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Entergy

WATERFORD-3

GROUNDWATER MONITORING PROGRAM
FIVE-YEAR REVIEW

June 3, 2014

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FIVE-YEAR REVIEW

Prepared for

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1.0 INTRODUCTION

In 2007 the Nuclear Energy Institute (NEI) published its Industry Groundwater Protection Initiative (GPI) – Final Guidance Document (NEI 07-07), which describes actions to improve responses to and management of inadvertent radiological releases to groundwater and how best to communicate release information to stakeholders. Implementation of NEI 07-07 at all Entergy Nuclear, Inc. (Entergy) facilities is required by fleet procedure EN-CY-111-R5, Radiological Groundwater Monitoring Program.

An initial hydrogeologic assessment of the Entergy Waterford-3 (WF3) plant in Killona, Louisiana, was conducted in support of the pending NEI GPI program in 2006 by GZA GeoEnvironmental, Inc. (GZA) and Enercon Services, Inc. (Enercon) on behalf of Entergy Operations, Inc. (GZA and Enercon 2007). WF3 began implementation of NEI 07-07 objectives in July 2007 by installing three groundwater monitoring wells (MW-03, MW-04, and MW-05), collecting quarterly groundwater samples from those wells, and recording water level elevations for potentiometric surface mapping from five monitoring installations (the previously mentioned monitoring wells plus pre-existing basemat wells BW-01 and BW-02). Monitoring well installation and data collection were performed by FTN Associates, Ltd. (FTN). Initial NEI GPI activities and data through 2008 are presented in the initial self-assessment report of the GPI program (NEI 07-07 Objective 3.1.a) completed by GZA (2009).

Upon completion of the initial self-assessment, FTN began working with WF3 to develop and implement a site-specific Groundwater Monitoring Plan (GWMP) (FTN 2010) designed to satisfy objectives of NEI 07-07. WF3's GWMP is a dynamic document that describes the hydrogeologic site conceptual model (SCM), the groundwater monitoring network, and groundwater monitoring and investigation activities.

This document is a 5-year hydrogeologic review of the site for 2009-2013, as required by NEI 07-07 (Objective 3.1.b). Additionally, this document is intended to satisfy EN-CY-111-R5 5.15[6], which is a periodic review of site hydrogeologic studies, also required every 5 years, or more frequently under certain circumstances. The purpose of this review is to summarize activities conducted at WF3 by FTN in support of NEI 07-07 and EN-CY-111-R5

during the reporting period, describe the current understanding of the groundwater system at the site, and make recommendations for continued improvement of the GWMP.

Section 2.0 of this report is review of the site conceptual model. Section 3.0 is an overview of the plant's current groundwater monitoring network. Section 4.0 is an overview of groundwater monitoring program activities. Section 5.0 is a discussion of noted findings during the reporting period. Section 6.0 provides recommendations for program improvements. Section 7.0 summarizes the report and presents concluding remarks. Section 8.0 is a list of selected references. When appropriate, applicable EN-CY-111-R5 or NEI 07-07 objectives are included in the text for reference. Tables, figures, and appendices are included after Section 8.0.

2.0 HYDROGEOLOGIC SITE CONCEPTUAL MODEL

The SCM is a qualitative interpretation of the groundwater system at the site that incorporates information about the site's geology, groundwater, infrastructure, and operations that influence the groundwater system. The SCM is based upon information presented in Sec. 2.4.13 of the WF3 Final Safety Analysis Report (FSAR), the initial self-assessment of the WF3 NEI GPI program (GZA 2009), the GWMP (FTN 2010), and all information included in subsequent sections of this report.

This section documents the current understanding of the hydrogeologic SCM for the shallow groundwater system beneath WF3. Shallow groundwater system is the primary focus with respect to the SCM because shallow groundwater is the most susceptible to contamination from structures, systems, and components (SSC). Although deeper aquifers of local and regional extent exist beneath the site, these units are separated from shallow groundwater by thick sequences of relatively impermeable silts and clays which make impacts to deeper aquifers from inadvertent radiological releases unlikely. Therefore, these deeper water bearing units are not described in further detail in this report. For a detailed review of the geology and groundwater at the site, refer to WF3 FSAR Sec. 2.4.13.

2.1 Shallow Groundwater Occurrence

Shallow groundwater is present across the Mississippi River deltaic plain in isolated coarse-grained Holocene point-bar deposits, distributary-channel deposits, and near-surface sands (WF3 FSAR Sec. 2.4.13.1.11). Subsurface investigations at WF3 prior to site construction concluded that shallow groundwater on site is discontinuous and not hydraulically connected to the Mississippi River (WF3 FSAR Sec. 2.4.13.1.3 and 2.4.13.3); however, data from groundwater monitoring wells installed as part of the NEI GPI indicate that a continuous shallow groundwater unit is present beneath the site and that it is hydraulically connected to the Mississippi River.

Shallow groundwater occurs at the site within two types of materials with different confining conditions: plant backfill sands where shallow groundwater occurs under unconfined conditions and surrounding native deposits where shallow groundwater occurs under confined conditions. The two types of materials are hydraulically connected, and together they are considered a single hydrogeologic unit. Further discussion supporting the hydraulic connection between these three water bodies is included in Section 5.2 of this report.

2.1.1 Shallow Groundwater in Native Deposits

Outside the area of the power block excavation, shallow groundwater occurs in native sand and gravel deposits that contain some organic debris (shells or wood fragments and peat). This unit is present at elevations between -10.35 ft and -24.78 ft (NGVD29) and ranges in thickness from 1.25 ft to at least 10 ft. This shallow groundwater unit is overlain by a sequence of low permeability silts and clays creating a confined condition. The sand and gravel deposits are continuous across the site and were observed in all logs for NEI GPI monitoring well installations, except for MW-03 where no sample was recovered from the corresponding interval, and reviewed logs for borings advanced during pre-construction investigations. At MW-12, drilling was terminated at 40 ft below ground surface (bgs), and the bottom of the sand and gravel unit was not encountered, suggesting this unit probably exceeds 10 ft in thickness.

2.1.2 Shallow Groundwater in Backfill Material

In the area excavated for construction of the power block, native deposits (including the saturated sand and gravels previously described) were removed to an elevation of -40 ft (NGVD29). Engineered sand was then used to backfill the excavation to a site grade elevation of approximately 17 ft (NGVD29) during plant construction. Shallow groundwater in plant backfill occurs under unconfined conditions and is characterized by relatively high water level elevations that are generally stable over time, which are likely due to direct recharge from the ground surface by precipitation.

2.2 Shallow Groundwater Flow

Historically, shallow groundwater flow at WF3 has been described as flowing generally south-southwest away from the Mississippi River, except during low river stages when a transient groundwater divide is created (WF3 FSAR Sec. 2.4.13.2). Water level data collected as part of NEI GPI groundwater monitoring activities indicate two general groundwater flow scenarios. In the first scenario, the elevation of the Mississippi River is higher than on-site groundwater potentiometric elevations, and hydraulic gradients direct flow across the site away from the river. In the second scenario, the highest water level elevations form a groundwater mound typically coincident with northern portions of the plant foundation excavation. This groundwater mound creates a divide where hydraulic gradients direct a portion of groundwater flow away from the mound toward the Mississippi River.

3.0 GROUNDWATER MONITORING NETWORK

The WF3 groundwater monitoring installation network is designed to provide timely detection of radiological contamination of groundwater and map groundwater flow beneath the site. The WF3 network currently consists of ten monitoring wells and two basemat wells (EN-CY-111-R5 5.6[2](f)). Three monitoring wells (MW-03, MW-04, and MW-05) and basemat wells (BW-01 and BW-02) were installed prior to the reporting period. Monitoring wells are used to collect water levels and groundwater samples while basemat wells are only used for

water level data. Figure 1 shows locations of the monitoring installations, and Table 1 contains construction details for the monitoring well network.

3.1 Monitoring Well Installations during Reporting Period

During the reporting period, FTN installed seven monitoring wells in support of the GWMP. Boring logs and well construction diagrams for these wells are included in Appendix A, and well registration forms are included in Appendix B.

3.1.1 MW-06, MW-07, MW-08, and MW-09

In October 2010, four monitoring wells (MW-06, MW-07, MW-08, and MW-09) were installed north, east, and northwest of the plant to expand groundwater flow direction mapping data points, provide water quality data, and provide perimeter detection monitoring locations for shallow groundwater (EN-CY-111-R5 5.6[1](a, c), NEI 07-07 Objective 1.3.a). No separate monitoring well installation report for this group of wells was drafted.

3.1.2 MW-10 and MW-11

In November 2012, two monitoring wells (MW-10 and MW-11) were installed in the native shallow groundwater system hydraulically downgradient from the Original Steam Generator Storage Facility (FTN 2013). These wells were installed in order to detect any inadvertent release of radiological material to groundwater from this SSC (EN-CY-111-R5 5.6[1](a, b, c), NEI 07-07 Objective 1.3.b).

3.1.3 MW-12

In December 2013, one monitoring well (MW-12) was installed in the native shallow groundwater system hydraulically downgradient from the Condensate Storage Tank (FTN 2014). This well was installed in order to detect any inadvertent release of radiological material to groundwater from this SSC (EN-CY-111-R5 5.6[1](a, b, c), NEI 07-07 Objective 1.3.b).

3.2 Drainage Ditches and Groundwater Monitoring

Drainage ditches at the site that satisfy the following conditions could be used for groundwater detection monitoring of radiological contamination:

- The drainage ditch must be hydraulically connected to shallow groundwater. The ditch must be located within excavation backfill sand where shallow groundwater occurs under unconfined conditions that create a relatively elevated water table surface that may be intercepted by ditches. As shown in Figure 2, shallow groundwater in native deposits occurs under confined conditions that restrict groundwater to deeper intervals below drainage ditches.
- The water level elevation in the ditch must be lower than the surrounding groundwater elevation. In order for the groundwater to enter the ditch, a hydraulic gradient from groundwater to the ditch must be present. If the water level in the ditch is higher than the surrounding groundwater, the ditch will function as a recharge source, and water from the ditch will discharge into the groundwater system.
- The ditch must be hydraulically downgradient from the contamination. In order to detect groundwater contamination, the ditch must be located along the groundwater flow path away from the source of contamination.
- Groundwater contamination must be very shallow. Water table elevations are typically slightly higher than ditch invert elevations. In order for a ditch to intercept groundwater contamination, the contamination must be near the water table surface. If the contamination occurs at depth, it may flow beneath the ditch without being detected.

4.0 GROUNDWATER MONITORING PROGRAM ACTIVITIES

Groundwater monitoring activities at WF3 typically include recording water level measurements to map groundwater flow direction and collecting groundwater samples for laboratory analysis. Groundwater sampling events are conducted on a quarterly basis in order to document seasonal variations. Table 2 summarizes groundwater monitoring activities for the NEI 07-07 program.

4.1 Monitoring Installation Inspection and Maintenance

A visual inspection of each monitoring installation is performed prior to recording water levels or collecting groundwater samples in order to ensure the installation will yield accurate information (EN-CY-111-R5 5.6[2]). In order to document inspections and deficiencies, FTN created the Groundwater Level Data Sheet for use during sampling events (Appendix C). This sheet is included in the quarterly groundwater sampling field documentation that is submitted to the site and periodically updated in the GWMP (FTN 2010). For the period of record, the following deficiencies were documented and should be addressed:

- Inadequate painting of above-grade installations. Bollards or well protective covers that require safety yellow paint are located at MW-03, MW-04, MW-05, and MW-06. The safety yellow is meant to make the wells more visible to operators of vehicles and machinery which helps prevent damage resulting from accidental collision.
- Erosion around well installations. Soil erosion has caused washout around bollards or under well pads at wells MW-04, MW-05, and MW-08. The washout makes the well pads susceptible to cracking, heaving, and separation from well (EN-CY-111-R5 5.6[2](a)(1)). Washout around the bollards could potentially render the bollards ineffective as protective barriers.

4.2 Water Level Measurements

Static water level measurements are recorded from monitoring and basemat wells in order to determine hydraulic gradients that control groundwater flow directions (EN-CY-111-R5 5.6[1](c)). For monitoring wells, water levels are collected prior to beginning groundwater sampling activities in the shortest time frame possible to avoid potential effects on hydraulic gradients caused by sampling and temporal variations in groundwater flow. For basemat wells, water level elevations are measured and reported by site personnel and do not always coincide precisely with quarterly groundwater monitoring events. Since 2007, groundwater elevations ranged from 4.15 ft (NGVD29) in MW-05 on June 21, 2011, to 14.93 ft (NGVD29) in MW-08 on June 3, 2013. Table 3 summarizes water level data, and Figure 3 and Figure 4 contain hydrographs for the 2007-2013 period. Due to a limited data set (one observation for the period of record) a hydrograph for MW-12 is not provided.

4.3 Potentiometric Surface Mapping

Potentiometric surface maps showing groundwater elevations and groundwater flow directions were constructed using water level elevation measurements collected during each quarterly groundwater sampling event during the reporting period. Potentiometric surface maps for the reporting period are presented in Appendix D. Potentiometric surface maps compiled prior to this reporting period are included in the GWMP (FTN 2010).

4.4 Groundwater Sampling

Groundwater samples are collected from monitoring wells and analyzed for selected radionuclides in order to detect potential impacts to groundwater from inadvertent leaks or spills. Samples are collected on at least a quarterly basis or more frequently if requested by site personnel (Table 2). Groundwater sampling activities conform to specifications in EN-CY-109-R4, Sampling and Analysis of Ground Water Monitoring Wells, (EN-CY-111-R5 5.8[1]) and are subject to quality assurance/quality control program discussed in the GWMP (FTN 2010).

Groundwater samples are collected using low-flow purging and sampling techniques conducted in accordance with EPA guidelines as described in FTN SOPs included in the WF3 GWMP (FTN 2010). Wells are purged prior to sampling, and field stabilization parameters are recorded at selected time intervals for each well to determine when groundwater representative of the formation is being withdrawn. Once field parameters have met stabilization criteria, samples are collected for tritium and gamma emitting isotopes listed in EN-CY-111-R5 Attachment 9.4. A summary of field parameter data since 2007 is included in Table 4, and field documentation of groundwater monitoring activities for the reporting period is included in Appendix E.

5.0 DISCUSSION

The following discussions are based on data collected during quarterly groundwater sampling events through the end of the reporting period.

5.1 Shallow Groundwater Flow

Of the 20 sets of water level measurements used to construct potentiometric surface maps for the site during the reporting period, the water level elevation of the river was higher than groundwater elevations in monitoring wells and flow was away from the river for eight sets of measurements (e.g., Figure 5). For the remaining 12 sets of measurements, a groundwater mound was present, and for a portion of the site, groundwater flow was toward the river (e.g., Figure 6). The concept of two general groundwater flow scenarios is consistent with observations of potentiometric surfaces under the NEI GPI program since the initial self assessment (GZA 2009).

5.2 Shallow Groundwater Fluctuations

Shallow groundwater at WF3 has been described as unresponsive to Mississippi River fluctuations (WF3 FSAR Sec. 2.4.13.1.3). This appears to be the case for relatively high water level elevations in plant backfill as seen in basemat wells BW-01 and BW-02, which are generally stable over time (Figures 3 and 4). Generally elevated and stable water levels in these wells are likely due to unconfined groundwater conditions in backfill material and direct recharge from the ground surface by precipitation.

MW-07 and MW-08 (Figure 1) are located in native deposits between the Mississippi River and the excavation backfill. Because water in the Mississippi River and excavation backfill is hydraulically connected to the portion of the confined sand and gravel layer between them, there appears to be some effect on water levels in these two wells from recharge by each source. MW-08 appears to be responsive to both changes of water levels in the plant backfill and to changes of stage in the Mississippi River, whereas MW-07 appears to be more strongly responsive to changes of water levels in the plant backfill (Figure 3). The degree to which recharge from each source affects water levels in these two wells is not clear.

Water levels in perimeter monitoring wells (MW-03 through MW-06 and MW-09 through MW-11) generally rise and fall in unison, providing further supporting evidence of the continuity of the sand and gravel unit across the site (Figure 4). Water level fluctuations also appear to be more closely correlated to relatively small water level changes in the saturated plant backfill than to fluctuations in the river. As shown in Figure 2, saturated backfill serves as a

source of recharge to the confined sand and gravel unit, which forms a hydraulic connection between the Mississippi River and groundwater in the excavation backfill. Because the sides of the excavation are sloped, the excavation area decreases with lower elevations, and recharge events only slightly increase water elevations in the backfill while monitoring wells in the sand and gravel unit show a higher amplitude response.

5.3 Field Parameter Data

Groundwater sampling using low-flow purging techniques relies on stabilization of water levels and water quality parameters to determine when a well has been sufficiently purged to yield a representative groundwater sample. Field parameters are also useful for establishing site-wide groundwater quality. Water quality indicators measured at WF3 include pH, specific conductance, and temperature. Although not considered a stabilization parameter, turbidity is also measured as an indicator of well development and entrainment of solids caused by pump operation. Field parameter water quality data values for the reporting period are relatively consistent for each well.

5.4 Laboratory Analysis Results

Groundwater samples are analyzed for tritium and gamma emitters. If radiological activity is positively detected, then the sample is also analyzed for the presence of hard-to-detect radionuclides listed in EN-CY-111-R5 Attachment 9.4 (EN-CY-111-R5 5.8[2]). If activities of sample results are verified to meet or exceed associated action levels contained in EN-CY-111-R5 Attachment 9.6, then a Condition Report is generated and evaluation of investigatory and corrective actions are considered (EN-CY-111-R5 5.10[3]). Samples collected through the fourth quarter of 2011 were analyzed by the Entergy River Bend Station laboratory in St. Francisville, Louisiana. Subsequent samples have been analyzed by Pace Analytical Services, Inc., of St. Rose, Louisiana, during 2012 and the first quarter of 2013, and Teledyne Brown Engineering, Inc., of Huntsville, Alabama, beginning with the Second Quarter 2013 groundwater sampling event.

