gal

3 Well/Equipment Volumes = 1.8 gallons Purged Volume (actual): _____ gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer ___ Peristaltic Pump X Submersible Pump Sample Rate: 0.11 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 32081512483) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 2 June 2009 Sampled By: J. Terry

Station (Well No.): MW-3A WACS ID: 19906 Purge Method: Pump ☒ Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.05 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173A/M

Water Level Meter: Solinst Time @ Start of Purging: 0755 Time @ End of Purging: 0833 Total Purging Time: 38 min.

Depth of Pump or Intake Tubing: 19 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
0820	1.25	1.25	24.88	4.89	0.496	0.0	-125.8	0.60	clear	15.48	
0825	0.25	1.50	24.91	4.90	0.493	0.0	-129.4	0.33	clear	15.48	
0833	0.40	1.90	24.92	4.93	0.491	0.0	-138.0	0.30	clear	15.48	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-3A Time Collected: 0835 Comments: initial turbidity 0.1 NTU

Well No.: MW-3A

Well Inspection

Field Conditions/Observations: clear, ~78°F

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 15.44 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 22.80 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 15.48 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.04 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: natural

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (22.80 - 15.44) x 0.16 = 1.2 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.25 in. x *(D)* 0.25 in. x *(L)* 34 ft.)+ *(Fc)* 0.25 gal = 0.34 gal

3 Well Equipment Volumes = 1.02 gallons Purged Volume (actual): 1.9 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer X Peristaltic Pump ___ Submersible Pump Sample Rate: 0.05 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T, Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X ~~UPS~~ FedEx (Airbill No. 8673 3894 9639) ___ Other (_____) JT 6-2-09
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FO 1512A Task: 01 Date: 2 June 2009 Sampled By: J. Terry

Station (Well No.): MW-3B WACS ID: 19907 Purge Method: Pump ☒ Bailer ☐ Pump Type: X Submersible (Teflon X SS Other) Peristaltic

Pump (Make & Model): Geopump II (PA Hurricane) Purge Rate: 0.20 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AM

Water Level Meter: Solinst Time @ Start of Purging: 0800 Time @ End of Purging: 0857 Total Purging Time: 57 min

Depth of Pump or Intake Tubing: 43 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
0845	9.00	9.00	24.90	4.78	0.154	1.9	-103.0	0.24	clear	15.59	
0850	1.00	10.00	24.91	4.77	0.155	1.5	-100.0	0.21	clear	15.59	
0857	1.40	11.40	24.90	4.76	0.155	1.0	-97.0	0.19	clear	15.59	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-3B Time Collected: 0900 Comments: initial turbidity 17.5 NTU

Well No.: MW-3B

Well Inspection

Field Conditions/Observations: clear, ~78°F

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 15.44 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 47.60 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 15.59 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.15 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: rancid

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (47.60 - 15.44) x 0.16 = 5.1 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.375 in. x *(D)* 0.375 in. x *(L)* 55 ft.)+ *(Fc)* 0.25 gal = 0.6 gal

3 Well/Equipment Volumes = 1.8 gallons Purged Volume (actual): 11.4 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer ___ Peristaltic Pump X Submersible Pump Sample Rate: 0.09 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: ___ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X ~~UPS~~ FedEx (Airbill No. 8673 3894 9639) ___ Other (_____) PT 6-2-09
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 2 June 2009 Sampled By: J. Terry

Station (Well No.): MW-4A WACS ID: 19909 Purge Method: Pump ☒ Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.05 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AM

Water Level Meter: Solinst Time @ Start of Purging: 0620 Time @ End of Purging: 0700 Total Purging Time: 40 min

Depth of Pump or Intake Tubing: 28 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
0650	1.50	1.50	23.83	4.53	0.317	0.1	-110.3	0.27	clear	16.45	
0655	0.25	1.75	23.84	4.53	0.318	0.1	-109.7	0.27	clear	16.45	
0700	0.25	2.00	23.84	4.53	0.318	0.1	-111.5	0.23	clear	16.45	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-4A Time Collected: 0703 Comments: Initial turbidity 0.1 NTU

Well No.: MW-4A

Well Inspection

Field Conditions/Observations: clear, ~74°F

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 16.41 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 23.10 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 16.45 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.04 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: Rancid

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (23.10 - 16.41) x 0.16 = 1.1 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.25 in. x *(D)* 0.25 in. x *(L)* 34 ft.)+ *(Fc)* 0.25 gal = 0.34 gal

3 Well/Equipment Volumes = 1.02 gallons Purged Volume (actual): 2.0 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer X Peristaltic Pump ___ Submersible Pump Sample Rate: 0.05 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: ___ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X ~~UPS~~ FedEx (Airbill No. 8673 3894 9639) ___ Other (_____)
JT 6-2-09

Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 2 June 2009 Sampled By: J. Terry

Station (Well No.): MW-4B WACS ID: 19910 Purge Method: Pump ☒ Bailer ☐ Pump Type: X Submersible (Teflon X SS Other) Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.25 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173A M

Water Level Meter: Solinst Time @ Start of Purging: 0615 Time @ End of Purging: 0719 Total Purging Time: 64 min

Depth of Pump or Intake Tubing: 43 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
0709	13.50	13.50	24.34	4.33	0.485	0.2	-82.7	0.20	clear	16.35	
0715	1.50	15.00	24.35	4.31	0.501	0.2	-79.2	0.17	clear	16.35	
0719	1.00	16.00	24.36	4.32	0.485	0.2	-75.6	0.11	clear	16.35	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-4B Time Collected: 0720 Comments: initial turbidity 0.7 NTU

Well No.: MW-4B

Well Inspection

Field Conditions/Observations: clear, ~74°F

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 16.05 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 47.40 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 16.35 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.30 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: Muncid

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (47.4 - 16.05) x 0.16 = 5.0 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.375 in. x *(D)* 0.375 in. x *(L)* 55 ft.)+ *(Fc)* 0.25 gal = 0.6 gal

3 Well/Equipment Volumes = 1.8 gallons Purged Volume (actual): 16.0 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer ___ Peristaltic Pump X Submersible Pump Sample Rate: 0.11 gpm

QA Sample Collected X Yes ___ No; ___ Blind Duplicate; X EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: EQ Blank QA Sample Time: 0735

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: ___ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( ) Plus same for EQ Blank

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X ~~UPS~~ Fedex (Airbill No. 867338949659) ___ Other (_____) DT 6-2-09

Notes:
Heavy machinery operating in area.

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 1 June 2009 Sampled By: J. Terry

Station (Well No.): MW-5A WACS ID: 19912 Purge Method: Pump ☒ Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.05 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AL

Water Level Meter: Solinst Time @ Start of Purging: 1355 Time @ End of Purging: 1430 Total Purging Time: 35 min

Depth of Pump or Intake Tubing: 20 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
1420	1.25	1.25	26.41	4.38	0.323	3.5	-36.7	0.49	amber	16.09	soupy film on water
1425	0.25	1.50	26.33	4.41	0.320	4.9	-41.0	0.45	amber	16.09	
1430	0.25	1.75	26.38	4.42	0.320	3.7	-44.7	0.39	amber	16.09	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-5A Time Collected: 1433 Comments: initial turbidity 2.9 NTU

Well No.: MW-5A

Well Inspection

Field Conditions/Observations: m. sunny, ~88°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 15.92 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 22.50 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 16.09 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.17 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: rancid

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (22.5 - 15.92) x 0.16 = 1.1 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.25 in. x *(D)* 0.25 in. x *(L)* 33 ft.)+ *(Fc)* 0.25 gal = 0.33 gal

3 Well/Equipment Volumes = 1.0 gallons Purged Volume (actual): 1.75 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer X Peristaltic Pump ___ Submersible Pump Sample Rate: 0.05 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: ___ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 5208151247 4) ___ Other (_____)
Notes:
Heavy machinery operating upwind ~200 ft.

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 1 June 2009 Sampled By: J. Terry

Station (Well No.): MW-5B WACS ID: 19913 Purge Method: Pump ☒ Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic

Pump (Make & Model): (Geopump II) PA Hurricane Purge Rate: 0.07 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173A L

Water Level Meter: Solinst Time @ Start of Purging: 1350 Time @ End of Purging: 1500 Total Purging Time: 70 min

Depth of Pump or Intake Tubing: 42 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
1445	3.85	3.85	25.48	4.63	0.075	0.2	-58.5	0.57	clear	16.42	
1450	0.35	4.20	25.47	4.66	0.067	0.2	-57.3	0.38	clear	16.42	
1455	0.35	4.55	25.48	4.69	0.066	0.2	-56.5	0.35	clear	16.42	
1500	0.35	4.90	25.50	4.70	0.066	0.2	-53.3	0.33	clear	16.42	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-5B Time Collected: 1505 Comments: initial turbidity: 0.2 NTU.

Well No.: MW-5B

Well Inspection

Field Conditions/Observations: M. Sunny, ~ 88°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 16.32 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 47.10 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 16.42 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.10 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: sulfur-like

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (47.1 - 16.32) x 0.16 = 5.0 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.25 in. x *(D)* 0.25 in. x *(L)* 55 ft.)+ *(Fc)* 0.25 gal = 0.4 gal

3 Well/Equipment Volumes = 1.2 gallons Purged Volume (actual): 4.9 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer X Peristaltic Pump ___ Submersible Pump Sample Rate: 0.07 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: ___ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 5208/5124774) ___ Other (_____)

Notes:
Heavy machinery operating ~ 200ft upwind

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 1 June 2009 Sampled By: J. Terry

Station (Well No.): MW-6A WACS ID: 19915 Purge Method: Pump ☒ Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ☒ Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.05 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AL

Water Level Meter: Solinst Time @ Start of Purging: 0930 Time @ End of Purging: 1102 Total Purging Time: 92

Depth of Pump or Intake Tubing: 20 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
1036	3.30	3.30	24.83	5.05	0.242	0.2	-89.7	0.79	clear	16.30	
1056	1.00	4.30	24.94	4.98	0.246	0.0	-95.2	0.32	clear	16.30	
1102	0.30	4.60	24.92	4.99	0.247	0.0	-86.9	0.33	clear	16.30	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-6A Time Collected: 1105 Comments: Initial turbidity: 1.9 NTU

Well No.: MW-6A

Well Inspection

Field Conditions/Observations: A. sunny, ~ 82°F

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 16.15 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 22.60 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 16.30 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.15 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: sulfur-like

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (22.60 - 16.15) x 0.16 = 1.0 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.25 in. x *(D)* 0.25 in. x *(L)* 32 ft.)+ *(Fc)* 0.25 gal = 0.33 gal

3 Well/Equipment Volumes = 1.0 gallons Purged Volume (actual): 4.6 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer X Peristaltic Pump ___ Submersible Pump Sample Rate: 0.05 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 5208 1512 4741) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 1 June 2009 Sampled By: J. Terry

Station (Well No.): MW-6B WACS ID: 19916 Purge Method: Pump ☒ Bailer ☐ Pump Type: X Submersible (__ Teflon X SS __ Other) __ Peristaltic

Pump (Make & Model): Geopump II / QA Hurricane Purge Rate: 0.25 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AL

Water Level Meter: Solinst Time @ Start of Purging: 0935 Time @ End of Purging: 1138 Total Purging Time: 123 min

Depth of Pump or Intake Tubing: 43 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L) JT 6-1-09	Color	Depth to Water (ft) BTOC	Comments
1120	26.25	26.25	24.50	5.14	0.056	5.4	-79.4	~~5.4~~ 0.32	Clear	18.07	
1124	1.00	27.25	24.29	5.08	0.056	6.0	-83.5	0.22	Clear	18.19	
1130	1.50	28.75	24.50	5.13	0.056	5.4	-77.7	0.20	clear	18.18	
1134	1.00	29.75	24.48	5.12	0.056	5.2	-75.9	0.20	clear	18.18	
1138	1.00	30.75	24.43	5.13	0.056	5.5	-77.9	0.20	clear	18.18	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-6B Time Collected: 1140 Comments: initial turbidity: 26.3 NTU

Well No.: MW-6B

Well Inspection

Field Conditions/Observations: M. Sunny, ~82°F

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 16.03 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 47.40 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 18.18 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 2.15 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: sulfur-like

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (47.4 - 16.03) x 0.16 = 5.0 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.375 in. x *(D)* 0.375 in. x *(L)* 55 ft.)+ *(Fc)* 0.25 gal = 0.6 gal

3 Well/Equipment Volumes = 1.8 gallons Purged Volume (actual): 30.75 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer ___ Peristaltic Pump X Submersible Pump Sample Rate: 0.12 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 5208 1512 4744) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 1 June 2009 Sampled By: J. Terry

Station (Well No.): MW-7A WACS ID: 19918 Purge Method: Pump ☒ Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.07 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173A L

Water Level Meter: Solinst Time @ Start of Purging: 1220 Time @ End of Purging: 1252 Total Purging Time: 32 min

Depth of Pump or Intake Tubing: 20 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
1244	1.68	1.68	24.40	5.43	0.188	0.0	-141.5	0.80	clear	16.33	
1248	0.28	1.96	24.40	5.38	0.187	0.0	-141.9	0.65	clear	16.33	
1252	0.28	2.24	24.45	5.31	0.188	0.0	-141.1	0.59	clear	16.33	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-7A Time Collected: 1255 Comments: initial turbidity 0.0 NTU

Well No.: MW-7A

Well Inspection

Field Conditions/Observations: m. sunny, ~86°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01 ft)

Depth to Water (initial): 16.20 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 23.30 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 16.33 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.13 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: Rancid

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (23.30 - 16.20) x 0.16 = 1.14 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.25 in. x *(D)* 0.25 in. x *(L)* 32 ft.)+ *(Fc)* 0.25 gal = 0.37 gal

3 Well/Equipment Volumes = 1.0 gallons Purged Volume (actual): 2.24 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer X Peristaltic Pump ___ Submersible Pump Sample Rate: 0.07 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 3208151 2474) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 1 June 2009 Sampled By: J. Terry

Station (Well No.): MW-7B WACS ID: 19919 Purge Method: Pump ☒ Bailer ☐ Pump Type: x Submersible (Teflon x SS Other) Peristaltic

Pump (Make & Model): Geopump II / RA Hurricane Purge Rate: 0.20 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AL

Water Level Meter: Solinst Time @ Start of Purging: 1225 Time @ End of Purging: 1317 Total Purging Time: 52 min

Depth of Pump or Intake Tubing: 43 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
1307	8.40	8.40	24.21	5.05	0.109	19.8	-122.9	0.44	clear	17.77	
1312	1.00	9.40	24.28	5.04	0.108	18.7	-120.1	0.40	clear	17.77	
1317	1.00	10.40	24.30	5.03	0.109	17.1	-110.2	0.41	clear	17.77	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-7B Time Collected: 1320 Comments: Initial turbidity: 135 NTU

Well No.: MW-7B

Well Inspection

Field Conditions/Observations: Mostly sunny, ~86°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 16.03 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 47.50 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 17.77 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 1.74 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: Sulfur-like

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (47.50 - 16.03) x 0.16 = 5.04 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.375 in. x *(D)* 0.375 in. x *(L)* 54 ft.) + *(Fc)* 0.25 gal = 0.6 gal

3 Well Equipment Volumes = 1.8 gallons Purged Volume (actual): 10.4 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer ___ Peristaltic Pump X Submersible Pump Sample Rate: 0.09 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 5208151247 4) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FO 1512A Task: 01 Date: 1 June 2009 Sampled By: J. Terry

Station (Well No.): MW-8A WACS ID: 19921 Purge Method: Pump ☒ Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ☒ Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.05 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173A L

Water Level Meter: Solinst Time @ Start of Purging: 0820 Time @ End of Purging: 0857 Total Purging Time: 37 min

Depth of Pump or Intake Tubing: 19 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
0845	1.25	1.25	25.38	4.92	0.278	0.7	-73.5	0.65	clear	15.55	
0848	0.15	1.40	25.45	4.91	0.277	0.0	-75.9	0.51	clear	15.55	
0857	0.45	1.85	25.47	4.94	0.273	0.0	-74.0	0.40	clear	15.55	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-8A Time Collected: 0900 Comments: initial turbidity 1.0 NTU

Well No.: MW-8A

Well Inspection

Field Conditions/Observations: M. Sunny, ~76°F

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 15.00 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 22.50 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 15.55 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.55 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: rancid

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (22.50 - 15) x 0.16 = 1.2 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.25 in. x *(D)* 0.25 in. x *(L)* 30 ft.)+ *(Fc)* 0.25 gal = 0.33 gal

3 Well/Equipment Volumes = 1.0 gallons Purged Volume (actual): 1.05 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer X Peristaltic Pump ___ Submersible Pump Sample Rate: 0.05 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 5208151247 4) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 1 June 2009 Sampled By: J. Terry

Station (Well No.): MW-8B WACS ID: 19922 Purge Method: Pump ☒ Bailer ☐ Pump Type: X Submersible (Teflon X SS Other) Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.20 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AL

Water Level Meter: Solinst Time @ Start of Purging: 0825 Time @ End of Purging: 1008 Total Purging Time: 103 min

Depth of Pump or Intake Tubing: 45 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
0915	10.00	10.00	24.88	5.21	0.064	68.7	-75.3	0.49	cloudy	17.75	
0945	6.00	16.00	24.91	5.31	0.065	38.2	-68.6	0.24	slightly cloudy	18.14	
0955	2.00	18.00	24.98	5.31	0.064	26.0	-69.1	0.22	clear	18.19	
1008	2.60	20.60	24.93	5.30	0.064	20.0	-66.8	0.20	clear	18.19	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-8B Time Collected: 1010 Comments: Initial turbidity 23.1 NTU, Turbidity @ 08:34 - 116 NTU

Well No.: MW-8B

Well Inspection

Field Conditions/Observations: P. Sunny, ~76°F

Well Inspection:

Well Type: ___ Flush Mount _X_ Stick Up ___ Other Well Size (ID): _2_ in. ___ Steel _X_ PVC

Condition (locked, damaged, etc.): _____

Well Labeled: _X_ Yes ___ No Well Cap: _X_ Yes ___ No Well Cap: _X_ Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 14.98 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 49.60 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 18.19 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 3.21 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: _X_ Yes ___ No Describe: Sulfur-like

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (49.60 - 14.98) x 0.16 = 5.54 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.375 in. x *(D)* 0.375 in. x *(L)* 58 ft.)+ *(Fc)* 0.25 gal = 0.6 gal

3 Well/Equipment Volumes = 1.8 gallons Purged Volume (actual): 20.6 gallons

Purge Water Contained? ___ Yes _X_ No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? _X_ Yes ___ No

Sampling Method: ___ Bailer ___ Peristaltic Pump _X_ Submersible Pump Sample Rate: 0.12 gpm

QA Sample Collected ___ Yes _X_ No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes _X_ No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier _X_ UPS (Airbill No. 1Z0815124704) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 1 June 2009 Sampled By: J. Terry

Station (Well No.): MW-9A WACS ID: 19924 Purge Method: Pump ☒ Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic

Pump (Make & Model): (Geopump II) / RA Hurricane Purge Rate: 0.07 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AL

Water Level Meter: Solinst Time @ Start of Purging: 0635 Time @ End of Purging: 0713 Total Purging Time: 38 min

Depth of Pump or Intake Tubing: 19 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
0705	2.10	2.10	25.81	4.80	0.169	0.9	-90.3	0.70	clear	15.15	
0708	0.21	2.31	25.76	4.81	0.165	0.8	-94.8	0.58	clear	15.17	
0713	0.35	2.66	25.79	4.80	0.168	1.1	-82.6	0.54	clear	15.17	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-9A Time Collected: 0715 Comments: initial turbidity 1.5 NTU

Well No.: MW-9A

Well Inspection

Field Conditions/Observations: clear, ~76°F

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 14.96 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 22.40 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 15.17 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.21 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: rancid

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (22.4 - 14.96) x 0.16 = 1.2 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.25 in. x *(D)* 0.25 in. x *(L)* 30 ft.)+ *(Fc)* 0.25 gal = 0.33 gal

3 Well/Equipment Volumes = 1.0 gallons Purged Volume (actual): 2.66 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer X Peristaltic Pump ___ Submersible Pump Sample Rate: 0.07 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: ___ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 5208 1512 4774) ___ Other (_____)

Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FO 1512A Task: 01 Date: 1 June 2009 Sampled By: J. Terry

Station (Well No.): MW-9B WACS ID: 19925 Purge Method: Pump ☒ Bailer ☐ Pump Type: X Submersible (__ Teflon X SS __ Other) __ Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.20 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AL

Water Level Meter: Solinst Time @ Start of Purging: 0640 Time @ End of Purging: 0738 Total Purging Time: 58 min

Depth of Pump or Intake Tubing: 44 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
0730	10.00	10.00	25.42	5.04	0.092	17.6	-79.3	0.57	clear	17.78	
0735	1.00	11.00	25.40	5.01	0.092	14.4	-86.7	0.41	clear	17.70	
0738	0.60	11.60	25.41	5.01	0.092	14.0	-85.9	0.36	clear	17.70	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-9B Time Collected: 0740 Comments: initial turbidity 28.4 NTU