During the reporting period, WF3 requested resampling of MW-04 and MW-11 to verify detectable radiological activity in groundwater samples collected during the second quarter of 2012 and the fourth quarter of 2012, respectively. According to site personnel, there were no confirmed positive detections for radiological activity in groundwater collected from monitoring wells during the reporting period, including resampled wells.

6.0 RECOMMENDATIONS

Based on the current status of the WF3 GWMP, FTN recommends the following specific improvements:

1. Continue to incorporate new geologic and groundwater data into the hydrogeologic SCM.
2. Update the SCM in the GWMP and WF3 FSAR to incorporate the current understanding that a shallow, continuous aquifer exists at the site and appears to be hydraulically connected to saturated plant backfill and the Mississippi River (NEI 07-07 Objective 1.1.e).
3. Evaluate installation of water level dataloggers in monitoring wells and basemat wells in order to better elucidate the hydraulic connection between the Mississippi River, saturated backfill, and surrounding saturated native sand and gravel deposits (EN-CY-111-R5 5.6[1](c)).
4. Evaluate manholes, vaults, ditches, and other subsurface structures in plant backfill for use as potential groundwater sampling locations.
5. Evaluate the need for sentinel wells along pipelines that contain licensed material (NEI 07-07 Objective 1.3.b).
6. Install monitoring wells immediately hydraulically downgradient from additional SSCs inside the Secured Owner Controlled Area (SOCA) and Protected Area (PA) as needed to enhance timely detection of releases, spills, and leaks (NEI 07-07 Objective 1.3.b).
7. Evaluate quarterly sampling of basemat wells BW-01 and BW-02 for tritium, gamma emitters, and low-flow groundwater sampling stabilization parameters (NEI 07-07 Objective 1.3.b).

7.0 SUMMARY AND CONCLUSIONS

The following summary and conclusions are based on the 5-year hydrogeologic review of the WF3 GWMP from 2009-2013:

1. A shallow groundwater aquifer is continuous across the site and appears to be hydraulically connected to saturated plant backfill and the Mississippi River.
2. Water level changes in the Mississippi River likely affect groundwater elevations in wells between the power block and river, while water level fluctuations in perimeter wells are more correlated to minor changes in water level elevations in saturated plant backfill.
3. Depending on the water level elevation of the Mississippi River, groundwater flow across the site is either unidirectional away from the river or groundwater flows away from a groundwater mound generally coincident with portions of the plant excavation.
4. Sentinel groundwater monitoring wells are well-positioned for timely detection of inadvertent releases to groundwater from the Original Steam Generator Storage Facility (MW-10 and MW-11) and the Condensate Storage Tank (MW-12).
5. Groundwater monitoring wells MW-03 through MW-09 are positioned to detect inadvertent releases to groundwater before activity leaves the site.
6. The WF3 monitoring well network and sampling frequency should be sufficient for detection of inadvertent releases to groundwater.
7. Field data and water level data for the reporting period were found to be reasonable and consistent with the hydrogeologic setting.
8. The WF3 Groundwater Monitoring Program meets overall objectives of the NEI GPI program.

8.0 REFERENCES

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Tables

Table 1. Groundwater monitoring network installation details, Entergy Waterford-3.

Well ID	Installation Type	Date Installed	Formation Monitored	Northing (ft LA State Plane South Zone NAD83)	Easting (ft LA State Plane South Zone NAD83)	North (ft PGS)	West (ft PGS)	Ground Surface Elevation (ft NGVD29)	Borehole Depth (ft bgs)	Casing Diameter (inches)	Casing Material	WL Reference Elevation (ft NGVD29)	Top of Casing Elevation (ft NGVD29)	Approx. Stick-up Height (ft ags)	Approx. Screened Interval (ft bgs)	Approx. Top of Screened Interval (ft NGVD29)	Approx. Base of Screened Interval (ft NGVD29)	Approx. Filter Pack Interval (ft bgs)	Approx. Bentonite Seal Interval (ft bgs)	Approx. Grout Seal Interval (ft bgs)
BW-01	Basemat Well	~1984	Backfill sand	544955.99	3553653.33	n/a	n/a	17.50	57.5	4	PVC	20.66	20.66	3.2	53.5-57.5	-36.0	-40.0	52.5-57.5	51.5-52.5	0.0-51.5
BW-02	Basemat Well	~1984	Backfill sand	544872.80	3553956.07	n/a	n/a	17.50	57.5	4	PVC	20.27	20.27	2.8	53.5-57.5	-36.0	-40.0	52.5-57.5	51.5-52.5	0.0-51.5
MW-03	Monitoring Well	7/24/2007	Holocene alluvium	543952.20	3552810.27	1851.4	5816.8	14.01	35.0	2	Schedule 40 PVC	16.61	16.59	2.6	24.8-34.8	-10.7	-20.7	22.8-35.0	19.0-22.8	0.0-19.0
MW-04	Monitoring Well	7/24/2007	Holocene alluvium	543447.98	3553051.68	1347.2	5575.4	15.58	35.0	2	Schedule 40 PVC	18.34	18.31	2.7	24.8-34.8	-9.2	-19.2	22.8-35.0	19.8-22.8	0.0-19.8
MW-05	Monitoring Well	7/25/2007	Holocene alluvium	543586.91	3554294.07	1486.1	4333.0	9.65	35.0	2	Schedule 40 PVC	12.26	12.24	2.6	24.8-34.8	-15.1	-25.1	22.8-35.0	19.0-22.8	0.0-19.0
MW-06	Monitoring Well	10/5/2010	Holocene alluvium	544399.37	3554431.09	4132.9	3056.1	11.61	33.0	2	Schedule 40 PVC	14.02	14.01	2.4	22.7-32.7	-11.1	-21.1	21.0-33.0	18.0-21.0	0.0-18.0
MW-07	Monitoring Well	10/25/2010	Holocene alluvium	545122.87	3554397.70	4783.6	3374.2	16.31	38.0	2	Schedule 40 PVC	19.51	19.46	3.2	27.7-37.7	-11.4	-21.4	25.5-38.0	22.4-25.5	0.0-22.4
MW-08	Monitoring Well	10/6/2010	Holocene alluvium	545449.67	3553674.67	4796.1	4167.6	16.37	38.0	2	Schedule 40 PVC	19.88	19.84	3.5	27.7-37.7	-11.3	-21.3	25.0-38.0	22.3-25.0	0.0-22.3
MW-09	Monitoring Well	10/6/2010	Holocene alluvium	545202.96	352738.14	4197.5	4929.0	13.65	38.0	2	Schedule 40 PVC	15.88	15.87	2.2	27.7-37.7	-14.1	-24.1	21.0-38.0	18.0-21.0	0.0-18.0
MW-10	Monitoring Well	11/1/2012	Holocene alluvium	543116.44	3553144.73	2443.6	3726.3	15.96	36.0	2	Schedule 80 PVC	18.47	18.47	2.5	25.8-35.8	-9.8	-19.8	23.0-36.0	20.0-23.0	0.0-20.0
MW-11	Monitoring Well	11/1/2012	Holocene alluvium	543074.20	3553225.08	2437.6	3636.1	15.93	40.0	2	Schedule 80 PVC	18.77	18.77	2.8	25.8-35.8	-9.9	-19.9	23.0-36.0	20.0-23.0	0.0-20.0
MW-12	Monitoring Well	12/13/2013	Holocene alluvium	544174.58	3553334.61	3491.0	3972.6	15.22	40.0	2	Schedule 80 PVC	18.13	18.13	2.9	29.7-39.7	-14.5	-24.5	27.0-40.0	24.0-27.0	0.0-24.0

Notes:
NAD83: North American Datum of 1983.
NGVD29: National Geodetic Vertical Datum of 1929.
PGS: Plant Grid System.
ft bgs: Feet below ground surface.
ft ags: Feet above ground surface.
n/a: Information not available.

Table 2. Tasks over time 2007-2013, Entergy Waterford-3.

Week	7/24/2007		12/4/2007		1/30/2008		5/13/2008		8/5/2008		11/18/2008		3/9/2009		6/16/2009		7/21/2009		10/12/2009		2/23/2010		5/11/2010		8/23/2010		11/16/2010	
Event	3Q07		4Q07		1Q08		2Q08		3Q08		4Q08		1Q09		2Q09		3Q09		4Q09		1Q10		2Q10		3Q10		4Q10	
Well ID	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample
MW-01	1	--	1	--	--	--	--	--	--	--	1	--	1	--	1	--	1	--	--	--	1	--	1	--	1	--	1	--
MW-02	1	--	1	--	--	--	--	--	--	--	1	--	1	--	1	--	1	--	--	--	1	--	1	--	1	--	1	--
MW-03	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MW-04	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MW-05	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MW-06																											1	1
MW-07																											1	1
MW-08																											1	1
MW-09																											1	1
MW-10																												
MW-11																												
MW-12																												
Subtotal	5	3	5	3	3	3	3	3	3	3	5	3	5	3	5	3	5	3	3	3	5	3	5	3	5	3	9	7
Equipment Blanks	n/a	0	n/a	0	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1
Duplicates	n/a	0	n/a	0	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1
Grand Total	5	3	5	3	3	5	3	5	3	5	5	5	5	5	5	5	5	5	3	5	5	5	5	5	5	5	9	9

Week	3/28/2011		6/21/2011		9/13/2011		12/13/2011		3/20/2012		6/18/2012		9/6/2012		9/18/2012		10/31/2012		12/10/2013		2/26/2013		6/3/2013		9/9/2013		12/17/2013	
Event	1Q11		2Q11		3Q11		4Q11		1Q12		2Q12		Resample		3Q12		4Q12		Resample		1Q13		2Q13		3Q13		4Q13	
Well ID	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample	Water Level	Sample
MW-01	1	--	1	--	1	--	1	--	1	--	1	--	--	--	1	--	1	--	--	--	1	--	1	--	1	--	1	--
MW-02	1	--	1	--	1	--	1	--	1	--	1	--	--	--	1	--	1	--	--	--	1	--	1	--	1	--	1	--
MW-03	1	1	1	1	1	1	1	1	1	1	1	1	--	--	1	1	1	1	--	--	1	1	1	1	1	1	1	1
MW-04	1	1	1	1	1	1	1	1	1	1	1	1	--	1	1	1	1	1	--	--	1	1	1	1	1	1	1	1
MW-05	1	1	1	1	1	1	1	1	1	1	1	1	--	--	1	1	1	1	--	--	1	1	1	1	1	1	1	1
MW-06	1	1	1	1	1	1	1	1	1	1	1	1	--	--	1	1	1	1	--	--	1	1	1	1	1	1	1	1
MW-07	1	1	1	1	1	1	1	1	1	1	1	1	--	--	1	1	1	1	--	--	1	1	1	1	1	1	1	1
MW-08	1	1	1	1	1	1	1	1	1	1	1	1	--	--	1	1	1	1	--	--	1	1	1	1	1	1	1	1
MW-09	1	1	1	1	1	1	1	1	1	1	1	1	--	--	1	1	1	1	--	--	1	1	1	1	1	1	1	1
MW-10																	1	1	--	--	1	1	1	1	1	1	1	1
MW-11																	1	1	--	1	1	1	1	1	1	1	1	1
MW-12																											1	1
Subtotal	9	7	9	7	9	7	9	7	9	7	9	7	0	1	9	7	11	9	0	1	11	9	11	9	11	9	12	10
Equipment Blanks	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1
Duplicates	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1	n/a	1
Grand Total	9	9	9	9	9	9	9	9	9	9	9	9	0	3	9	9	11	11	0	3	11	11	11	11	11	11	12	12

Notes:

[redacted] Monitoring well had not been installed.

Table 3. Water level elevations 2007-2013, Entergy - Waterford-3

Site ID	BW-01	BW-02	MW-03	MW-04	MW-05	MW-06	MW-07	MW-08	MW-09	MW-10	MW-11	MW-12	Mississippi River
Date	Water Level Elevation (ft NGVD29)												
7/24/2007	--	--	10.39	--	--	--	--	--	--	--	--	--	--
7/25/2007	12.81	12.60	--	9.06	5.86	--	--	--	--	--	--	--	--
7/26/2007	--	--	10.88	9.40	5.90	--	--	--	--	--	--	--	7.92
9/5/2007	12.26	12.17	10.54	9.76	5.44	--	--	--	--	--	--	--	4.43
9/25/2007	12.26	12.12	10.79	9.81	5.69	--	--	--	--	--	--	--	3.68
12/4/2007	11.76	11.72	9.30	9.44	4.99	--	--	--	--	--	--	--	2.29
1/30/2008	11.71	11.70	11.20	9.49	7.09	--	--	--	--	--	--	--	6.47
5/13/2008	11.61	12.10	10.49	9.43	5.82	--	--	--	--	--	--	--	18.21
8/5/2008	11.56	11.82	9.45	9.57	5.17	--	--	--	--	--	--	--	7.95
11/18/2008	11.70	11.70	9.20	9.56	4.86	--	--	--	--	--	--	--	--
3/9/2009	11.62	11.77	9.80	9.15	6.00	--	--	--	--	--	--	--	--
6/16/2009	11.92	11.92	9.36	9.17	4.46	--	--	--	--	--	--	--	16.22
7/21/2009	12.17	11.97	9.41	9.27	4.56	--	--	--	--	--	--	--	5.09
10/12/2009	--	--	11.29	9.92	6.62	--	--	--	--	--	--	--	8.09
2/18/2010	12.97	12.92	--	--	--	--	--	--	--	--	--	--	--
2/23/2010	--	--	11.12	9.64	7.31	--	--	--	--	--	--	--	17.31
4/19/2010	12.77	12.37	--	--	--	--	--	--	--	--	--	--	--
5/11/2010	--	--	9.51	9.24	5.06	--	--	--	--	--	--	--	12.79
7/15/2010	13.02	12.87	--	--	--	--	--	--	--	--	--	--	--
8/23/2010	--	--	11.43	10.31	7.59	--	--	--	--	--	--	--	6.54
8/24/2010	13.27	13.27	--	--	--	--	--	--	--	--	--	--	--
11/16/2010	--	--	10.30	10.02	5.98	9.57	13.08	12.16	11.36	--	--	--	3.34
11/17/2010	12.27	12.27	--	--	--	--	--	--	--	--	--	--	--
3/28/2011	12.22	12.22	10.30	9.41	5.96	9.57	13.20	14.07	11.20	--	--	--	17.00
6/21/2011	12.55	12.59	9.71	9.07	4.15	8.57	12.78	14.13	7.86	--	--	--	17.14
9/13/2011	12.92	12.87	11.02	9.71	6.20	10.04	13.97	13.20	11.42	--	--	--	4.30
12/13/2011	11.97	12.07	9.89	9.04	4.99	8.73	12.36	12.64	9.14	--	--	--	14.74
3/20/2012	12.82	12.87	7.68	8.96	6.60	9.78	13.26	13.78	12.15	--	--	--	14.11
6/18/2012	12.65	13.27	11.00	9.38	7.23	9.96	13.53	12.66	12.29	--	--	--	3.76
9/18/2012	12.47	12.37	11.06	9.92	7.34	10.00	13.98	12.98	12.01	--	--	--	2.89
11/2/2012	12.42	12.27	10.43	9.65	5.12	9.07	12.53	11.66	9.77	8.99	9.05	--	2.66
2/26/2013	12.57	12.47	11.26	9.40	7.98	10.31	14.21	14.39	12.85	8.57	8.59	--	11.73
6/3/2013	12.92	12.82	10.53	9.42	6.36	9.78	13.96	14.93	10.72	8.57	8.64	--	17.00
9/10/2013	12.32	12.32	10.98	9.93	6.43	9.82	13.26	12.76	10.88	8.98	9.06	--	3.94
12/17/2013	12.17	12.17	10.86	9.70	6.94	9.94	12.97	12.56	12.35	8.46	8.43	10.97	5.29

Notes:

NGVD29: National Geodetic Vertical Datum of 1929.

Water level elevations for BW-01 and BW-02 are provided by site personnel.

River stage elevations obtained from US Army Corps of Engineers (http://rivergages.mvr.usace.army.mil/WaterControl/new/layout.cfm).

River stage elevation at WF3 is interpolated from elevations at the Bonnet Carre and Reserve gauging stations.

Table 4. Field parameter data 2007-2013, Entergy - Waterford-3.

Well ID	Sample Date	pH (su)	Specific Conductance (µS/cm)	Temperature (°C)	Turbidity (NTU)
MW-03	7/24/2007	6.9	3689	25.4	13
	12/4/2007	6.9	2436	19.2	0
	1/30/2008	6.6	2541	19.3	3
	5/13/2008	6.9	3043	22.9	2
	8/5/2008	6.8	3778	25.9	0
	11/18/2008	7.0	2725	19.2	9
	3/10/2009	6.9	3546	21.2	1
	6/16/2009	6.9	2510	24.6	2
	7/21/2009	6.9	3618	25.3	3
	10/12/2009	6.9	3273	24.4	1
	2/23/2010	7.0	3110	18.7	7
	5/11/2010	7.1	2675	25.6	9
	8/23/2010	6.8	3163	27.5	1
	11/16/2010	6.8	3613	23.2	8
	3/28/2011	6.8	3060	24.1	17
	6/21/2011	6.9	3493	28.0	28
	9/13/2011	6.9	2908	27.6	15
	12/13/2011	6.9	2532	22.3	6
	3/21/2012	6.8	2923	18.0	9
	6/19/2012	6.6	2595	25.6	18
	9/19/2012	6.5	3247	25.3	8
	11/1/2012	7.0	3492	24.5	9
	2/27/2013	6.7	2810	20.1	5
	6/3/2013	6.8	3325	24.6	8
	9/10/2013	6.8	3113	26.3	4
	12/17/2013	NR	2782	21.2	12
MW-04	7/25/2007	6.7	6490	26.3	2
	12/4/2007	6.6	3625	18.3	0
	1/30/2008	6.5	4663	18.1	1
	5/13/2008	6.7	5200	24.5	1
	8/5/2008	6.5	5217	25.4	0
	11/18/2008	6.6	3658	19.4	10
	3/10/2009	7.0	4800	21.8	12
	5/16/2009	6.6	5386	26.0	6
	7/21/2009	6.5	4927	25.7	6
	10/12/2009	6.7	5974	25.2	0
	2/23/2010	7.3	4660	17.5	24
	5/11/2010	6.6	4931	26.1	13
	8/23/2010	6.6	5702	28.7	16
	11/16/2010	6.7	6385	22.6	4
	3/28/2011	6.5	4787	24.2	24

Table 4. Field parameter data 2007-2013, Entergy - Waterford-3.

Well ID	Sample Date	pH (su)	Specific Conductance (µS/cm)	Temperature (°C)	Turbidity (NTU)
MW-04	6/21/2011	6.7	5155	24.2	5
	9/13/2011	6.7	5248	27.3	8
	12/13/2011	6.6	4143	21.3	3
	3/21/2012	6.5	5267	20.0	56
	6/19/2012	6.6	5695	24.1	23
	9/19/2012	6.4	5985	24.7	6
	10/31/2012	6.7	5443	24.0	9
	2/27/2013	6.5	5041	21.5	11
	6/3/2013	6.7	5817	24.0	16
	9/10/2013	6.6	4864	26.1	12
	12/17/2013	NR	5237	22.3	4
MW-05	7/25/2007	7.0	1860	26.4	71
	12/4/2007	7.1	2410	22.9	2
	1/30/2008	6.8	1352	18.9	7
	5/13/2008	7.1	3650	24.4	3
	8/5/2008	7.0	2901	25.7	0
	11/18/2008	7.2	4752	21.2	18
	3/10/2009	7.9	1591	22.7	2
	6/16/2009	7.2	1955	27.4	5
	7/21/2009	7.1	4179	27.1	9
	10/12/2009	7.1	1818	27.4	27
	2/23/2010	8.0	1529	16.6	30
	5/11/2010	7.0	4850	25.7	13
	8/23/2010	7.0	1958	29.3	16
	11/16/2010	7.1	6593	22.9	8
	3/29/2011	7.2	4825	22.5	14
	6/21/2011	7.2	6037	25.8	3
	9/13/2011	7.2	2662	27.8	10
	12/13/2011	7.3	5252	22.3	3
	3/21/2012	7.0	1918	20.6	3
	6/18/2012	7.1	1922	25.2	11
	9/19/2012	7.0	3234	25.1	3
	10/31/2012	7.3	5643	23.9	9
	2/27/2013	7.0	1616	19.6	15
	6/4/2013	7.1	4093	23.5	7
	9/10/2013	7.1	4228	27.6	36
	12/18/2013	NR	2358	20.2	7
MW-06	3/28/2011	7.0	2810	24.4	5
	6/21/2011	7.1	3101	27.5	4
	9/13/2011	7.3	3092	29.3	12
	12/13/2011	7.2	2719	22.4	0

Table 4. Field parameter data 2007-2013, Entergy - Waterford-3.

Well ID	Sample Date	pH (su)	Specific Conductance (µS/cm)	Temperature (°C)	Turbidity (NTU)
MW-06	3/21/2012	7.0	3219	23.4	12
	6/18/2012	7.2	3159	26.8	11
	9/18/2012	7.0	3373	26.2	6
	11/2/2012	7.5	3264	23.1	17
	2/27/2013	7.0	2966	21.2	9
	6/4/2013	7.1	2793	24.5	6
	9/11/2013	7.2	3013	26.4	5
	12/18/2013	NR	2900	20.4	5
MW-07	3/28/2011	6.8	1249	25.7	37
	6/21/2011	6.9	2300	26.1	4
	9/14/2011	7.0	1562	25.6	12
	12/13/2011	6.9	1405	22.9	1
	3/20/2012	6.6	1411	25.6	21
	6/18/2012	6.8	1340	27.4	8
	9/18/2012	6.5	1144	26.8	4
	10/31/2012	7.0	1232	24.0	6
	2/27/2013	6.6	1019	22.6	1
	6/4/2013	6.7	958	24.0	4
	9/10/2013	6.7	1002	25.8	5
	12/18/2013	NR	961	22.2	4
MW-08	3/28/2011	6.8	1065	26.7	15
	6/21/2011	6.9	1532	26.0	5
	9/14/2011	6.9	1114	26.5	9
	12/13/2011	6.8	1037	22.7	4
	3/20/2012	6.6	1559	24.0	18
	6/18/2012	6.7	1308	25.5	8
	9/18/2012	6.4	1412	26.7	3
	11/1/2012	6.9	1288	24.5	11
	2/27/2013	6.6	1137	21.6	1
	6/4/2013	6.8	1283	24.9	6
	9/11/2013	6.6	1059	26.2	4
	12/18/2013	NR	1052	22.6	6
MW-09	3/29/2011	6.8	1899	20.2	6
	6/21/2011	6.9	2765	23.1	3
	9/14/2011	7.1	2113	27.3	14
	12/13/2011	7.0	1984	21.3	3
	3/20/2012	6.6	2792	22.5	31
	6/18/2012	6.7	2393	24.1	11
	9/18/2012	6.5	2563	25.4	4
	11/1/2012	7.2	2681	22.7	8
	2/26/2013	7.0	2090	20.0	10

Table 4. Field parameter data 2007-2013, Entergy - Waterford-3.

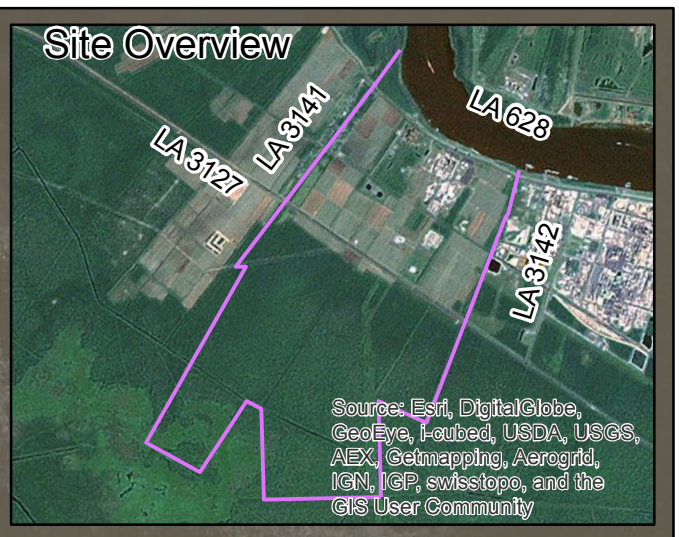
Well ID	Sample Date	pH (su)	Specific Conductance (µS/cm)	Temperature (°C)	Turbidity (NTU)
MW-09	6/4/2013	6.7	2305	24.6	2
	9/11/2013	6.9	2526	25.7	5
	12/18/2013	NR	2151	21.7	7
MW-10	11/2/2012	7.0	7048	26.0	261
	2/27/2013	6.9	5720	20.7	17
	6/3/2013	6.8	6491	24.8	3
	9/11/2013	6.8	6471	25.4	2
	12/18/2013	NR	6341	22.2	5
MW-11	11/1/2012	6.9	5057	23.2	101
	2/26/2013	6.9	5451	19.1	11
	6/3/2013	6.8	5714	26.1	8
	9/11/2013	6.7	4979	26.1	4
	12/18/2013	NR	5752	21.1	6
MW-12	12/12/2013	NR	2468	21.8	212

Notes:
NR: Not recorded due to instrument malfunction.

Figures

Figure 1

Entergy Waterford-3, Monitoring Well Network



A
B-27
MW-08
MW-09
B-12
MW-07
BW-01
BW-02
MW-06
MW-12
MW-03
MW-05
MW-04
MW-10
MW-11
A'

The information shown on this map was compiled from various sources and should not be considered authoritative for engineering, surveying, legal and/or other site-specific uses. Information shown on this map should not be used for property boundary resolution. This does not represent a boundary survey and is shown for reference only.

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Groundwater Monitoring Installation
Boring
Cross Section Line A-A'
Approximate Excavation Area
Approximate Property Boundary

Entergy Waterford-3 Monitoring Well Network Cross Section Line A-A'

0 200 400 Feet

BASEMAP SOURCE
Esri Map Imagery
(c) 2014 Esri Map Service and its data suppliers

ftn

By: DWP
Date: April 3, 2014
Project No. 06045-0031-002

N

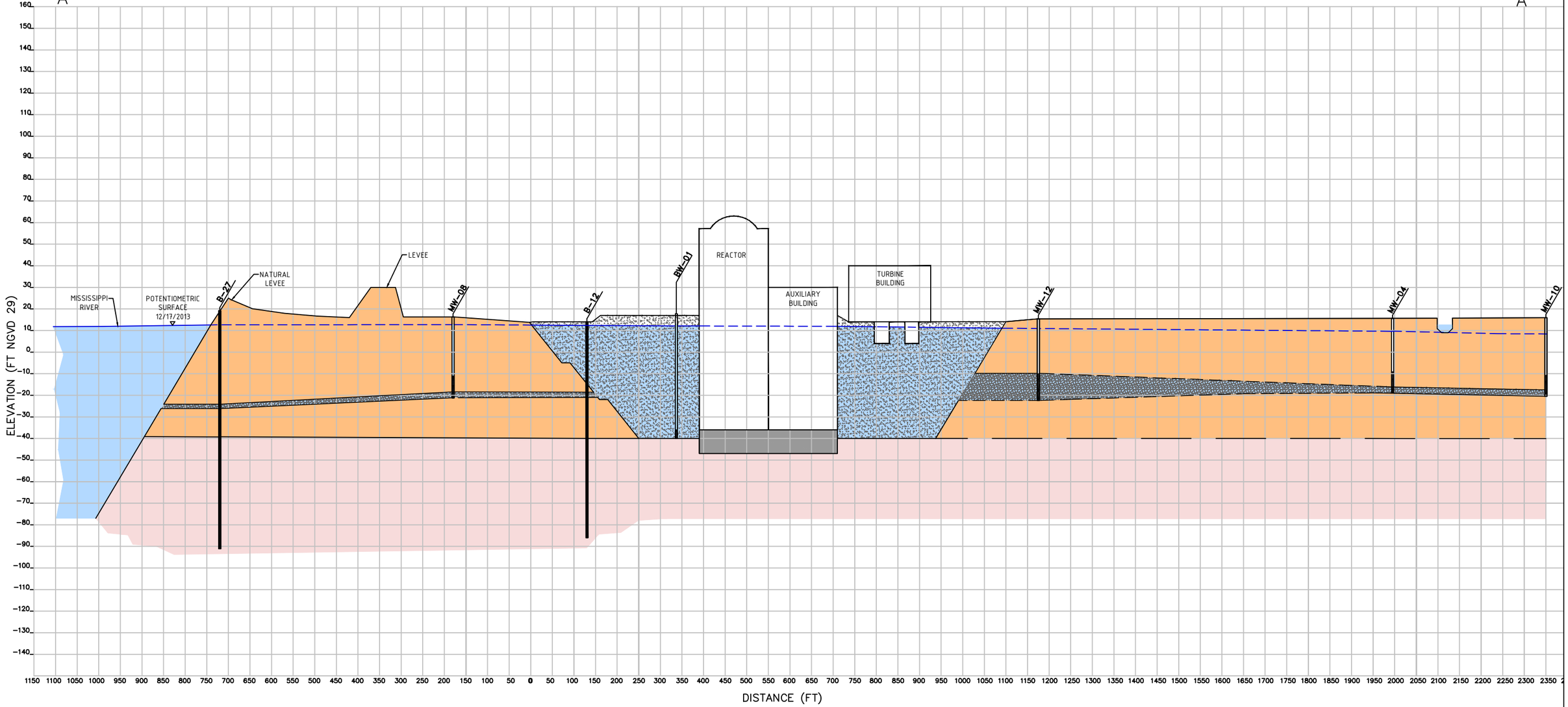
S:\gis\06045-0031-004\mapdoc\Cross Section A-A'.mxd

Figure 2

Entergy Waterford-3, Cross Section A-A'

NORTH
A

SOUTH
A'



NOTES:

- BUILDING DIMENSIONS ARE APPROXIMATE BASED ON WATERFORD-3 FSAR FIGURE 2.5-80 & 2.5-112
- FOR LINE OF SECTION, SEE FIGURE 3.1

COMPACTED BACKFILL
BASEMAT
HOLOCENE CLAY AND SILT
HOLOCENE SAND & GRAVEL
PLEISTOCENE DEPOSITS
WATER
POTENTIOMETRIC SURFACE ELEVATION
BORING
MONITORING WELL WITH SCREEN INTERVAL

ftn Associates Ltd.
water resources / environmental consultants

ENTERGY WATERFORD-3
CROSS-SECTION A – A'

ENTERGY NUCLEAR-WATERFORD-3

DRAWN BY:	FILE NAME:	SCALE:	SHEET NO.
BWM	6045-0031-001 CROSS-SECTIONS	N/A	1
APPROVED BY:	PROJECT NO.	DATE:	OF 1
CLN	06045-0031-002	04/08/14	

S:\projects\06045-0031-004\tech\R06045-0031-002 or 6045-460\cad\dwg\fig 1 cross section A-A' (04-01-04)

Figure 3

Hydrographs: Monitoring Wells adjacent to Mississippi River Compared to Basemat Wells and Mississippi River

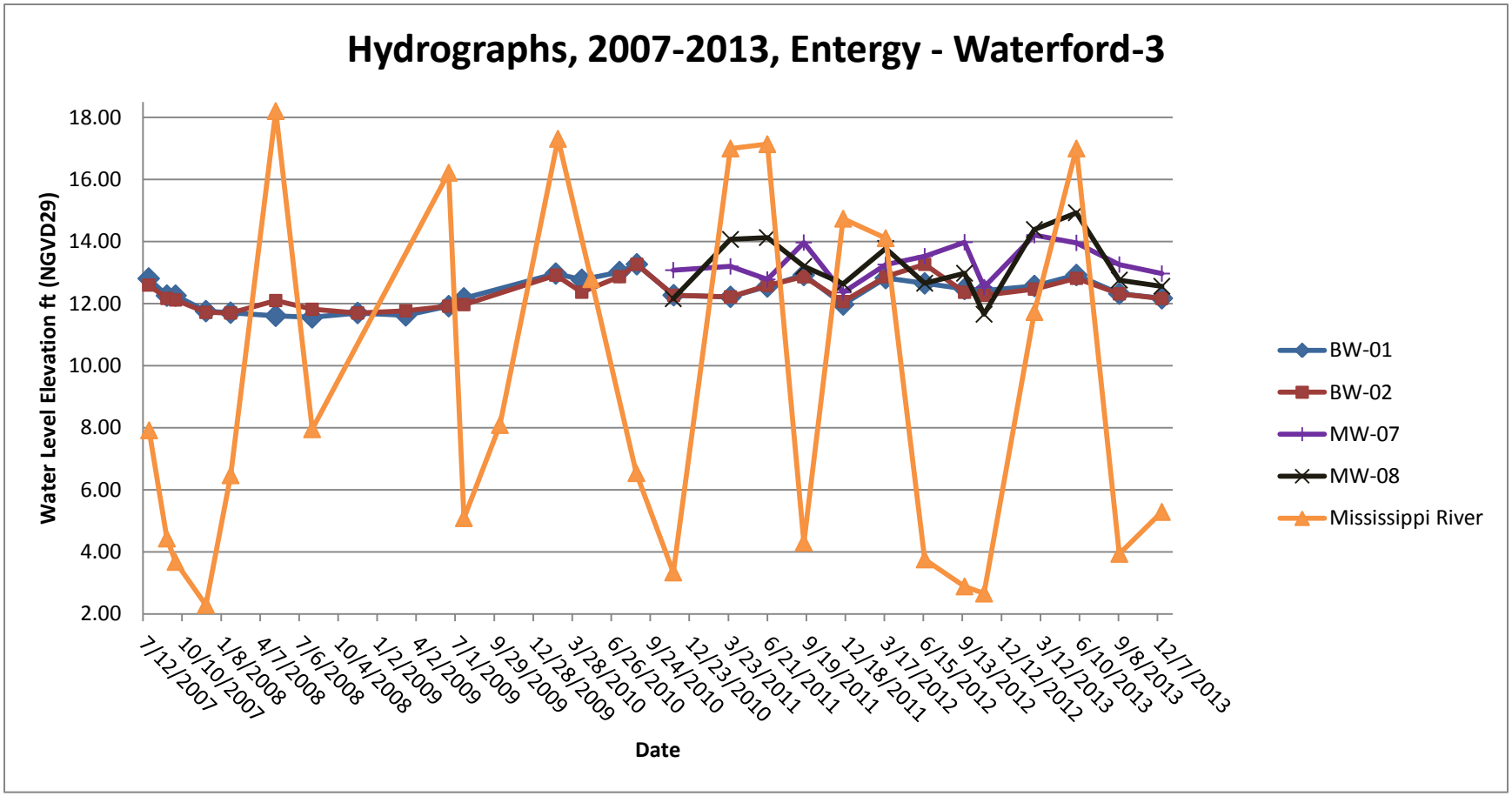


Figure 3. Hydrographs: Monitoring Wells adjacent to Mississippi River Compared to Basemat Wells and Mississippi River.