Well No.: MW-9B

Well Inspection

Field Conditions/Observations: clear, ~76°F

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 15.06 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 49.10 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 17.70 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 2.64 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: Sulfur-like

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (49.9 - 15.06) x 0.16 = 4.8 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.375 in. x *(D)* 0.375 in. x *(L)* 58 ft.)+ *(Fc)* 0.25 gal = 0.6 gal

3 Well/Equipment Volumes = 1.8 gallons Purged Volume (actual): 11.6 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer ___ Peristaltic Pump X Submersible Pump Sample Rate: 0.12 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 5208 151 2474) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 28 May 2009 Sampled By: J. Terry

Station (Well No.): MW-10A WACS ID: 19927 Purge Method: Pump ☒ Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) ✓ Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.06 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AL

Water Level Meter: Solinst Time @ Start of Purging: 1130 Time @ End of Purging: 1215 Total Purging Time: 45 min

Depth of Pump or Intake Tubing: 20 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
1205	2.10	2.10	26.21	5.18	0.156	1.9	-20.7	0.38	yellowish	17.52	
1210	0.30	2.40	26.30	5.22	0.156	1.9	-25.6	0.23	yellowish	17.52	
1215	0.30	2.70	26.29	5.22	0.156	1.9	-25.2	0.22	yellowish	17.52	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-10A Time Collected: 1220 Comments: Initial turbidity 1.1 NTU

Well No.: MW-10A

Well Inspection

Field Conditions/Observations: p. cloudy, ~86°F, easterly wind ~5 mph

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 17.32 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 22.10 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 17.52 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.20 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: rancid

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (22.1 - 17.32) x 0.16 = 0.8 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.25 in. x *(D)* 0.25 in. x *(L)* 52 ft.)+ *(Fc)* 0.25 gal = 0.4 gal

3 Well/Equipment Volumes = 1.2 gallons Purged Volume (actual): 2.7 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer X Peristaltic Pump ___ Submersible Pump Sample Rate: 0.06 gpm

QA Sample Collected? X Yes ~~X No~~ DT 5-28-09; X Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: DUP-1 QA Sample Time: —

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: ___ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic plus same for DUP-1

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: X Courier DT 5-28-09 ~~X UPS~~ (Airbill No. _____) ___ Other (_____)

Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 28 May 2009 Sampled By: J. Terry

Station (Well No.): MW-10B WACS ID: 19928 Purge Method: Pump ☒ Bailer ☐ Pump Type: X Submersible (Teflon X SS Other) Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.20 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173A M

Water Level Meter: Solinst Time @ Start of Purging: 1120 Time @ End of Purging: 1150 Total Purging Time: 30 min

Depth of Pump or Intake Tubing: 43 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
1140	4.00	4.00	25.08	5.14	0.084	1.7	-129.8	0.16	clear	17.81	
1146	1.20	5.20	25.09	5.15	0.084	1.4	-129.5	0.13	clear	17.81	
1150	0.80	6.00	25.06	5.14	0.084	0.9	-130.8	0.12	clear	17.81	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-10B Time Collected: 1152 Comments: Initial turbidity 2.2 NTU

Well No.: MW-10B

Well Inspection

Field Conditions/Observations: p.cloudy, ~86°F, easterly wind ~5mph

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 17.30 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 48.30 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 17.81 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.51 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: rancid

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (48.30 - 17.3) x 0.16 = 5.0 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.375 in. x *(D)* 0.375 in. x *(L)* 55 ft.)+ *(Fc)* 0.25 gal = 0.6 gal

3 Well/Equipment Volumes = 1.8 gallons Purged Volume (actual): 6.0 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer ___ Peristaltic Pump X Submersible Pump Sample Rate: 0.09 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: X Courier ~~X UPS~~ (Airbill No. _____) ___ Other (_____)
JT 5-28-09

Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FO 1512A Task: 01 Date: 20 May 2009 Sampled By: J. Terry

Station (Well No.): MW-11A WACS ID: 19930 Purge Method: Pump ☒ Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic

Pump (Make & Model): Geopump II/ PA Hurricane Purge Rate: 0.05 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AC

Water Level Meter: Solinst Time @ Start of Purging: 0950 Time @ End of Purging: 1024 Total Purging Time: 34 min

Depth of Pump or Intake Tubing: 19 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
1015	1.25	1.25	26.42	5.57	0.212	1.3	-46.9	0.22	yellowish	15.38	
1020	0.25	1.50	26.46	5.57	0.211	1.2	-49.1	0.17	" "	15.38	
1024	0.20	1.70	26.43	5.55	0.208	1.1	-49.2	0.16	" "	15.38	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-11A Time Collected: 1025 Comments: initial turbidity 1.9 NTU

Well No.: MW-11A

Well Inspection

Field Conditions/Observations: p.cloudy, ~86°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 15.27 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 22.8 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 15.38 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.11 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: rancid

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (22.8 - 15.27) x 0.16 = 1.2 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.25 in. x *(D)* 0.25 in. x *(L)* 30 ft.)+ *(Fc)* 0.25 gal = 0.53 gal

3 Well/Equipment Volumes = 1.0 gallons Purged Volume (actual): 1.7 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer X Peristaltic Pump ___ Submersible Pump Sample Rate: 0.05 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, Cl, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: X Courier ~~X~~ UPS (Airbill No. _____) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 28 May 2009 Sampled By: J. Terry

Station (Well No.): MW-11B WACS ID: 19931 Purge Method: Pump ☒ Bailer ☐ Pump Type: X Submersible (__ Teflon X SS __ Other) ✓ Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.20 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173A M

Water Level Meter: Solinst Time @ Start of Purging: 0940 Time @ End of Purging: 1045 Total Purging Time: 65 min

Depth of Pump or Intake Tubing: 43 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
1022	8.40	8.40	25.34	5.24	0.099	16.1	-107.6	0.15	clear	16.02	
1038	3.20	11.60	25.29	5.22	0.099	9.8	-107.9	0.15	clear	16.02	
1045	1.40	13.00	25.23	5.21	0.099	8.5	-108.2	0.12	clear	16.02	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-11B Time Collected: 1047 Comments: Initial turbidity 62.5 NTU

Well No.: MW-11B

Well Inspection

Field Conditions/Observations: p.cloudy, ~86°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 15.30 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 47.9 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 16.02 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.72 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: carcid

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (47.9 - 15.30) x 0.16 = 5.2 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.375 in. x *(D)* 0.375 in. x *(L)* 56 ft.)+ *(Fc)* 0.25 gal = 0.6 gal

3 Well/Equipment Volumes = 1.8 gallons Purged Volume (actual): 13.0 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer ___ Peristaltic Pump X Submersible Pump Sample Rate: 0.11 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, Cl, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: X Courier ~~X~~ UPS (Airbill No. _____) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 28 May 2009 Sampled By: J. Terry

Station (Well No.): MW-12A WACS ID: 19933 Purge Method: Pump ☒ Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.05 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173A L

Water Level Meter: Solinst Time @ Start of Purging: 0655 Time @ End of Purging: 0843 Total Purging Time: 108 min

Depth of Pump or Intake Tubing: 20 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
0820	4.25	4.25	24.44	5.31	0.196	0.0	-71.4	0.21	clear	17.21	
0832	0.60	4.85	24.57	5.34	0.202	0.0	-63.7	0.19	clear	17.21	
0840	0.40	5.25	24.57	5.37	0.206	0.0	-68.5	0.16	clear	17.21	
0843	0.15	5.40	24.60	5.37	0.206	0.0	-64.8	0.17	clear	17.21	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-12A Time Collected: 0845 Comments: Initial turbidity 0.6 NTU

Well No.: MW-12A

Well Inspection

Field Conditions/Observations: clear, ~84°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01 ft)

Depth to Water (initial): 16.90 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 23.0 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 17.21 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.31 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: rancid

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (23.0 - 16.9) x 0.16 = 1.0 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.25 in. x *(D)* 0.25 in. x *(L)* 37 ft.)+ *(Fc)* 0.25 gal = 0.33 gal

3 Well/Equipment Volumes = 1.0 gallons Purged Volume (actual): 5.4 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer X Peristaltic Pump ___ Submersible Pump Sample Rate: 0.05 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, Cl, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: X Courier JT 5-28-09 X UPS (Airbill No. _____) ___ Other (_____)

Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 28 May 2009 Sampled By: J. Terry

Station (Well No.): MW-12B WACS ID: 19934 Purge Method: Pump ☒ Bailer ☐ Pump Type: X Submersible (__ Teflon X SS __ Other) __ Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.16 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AM

Water Level Meter: Solinst Time @ Start of Purging: 0650 Time @ End of Purging: 0857 Total Purging Time: 127 min

Depth of Pump or Intake Tubing: 44 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
0830	16.00	16.00	24.62	5.00	0.102	6.0	-60.4	0.08	clear	17.56	
0836	0.96	16.96	24.63	5.01	0.101	5.4	-61.9	0.08	clear	17.56	
0857	3.36	20.32	24.66	5.02	0.101	4.0	-64.4	0.08	clear	17.56	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-12B Time Collected: 0900 Comments: initial turbidity 25.6 NTU

Well No.: MW-12B

Well Inspection

Field Conditions/Observations: Clear, ~84°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 16.88 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 49.00 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 17.56 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.68 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: sulfur-like

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (49.00 - 16.88) x 0.16 = 5.1 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.375 in. x *(D)* 0.375 in. x *(L)* 65 ft.)+ *(Fc)* 0.25 gal = 0.6 gal

3 Well/Equipment Volumes = 1.8 gallons Purged Volume (actual): 20.32 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer ___ Peristaltic Pump X Submersible Pump Sample Rate: 0.09 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: X Courier 5-28-09 ___ X UPS (Airbill No. _____) ___ Other (_____)

Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 28 May 2009 Sampled By: J. Terry

Station (Well No.): MW-13A WACS ID: 19936 Purge Method: Pump ☒ Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.05 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AL

Water Level Meter: Solinst Time @ Start of Purging: 0635 Time @ End of Purging: 0723 Total Purging Time: 48 min

Depth of Pump or Intake Tubing: 20 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
0713	1.90	1.90	23.80	5.36	0.154	8.4	-32.7	0.43	clear	17.52	
0717	0.20	2.10	23.76	5.35	0.154	7.3	-40.3	0.38	clear	17.52	
0723	0.30	2.40	23.72	5.34	0.155	7.1	-42.3	0.35	clear	17.52	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-13A Time Collected: 0725 Comments: initial turbidity 11 NTU