Figure 4

Hydrographs: Monitoring Wells adjacent to Mississippi River Compared to Basemat Wells and Mississippi River

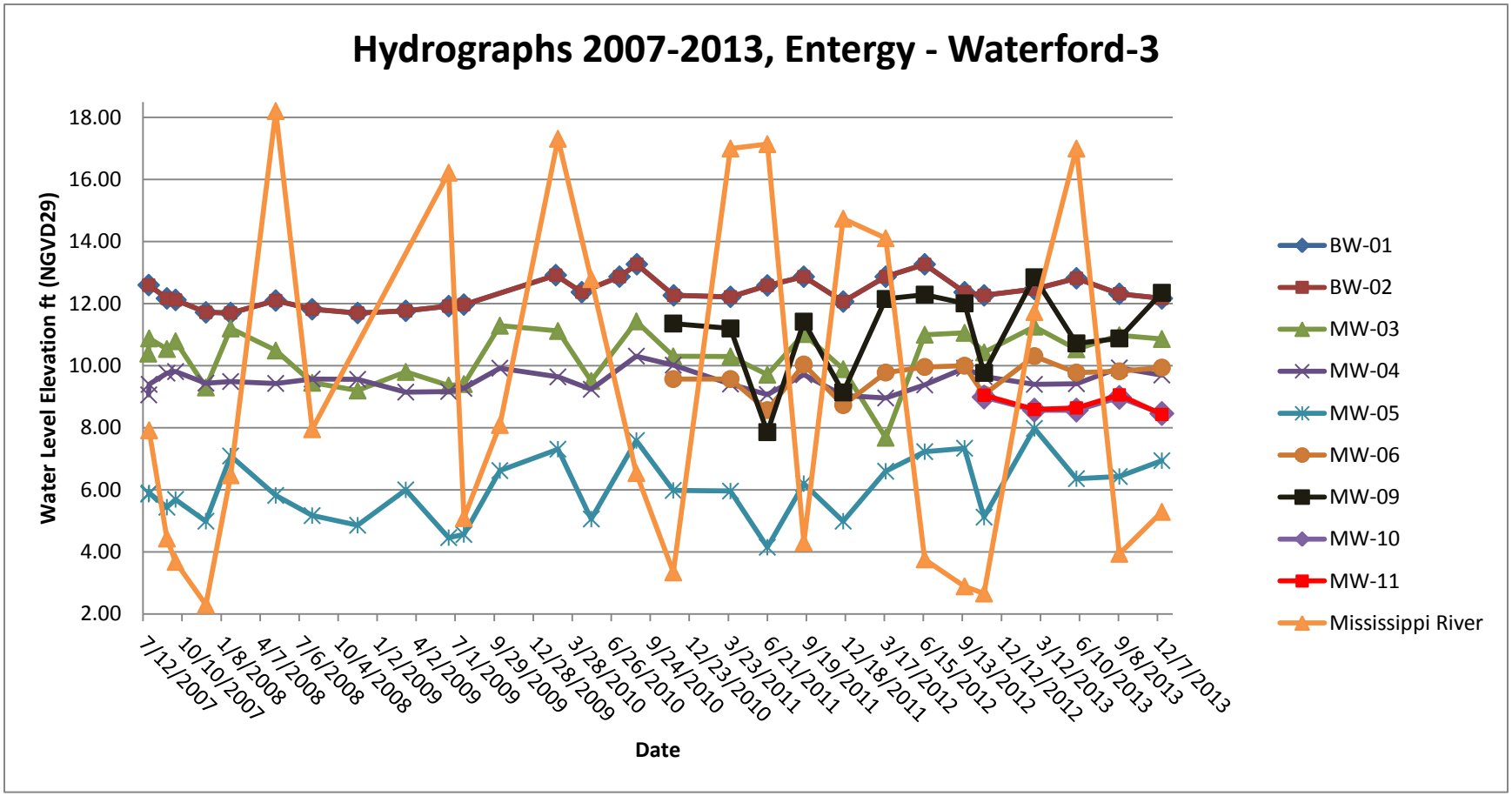


Figure 4. Hydrographs: Perimeter Monitoring Wells Compared to Basemat Wells and .Mississippi River.

Figure 5

Potentiometric Surface Map without Groundwater Divide

River Mile 126.9
El. 17.00

MW-08
14.93

MW-09
10.72

MW-07
13.96

BW-01
12.92

BW-02
12.82

MW-06
9.78

MW-03
10.53

MW-04
9.42

MW-05
6.36

MW-10
8.57

MW-11
8.64

Well ID	TOC Elevation (ft NGVD 29)	Depth to Water (ft below TOC)	WL Elevation (NGVD 29)
BW-01	20.66	7.74	12.92
BW-02	20.27	7.45	12.82
MW-03	16.61	6.08	10.53
MW-04	18.34	8.92	9.42
MW-05	12.26	5.90	6.36
MW-06	14.02	4.24	9.78
MW-07	19.51	5.55	13.96
MW-08	19.88	4.95	14.93
MW-09	15.88	5.16	10.72
MW-10	18.47	9.90	8.57
MW-11	18.77	10.13	8.64
River	n/a	n/a	17.00

The information shown on this map was compiled from various sources and should not be considered authoritative for engineering, surveying, legal and/or other site-specific uses. Information shown on this map should not be used for property boundary resolution. This does not represent a boundary survey and is shown for reference only.

Legend

- Groundwater Monitoring Installation
- Potentiometric Surface Elevation
- Groundwater Flow Line
- Approximate Excavation Area
- Potential Tritium Sources
- Approximate Property Boundary

Entergy Waterford-3
Potentiometric Surface
June 3, 2013

0 200 400 Feet

BASEMAP SOURCE
NAIP 2009
St. Charles Parish, LA

ftn

By: DWP
Date: June 26, 2013
Project No. 06045-0031-002

N

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Figure 6

Potentiometric Surface Map with Groundwater Divide

Well ID	TOC Elevation (ft NGVD 29)	Depth to Water (ft below TOC)	WL Elevation (NGVD 29)
BW-01	20.66	8.34	12.32
BW-02	20.27	7.95	12.32
MW-03	16.61	5.63	10.98
MW-04	18.34	8.41	9.93
MW-05	12.26	5.83	6.43
MW-06	14.02	4.20	9.82
MW-07	19.51	6.25	13.26
MW-08	19.88	7.12	12.76
MW-09	15.88	5.00	10.88
MW-10	18.47	9.49	8.98
MW-11	18.77	9.71	9.06
River	n/a	n/a	3.94

The information shown on this map was compiled from various sources and should not be considered authoritative for engineering, surveying, legal and/or other site-specific uses. Information shown on this map should not be used for property boundary resolution. This does not represent a boundary survey and is shown for reference only.

Image courtesy of USGS State of Michigan

Legend

- Groundwater Monitoring Installation
- Potentiometric Surface Elevation
- Groundwater Flow Line
- Approximate Excavation Area
- Potential Tritium Sources
- Approximate Property Boundary

Entergy Waterford-3
Potentiometric Surface
September 10, 2013

0 200 400 Feet

BASEMAP SOURCE
2010 Microsof Corporation and its data suppliers

tn

By: JWB
Date: October 9, 2013
Project No. 06045-0031-002

N

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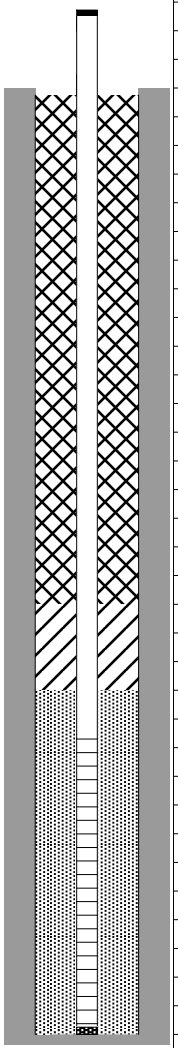
APPENDIX A

Boring Logs and Well Construction Diagrams

	PROJECT: **Waterford-3**	BORING ID: **MW-06**	
	LOCATION: **Killona, LA**	WELL ID: **MW-06**	
	DRILLING CONTRACTOR: **Tri-State Testing Services**	NORTHING: **544399.37 ft**	EASTING: **3554431.09 ft**
	DRILLING EQUIPMENT: **CME 75**	GROUND SURFACE ELEV.: **11.61 ft**	TOC ELEVATION: **14.01 (ft msl)**
	DRILLING METHOD: **Hollow stem auger**	TOTAL DEPTH: **33 ft bgs**	DEPTH TO WATER (11/16/2010): **4.44 ft bgs**
LOGGED BY: **CLN**	SAMPLING METHOD: **5-foot continuous sampler**	DATE STARTED: **10/5/10**	DATE COMPLETED: **10/5/10**

Depth (feet)	USCS	Description	% REC
0	GP	GRAVEL with shell, light gray, loose, medium coarse, dry to moist.	85
	SP	SAND with gravel and shell, brown, fine grained, medium dense, moist to dry.	
5		SILT, grayish brown, lean, medium stiff, some dark gray mottles and roots, moist	95
10	ML		100
15		@ 14.2 ft. gray	100
		@ 16-17.1 ft. clayey, dark gray	
20		@ 19.3 ft. with clay, soft to medium stiff, moist to wet.	100
	CH	FAT CLAY with silt, dark gray, soft to medium stiff, moist to wet	
25	ML	SILT with sand (very fine grained), gray, grass and twigs, medium stifff, lean, saturated.	100
	SP	SAND, dark gray, fine grained, medium dense, wood fragments, black granular deposits on bedding planes, saturated.	
	PT		
	ML		
	SP		
30	CL	ORGANICS, brown to grayish, brown wood fragments, rounded, some grass (green), saturated.	100
		CLAYEY SILT, grayish brown, medium stiff, slightly plastic, moist.	
	CH	SAND, gray, fine grained, medium dense, saturated.	
		CLAYEY GRAVEL, brownish gray, shell fragments, dense, fat clay matrix, coarse fragments, saturated.	
35		FAT CLAY with fine shell fragments, dark gray, medium stiff, moist to wet.	

Well Construction



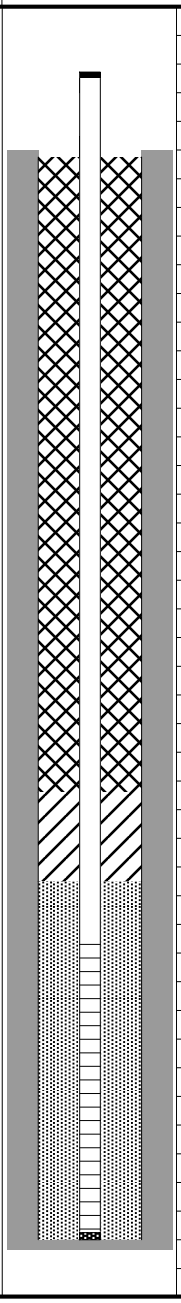
- PVC cap with dedicated sampling tubing vented below cap
- 25.7 ft of 2 in dia., Sch. 40 PVC solid riser from 3 ft of stick-up to 22.7 ft bgs
- Cement/bentonite grout to 18 ft bgs
- Bentonite pellet seal from 18 ft bgs to 21 ft bgs
- Silica size 10/20 filter pack from 21 ft bgs to 33 ft bgs
- 10 ft of 2 in dia., 0.010 in slot, Sch. 40 PVC screen
- 0.25 ft, 2 in dia., Sch. 40 PVC end cap
- Drilling terminated at 33 ft bgs

NOTES: HAS drilling of 8" diameter borehole.

Well completion of 2' x 2' x 4" concrete pad, 4" x 4" steel protective cover, 4" diameter pipe bollards.

	PROJECT: **Waterford-3**	BORING ID: **MW-07**	
	LOCATION: **Killona, LA**	WELL ID: **MW-07**	
	DRILLING CONTRACTOR: **Tri-State Testing Services**	NORTHING: **545122.87 ft**	EASTING: **3554397.7 ft**
	DRILLING EQUIPMENT: **CME 75**	GROUND SURFACE ELEV.: **16.31 ft**	TOC ELEVATION: **19.46 (ft msl)**
	DRILLING METHOD: **Hollow stem auger**	TOTAL DEPTH: **38 ft bgs**	DEPTH TO WATER (11/16/2010): **6.38 ft bgs**
LOGGED BY: **CLN**	SAMPLING METHOD: **5-foot continuous sampler**	DATE STARTED: **10/5/10**	DATE COMPLETED: **10/5/10**

Depth (feet)	USCS	Description	% REC
-5			
0	ML	SILT, grayish brown, lean, medium stiff, some shell fragments, moist.	100
	SP	SAND, light brown, fine to medium grained, loose, dry to moist.	
5	ML	SILT with clay, grayish brown, medium stiff, lean, dry to moist @ 3.5 ft. dark gray, moist.	100
10	SM/ML	SILT with sand, gray, lean, medium coarse, wet.	100
	ML	SILT, dark gray, medium stiff, lean, moist.	
15	ML	SILT with clay, grayish brown, medium stiff, slightly plastic, moist to wet @ 15.5 ft. dark gray, moist.	100
20	CL	SILTY CLAY, grayish brown, slightly plastic, medium stiff to soft, wet.	100
	CL	CLAY, gray with brown mottles, some wood fragments, lean, stiff, moist.	
	SP	SAND with shell fragments, brown, loose, some wood fragments, fine to medium grained, saturated.	
25	CL	CLAY, gray with brown mottles, some wood fragments, lean, stiff, moist.	100
30	SM	SILTY SAND, dark gray, very fine grained, loose to medium stiff, wood fragments, saturated.	100
		NO RECOVERY	
35	PT	WOOD FRAGMENTS AND LEAF LITTER, brown, no mineral matter, saturated.	75
	SP	SAND with silt, gray, fine grained, medium dense, black granular deposits on bedding planes, saturated.	
	CL	CLAY, gray, lean, stiff, moist.	



Well Construction

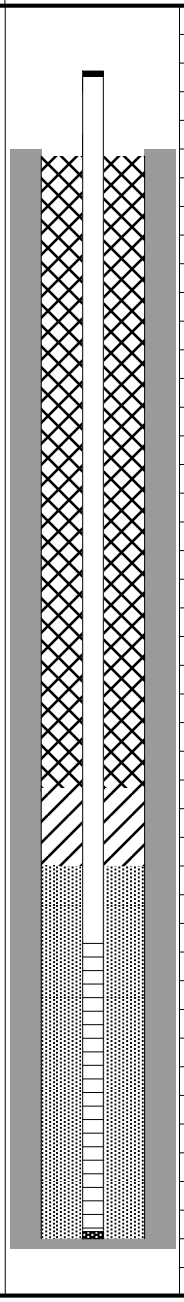
- PVC cap with dedicated sampling tubing
- vented below cap
- 30.7 ft of 2 in dia., Sch. 40 PVC solid riser from 3 ft of stick-up to 27.7 ft bgs
- Cement/bentonite grout to 22.4 ft bgs
- Bentonite pellet seal from 22.4 ft bgs to 25.5 ft bgs
- Silica size 10/20 filter pack from 25.5 ft bgs to 38 ft bgs
- 10 ft of 2 in dia., 0.010 in slot, Sch. 40 PVC screen
- 0.25 ft, 2 in dia., Sch. 40 PVC end cap
- Drilling terminated at 38 ft bgs

NOTES: HAS drilling of 8" diameter borehole.

Well completion of 2' x 2' x 4" concrete pad, 4" x 4" steel protective cover, 4" diameter pipe bollards.

PROJECT: **Waterford-3**	BORING ID: **MW-08**		
LOCATION: **Killona, LA**	WELL ID: **MW-08**		
DRILLING CONTRACTOR: **Tri-State Testing Services**	NORTHING: **545449.67 ft**	EASTING: **3553674.67 ft**	
DRILLING EQUIPMENT: **CME 75**	GROUND SURFACE ELEV.: **16.37 ft**	TOC ELEVATION: **19.84 (ft msl)**	
DRILLING METHOD: **Hollow stem auger**	TOTAL DEPTH: **38 ft bgs**	DEPTH TO WATER (11/16/2010): **7.68 ft bgs**	
LOGGED BY: **CLN**	SAMPLING METHOD: **5-foot continuous sampler**	DATE STARTED: **10/6/10**	DATE COMPLETED: **10/6/10**

Depth (feet)	USCS	Description	% REC
-5			
0	ML	CLAYEY SILT, brown to grayish brown, lean, medium stiff, roots, moist @ 2.2 ft. some shell and gravel fragments.	100
5	ML	SILT, grayish brown, medium stiff, lean, moist.	100
	SM	SANDY SILT, light grayish brown, lean medium stiff, very fine grained, moist.	
10	ML	CLAYEY SILT, dark grayish brown to dark gray, slightly plastic, medium stiff, moist to wet.	100
15		NO RECOVERY	20
	ML	CLAYEY SILT, dark grayish brown to dark gray, slightly plastic, medium stiff, moist to wet.	
20	SM	SILTY SAND, gray, medium dense, fine grained, wet.	100
	CL	SILTY CLAY, gray with orange mottles, medim stiff to stiff, lean, wood fragments, moist.	
25			100
30	ML	SILT, gray, medium stiff, lean, roots, moist @ 30-30.2 ft. fine sand, gray, loose, saturated @ 31.8-32.1 ft. fine sand, gray, loose, saturated.	100
		NO RECOVERY	
35	PT	WOOD FRAGMENTS AND TWIGS, brown, loose, worn smooth and rounded, saturated.	80
	SP	SAND, gray, fine to medium grained, loose to medium dense, saturated.	
	CH	FAT CLAY, dark gray, medium stiff, moist.	



Well Construction

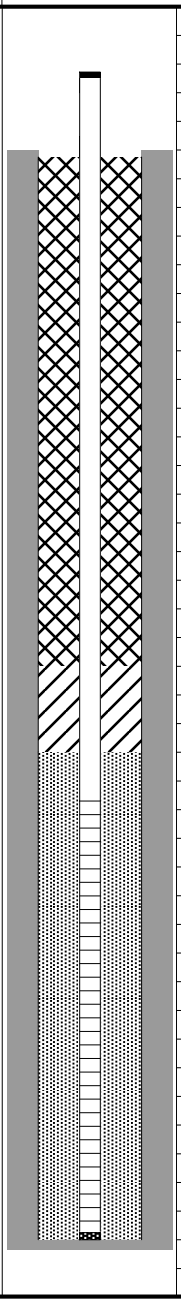
- PVC cap with dedicated sampling tubing
- vented below cap
- 30.7 ft of 2 in dia., Sch. 40 PVC solid riser from 3 ft of stick-up to 27.7 ft bgs
- Cement/bentonite grout to 22.3 ft bgs
- Bentonite pellet seal from 22.3 ft bgs to 25 ft bgs
- Silica size 10/20 filter pack from 25 ft bgs to 38 ft bgs
- 10 ft of 2 in dia., 0.010 in slot, Sch. 40 PVC screen
- 0.25 ft, 2 in dia., Sch. 40 PVC end cap
- Drilling terminated at 38 ft bgs

NOTES: HAS drilling of 8" diameter borehole.

Well completion of 2' x 2' x 4" concrete pad, 4" x 4" steel protective cover, 4" diameter pipe bollards.

PROJECT: **Waterford-3**	BORING ID: **MW-09**		
LOCATION: **Killona, LA**	WELL ID: **MW-09**		
DRILLING CONTRACTOR: **Tri-State Testing Services**	NORTHING: **545202.96 ft**	EASTING: **352738.14 ft**	
DRILLING EQUIPMENT: **CME 75**	GROUND SURFACE ELEV.: **13.65 ft**	TOC ELEVATION: **15.87 (ft msl)**	
DRILLING METHOD: **Hollow stem auger**	TOTAL DEPTH: **38 ft bgs**	DEPTH TO WATER (11/16/2010): **4.51 ft bgs**	
LOGGED BY: **CLN**	SAMPLING METHOD: **5-foot continuous sampler**	DATE STARTED: **10/6/10**	DATE COMPLETED: **10/6/10**

Depth (feet)	USCS	Description	% REC
0	GC	SHELL GRAVEL ROAD BASE, light gray, dense, primarily coarse fragments, clay matrix, dry to moist.	90
	ML	CLAYEY SILT, dark grayish brown, lean, medium stiff, dry to moist.	
5	ML	SILT, grayish brown with brown mottles, medium stiff, lean, moist @ 6.5 ft. wet to soft.	100
	CH	FAT CLAY, dark gray, medium stiff, moist @ 9.5 silt.	
	ML	SILT, grayish brown with brown mottles, medium stiff, lean, moist @ 6.5 ft. wet to soft.	
10	CL	CLAY, dark gray, lean, medium stiff to stiff, abundant wood fragments, moist.	100
15	ML	CLAYEY SILT, gray, lean, medium stiff, moist.	100
	CH	SILTY CLAY, dark gray, mdium stiff, fat, moist	
20	CL	CLAY, gray with brown mottles, medium stiff to stiff, lean, abundant roots, moist.	100
25	ML	SILT, gray with brown mottles, lean, medium stiff, moist to wet.	100
	SM	SILTY SAND, gray, loose, fine graned, wet	
	ML	SILT, gray with brown mottles, lean, medium stiff, moist to wet.	
30	SM	SILTY SAND, gray, fine grained, medium dense, small black sandy deposits, saturated.	75
	GM	GRAVEL with silt, gray, shell fragments with silt matrix, loose to medium dense, abundant wood fragments, saturated.	
35	CH	FAT CLAY, dark gray, medium stiff, moist.	25



Well Construction

- PVC cap with dedicated sampling tubing
- vented below cap
- 25.7 ft of 2 in dia., Sch. 40 PVC solid riser from 3 ft of stick-up to 22.7 ft bgs
- Cement/bentonite grout to 18 ft bgs
- Bentonite pellet seal from 18 ft bgs to 21 ft bgs
- Silica size 10/20 filter pack from 21 ft bgs to 38 ft bgs
- 10 ft of 2 in dia., 0.010 in slot, Sch. 40 PVC screen
- 0.25 ft, 2 in dia., Sch. 40 PVC end cap
- Drilling terminated at 38 ft bgs

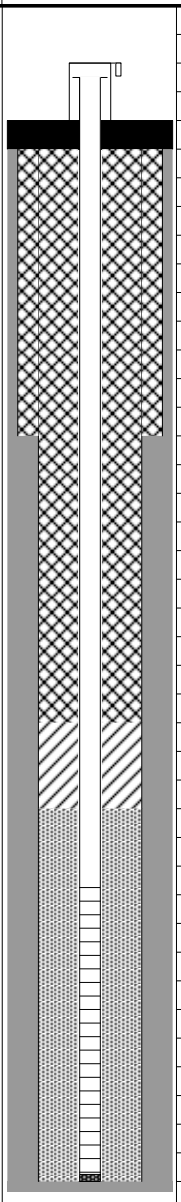
NOTES: HAS drilling of 8" diameter borehole.

Well completion of 2' x 2' x 4" concrete pad, 4" x 4" steel protective cover, 4" diameter pipe bollards.

	PROJECT: **Waterford-3 OSGSF Wells**	BORING ID: **MW-10**	
	LOCATION: **Killona, LA**	WELL ID: **MW-10**	
	DRILLING CONTRACTOR: **Pro Serve, Inc. / Walker Hill Environmental, Inc.**	NORTHING: (LA State Plane S.) **543116.44 ft (NAD 83)**	EASTING: (LA State Plane S.) **3553144.73 ft (NAD 83)**
	DRILLING EQUIPMENT: **GAPVAX MV-56/Geoprobe 7822DT**	GROUND SURFACE ELEV.: **15.96 ft (NGVD 29)**	TOC ELEVATION: **18.47 ft (NGVD 29)**
	DRILLING METHOD: **Hydrovac/H.S.A.**	TOTAL DEPTH: **36 ft bgs**	DEPTH TO WATER (11/02/2012): **9.48 ft Below TOC**
LOGGED BY: **CLN**	SAMPLING METHOD: **2" diameter direct push technology sampler with sleeve**	DATE STARTED: **10/31/2012**	DATE COMPLETED: **11/1/2012**

Depth (feet)	USCS	Description	% REC
-5			
0	GC	GRAVEL, shell fragments in clay matrix, light gray, dense, moist, black fabric liner at base.	
		CLAY, gray, lean, medium stiff, moist	0
5	CL		
10		NO RECOVERY	0
		CLAY, gray, lean, medium stiff, moist.	80
15	CL		
	ML	CLAYEY SILT, grayish brown, lean, medium stiff, organics, moist.	70
20		CLAY, gray, lean, medium stiff, moist	
	CL	@ 22.5 brown mottling, some organics.	90
25			90
	CH	CLAY, gray, fat, medium stiff, moist	
30			100
	ML	SILT with clay, gray, lean, medium stiff, moist @ 32 ft. wet.	
35	GC CH	GRAVEL, shell fragments in clay matrix, gray, loose, fragments < 1" dia., saturated.	100
		CLAY, gray, fat, medium stiff, moist.	
40			

Well Construction



- 2.5 ft. of protective aluminum stick-up
- PVC cap with dedicated sampling tubing vented below cap
- 28.3 ft of 2 in dia., Sch. 80 PVC solid riser from 2.5 ft of stick-up to 25.75 ft bgs
- Cement/bentonite grout to 20 ft bgs
- Bentonite pellet seal from 20 ft bgs to 23 ft bgs
- Silica size 20/40 filter pack from 23 ft bgs to 36 ft bgs
- 10 ft of 2 in dia., 0.010 in slot, Sch. 80 PVC screen
- 0.25 ft, 2 in dia., Sch. 80 PVC end cap
- Drilling terminated at 36 ft bgs

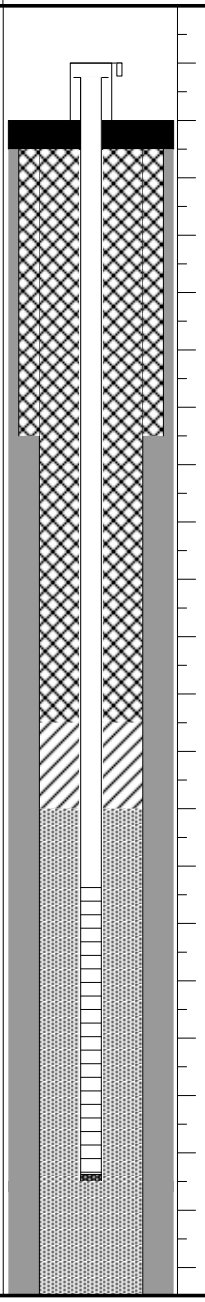
NOTES: Well completion of 3' x 3' x 4" concrete pad, 6" x 6" aluminum protective cover, four 4" diameter pipe bollards.

H.S.A. drilling of 8" diameter borehole.

PROJECT: **Waterford-3 OSGSF Wells**	BORING ID: **MW-11**	
LOCATION: **Killona, LA**	WELL ID: **MW-11**	
DRILLING CONTRACTOR: **Pro Serve, Inc. / Walker Hill Environmental, Inc.**	NORTHING: (LA State Plane S.) **543074.20 ft (NAD 83)**	EASTING: (LA State Plane S.) **3553225.08 ft (NAD 83)**
DRILLING EQUIPMENT: **GAPVAX MV-56/Geoprobe 7822DT**	GROUND SURFACE ELEV.: **15.93 ft (NGVD 29)**	TOC ELEVATION: **18.77 ft (NGVD 29)**
DRILLING METHOD: **Hydrovac/H.S.A.**	TOTAL DEPTH: **40 ft bgs**	DEPTH TO WATER (11/02/2012): **9.72 ft Below TOC**
LOGGED BY: **CLN**	SAMPLING METHOD: **2" diameter direct push technology sampler with sleeve**	DATE STARTED: **10/31/2012** / DATE COMPLETED: **11/1/2012**

Depth (feet)	USCS	Description	% REC
-5			
0	FILL	FILL, compacted shell gravel.	
		CLAY with shell fragments, gray, lean, medium stiff, moist.	0
5	CL		
10		SILTY CLAY, gray, lean, medium stiff, minor shell fragments, moist	100
	CL	@ 12 ft. lean to fat, no shell fragments	70
15		SILTY CLAY, gray, fat, medium stiff, moist.	
	CH		80
20	ML	SILT, dark brown, lean, medium stiff, organic fragments (twigs), dry to moist.	
		SILTY CLAY, gray, fat, medium stiff, moist	60
25	CH	@ 24 ft. some organic fragments	70
30		@ 32 ft. wet, soft	60
	GC	GRAVEL with clay, gray, loose, shell fragments <1" dia., saturated.	80
35		SILTY CLAY, gray, fat, soft, wet @ 36 ft. medium stiff, moist.	
	CH		
40			

Well Construction

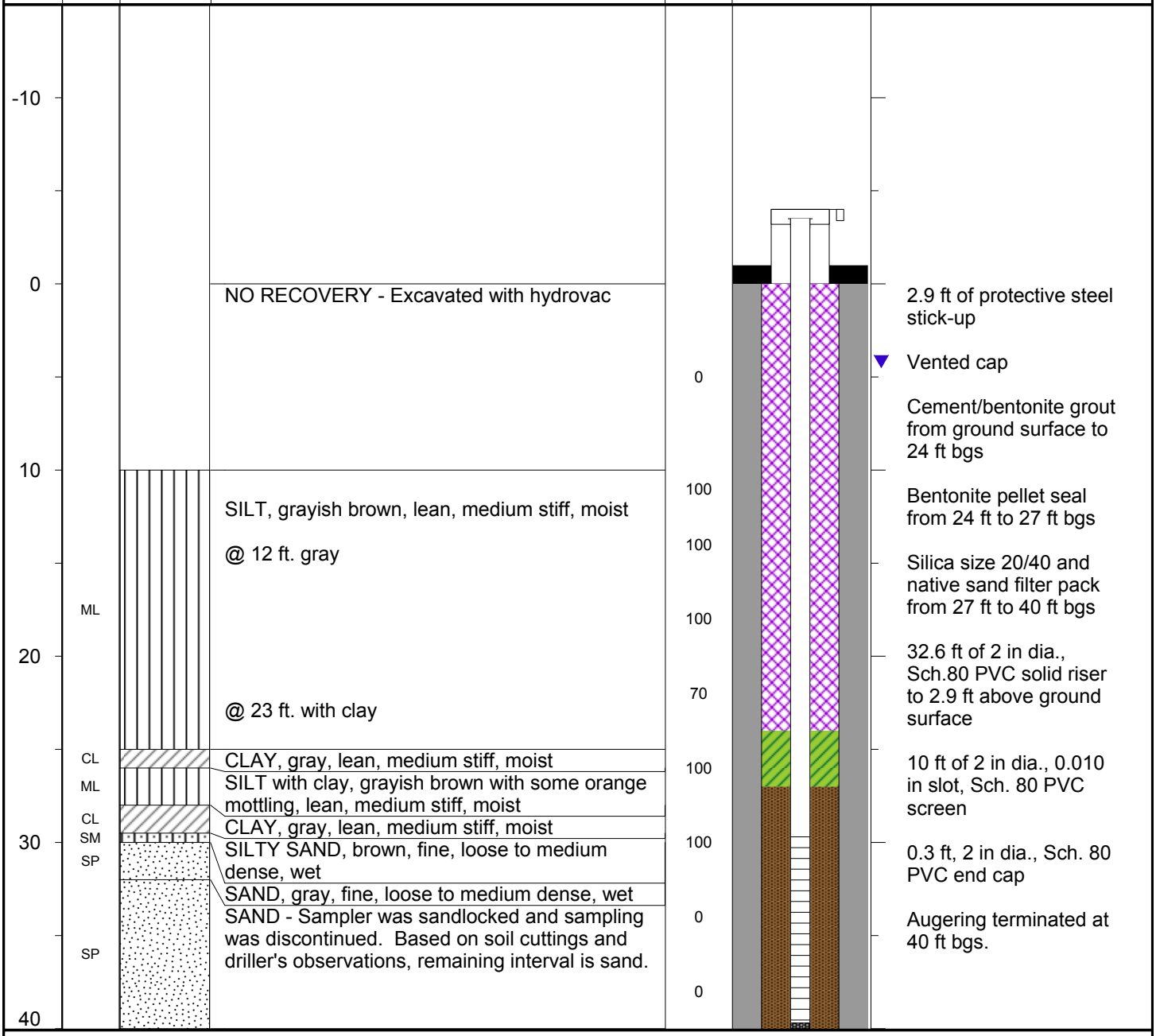


- 2.8 ft. of protective aluminum stick-up
- PVC cap with dedicated sampling tubing vented below cap
- 28.6 ft of 2 in dia., Sch. 80 PVC solid riser from 2.8 ft of stick-up to 25.75 ft bgs
- Cement/bentonite grout to 20 ft bgs
- Bentonite pellet seal from 20 ft bgs to 23 ft bgs
- Silica size 20/40 filter pack from 23 ft bgs to 36 ft bgs
- 10 ft of 2 in dia., 0.010 in slot, Sch. 80 PVC screen
- 0.25 ft, 2 in dia., Sch. 80 PVC end cap
- Drilling terminated at 40 ft bgs

NOTES: Well completion of 3' x 3' x 4" concrete pad, 6" x 6" aluminum protective cover, four 4" diameter pipe bollards.

H.S.A. drilling of 8" diameter borehole.

	PROJECT: **Entergy - Waterford 3**	BORING ID: **MW-12**	
	LOCATION: **Killona, LA**	WELL ID: **MW-12**	
	DRILLING CONTRACTOR: **Pro-Serve, Inc./Walker-Hill Environmental**	NORTHING: (LA State Plane) **544174.58 ft (NAD83)**	EASTING: (LA State Plane) **3553334.61 ft (NAD83)**
	DRILLING EQUIPMENT: **GapVax Hydrovac HV-56/Geoprobe 7822DT**	GROUND SURFACE ELEV.: **15.22 ft (NGVD29)**	TOC ELEVATION: **18.13 ft (NGVD29)**
	DRILLING METHOD: **Hydrovac/Direct push technology with rotary augerhead**	TOTAL DEPTH BGS: **40 ft**	DEPTH TO WATER from TOC: **7.16 ft (12/17/13)**
LOGGED BY: **CLN**	SAMPLING METHOD: **4', 3" dia. direct push technology sampling rod with sleeve**	DATE STARTED: **12/12/13**	DATE COMPLETED: **12/13/13**



NOTES: Borehole diameter: 12" from 0 ft to 10 ft with hydrovac, 8" from 10 ft to 40 ft with DPT rotary augering.
Well completion of 3'x3'x4" concrete pad, 6"x6" locking aluminum protective cover, and two 4" dia., steel bollards.

APPENDIX B

Well Registration Forms

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
WATER RESOURCE[illegible]ECTION
WATER WELL REGISTRATION SHO[illegible] FORM (DOTD-GW-1S)

PLEASE PRINT IN INK OR TYPE WHEN COMPLETING THIS FORM

1. USE OF WELL (Check Appropriate Box)

☐ DOMESTIC ☐ RIG SUPPLY ☒ MONITORING ☐ PIEZOMETER ☐ RECOVERY

☐ HEAT PUMP HOLE ☐ HEAT PUMP SUPPLY ☐ ABANDONED PILOT HOLE ☐ OTHER _____ (Please Specify)

2. WELL OWNER Entergy Waterford III PHONE (504) 739-6481

3. WELL OWNER'S ADDRESS 17265 River Rd. Killona, LA. 70057

4. OWNER'S WELL NUMBER OR NAME (if any) MW 6

5. DATE COMPLETED 10-7-10 DEPTH OF HOLE 33 FT. DEPTH OF WELL 33 +3 FT.

6. STATIC WATER LEVEL 24 FT. BELOW GROUND SURFACE MEASURED ON 10-7-10 (Date)

7. CASING 2 IN. ☐ METAL ☒ PLASTIC ☐ OTHER LENGTH 26 FT.

8. SCREEN 2 IN. ☐ METAL ☒ PLASTIC ☐ OTHER SLOT SIZE .010" LENGTH 10 FT.

9. CEMENTED FROM 19 FT. TO GROUND SURFACE, USING ☒ PUMP DOWN METHOD OR ☐ GRAVITY METHOD

10. LOCATION OF WELL: PARISH St. Charles WELL IS NEAR, Killona (Town or City)

APPROXIMATELY 1 MILES FROM Hyw 3141 & River Rd. (South) (Crossroads, Railroad, Any Landmark, etc.)