Well No.: MW-13A

Well Inspection

Field Conditions/Observations: clear, ~84°F, slighy breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 17.34 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 22.50 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 17.52 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.18 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: rancid

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (22.5 - 17.34) x 0.16 = 0.83 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.25 in. x *(D)* 0.25 in. x *(L)* 32 ft.)+ *(Fc)* 0.25 gal = 0.33 gal

3 Well/~~Equipment~~ Volumes = 1.0 gallons Purged Volume (actual): 2.4 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer X Peristaltic Pump ___ Submersible Pump Sample Rate: 0.05 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, Cl, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: X Courier ~~X~~ UPS (Airbill No. _____) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 28 May 2009 Sampled By: J. Terry

Station (Well No.): MW-13B WACS ID: 19937 Purge Method: Pump ☒ Bailer ☐ Pump Type: X Submersible (Teflon X SS Other) Peristaltic

Pump (Make & Model): Geopump II (PA Hurricane) Purge Rate: 0.30 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173A M

Water Level Meter: Solinst Time @ Start of Purging: 0630 Time @ End of Purging: 0748 Total Purging Time: 78 min

Depth of Pump or Intake Tubing: 43 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
0740	21.00	21.00	24.19	4.99	0.068	20.2	-70.3	0.51	clear	17.79	
0745	1.50	22.50	24.19	4.98	0.068	19.7	-67.0	0.17	clear	17.79	
0748	0.90	23.40	24.19	4.98	0.068	17.9	-64.6	0.13	clear	17.79	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-13B Time Collected: 0750 Comments: initial turbidity 331 NTU

Well No.: MW-13B

Well Inspection

Field Conditions/Observations: clear, ~84°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 17.27 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 47.20 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 17.79 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.52 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: rancid

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (47.2 - 17.27) x 0.16 = 4.9 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.375 in. x *(D)* 0.375 in. x *(L)* 55 ft.)+ *(Fc)* 0.25 gal = 0.6 gal

3 Well/Equipment Volumes = 1.8 gallons Purged Volume (actual): 23.4 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer ___ Peristaltic Pump X Submersible Pump Sample Rate: 0.12 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: X Courier ~~X~~ UPS (Airbill No. _____) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ1512A Task: 01 Date: 27 May 2009 Sampled By: J. Terry

Station (Well No.): MW-16A WACS ID: 22342 Purge Method: Pump ☒ Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.07 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AL

Water Level Meter: Solinst Time @ Start of Purging: 0700 Time @ End of Purging: 0752 Total Purging Time: 52 min

Depth of Pump or Intake Tubing: 14 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
0730	2.10	2.10	22.84	5.47	0.119	19.0	159.8	0.57	clear	9.97	
0735	0.35	2.45	22.90	5.48	0.118	16.3	154.9	0.48	clear	9.97	
0752	1.19	3.64	23.00	5.45	0.115	11.8	88.1	0.34	clear	9.97	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-16A Time Collected: 0755 Comments: ___

Well No.: MW-16A

Well Inspection

Field Conditions/Observations: Clear, ~78°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01 ft)

Depth to Water (initial): 9.75 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 18.63 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 9.97 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.22 ft. (Depth to Water (initial) -- Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: ___ Yes X No Describe: _____

1 Well Volume (WV) = (depth of well -- depth to water $_{(initial)}$) x well capacity = (18.63 - 9.75) x 0.16 = 1.42 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.25 in. x *(D)* 0.25 in. x *(L)* 32 ft.)+ *(Fc)* 0.25 gal = 0.33 gal

3 Well/Equipment Volumes = 1.0 gallons Purged Volume (actual): 3.64 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer X Peristaltic Pump ___ Submersible Pump Sample Rate: 0.07 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: ___ NTU

Analysis Required: 8260, EDB, T, Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 5208151248 3) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 27 May 2009 Sampled By: J. Terry

Station (Well No.): MW-16B WACS ID: 22343 Purge Method: Pump ☒ Bailer ☐ Pump Type: X Submersible (Teflon X SS Other) Peristaltic

Pump (Make & Model): Geopump II (PA Hurricane) Purge Rate: 0.36 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AM

Water Level Meter: Solinst Time @ Start of Purging: 0650 Time @ End of Purging: 0914 Total Purging Time: 144 min

Depth of Pump or Intake Tubing: 33 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
0857	45.72	45.72	23.52	5.15	0.084	22.5	-148.1	0.08	Clear	11.28	
0909	4.32	50.04	23.54	5.16	0.084	19.7	-148.6	0.08	clear	11.32	
0914	1.80	51.84	23.56	5.16	0.084	16.8	-148.3	0.08	Clear	11.32	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-16B Time Collected: 0915 Comments: initial turbidity 1961 NTU

Well No.: MW-16B

Well Inspection

Field Conditions/Observations: clear, ~78°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 9.80 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 38.09 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 11.32 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 1.52 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: sulfur-like

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (38.09 - 9.80) x 0.16 = 4.53 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.375 in. x *(D)* 0.375 in. x *(L)* 45 ft.)+ *(Fc)* 0.25 gal = 0.5 gal

3 Well/Equipment Volumes = 1.5 gallons Purged Volume (actual): 51.84 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer ___ Peristaltic Pump ___ Submersible Pump Sample Rate: 0.12 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, Cl, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 5208151 2483) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 27 May 2009 Sampled By: J. Terry

Station (Well No.): MW-16C WACS ID: 223441 Purge Method: Pump ☒ Bailer ☐ Pump Type: X Submersible (__ Teflon X SS __ Other) __ Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.35 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AM

Water Level Meter: Solinst Time @ Start of Purging: 0640 Time @ End of Purging: 0737 Total Purging Time: 57 min

Depth of Pump or Intake Tubing: 63 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
0720	14.00	14.00	23.55	5.26	0.108	10.0	-83.3	0.12	clear	12.04	
0728	2.80	16.80	23.56	5.24	0.108	4.3	-95.4	0.09	clear	12.05	
0737	3.15	19.95	23.55	5.23	0.108	4.1	-97.3	0.09	clear	12.05	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs

If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-16C Time Collected: 0740 Comments: initial turbidity 16.1 NTU

Well No.: MW-16C

Well Inspection

Field Conditions/Observations: clear, ~78°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 10.11 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 67.7 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 12.05 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 1.94 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: sulfur-like

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (67.7 - 10.11) x 0.16 = 9.2 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.375 in. x *(D)* 0.375 in. x *(L)* 70 ft.) + *(Fc)* 0.25 gal = 0.65 gal

3 Well/Equipment Volumes = 1.95 gallons Purged Volume (actual): 19.95 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer ___ Peristaltic Pump X Submersible Pump Sample Rate: 0.09 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 5208 151 2483) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 27 May 2009 Sampled By: J. Terry

Station (Well No.): MW-19A WACS ID: 22351 Purge Method: Pump ☒ Bailer ☐ Pump Type: ___ Submersible (__ Teflon __ SS __ Other) X Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.07 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AL

Water Level Meter: Solinst Time @ Start of Purging: 0845 Time @ End of Purging: 1053 Total Purging Time: 128 min

Depth of Pump or Intake Tubing: 13 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
1020	6.65	6.65	25.88	5.66	0.259	66.2	27.2	0.14	Brown Hazy	7.93	
1030	0.70	7.35	25.97	5.72	0.273	69.0	-1.7	0.16	Brown Hazy	7.93	
1035	0.35	7.70	25.99	5.81	0.277	71.2	-13.5	0.15	" "	7.93	
1045	0.70	8.40	26.04	5.85	0.302	71.4	-56.1	0.13	" "	7.93	
1049	0.28	8.68	26.08	5.86	0.308	70.9	-65.3	0.13	" "	7.93	
1053	0.28	8.96	26.10	5.85	0.307	71.0	-69.4	0.13	" "	7.93	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-19A Time Collected: 1055 Comments: initial turbidity 22.6 NTU. heavy rains previous 2 weeks

Well No.: MW-19A

Well Inspection

Field Conditions/Observations: Clear, ~84°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 7.67 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 17.65 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 7.93 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.26 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: ___ Yes X No Describe: _____

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (17.65 - 7.67) x 0.16 = 1.6 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.25 in. x *(D)* 0.25 in. x *(L)* 33 ft.)+ *(Fc)* 0.25 gal = 0.34 gal

3 Well/Equipment Volumes = 1.0 gallons Purged Volume (actual): 8.96 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer X Peristaltic Pump ___ Submersible Pump Sample Rate: 0.07 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: X Yes ___ No Filter Size: 1 µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: 40 NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, Cl, NO_3, dissolved metals

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass ~~2~~ 3 JT 5-27-09 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 1Z0B15124O3) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 27 May 2009 Sampled By: J. Terry

Station (Well No.): MW-19B WACS ID: 22352 Purge Method: Pump ☒ Bailer ☐ Pump Type: X Submersible (__ Teflon X SS __ Other) __ Peristaltic

Pump (Make & Model): Geopump II / PA Hurricane Purge Rate: 0.25 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173A M

Water Level Meter: Solinst Time @ Start of Purging: 0840 Time @ End of Purging: 1005 Total Purging Time: 85 min

Depth of Pump or Intake Tubing: 33 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
0950	17.50	17.50	26.49	5.16	0.128	21.2	-130.2	0.06	clear	8.84	
1000	2.50	20.00	26.47	5.15	0.130	19.8	-127.8	0.06	clear	8.90	
1005	1.25	21.25	26.49	5.14	0.129	17.6	-127.0	0.06	clear	8.92	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-19B Time Collected: 1008 Comments: initial turbidity 203 NTU

Well No.: MW-19B

Well Inspection

Field Conditions/Observations: clear, ~84°F, slight breeze

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 7.74 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 37.73 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 8.92 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 1.18 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: solvent-like

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (37.73 - 7.74) x 0.16 = 4.8 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.375 in. x *(D)* 0.375 in. x *(L)* 45 ft.)+ *(Fc)* 0.25 gal = 0.5 gal

3 Well/Equipment Volumes = 1.5 gallons Purged Volume (actual): 21.25 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer ___ Peristaltic Pump X Submersible Pump Sample Rate: 0.12 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, Cl, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: ___ Courier X UPS (Airbill No. 5208 151 2483) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FQ 1512A Task: 01 Date: 28 May 2009 Sampled By: J. Terry

Station (Well No.): MW-23A WACS ID: _____ Purge Method: Pump ☒ Bailer ☐ Pump Type: __ Submersible (__ Teflon __ SS __ Other) X Peristaltic

Pump (Make & Model): Geopump II/ PA Hurricane Purge Rate: 0.02 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AL