(Please draw sketch on back of Original)

11. REMARKS: Well has 3' Stickup

12. DRILLER'S LOG (Description and color of cuttings, such as shale, sand, etc. in feet)

FROM	TO	DESCRIPTION	FROM	TO	DESCRIPTION
0	1	Brown Sandy Silt			
1	33	Blackish Gray clay			
		With Some Silt			

13. FOR HEAT PUMP ONLY: AVG. DEPTH N/A FT. NUMBER OF HOLES N/A

14. ABANDONMENT INFORMATION: DOES THE NEW WELL REPLACE AN EXISTING WELL? YES ☐ NO ☒

15. NAME OF PERSON WHO DRILLED THE WELL: David McCray

(REV. 7/93)

OWNER'S COPY

Tri-State Testing Services, Inc
Name of Water Well Contractor

LICENSE NUMBER WWC-544

D. McCray 10/19/10
Authorized Signature Date

MAIL ORIGINAL TO:

LOUISIANA DEPARTMENT OF
TRANSPORTATION AND DEVELOPMENT
ATTN.: CHIEF - WATER RESOURCES SECTION
P.O. BOX 94245
BATON ROUGE, LA 70804-9245
(225) 274-4172

FOR OFFICE USE ONLY

PARISH WELL NO.

IDENTIFICATION NUMBER

REVISED COORDINATES

Geologic Unit

Use of Well

SECTION TOWNSHIP RANGE

ELEV. QUAD. NO.

INPUT BY: _____ DATE: _____

INSPECTED BY: _____ DATE: _____

REMARKS: _____

FOR MONITOR/PIEZO/RECOVERY WELLS ONLY

LATITUDE 29.9941 LONGITUDE -90.4640

SECTION 26 TOWNSHIP 12S RANGE 20E

ELEV. 16' QUAD. NO. 202A

SITE ADDRESS: 17265 River Road
Killona, LA. 70057

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
WATER RESOURCE[illegible]CTION
WATER WELL REGISTRATION SHO[illegible] FORM (DOTD-GW-1S)

PLEASE PRINT IN INK OR TYPE WHEN COMPLETING THIS FORM

1. USE OF WELL (Check Appropriate Box)
   ☐ DOMESTIC ☐ RIG SUPPLY ☒ MONITORING ☐ PIEZOMETER ☐ RECOVERY
   ☐ HEAT PUMP HOLE ☐ HEAT PUMP SUPPLY ☐ ABANDONED PILOT HOLE ☐ OTHER _____ (Please Specify)
2. WELL OWNER Entergy Waterford III PHONE (504) 739-6481
3. WELL OWNER'S ADDRESS 17265 River Road Killona, LA. 70057
4. OWNER'S WELL NUMBER OR NAME (if any) MW 7
5. DATE COMPLETED 10-7-10 DEPTH OF HOLE 38 FT. DEPTH OF WELL 38 +3 FT.
6. STATIC WATER LEVEL 22 FT. BELOW GROUND SURFACE MEASURED ON 10-7-10 (Date)
7. CASING 2 IN. ☐ METAL ☒ PLASTIC ☐ OTHER LENGTH 31 FT.
8. SCREEN 2 IN. ☐ METAL ☒ PLASTIC ☐ OTHER SLOT SIZE .010" LENGTH 10 FT.
9. CEMENTED FROM 24 FT. TO GROUND SURFACE, USING ☒ PUMP DOWN METHOD OR ☐ GRAVITY METHOD
10. LOCATION OF WELL: PARISH St. Charles WELL IS NEAR, Killona (Town or City)
    APPROXIMATELY 1 MILES FROM Hyw 3141 & River Rd. (South) (Crossroads, Railroad, Any Landmark, etc.)
    (Please draw sketch on back of Original)
11. REMARKS: Well has 3' Stickup
12. DRILLER'S LOG (Description and color of cuttings, such as shale, sand, etc. in feet)

FROM	TO	DESCRIPTION	FROM	TO.	DESCRIPTION
0	1	Brown Sandy Silt			
1	38	Blackish Gray Clay			
		with Some Silt			

13. FOR HEAT PUMP ONLY: AVG. DEPTH N/A FT. NUMBER OF HOLES N/A
14. ABANDONMENT INFORMATION: DOES THE NEW WELL REPLACE AN EXISTING WELL? YES ☐ NO ☒
15. NAME OF PERSON WHO DRILLED THE WELL: David McCray

(REV. 7/93)

OWNER'S COPY

Tri-State Testing Service
Name of Water Well Contractor
LICENSE NUMBER WWC-544
D. D. McCray 10/19/10
Authorized Signature Date

MAIL ORIGINAL TO:
LOUISIANA DEPARTMENT OF
TRANSPORTATION AND DEVELOPMENT
ATTN.: CHIEF - WATER RESOURCES SECTION
P.O. BOX 94245
BATON ROUGE, LA 70804-9245
(225) 274-4172

FOR OFFICE USE ONLY
PARISH WELL NO.
IDENTIFICATION NUMBER
REVISED COORDINATES
Geologic Unit
Use of Well
SECTION TOWNSHIP RANGE
ELEV. QUAD. NO.
INPUT BY: _____ DATE: _____
INSPECTED BY: _____ DATE: _____
REMARKS: _____

FOR MONITOR/PIEZO/RECOVERY WELLS ONLY
LATITUDE 29.9961 LONGITUDE -90.4691
SECTION 26 TOWNSHIP 12S RANGE 20E
ELEV. 16.31 QUAD. NO. 402A
SITE ADDRESS: 17265 River Road
Killona, LA 70057

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
WATER RESOURCES SECTION
WATER WELL REGISTRATION SHORT FORM (DOTD-GW-1S)

PLEASE PRINT IN INK OR TYPE WHEN COMPLETING THIS FORM

1. USE OF WELL (Check Appropriate Box)
   ☐ DOMESTIC ☐ RIG SUPPLY ☒ MONITORING ☐ PIEZOMETER ☐ RECOVERY
   ☐ HEAT PUMP HOLE ☐ HEAT PUMP SUPPLY ☐ ABANDONED PILOT HOLE ☐ OTHER _____ (Please Specify)
2. WELL OWNER Entergy Waterford III PHONE (504) 739-6481
3. WELL OWNER'S ADDRESS 17265 River Road Killona, LA 70057
4. OWNER'S WELL NUMBER OR NAME (if any) MW 8
5. DATE COMPLETED 10-7-10 DEPTH OF HOLE 38 FT. DEPTH OF WELL 38 +3 FT.
6. STATIC WATER LEVEL 23 FT. BELOW GROUND SURFACE MEASURED ON 10-7-10 (Date)
7. CASING 2 IN. ☐ METAL ☒ PLASTIC ☐ OTHER LENGTH 31 FT.
8. SCREEN 2 IN. ☐ METAL ☒ PLASTIC ☐ OTHER SLOT SIZE .010 LENGTH 10 FT.
9. CEMENTED FROM 24 FT. TO GROUND SURFACE, USING ☒ PUMP DOWN METHOD OR ☐ GRAVITY METHOD
10. LOCATION OF WELL: PARISH St. Charles WELL IS NEAR, Killona (Town or City)
    APPROXIMATELY 1 MILES FROM Hyw 3141 & River Road (south) (Crossroads, Railroad, Any Landmark, etc.)

(Please draw sketch on back of Original)

11. REMARKS: Well has 3' Stickup
12. DRILLER'S LOG (Description and color of cuttings, such as shale, sand, etc. in feet)

FROM	TO	DESCRIPTION	FROM	TO	DESCRIPTION
0	1	Brown Sandy Silt			
1	38	Blackish Gray Clay			
		with Some Silt			

13. FOR HEAT PUMP ONLY: AVG. DEPTH N/A FT. NUMBER OF HOLES N/A
14. ABANDONMENT INFORMATION: DOES THE NEW WELL REPLACE AN EXISTING WELL? YES ☐ NO ☒
15. NAME OF PERSON WHO DRILLED THE WELL: David McCray

(REV. 7/93)

OWNER'S COPY

Tri-State Testing Services
Name of Water Well Contractor

LICENSE NUMBER WWC-544

Authorized Signature D. McCray Date 10/19/10

MAIL ORIGINAL TO:
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
ATTN.: CHIEF - WATER RESOURCES SECTION
P.O. BOX 94245
BATON ROUGE, LA 70804-9245
(225) 274-4172

FOR OFFICE USE ONLY
PARISH WELL NO.
IDENTIFICATION NUMBER
REVISED COORDINATES
Geologic Unit
Use of Well
SECTION TOWNSHIP RANGE
ELEV. QUAD. NO.
INPUT BY: DATE:
INSPECTED BY: DATE:
REMARKS:

FOR MONITOR/PIEZO/RECOVERY WELLS ONLY
LATITUDE 29.9970 LONGITUDE -90.4713
SECTION 26 TOWNSHIP 12S RANGE 20E
ELEV. 16.37 QUAD. NO. 202A
SITE ADDRESS: 17265 River Road
Killona, LA 70057

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
WATER RESOURCES SECTION
WATER WELL REGISTRATION SHORT FORM (DOTD-GW-1S)

PLEASE PRINT IN INK OR TYPE WHEN COMPLETING THIS FORM

1. USE OF WELL (Check Appropriate Box)

☐ DOMESTIC ☐ RIG SUPPLY ☒ MONITORING ☐ PIEZOMETER ☐ RECOVERY

☐ HEAT PUMP HOLE ☐ HEAT PUMP SUPPLY ☐ ABANDONED PILOT HOLE ☐ OTHER _____ (Please Specify)

2. WELL OWNER Entergy Waterford III PHONE (504) 739-6481

3. WELL OWNER'S ADDRESS 17265 River Road Killona, LA. 70057

4. OWNER'S WELL NUMBER OR NAME (if any) MW 9

5. DATE COMPLETED 10-7-10 DEPTH OF HOLE 38 FT. DEPTH OF WELL 38 +3 FT.

6. STATIC WATER LEVEL 22 FT. BELOW GROUND SURFACE MEASURED ON 10-7-10 (Date)

7. CASING 2 IN. ☐ METAL ☒ PLASTIC ☐ OTHER LENGTH 26 FT.

8. SCREEN 2 IN. ☐ METAL ☒ PLASTIC ☐ OTHER SLOT SIZE .010 LENGTH 15 FT.

9. CEMENTED FROM 19 FT. TO GROUND SURFACE, USING ☒ PUMP DOWN METHOD OR ☐ GRAVITY METHOD

10. LOCATION OF WELL: PARISH St. Charles WELL IS NEAR, Killona (Town or City)

APPROXIMATELY 1 MILES FROM Hwy 3141 & River Road (South) (Crossroads, Railroad, Any Landmark, etc.)

(Please draw sketch on back of Original)

11. REMARKS: well was 3' stickup

12. DRILLER'S LOG (Description and color of cuttings, such as shale, sand, etc. in feet)

FROM	TO	DESCRIPTION	FROM	TO	DESCRIPTION
0	1	Brown Sandy Silt			
1	38	Blackish Gray Clay			
		with Some Silt			

13. FOR HEAT PUMP ONLY: AVG. DEPTH N/A FT. NUMBER OF HOLES N/A

14. ABANDONMENT INFORMATION: DOES THE NEW WELL REPLACE AN EXISTING WELL? YES ☐ NO ☒

15. NAME OF PERSON WHO DRILLED THE WELL: David McCray

(REV. 7/93)

OWNER'S COPY

Tri-State Testing Services, Inc
Name of Water Well Contractor

LICENSE NUMBER WWC-544

David McCray 10/13/10
Authorized Signature Date

MAIL ORIGINAL TO:

LOUISIANA DEPARTMENT OF
TRANSPORTATION AND DEVELOPMENT
ATTN.: CHIEF - WATER RESOURCES SECTION
P.O. BOX 94245
BATON ROUGE, LA 70804-9245
(225) 274-4172

FOR OFFICE USE ONLY

PARISH WELL NO.

IDENTIFICATION NUMBER

REVISED COORDINATES

Geologic Unit Use of Well

SECTION TOWNSHIP RANGE

ELEV. QUAD. NO.

INPUT BY: _____ DATE: _____

INSPECTED BY: _____ DATE: _____

REMARKS: _____

FOR MONITOR/PIEZO/RECOVERY WELLS ONLY

LATITUDE 29.9964 LONGITUDE -90.4743

SECTION 26 TOWNSHIP 12S RANGE 20E

ELEV. 13.65 QUAD. NO. 202A

SITE ADDRESS: 17265 River Road
Killona, LA 70057

MAIL ORIGINAL TO:
Louisiana Dept. of Natural Resources
Attn: Ground Water Resources
P.O. Box 94275
Baton Rouge, LA 70804-9275
(225) 342-8244 Ph.
(225) 242-3505 Fax

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
OFFICE OF CONSERVATION, ENVIRONMENTAL DIVISION
WATER WELL REGISTRATION SHORT FORM (DNR-GW-1S)

1. **USE OF WELL** (Check appropriate box):

☐ Domestic ☐ Rig Supply ☒ Monitoring ☐ Piezometer
☐ Recovery ☐ Heat Pump Hole ☐ Heat Pump Supply
☐ Relief ☐ Abandoned Pilot Hole
☐ Other *(please specify)* _____

2. **WELL OWNER:** Entergy Operations – Waterford 3

Phone: (504) 464-3267

3. **WELL OWNER'S ADDRESS:** 17265 River Road

Killona, LA 70057

4. **OWNER'S WELL NUMBER OR NAME:** MW-10

Serial Number (Rig Supply Only): _____

5. **WELL INFORMATION:**

Date completed: 11-1-12
Depth of Hole: 36 ft. below ground surface
Depth of Well: 35 ft.
Static water level: 10 ft. below ground surface
Date Measured: 11-1-12
Casing: 2 in. ☐ Metal ☒ Plastic ☐ Other Length: 28 ft.
Screen: 2 in. ☐ Metal ☒ Plastic ☐ Other Slot size: 0.010 in.
Length: 10 ft. Cemented from: 20 ft. to ground surface
Using: ☒ Pump down Method ☐ Gravity Method

6. **LOCATION OF WELL:**

GPS Coordinates:
Latitude: 29 ° 59 ' 26" Longitude.: 90 ° 28 ' 23 "
Parish: St. Charles
Physical Address: 17265 River Road, Killona, LA
Well is Near, Killona Approximately 1 miles from
(Crossroads, Railroad, any Landmark, etc.) west of the intersection of
Hwy 18 and Highway 3142
(Attach a map or sketch or registered plat if Rig Supply with form)

7. **REMARKS:** Casing extends 3 feet above ground surface

8. **DRILLER'S LOG**
(Description and color of cuttings, such as shale, sand, etc. in feet below ground surface)

FROM	TO	DESCRIPTION
0	2	Gravel
2	31	Gray Clay
31	34	Gray Silt
34	35	Gravel
35	36	Gray Clay

9. **FOR HEAT PUMP ONLY:** Avg. Depth: _____ ft. # of Holes: _____

10. **DOES THE NEW WELL REPLACE AN EXISTING WELL?** ☐ Yes ☒ No

11. **NAME OF PERSON WHO DRILLED THE WELL:**
Dennis Herrera

I certify that this work was done and completed in accordance with Rules and Regulations of the State of Louisiana, including Chapter XII of Title 51, Public Health – Sanitary Code, if applicable, on: 11-1-12 *(Date) by:* Walker-Hill Environmental, Inc. *(Name of Water Well Contractor), License No. WWC-* 574

Authorized Signature: _____ **Date:** 12-3-12

FOR OFFICE USE ONLY

PARISH	WELL NO.	GEOLOGIC UNIT

LATITUDE	LONGITUDE	SECTION
		026

TOWNSHIP	RANGE	ELEVATION	QUAD NO.
12S	20E	0000	202A

REGISTERED BY: _____ DATE: _____
INSPECTED BY: _____ DATE: _____
REMARKS: _____

MAIL ORIGINAL TO:
Louisiana Dept. of Natural Resources
Attn: Ground Water Resources
P.O. Box 94275
Baton Rouge, LA 70804-9275
(225) 342-8244 Ph.
(225) 242-3505 Fax

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
OFFICE OF CONSERVATION, ENVIRONMENTAL DIVISION
WATER WELL REGISTRATION SHORT FORM (DNR-GW-1S)

1. **USE OF WELL** (Check appropriate box):

☐ Domestic ☐ Rig Supply ☒ Monitoring ☐ Piezometer
☐ Recovery ☐ Heat Pump Hole ☐ Heat Pump Supply
☐ Relief ☐ Abandoned Pilot Hole
☐ Other *(please specify)* _____

2. **WELL OWNER:** Entergy Operations – Waterford 3

Phone: (504) 464-3267

3. **WELL OWNER'S ADDRESS:** 17265 River Road

Killona, LA 70057

4. **OWNER'S WELL NUMBER OR NAME:** MW-11

Serial Number (Rig Supply Only): _____

5. **WELL INFORMATION:**

Date completed: 11-1-12
Depth of Hole: 40 ft. below ground surface
Depth of Well: 35 ft.
Static water level: 10 ft. below ground surface
Date Measured: 11-1-12
Casing: 2in. ☐ Metal ☒ Plastic ☐ Other Length: 28 ft.
Screen: 2in. ☐ Metal ☒ Plastic ☐ Other Slot size: 0.010 in.
Length: 10 ft. Cemented from: 20 ft. to ground surface
Using: ☒ Pump down Method ☐ Gravity Method

6. **LOCATION OF WELL:**

GPS Coordinates:
Latitude: 29 ° 59 ' 26" Longitude.: 90 ° 28 ' 22 "
Parish: St. Charles
Physical Address: 17265 River Road, Killona, LA
Well is Near, Killona Approximately 1 miles from
(Crossroads, Railroad, any Landmark, etc.) west of the intersection of
Hwy 18 and Highway 3142
(Attach a map or sketch or registered plat if Rig Supply with form)

7. **REMARKS:** Casing extends 3 feet above ground surface

8. **DRILLER'S LOG**
(Description and color of cuttings, such as shale, sand, etc. in feet below ground surface)

FROM	TO	DESCRIPTION
0	2	Fill
2	18	Gray Silty Clay
18	19	Brown Silt
19	33	Gray silty Clay
33	36	Gravel
36	40	Gray silty Clay

9. **FOR HEAT PUMP ONLY:** Avg. Depth: _____ ft. # of Holes: _____

10. **DOES THE NEW WELL REPLACE AN EXISTING WELL?** ☐ Yes ☒ No

11. **NAME OF PERSON WHO DRILLED THE WELL:**
Dennis Herrera

I certify that this work was done and completed in accordance with Rules and Regulations of the State of Louisiana, including Chapter XII of Title 51, Public Health – Sanitary Code, if applicable, on: 11-1-12 *(Date) by:* Walker-Hill Environmental, Inc. *(Name of Water Well Contractor), License No. WWC-* 574

Authorized Signature: _____ **Date:** 12-3-12

FOR OFFICE USE ONLY

PARISH | WELL NO. | GEOLOGIC UNIT
LATITUDE | LONGITUDE | SECTION: 026
TOWNSHIP: 12S | RANGE: 20E | ELEVATION: 0000 | QUAD NO.: 202A

REGISTERED BY: _____ DATE: _____
INSPECTED BY: _____ DATE: _____
REMARKS: _____

MAIL ORIGINAL TO:
Louisiana Dept. of Natural Resources
Attn: Ground Water Resources
P.O. Box 94275
Baton Rouge, LA 70804-9275
(225) 342-8244 Ph.
(225) 242-3505 Fax

LOUISIANA DEPARTMENT OF NATURAL RESOURCES
OFFICE OF CONSERVATION, ENVIRONMENTAL DIVISION
WATER WELL REGISTRATION SHORT FORM (DNR-GW-1S)

ONLINE ACCESS:
1) Go to http://sonris.com/
2) Click on **Data Access** in the left hand panel.
3) Under the section labeled **Conservation**, click on **Ground Water Information**.

1. **USE OF WELL** (Check appropriate box):
☐Domestic ☐Rig Supply ☒Monitoring
☐Piezometer ☐Heat Pump Hole ☐Heat Pump Supply
☐Recovery ☐Relief ☐Abandoned Pilot Hole
☐Other *(please specify)*_____

2. **WELL OWNER:** Entergy Operations – Waterford 3
Phone: (504) 464-3267

3. **WELL OWNER'S ADDRESS:** 17265 River Road
Killona, LA 70057

4. **OWNER'S WELL NUMBER OR NAME:** MW-12

Serial Number (Rig Supply Only):_____

5. **WELL INFORMATION:**
Date completed: 12-13-13
Depth of Hole: 40 ft. below ground surface
Depth of Well: 40 ft.
Static water level: NR ft. below ground surface
Date Measured: 12-13-13
Casing: 2 in. ☐Metal ☒Plastic ☐Other Length: 33 ft.
Screen: 2 in. ☐Metal ☒Plastic ☐Other Slot size: 0.010 in.
Length: 10 ft. Cemented from: 24 ft. to ground surface
Using: ☒ Pump down Method ☐Gravity Method

6. **LOCATION OF WELL:**
Latitude: 29 ° 59 ' 38 " Longitude: 90 ° 28 ' 21 "
Parish: St. Charles
Physical Address: 17265 River Road, Killona, LA
Well is Near, Killona Approximately 1 miles from
(Crossroads, Railroad, any Landmark, etc.) west of the intersection of Hwy 18 and Hwy 3142
(Attach a map or sketch or registered plat if Rig Supply to registration)

FOR MONITOR/PIEZO/RECOVERY WELLS ONLY

SECTION	TOWNSHIP	RANGE	ELEVATION	QUAD NO.
026	12S	20E	0000	202A

7. **REMARKS:** Casing extends 3 feet above ground surface

8. **DRILLER'S LOG:**
(Description and color of cuttings, such as shale, sand, etc. in feet below ground surface)

FROM	TO	DESCRIPTION
0	30	Clay
30	40	Sand

9. **FOR HEAT PUMP ONLY:** Avg. Depth: _____ ft. # of Holes: _____

10. **DOES THE NEW WELL REPLACE AN EXISTING WELL?** ☐Yes ☒No
If **yes**, has owner been informed of state regulations requiring plugging of abandoned wells? ☐Yes ☐No

11. **NAME OF PERSON WHO DRILLED THE WELL:** Dennis Herrera

I certify that this work was done and completed in accordance with Rules and Regulations of the State of Louisiana, including Chapter XII of Title 51, Public Health – Sanitary Code, if applicable, on: 12-13-13 ***(Date) by:*** Walker-Hill Environmental, Inc. ***(Name of Water Well Contractor), License No. WWC-*** 574
Authorized Signature: _____ **Date:** 12-23-13

FOR OFFICE USE ONLY

PARISH | WELL NO. | GEOLOGIC UNIT
LATITUDE | LONGITUDE | SECTION
TOWNSHIP | RANGE | ELEVATION | QUAD NO.
REGISTERED BY: _____ DATE: _____
INSPECTED BY: _____ DATE: _____
REMARKS: _____

APPENDIX C

Groundwater Level Data Sheet

Groundwater Level Data Sheet

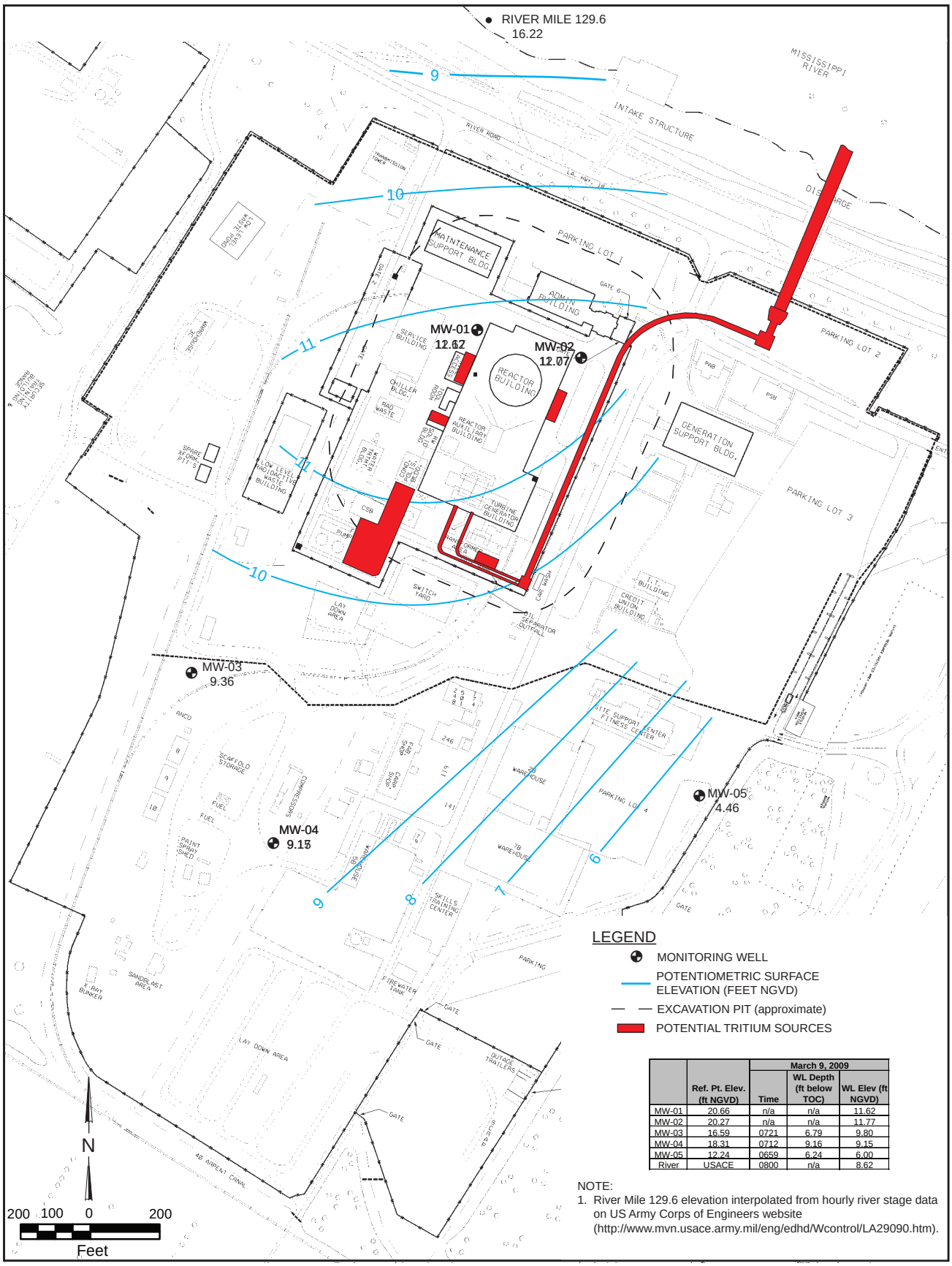
Project Name:	**Project Number:**	**Investigator:**	**Page ___ of___**
Weather Conditions:	**Measuring Device:**		

Well ID	**Date**	**Time**	**Depth to Water (feet below RP)**	**Damages/Repairs**		
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record

Notes:
RP = Reference Point
TOC = Top of Casing
gw = groundwater

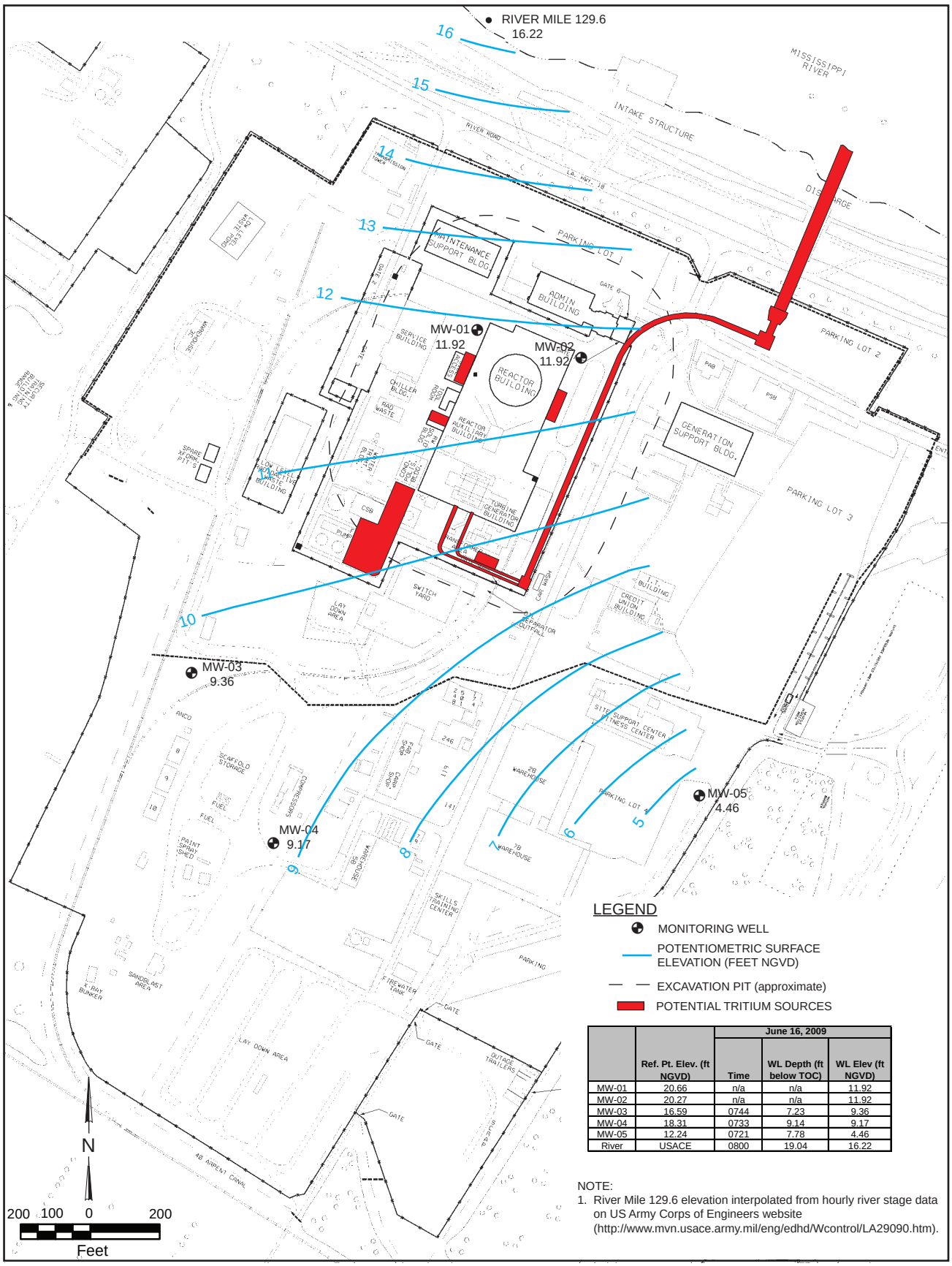
APPENDIX D

Potentiometric Surface Maps



	Ref. Pt. Elev. (ft NGVD)	March 9, 2009		
		Time	WL Depth (ft below TOC)	WL Elev (ft NGVD)
MW-01	20.66	n/a	n/a	11.62
MW-02	20.27	n/a	n/a	11.77
MW-03	16.59	0721	6.79	9.80
MW-04	18.31	0712	9.16	9.15
MW-05	12.24	0659	6.24	6.00
River	USACE	0800	n/a	8.62

NOTE:
1. River Mile 129.6 elevation interpolated from hourly river stage data on US Army Corps of Engineers website (http://www.mvn.usace.army.mil/eng/edhd/Wcontrol/LA29090.htm).



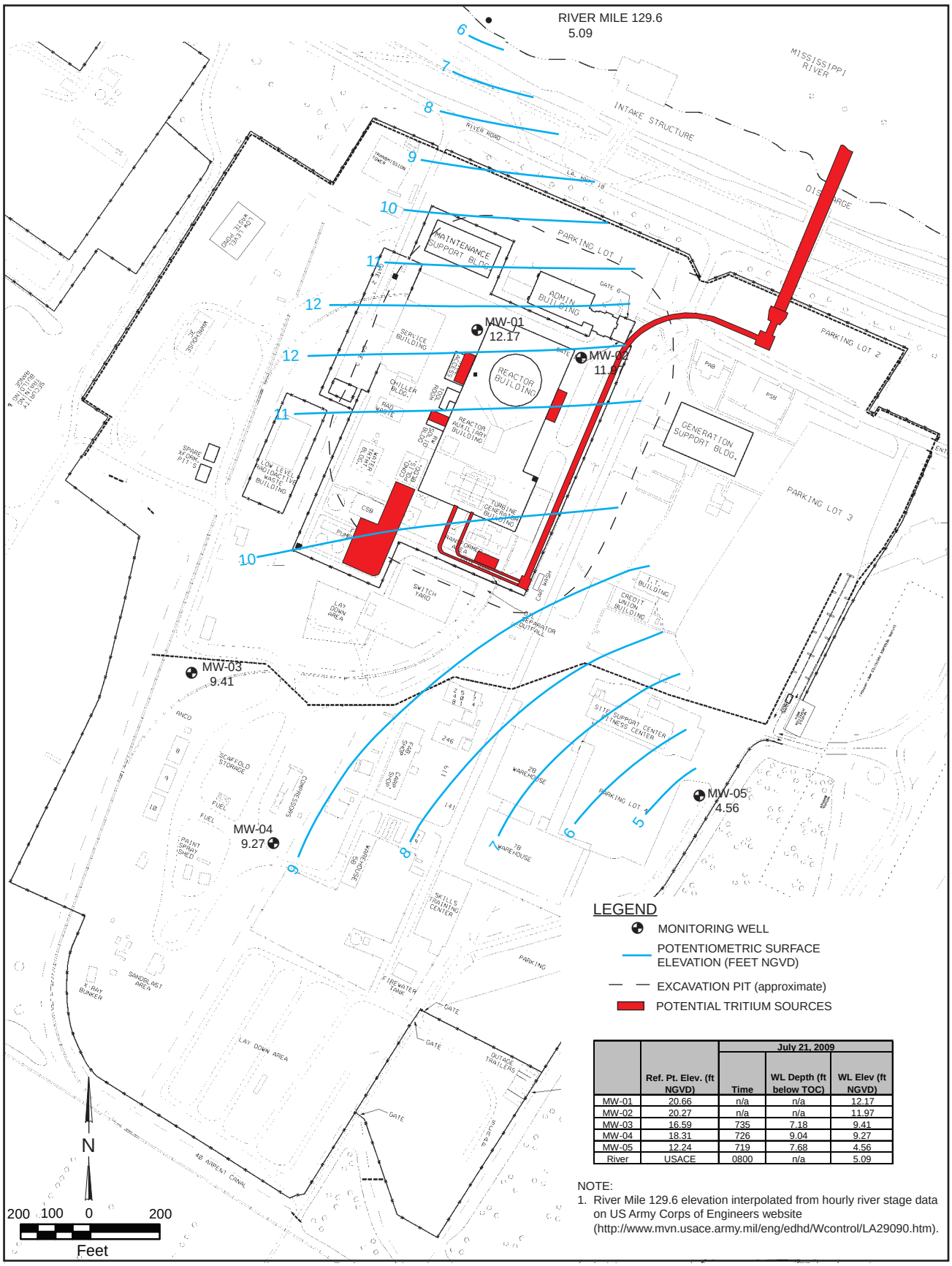
LEGEND

- MONITORING WELL
- POTENTIOMETRIC SURFACE ELEVATION (FEET NGVD)
- EXCAVATION PIT (approximate)
- POTENTIAL TRITIUM SOURCES

		June 16, 2009		
	Ref. Pt. Elev. (ft NGVD)	Time	WL Depth (ft below TOC)	WL Elev (ft NGVD)
MW-01	20.66	n/a	n/a	11.92
MW-02	20.27	n/a	n/a	11.92
MW-03	16.59	0744	7.23	9.36
MW-04	18.31	0733	9.14	9.17
MW-05	12.24	0721	7.78	4.46
River	USACE	0800	19.04	16.22

NOTE:

1. River Mile 129.6 elevation interpolated from hourly river stage data on US Army Corps of Engineers website (http://www.mvn.usace.army.mil/eng/edhd/Wcontrol/LA29090.htm).