Water Level Meter: Solinst Time @ Start of Purging: 1315 Time @ End of Purging: 1420 Total Purging Time: 65 min

Depth of Pump or Intake Tubing: 27 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
1354	0.78	0.78	30.49	4.39	0.495	15.8	-2.7	0.32	clear	26.18	
1408	0.28	1.06	30.47	4.42	0.493	14.2	-4.9	0.25	clear	26.18	
1420	0.24	1.30	30.42	4.41	0.493	13.0	-2.8	0.25	clear	26.18	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-23A Time Collected: 1422 Comments: initial turbidity 28.6 NTU

Well No.: MW-23A

Well Inspection

Field Conditions/Observations: m. cloudy, ~86°F, ~5mph easterly wind

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 25.99 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 27.75 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 26.18 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.19 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: Sulfur-like

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (27.75 - 25.99) x 0.16 = 0.3 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.25 in. x *(D)* 0.25 in. x *(L)* 40 ft.)+ *(Fc)* 0.25 gal = 0.35 gal

3 Well/Equipment Volumes = 1.05 gallons Purged Volume (actual): 1.3 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer X Peristaltic Pump ___ Submersible Pump Sample Rate: 0.02 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, Cl, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH <2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

Method of Shipment: X Courier JT 5-28-09 ~~X~~ UPS (Airbill No. _____) ___ Other (_____)
Notes:

Monitoring Well Sampling

Site: J.E.D. Disposal Facility (WACS Facility ID 89544) Project No.: FO 1512A Task: 01 Date: 28 May 2009 Sampled By: J. Terry

Station (Well No.): MW-23B WACS ID: _____ Purge Method: Pump ☒ Bailer ☐ Pump Type: X Submersible (__ Teflon X SS __ Other) __ Peristaltic

Pump (Make & Model): Geopump II APA Hurricane Purge Rate: 0.24 gpm Water Quality Meter (Make & Model): YSI 556 S/N or ID: 06A2173AM

Water Level Meter: Solinst Time @ Start of Purging: 1305 Time @ End of Purging: 1337 Total Purging Time: 32 min

Depth of Pump or Intake Tubing: 38 ft. (BTOC)

Time	Purge Volume (gal)	Cumulative Purge Volume (gal)	Temp (°C)	PH	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Color	Depth to Water (ft) BTOC	Comments
1328	5.52	5.52	24.87	4.66	0.085	1.0	-76.2	0.29	clear	26.15	
1333	1.20	6.72	24.82	4.68	0.085	0.5	-84.9	0.13	clear	26.15	
1337	0.96	7.68	24.87	4.69	0.085	0.5	-91.5	0.11	clear	26.15	

Note: When purging well with pump or intake tubing within a fully submerged well screen, purge minimum of 1 equipment volume prior to first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart, must purge minimum of 3 equipment volume + stabilized field parameters for sampling.

Note: When purging a well with well screen fully submerged and pump or intake tubing is placed in water column above the screened zone, purge minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements every ¼ well volume until purging requirements are satisfied.

Note: When purging wells with a partially submerged well screen and pump or tubing placed within a submerged screen zone, purge a minimum of one well volume prior to collecting first field parameter measurements. Take additional field parameter measurements no sooner than 2 to 3 minutes apart until purge requirements are satisfied.

Note: Three (3) consecutive readings within specified limits are to be obtained for sampling. Temperature: ± 0.2 °C; pH: ±0.2 standard units; Specific Conductance: ± 5.0% of reading; DO is no greater than 20% saturation at field measured temperature; and Turbidity ≤ 20 NTUs
If DO or Turbidity measurements cannot meet the above requirements within 5 well volumes; Temp, pH, Conductivity ranges remain unchanged, however, DO and turbidity must meet the following: DO ± 0.2 mg/L or 10%, whichever is greater; and Turbidity ± 5 NTUs or 10%, whichever is greater

Sample ID: MW-23B Time Collected: 1340 Comments: initial turbidity 33.6 NTU

Well No.: MW-23B

Well Inspection

Field Conditions/Observations: m. cloudy, ~86°F, easterly wind ~5mph

Well Inspection:

Well Type: ___ Flush Mount X Stick Up ___ Other Well Size (ID): 2 in. ___ Steel X PVC

Condition (locked, damaged, etc.): _____

Well Labeled: X Yes ___ No Well Cap: X Yes ___ No Well Cap: X Tight ___ Loose

Comments: _____
(If capped, remove and allow well to stabilize before recording water level)

Well Sampling: (Note: Measure Water Levels to Nearest 0.01ft)

Depth to Water (initial): 25.95 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth of Well: 42.75 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Depth to Water (final): 26.15 ft. (measured from mark on top of riser pipe, otherwise measure from North side)

Draw down: 0.20 ft. (Depth to Water (initial) – Depth to Water (final))

Free Product Thickness (if applicable): NA ft. OVM/PID Reading (if applicable): NA ppm.
Note: NA = Not Applicable

Detectable Odor: X Yes ___ No Describe: sulfur-like

1 Well Volume (WV) = (depth of well – depth to water $_{(initial)}$) x well capacity = (42.75 - 25.95) x 0.16 = 2.7 gal
Well Capacity (gal/ft): 0.75" = 0.02; 1"=0.04; 1.25"=0.06; 2"=0.16; 3"=0.37; 4"=0.65; 5"=1.02; 6"=1.47; 12"=5.88

1 Equipment Volume (EV)= P + (0.041D x D x L) + Fc
Where: P=Pump Volume (gal); D = Tubing Diameter (inches); L = Length of Tubing (ft); Fc = Flow Cell Volume (gal)
1 EV = *(P)* 0.0 gal + (0.041 x *(D)* 0.375 in. x *(D)* 0.375 in. x *(L)* 50 ft.)+ *(Fc)* 0.25 gal = 0.54 gal

3 Well/Equipment Volumes = 1.62 gallons Purged Volume (actual): 7.69 gallons

Purge Water Contained? ___ Yes X No Container Used: ___ 55 Gallon Drum ___ Other (_____)

Labeled: ___ Yes ___ No; Purge Water Discharged to Ground? X Yes ___ No

Sampling Method: ___ Bailer ___ Peristaltic Pump X Submersible Pump Sample Rate: 0.09 gpm

QA Sample Collected ___ Yes X No; ___ Blind Duplicate; ___ EQ. Blank; ___ Field Blank; ___ MS/MSD

QA Sample ID: _____ QA Sample Time: _____

Filtered: ___ Yes X No Filter Size: ___ µm; ___ All Analyses; ___ Metals Only;

Turbidity After Filter: _____ NTU

Analysis Required: 8260, EDB, T. Metals, NH_3, TDS, CL, NO_3

Sample Bottles Filled: 6 40 ml vials ___ 1 liter amber glass 2 125 ml plastic ___ 250 ml plastic 1 500 ml plastic

___ ( )

pH Verification of Preserved Samples: Analysis _____ Required pH ≤2 Measured pH _____

Laboratory Performing Analysis: Columbia Analytical Services

DT 5-28-09

Method of Shipment: X Courier X UPS (Airbill No. _____) ___ Other (_____)

Notes:

DEP-SOP-001/01
FT 1100 Field Measurement of Hydrogen Ion Activity (pH)

Form FD 9000-7: Field Parameter Data Sheet for Surface Water

SURVEY/PROJECT: JED SWDF SAMPLERS: Joe Terry METER # _____

STATION NUMBER	STATION DESCRIPTION	PARAMETER	DATE	TIME	TOTAL DEPTH	SAMPLE DEPTH	WATER TEMP	DO	%SAT DO	COND	SALINITY	PH	TURBIDITY	ORP
		UNIT	yy/mm/dd	hr:min	feet	feet	Celsius	mg/L	%	µS/cm	ppt	su	NTU	mV
		STORET CODE	73672		81903	68	10	299	301	94	480	400	82078	
SW-3	Bull Creek (flowing)		09/05/29	09:00	1.0	0.5	23.43	2.16	25.3	116	NA	5.64	0.6	160.9

FIELD CONDITIONS FOR STATION# SW-3 AT TIME 0900 : elevation 73.60

CLOUD COVER (%): 25% WIND DIRECTION: NA TIDAL STAGE: NA

PREVIOUS RAINFALL: > 1.0" WIND SPEED (MPH/KNOTS): 0 WAVE CONDITIONS: NA

Note: This Sheet is used for recording Sample Data – Calibration information must also be documented

Revision Date: February 1, 2004

DEP-SOP-001/01
FT 1100 Field Measurement of Hydrogen Ion Activity (pH)

Form FD 9000-7: Field Parameter Data Sheet for Surface Water

SURVEY/PROJECT: JED SWDF SAMPLERS: Joe Terry METER # _____

STATION NUMBER	STATION DESCRIPTION	PARAMETER	DATE	TIME	TOTAL DEPTH	SAMPLE DEPTH	WATER TEMP	DO	%SAT DO	COND	SALINITY	PH	TURBIDITY	ORP
		UNIT	yy/mm/dd	hr:min	feet	feet	Celsius	mg/L	%	µS/cm	ppt	su	NTU	mV
		STORET CODE	73672		81903	68	10	299	301	94	480	400	82078	
SW-21	Bull Creek (flowing)		09/05/29	09:40	1.0	0.5	24.08	1.98	23.5	107	NA	5.88	2.2	145.9

FIELD CONDITIONS FOR STATION# SW-21 AT TIME 0940 : elevation 77.70

CLOUD COVER (%): 25% WIND DIRECTION: NA TIDAL STAGE: NA

PREVIOUS RAINFALL: >1.0" WIND SPEED (MPH/KNOTS): 0 WAVE CONDITIONS: NA

Note: This Sheet is used for recording Sample Data – Calibration information must also be documented

Revision Date: February 1, 2004

APPENDIX B

Water Quality Instrument Calibration Forms

Field Instrument Calibration Record

Project Name: J.E.D. SWDF Project No.: FO1512A Task: 01 Date: 26 May 2009

Rental Company: EPS

Water Quality Instrument Make: YSI Instrument Model Number: 556 Instrument Serial Number: 06A2173AL

Turbidity Instrument Make: LaMotte Instrument Model Number: 2020e Instrument Serial Number: ME12953

Time: 2100

Calibration Standard			Instrument Response	Percent Deviation[1] or Difference	Allowable Deviation[2]	Calibrated? Yes or No	Type of Calibration[3]	Calibration Performed By:
Lot No.	Expiration Date	Standard Value						
6675	Nov 2009	pH = 4.00	4.02	0.02	0.2	Y	C	JT
6683	Nov 2009	pH = 7.00	7.16	0.16	0.2	Y	C	JT
6507	Aug 2009	pH = 10.00			0.2			
		Turbidity = 0.0 NTU						
		Turbidity = 1.0 NTU			10%			
P891234	Feb 2010	Turbidity = 10 NTU	10.02	0.2%	10%	Y	I	JT
		Turbidity = 50 NTU			6.5%			
6529	Sep 2009	Conductivity = 0.084 mS/cm	0.087	3.6%	5%	Y	C	JT
6825	Jan 2010	Conductivity = 1.000 mS/cm			5%			
	Per Table →	D.O. = 8.482 mg/L @ 23.6°C	8.48	0.002	0.2 mg/l	Y	I	JT

Water Quality Instrument Make: YSI Instrument Model Number: 556 Instrument Serial Number: 06A2173AM

Turbidity Instrument Make: LaMotte Instrument Model Number: 2020e Instrument Serial Number: ME10404

Calibration Standard			Instrument Response	Percent Deviation[1] or Difference	Allowable Deviation[2]	Calibrated? Yes or No	Type of Calibration[3]	Calibration Performed By:
Lot No.	Expiration Date	Standard Value						
6675	Nov 2009	pH = 4.00	4.00	0.00	0.2	Y	C	JT
6683	Nov 2009	pH = 7.00	7.04	0.04	0.2	Y	C	JT
6507	Aug 2009	pH = 10.00			0.2			
		Turbidity = 0.0 NTU						
		Turbidity = 1.0 NTU			10%			
P891234	Feb 2010	Turbidity = 10 NTU	10.01	0.1%	10%	Y	I	JT
		Turbidity = 50 NTU			6.5%			
6529	Sep 2009	Conductivity = 0.084 mS/cm	0.086	2.4	5%	Y	C	JT
6825	Jan 2010	Conductivity = 1.000 mS/cm			5%			
	Per Table →	D.O. = 8.53 mg/L @ 23.3 °C	8.53	0.0	0.2 mg/l	Y	I	JT

Note (1): Percent Deviation = (Standard Value – Instrument Response) ÷ Standard Value x 100
Note (2): Allowable Deviation: pH ± 0.2 of Standard Value; Conductivity ± 5 % of Standard Value; Salinity ± 3 % of Standard Value; DO ± 0.2 mg/L; Turbidity 0.1-10 NTU ± 10% of Standard Value, 11-40 NTU ±8% of Standard Value, 41-100 NTU ± 6.5% of Standard Value, >100 NTU ±5% of Standard Value
Note (3): Initial, Continual, Final

Field Instrument Calibration Record

Project Name: J.E.D. SWDF Project No.: FQ1512A Task: 01 Date: 27 May 2009

Rental Company: EPS

Water Quality Instrument Make: YSI Instrument Model Number: 556 Instrument Serial Number: 06A2173AL

Turbidity Instrument Make: LaMotte Instrument Model Number: 2020e Instrument Serial Number: ME12953

Time: 1900

Calibration Standard			Instrument Response	Percent Deviation(1) or Difference	Allowable Deviation(2)	Calibrated? Yes or No	Type of Calibration(3)	Calibration Performed By:
Lot No.	Expiration Date	Standard Value						
6675	Nov 2009	pH = 4.00	4.00	0.00	0.2	Y	I	JT
6683	Nov 2009	pH = 7.00	7.00	0.00	0.2	Y	I	JT
6507	Aug 2009	pH = 10.00			0.2			
		Turbidity = 0.0 NTU						
		Turbidity = 1.0 NTU			10%			
P891234	Feb 2010	Turbidity = 10 NTU	10.04	0.4	10%	Y	C	JT
		Turbidity = 50 NTU			6.5%			
6529	Sep 2009	Conductivity = 0.084 mS/cm	0.084	0.0	5%	Y	I	JT
6825	Jan 2010	Conductivity = 1.000 mS/cm			5%			
	Per Table →	D.O. = 8.482 mg/L @ 23.6°C	8.47	0.012	0.2 mg/l	Y	I	JT

Water Quality Instrument Make: YSI Instrument Model Number: 556 Instrument Serial Number: 06A2173AM

Turbidity Instrument Make: LaMotte Instrument Model Number: 2020e Instrument Serial Number: ME10404

Calibration Standard			Instrument Response	Percent Deviation(1) or Difference	Allowable Deviation(2)	Calibrated? Yes or No	Type of Calibration(3)	Calibration Performed By:
Lot No.	Expiration Date	Standard Value						
6675	Nov 2009	pH = 4.00	4.00	0.00	0.2	Y	I	JT
6683	Nov 2009	pH = 7.00	7.00	0.00	0.2	Y	I	JT
6507	Aug 2009	pH = 10.00			0.2			
		Turbidity = 0.0 NTU						
		Turbidity = 1.0 NTU			10%			
P891234	Feb 2010	Turbidity = 10 NTU	9.78	2.2	10%	Y	C	JT
		Turbidity = 50 NTU			6.5%			
6529	Sep 2009	Conductivity = 0.084 mS/cm	0.086	2.4	5%	Y	C	JT
6825	Jan 2010	Conductivity = 1.000 mS/cm			5%			
	Per Table →	D.O. = 8.309 mg/L @ 21.7 °C	8.30	0.009	0.2 mg/l	Y	I	JT

Note (1): Percent Deviation = (Standard Value – Instrument Response) ÷ Standard Value x 100

Note (2): Allowable Deviation: pH ± 0.2 of Standard Value; Conductivity ± 5 % of Standard Value; Salinity ± 3 % of Standard Value; DO ± 0.2 mg/L; Turbidity 0.1-10 NTU ± 10% of Standard Value, 11-40 NTU ±8% of Standard Value, 41-100 NTU ± 6.5% of Standard Value, >100 NTU ±5% of Standard Value

Note (3): Initial, Continual, Final

Field Instrument Calibration Record

Project Name: J.E.D. SWDF Project No.: FQ1512A Task: 01 Date: 28 May 2009

Rental Company: EPS

Water Quality Instrument Make: YSI Instrument Model Number: 556 Instrument Serial Number: 06A2173AL

Turbidity Instrument Make: LaMotte Instrument Model Number: 2020e Instrument Serial Number: ME12953

Time: 2010

Calibration Standard			Instrument Response	Percent Deviation(1) or Difference	Allowable Deviation(2)	Calibrated? Yes or No	Type of Calibration(3)	Calibration Performed By:
Lot No.	Expiration Date	Standard Value						
6675	Nov 2009	pH = 4.00	4.04	0.04	0.2	Y	C	JT
6683	Nov 2009	pH = 7.00	7.03	0.03	0.2	Y	C	JT
6507	Aug 2009	pH = 10.00			0.2			
		Turbidity = 0.0 NTU						
		Turbidity = 1.0 NTU			10%			
P891234	Feb 2010	Turbidity = 10 NTU	9.86	1.4	10%	Y	C	JT
		Turbidity = 50 NTU			6.5%			
6529	Sep 2009	Conductivity = 0.084 mS/cm	0.085	1.2	5%	Y	C	JT
6825	Jan 2010	Conductivity = 1.000 mS/cm			5%			
	Per Table →	D.O. = 8.356 mg/L @ 24.4 °C	8.35	0.006	0.2 mg/l	Y	I	JT

Water Quality Instrument Make: YSI Instrument Model Number: 556 Instrument Serial Number: 06A2173AM

Turbidity Instrument Make: LaMotte Instrument Model Number: 2020e Instrument Serial Number: ME10404

Calibration Standard			Instrument Response	Percent Deviation(1) or Difference	Allowable Deviation(2)	Calibrated? Yes or No	Type of Calibration(3)	Calibration Performed By:
Lot No.	Expiration Date	Standard Value						
6675	Nov 2009	pH = 4.00	4.02	0.02	0.2	~~O~~ JT Y	C	JT
6683	Nov 2009	pH = 7.00	7.00	0.00	0.2	Y	C	JT
6507	Aug 2009	pH = 10.00			0.2			
		Turbidity = 0.0 NTU						
		Turbidity = 1.0 NTU			10%			
P891234	Feb 2010	Turbidity = 10 NTU	10.12	1.2	10%	Y	C	JT
		Turbidity = 50 NTU			6.5%			
6529	Sep 2009	Conductivity = 0.084 mS/cm	0.087	3.6	5%	Y	C	JT
6825	Jan 2010	Conductivity = 1.000 mS/cm			5%			
	Per Table →	D.O. = 8.325 mg/L @ 24.6 °C	8.30	0.025	0.2 mg/l	Y	C	JT

Note (1): Percent Deviation = (Standard Value – Instrument Response) ÷ Standard Value x 100

Note (2): Allowable Deviation: pH ± 0.2 of Standard Value; Conductivity ± 5 % of Standard Value; Salinity ± 3 % of Standard Value; DO ± 0.2 mg/L; Turbidity 0.1-10 NTU ± 10% of Standard Value, 11-40 NTU ±8% of Standard Value, 41-100 NTU ± 6.5% of Standard Value, >100 NTU ±5% of Standard Value

Note (3): Initial, Continual, Final

Field Instrument Calibration Record

Project Name: J.E.D. SWDF Project No.: FQ1512A Task: 01 Date: 31 May 2009

Rental Company: EPS

Water Quality Instrument Make: YSI Instrument Model Number: 556 Instrument Serial Number: 06A2173AL

Turbidity Instrument Make: LaMotte Instrument Model Number: 2020e Instrument Serial Number: ME12953

Time:

Calibration Standard			Instrument Response	Percent Deviation(1) or Difference	Allowable Deviation(2)	Calibrated? Yes or No	Type of Calibration(3)	Calibration Performed By:
Lot No.	Expiration Date	Standard Value						
6675	Nov 2009	pH = 4.00	4.12	0.12	0.2	Y	C	JT
6683	Nov 2009	pH = 7.00	7.06	0.06	0.2	Y	C	JT
6507	Aug 2009	pH = 10.00			0.2			
		Turbidity = 0.0 NTU						
		Turbidity = 1.0 NTU			10%			
P891234	Feb 2010	Turbidity = 10 NTU	9.86	1.4	10%	Y	C	JT
		Turbidity = 50 NTU			6.5%			
6529	Sep 2009	Conductivity = 0.084 mS/cm	0.086	2.4	5%	Y	C	JT
6825	Jan 2010	Conductivity = 1.000 mS/cm	1.020	2.0	5%	Y	C	JT
	Per Table →	D.O. = 8.049 mg/L @ 26.1 °C	8.11	0.011	0.2 mg/l	Y	I	JT

Water Quality Instrument Make: YSI Instrument Model Number: 556 Instrument Serial Number: 06A2173AM

Turbidity Instrument Make: LaMotte Instrument Model Number: 2020e Instrument Serial Number: ME10404

Calibration Standard			Instrument Response	Percent Deviation(1) or Difference	Allowable Deviation(2)	Calibrated? Yes or No	Type of Calibration(3)	Calibration Performed By:
Lot No.	Expiration Date	Standard Value						
6675	Nov 2009	pH = 4.00	4.05	0.05	0.2	Y	C	JT
6683	Nov 2009	pH = 7.00	7.00	0.00	0.2	Y	C	JT
6507	Aug 2009	pH = 10.00			0.2			
		Turbidity = 0.0 NTU						
		Turbidity = 1.0 NTU			10%			
P891234	Feb 2010	Turbidity = 10 NTU	10.15	1.5	10%	Y	C	JT
		Turbidity = 50 NTU			6.5%			
6529	Sep 2009	Conductivity = 0.084 mS/cm	0.084	0.0	5%	Y	C	JT
6825	Jan 2010	Conductivity = 1.000 mS/cm	0.999	0.1	5%	Y	C	JT
	Per Table →	D.O. = 8.158 mg/L @ 25.7 °C	8.17	0.012	0.2 mg/l	Y	I	JT

Note (1): Percent Deviation = (Standard Value – Instrument Response) ÷ Standard Value x 100

Note (2): Allowable Deviation: pH ± 0.2 of Standard Value; Conductivity ± 5 % of Standard Value; Salinity ± 3 % of Standard Value; DO ± 0.2 mg/L; Turbidity 0.1-10 NTU ± 10% of Standard Value, 11-40 NTU ±8% of Standard Value, 41-100 NTU ± 6.5% of Standard Value, >100 NTU ±5% of Standard Value

Note (3): Initial, Continual, Final

Field Instrument Calibration Record

Project Name: J.E.D. SWDF Project No.: FQ1512A Task: 01 Date: 1 June 2009

Rental Company: EPS

Water Quality Instrument Make: YSI Instrument Model Number: 556 Instrument Serial Number: 06A2173AL

Turbidity Instrument Make: LaMotte Instrument Model Number: 2020e Instrument Serial Number: ME12953

Time: 2015

Calibration Standard			Instrument Response	Percent Deviation(1) or Difference	Allowable Deviation(2)	Calibrated? Yes or No	Type of Calibration(3)	Calibration Performed By:
Lot No.	Expiration Date	Standard Value						
6675	Nov 2009	pH = 4.00	4.11	0.11	0.2	Y	C	JT
6683	Nov 2009	pH = 7.00	7.03	0.03	0.2	Y	C	JT
6507	Aug 2009	pH = 10.00			0.2			
		Turbidity = 0.0 NTU						
		Turbidity = 1.0 NTU			10%			
P891234	Feb 2010	Turbidity = 10 NTU	9.78	2.2	10%	Y	C	JT
		Turbidity = 50 NTU			6.5%			
6529	Sep 2009	Conductivity = 0.084 mS/cm	0.085	1.2	5%	Y	C	JT
6825	Jan 2010	Conductivity = 1.000 mS/cm			5%			
	Per Table →	D.O. = 9.185 mg/L @ 25.5°C	8.22	0.032	0.2 mg/l	Y	F	JT

Water Quality Instrument Make: YSI Instrument Model Number: 556 Instrument Serial Number: 06A2173AM

Turbidity Instrument Make: LaMotte Instrument Model Number: 2020e Instrument Serial Number: ME10404

Calibration Standard			Instrument Response	Percent Deviation(1) or Difference	Allowable Deviation(2)	Calibrated? Yes or No	Type of Calibration(3)	Calibration Performed By:
Lot No.	Expiration Date	Standard Value						
6675	Nov 2009	pH = 4.00	4.06	0.06	0.2	Y	C	JT
6683	Nov 2009	pH = 7.00	7.05	0.05	0.2	Y	C	JT
6507	Aug 2009	pH = 10.00			0.2			
		Turbidity = 0.0 NTU						
		Turbidity = 1.0 NTU			10%			
P891234	Feb 2010	Turbidity = 10 NTU	10.22	2.2	10%	Y	C	JT
		Turbidity = 50 NTU			6.5%			
6529	Sep 2009	Conductivity = 0.084 mS/cm	0.086	2.4	5%	Y	C	JT
6825	Jan 2010	Conductivity = 1.000 mS/cm			5%			
	Per Table →	D.O. = 8.173 mg/L @ 25.6 °C	8.20	0.027	0.2 mg/l	Y	I	JT

Note (1): Percent Deviation = (Standard Value – Instrument Response) ÷ Standard Value x 100

Note (2): Allowable Deviation: pH ± 0.2 of Standard Value; Conductivity ± 5 % of Standard Value; Salinity ± 3 % of Standard Value; DO ± 0.2 mg/L; Turbidity 0.1-10 NTU ± 10% of Standard Value, 11-40 NTU ±8% of Standard Value, 41-100 NTU ± 6.5% of Standard Value, >100 NTU ±5% of Standard Value

Note (3): Initial, Continual, Final

Field Instrument Calibration Record

Project Name: J.E.D. SWDF Project No.: FQ1512A Task: 01 Date: 2 June 2009

Rental Company: EPS

Water Quality Instrument Make: YSI Instrument Model Number: 556 Instrument Serial Number: 06A2173AL

Turbidity Instrument Make: LaMotte Instrument Model Number: 2020e Instrument Serial Number: ME12953

Time: 1830

Calibration Standard			Instrument Response	Percent Deviation(1) or Difference	Allowable Deviation(2)	Calibrated? Yes or No	Type of Calibration(3)	Calibration Performed By:
Lot No.	Expiration Date	Standard Value						
6675	Nov 2009	pH = 4.00			0.2			
6683	Nov 2009	pH = 7.00			0.2			
6507	Aug 2009	pH = 10.00			0.2			
		Turbidity = 0.0 NTU						
		Turbidity = 1.0 NTU			10%			
P891234	Feb 2010	Turbidity = 10 NTU			10%			
		Turbidity = 50 NTU			6.5%			
6529	Sep 2009	Conductivity = 0.084 mS/cm			5%			
6825	Jan 2010	Conductivity = 1.000 mS/cm			5%			
	Per Table →	D.O. = mg/L @ °C			0.2 mg/l			

Water Quality Instrument Make: YSI Instrument Model Number: 556 Instrument Serial Number: 06A2173AM

Turbidity Instrument Make: LaMotte Instrument Model Number: 2020e Instrument Serial Number: ME10404

Calibration Standard			Instrument Response	Percent Deviation(1) or Difference	Allowable Deviation(2)	Calibrated? Yes or No	Type of Calibration(3)	Calibration Performed By:
Lot No.	Expiration Date	Standard Value						
6675	Nov 2009	pH = 4.00	4.05	0.05	0.2	Y	C	JT
6683	Nov 2009	pH = 7.00	7.09	0.09	0.2	Y	C	JT
6507	Aug 2009	pH = 10.00			0.2			
		Turbidity = 0.0 NTU						
		Turbidity = 1.0 NTU			10%			
P891234	Feb 2010	Turbidity = 10 NTU	10.15	1.5	10%	Y	C	JT
		Turbidity = 50 NTU			6.5%			
6529	Sep 2009	Conductivity = 0.084 mS/cm	0.084	0.0	5%	Y	F	JT
6825	Jan 2010	Conductivity = 1.000 mS/cm			5%			
	Per Table →	D.O. = 8.114 mg/L @ 26.0°C	8.12	0.006	0.2 mg/l	Y	F	JT

Note (1): Percent Deviation = (Standard Value – Instrument Response) ÷ Standard Value x 100

Note (2): Allowable Deviation: pH ± 0.2 of Standard Value; Conductivity ± 5 % of Standard Value; Salinity ± 3 % of Standard Value; DO ± 0.2 mg/L; Turbidity 0.1-10 NTU ± 10% of Standard Value, 11-40 NTU ±8% of Standard Value, 41-100 NTU ± 6.5% of Standard Value, >100 NTU ±5% of Standard Value

Note (3): Initial, Continual, Final

APPENDIX C

Chain-of-Custody Forms

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

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PAGE 1 OF 2

SR #

CAS Contact

Project Name: JED SWDF

Project Number: F81512A

Project Manager: Kirk Wills

Email Address: kwills@geosyntec.com

Company/Address: Geosyntec
14055 Riverdale Dr. Ste 300
Tampa, FL 33637

Phone #: 813-558-0990

FAX#: 813-558-9726

Sampler's Signature: Joe Terry

Sampler's Printed Name: Joe Terry

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	8260	8011	Metals	NH3	TDS, Cl, NO3										REMARKS/ ALTERNATE DESCRIPTION
PRESERVATIVE						1	0	2	3	0										
MW-10A		5-28-09	1220	GW	9	X	X	X	X	X										
MW-10B		↓	1152	↓	↓	↓	↓	↓	↓	↓										
MW-11A		↓	1025	↓	↓	↓	↓	↓	↓	↓										
MW-11B		↓	1047	↓	↓	↓	↓	↓	↓	↓										
MW-12A		↓	0845	↓	↓	↓	↓	↓	↓	↓										
MW-12B		↓	0900	↓	↓	↓	↓	↓	↓	↓										
MW-13A		↓	0725	↓	↓	↓	↓	↓	↓	↓										
MW-13B		↓	0750	↓	↓	↓	↓	↓	↓	↓										
MW-23A		↓	1422	↓	↓	↓	↓	↓	↓	↓										
MW-23B		↓	1340	↓	↓	↓	↓	↓	↓	↓										

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS

JED- 09149

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
X STANDARD
REQUESTED FAX DATE _____
REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
____ I. Results Only
X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
____ V. Speicalized Forms / Custom Report
Edata ____ Yes ____ No

INVOICE INFORMATION
PO#
BILL TO:

SAMPLE RECEIPT: CONDITION/COOLER TEMP: _____ CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Joe Terry	Signature: [illegible]	Signature	Signature	Signature	Signature
Printed Name: Joe Terry	Printed Name: [illegible]	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Geosyntec	Firm: CAS	Firm	Firm	Firm	Firm
Date/Time: 5-29-09 / 1120	Date/Time: 5-29-09 1120	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Return to Originator; Yellow - Lab Copy; Pink - Retained by Client

JSCOC-06/20/08

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

SR #

CAS Contact

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www.caslab.com

Project Name: JED SWDF	Project Number: FQ1512A
Project Manager: Kirk Wills	Email Address: kwills@geosyntec.com
Company/Address: Geosyntec, 14055 Riveredge Dr. Ste 300, Tampa, FL 33637	
Phone #: 813-558-0990	FAX#: 813-558-9726
Sampler's Signature: Joe Terry	Sampler's Printed Name: Joe Terry

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	8260 (PRESERVATIVE 1)	8011 (PRESERVATIVE 0)	Metals (PRESERVATIVE 2)	NH_3 (PRESERVATIVE 3)	TDS, Cl, NO_3 (PRESERVATIVE 0)	REMARKS/ ALTERNATE DESCRIPTION
DUP-1		5-28-09	—	GW	9	X	X	X	X	X	
Trip Blanks				W	2	X					

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS

JED -09149

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
X STANDARD
REQUESTED FAX DATE _____
REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
____ I. Results Only
X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
____ V. Speicalized Forms / Custom Report
Edata ____ Yes ____ No

INVOICE INFORMATION
PO#
BILL TO:

SAMPLE RECEIPT: CONDITION/COOLER TEMP: _____ CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Joe Terry	Signature: [illegible]	Signature	Signature	Signature	Signature
Printed Name: Joe Terry	Printed Name: [illegible]	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Geosyntec	Firm: CAS	Firm	Firm	Firm	Firm
Date/Time: 5-29-09 / 1120	Date/Time: 5-29-09 1120	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Return to Originator; Yellow - Lab Copy; Pink - Retained by Client

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PAGE 1 OF 1

SR #

CAS Contact

Project Name: JED SWDF	Project Number: FQ1512A
Project Manager: Kirk Wills	Email Address: kwills@geosyntec.com
Company/Address: Geosyntec, 14055 Riveredge Dr. Ste 300, Tampa, FL 33637	
Phone #: 813-558-0990	FAX#: 813-558-9726
Sampler's Signature: Joe Terry	Sampler's Printed Name: Joe Terry

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	8260	8011	metals	NH3	TDS, Cl, NO3	Dissolved metals										REMARKS/ ALTERNATE DESCRIPTION
PRESERVATIVE						1	0	2	3	0	2										
MW-1A		5-27-09	1245	GW	9	X	X	X	X	X											
MW-1B		↓	1300	↓	9	↓	↓	↓	↓	↓											
MW-2A		↓	1347	↓	9	↓	↓	↓	↓	↓											
MW-2B		↓	1405	↓	9	↓	↓	↓	↓	↓											
MW-16A		↓	0755	↓	9	↓	↓	↓	↓	↓											
MW-16B		↓	0915	↓	9	↓	↓	↓	↓	↓											
MW-16C		↓	0740	↓	9	↓	↓	↓	↓	↓											
MW-19A		↓	1055	↓	10	↓	↓	↓	↓	↓	X										
MW-19B		↓	1008	↓	9	↓	↓	↓	↓	↓											
Trip Blank				W	2	↓															

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS

JED-09147

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
X STANDARD
REQUESTED FAX DATE
REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
____ V. Speicalized Forms / Custom Report
Edata ____ Yes ____ No

INVOICE INFORMATION
PO#
BILL TO:

SAMPLE RECEIPT: CONDITION/COOLER TEMP: _____ CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Joe Terry	Signature	Signature	Signature	Signature	Signature
Printed Name: Joe Terry	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Geosyntec	Firm	Firm	Firm	Firm	Firm
Date/Time: 5-27-09 / 1515	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Return to Originator; Yellow - Lab Copy; Pink - Retained by Client

JSCOC-06/20/08

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SR #

CAS Contact

Project Name: JED SWDF	Project Number: EQ1512A
Project Manager: Kirk Wills	Email Address: kwills@geosyntec.com
Company/Address: Geosyntec, 14055 Riveredge Dr. Ste 300, Tampa, FL 33637	
Phone #: 813-558-0990	FAX#: 813-558-9726
Sampler's Signature: Joe Terry	Sampler's Printed Name: Joe Terry

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	8260	8011	Metals	NH_3	TDS, Cl, NO_3	REMARKS/ ALTERNATE DESCRIPTION
PRESERVATIVE					1	0	2	3	0	
NUMBER OF CONTAINERS										
MW-3A		6-2-09	0835	GW	X	X	X	X	X	
MW-3B		↓	0900	GW	↓	↓	↓	↓	↓	
MW-4A		↓	0703	GW	↓	↓	↓	↓	↓	
MW-4B		↓	0720	GW	↓	↓	↓	↓	↓	
EQ Blank		↓	0735	~~GW~~ W	↓	↓	↓	↓	↓	
Trip Blank				W	↓					

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS

JED-09153

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
X STANDARD
REQUESTED FAX DATE _____
REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
____ I. Results Only
X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
____ V. Speicalized Forms / Custom Report
Edata ____ Yes ____ No

INVOICE INFORMATION
PO#
BILL TO:

SAMPLE RECEIPT: CONDITION/COOLER TEMP: _____ CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Joe Terry	Signature	Signature	Signature	Signature	Signature
Printed Name: Joe Terry	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Geosyntec	Firm	Firm	Firm	Firm	Firm
Date/Time: 6-2-09 / 1330	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Return to Originator; Yellow - Lab Copy; Pink - Retained by Client

JSCOC-06/20/08

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

9143 Philips Highway, Ste 200 • Jacksonville, FL 32256 (904) 739-2277 • 800-695-7222 x06 • FAX (904) 739-2011

SR #

CAS Contact

Project Name: JED SWDF	Project Number: FQ1512A
Project Manager: Kirk Wills	Email Address: kwills@geosyntec.com
Company/Address: Geosyntec, 14055 Riverdge D. Ste 300, Tampa, FL 33637	
Phone #: 813-558-0990	FAX#: 813-558-9726
Sampler's Signature: Joe Terry	Sampler's Printed Name: Joe Terry

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	8260	8011	Metals	NH3	TDS, Cl, NO3												REMARKS/ ALTERNATE DESCRIPTION
PRESERVATIVE						1	0	2	3	0												
MW-9A		6-1-09	0715	GW	9	X	X	X	X	X												
MW-9B			0740																			
MW-8A			0900																			
MW-8B			1010																			
MW-7A			1255																			
MW-7B			1320																			
MW-6A			1105																			
MW-6B			1110																			
MW-5A			1433																			
MW-5B			1505																			

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS

JED-09152

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
X STANDARD
REQUESTED FAX DATE _____
REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
____ I. Results Only
X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
____ V. Speicalized Forms / Custom Report
Edata ____ Yes ____ No

INVOICE INFORMATION
PO#
BILL TO:

SAMPLE RECEIPT: CONDITION/COOLER TEMP: _____ CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Joe Terry	Signature	Signature	Signature	Signature	Signature
Printed Name: Joe Terry	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Geosyntec	Firm	Firm	Firm	Firm	Firm
Date/Time: 6-1-09/1550	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Return to Originator; Yellow - Lab Copy; Pink - Retained by Client

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www.caslab.com

SR #

CAS Contact

Project Name: JED SWDF	Project Number: FQ1512A
Project Manager: Kirk Wills	Email Address: kwills@geosyntec.com
Company/Address: Geosyntec, 14055 Riveredge Dr. Ste 300, Tampa, FL 33637	
Phone #: 813-558-0940	FAX#: 813-558-9726
Sampler's Signature: Joe Terry	Sampler's Printed Name: Joe Terry

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	8260 (PRESERVATIVE 1)	8011 (PRESERVATIVE 0)	Metals (PRESERVATIVE 2)	NH3 (PRESERVATIVE 3)	TDS, Alk, Mg (PRESERVATIVE 0)	REMARKS/ ALTERNATE DESCRIPTION
Trip Blank				W	2	X					

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS

JED - 09152

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
X STANDARD
REQUESTED FAX DATE _____
REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
____ I. Results Only
X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
____ V. Speicalized Forms / Custom Report
Edata ____ Yes ____ No

INVOICE INFORMATION
PO#
BILL TO:

SAMPLE RECEIPT: CONDITION/COOLER TEMP: _____ CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Joe Terry	Signature	Signature	Signature	Signature	Signature
Printed Name: Joe Terry	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Geosyntec	Firm	Firm	Firm	Firm	Firm
Date/Time: 6-1-09 / 1550	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Return to Originator; Yellow - Lab Copy; Pink - Retained by Client

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PAGE 1 OF 1

SR #

CAS Contact

Project Name: JED SWDF	Project Number: FQ1512A
Project Manager: Kirk Wills	Email Address: kwills@geosyntec.com
Company/Address: Geosyntec, 14055 Riverdale Dr. Ste 300, Tampa, FL 33637	
Phone #: 813-558-0990	FAX#: 813-558-9726
Sampler's Signature: Joe Terry	Sampler's Printed Name: Joe Terry

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

Preservative Key: 0. NONE 1. HCL 2. HNO_3 3. H_2SO_4 4. NaOH 5. Zn. Acetate 6. MeOH 7. $NaHSO_4$ 8. Other _____

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	8260	8011	TOC	Metals	NH_3, TKN, Total-P, COD, TDS, TSS, NO_2, NO_3, TSD	Chlorophyll A	fecal Coliform	REMARKS/ ALTERNATE DESCRIPTION
SW-3		5-29-09	0900	SW	12	X	X	X	X	X	X	X	
SW-4		5-29-09	0940	SW	12	X	X	X	X	X	X	X	
Trip Blnk				W	2	X							

SPECIAL INSTRUCTIONS/COMMENTS

	Temp (°C)
SW-3	23.43
SW-4	24.08

JED-09149

See QAPP ☐

TURNAROUND REQUIREMENTS

____ RUSH (SURCHARGES APPLY)

X STANDARD

REQUESTED FAX DATE _____

REQUESTED REPORT DATE _____

REPORT REQUIREMENTS

____ I. Results Only

X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)

____ III. Results + QC and Calibration Summaries

____ IV. Data Validation Report with Raw Data

____ V. Speicalized Forms / Custom Report

Edata ____ Yes ____ No

INVOICE INFORMATION

PO#

BILL TO:

SAMPLE RECEIPT: CONDITION/COOLER TEMP: _____ CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Joe Terry	Signature: [illegible]	Signature	Signature	Signature	Signature
Printed Name: Joe Terry	Printed Name: [illegible]	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Geosyntec	Firm: [illegible]	Firm	Firm	Firm	Firm
Date/Time: 5-29-09 / 1120	Date/Time: 5-29-09 1120	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Return to Originator; Yellow - Lab Copy; Pink - Retained by Client

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APPENDIX D

CD Containing the Electronic Laboratory Reports and Electronic Data Files