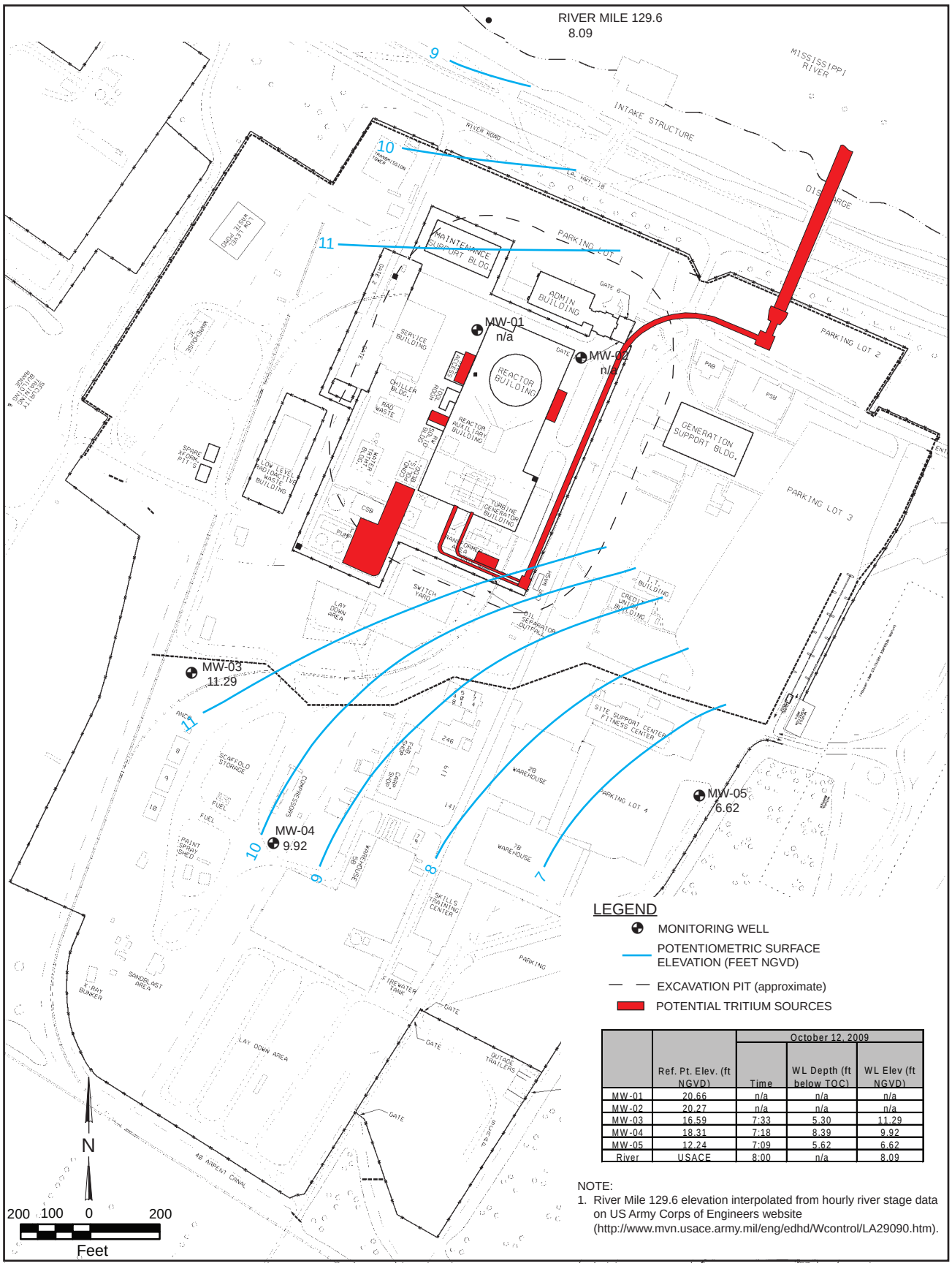
LEGEND

- MONITORING WELL
- POTENTIOMETRIC SURFACE ELEVATION (FEET NGVD)
- EXCAVATION PIT (approximate)
- POTENTIAL TRITIUM SOURCES

	Ref. Pt. Elev. (ft NGVD)	July 21, 2009		
		Time	WL Depth (ft below TOC)	WL Elev (ft NGVD)
MW-01	20.66	n/a	n/a	12.17
MW-02	20.27	n/a	n/a	11.97
MW-03	16.59	735	7.18	9.41
MW-04	18.31	726	9.04	9.27
MW-05	12.24	719	7.68	4.56
River	USACE	0800	n/a	5.09

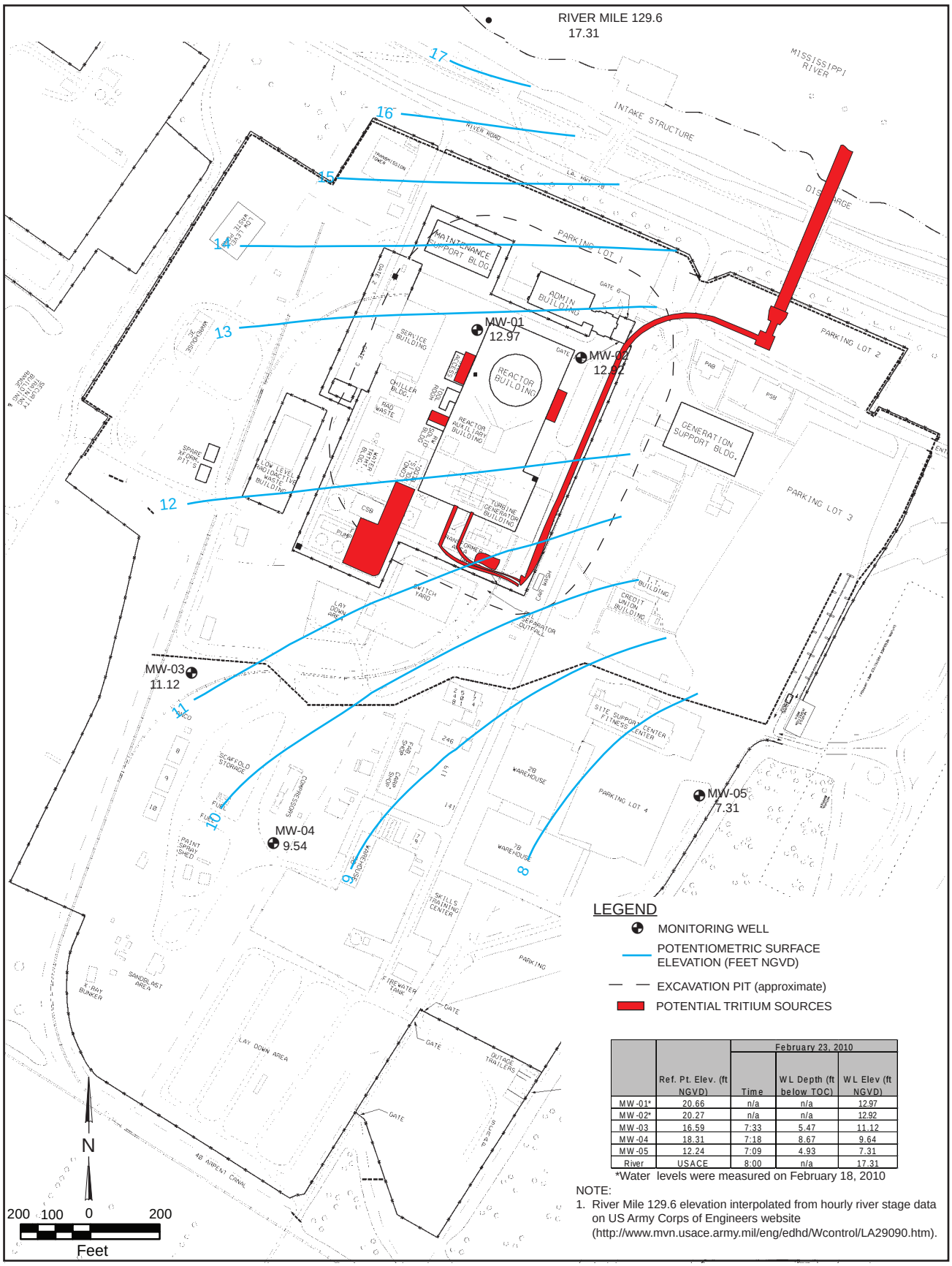
NOTE:

1. River Mile 129.6 elevation interpolated from hourly river stage data on US Army Corps of Engineers website (http://www.mvn.usace.army.mil/eng/edhd/Wcontrol/LA29090.htm).



	Ref. Pt. Elev. (ft NGVD)	October 12, 2009		
		Time	WL Depth (ft below TOC)	WL Elev (ft NGVD)
MW-01	20.66	n/a	n/a	n/a
MW-02	20.27	n/a	n/a	n/a
MW-03	16.59	7:33	5.30	11.29
MW-04	18.31	7:18	8.39	9.92
MW-05	12.24	7:09	5.62	6.62
River	USACE	8:00	n/a	8.09

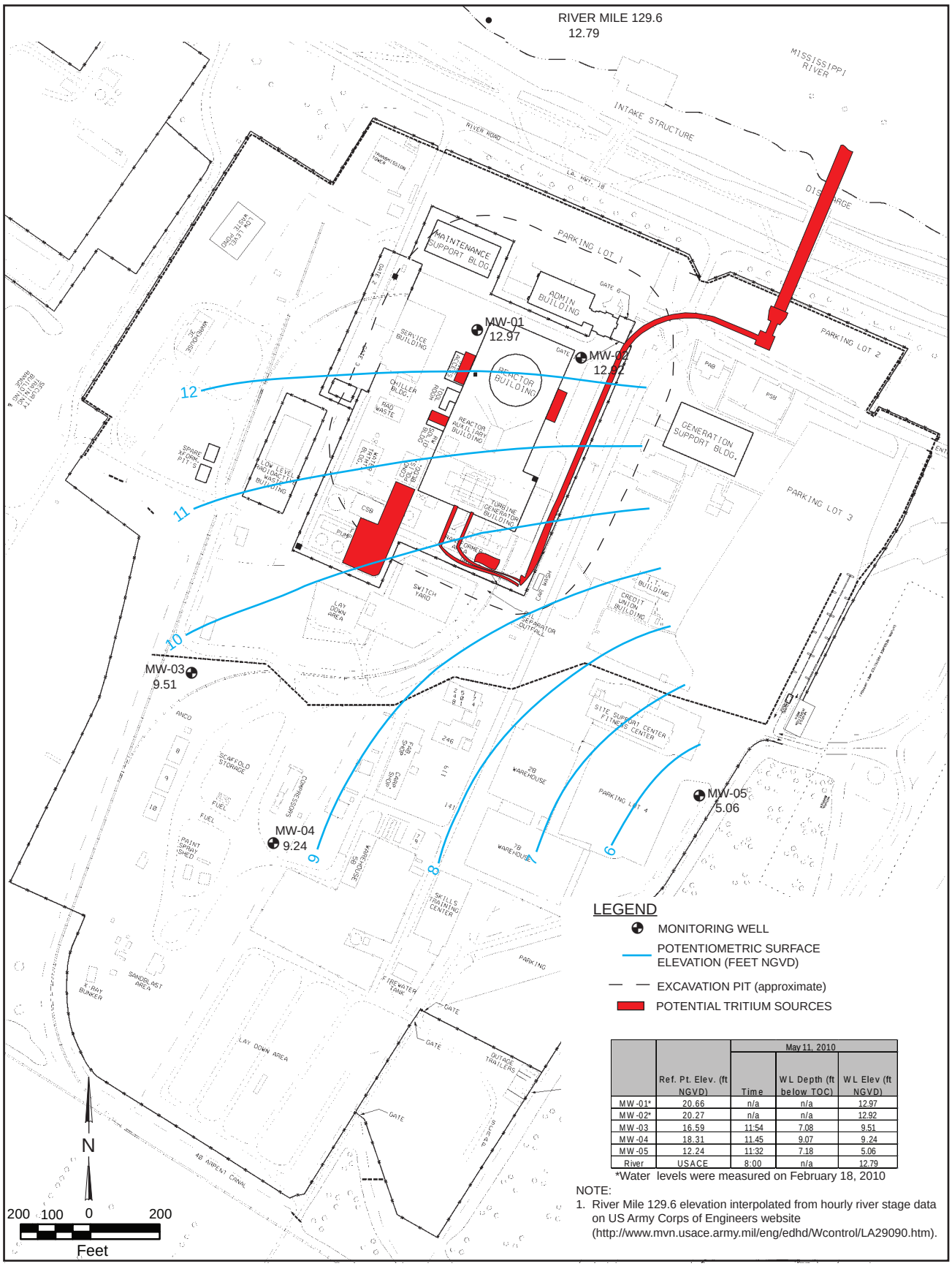
NOTE:
1. River Mile 129.6 elevation interpolated from hourly river stage data on US Army Corps of Engineers website (http://www.mvn.usace.army.mil/eng/edhd/Wcontrol/LA29090.htm).



		February 23, 2010		
	Ref. Pt. Elev. (ft NGVD)	Time	WL Depth (ft below TOC)	WL Elev (ft NGVD)
MW-01*	20.66	n/a	n/a	12.97
MW-02*	20.27	n/a	n/a	12.92
MW-03	16.59	7:33	5.47	11.12
MW-04	18.31	7:18	8.67	9.64
MW-05	12.24	7:09	4.93	7.31
River	USACE	8:00	n/a	17.31

*Water levels were measured on February 18, 2010

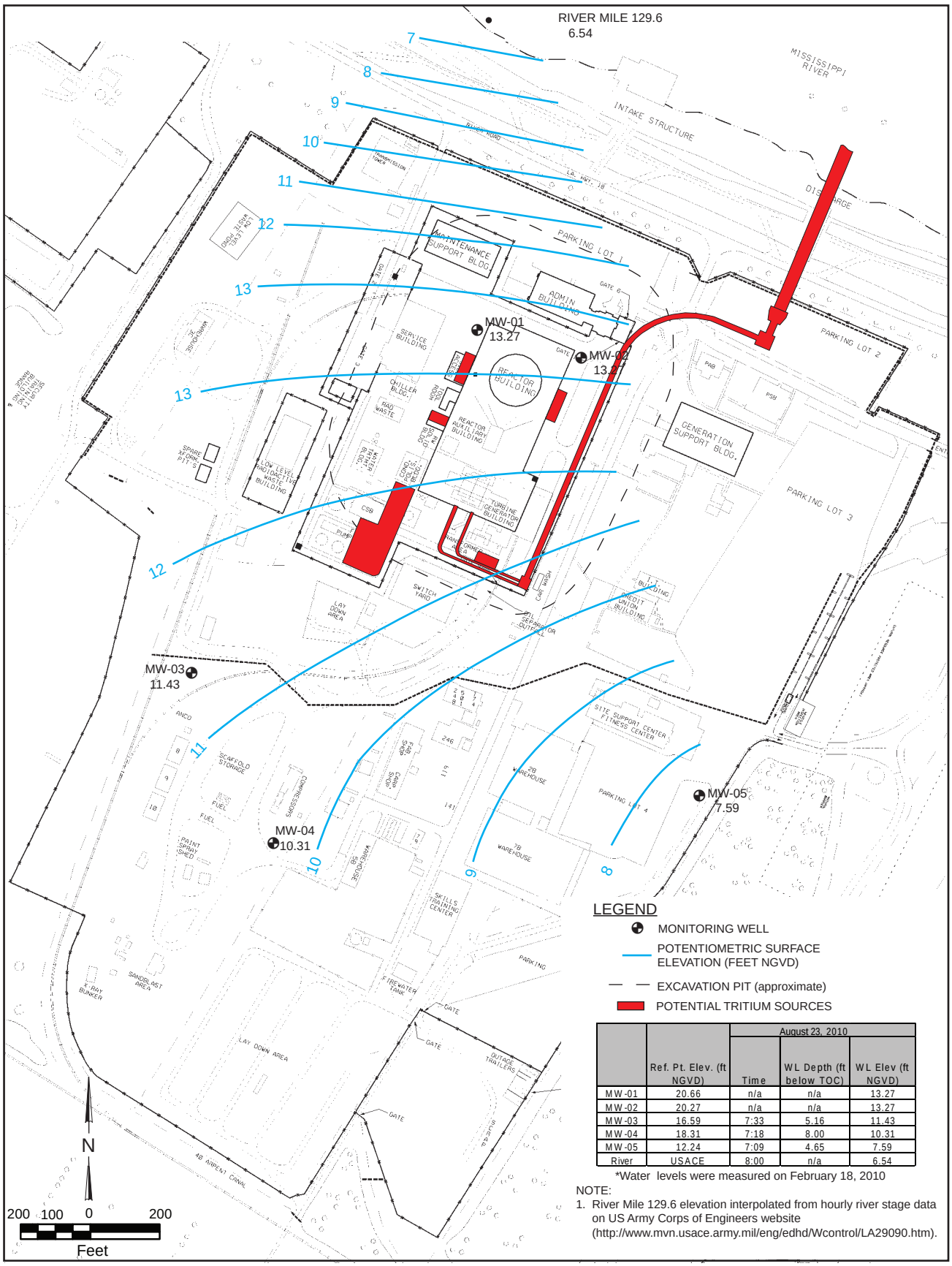
NOTE:
1. River Mile 129.6 elevation interpolated from hourly river stage data on US Army Corps of Engineers website (http://www.mvn.usace.army.mil/eng/edhd/Wcontrol/LA29090.htm).



	Ref. Pt. Elev. (ft NGVD)	May 11, 2010		
		Time	WL Depth (ft below TOC)	WL Elev (ft NGVD)
MW-01*	20.66	n/a	n/a	12.97
MW-02*	20.27	n/a	n/a	12.92
MW-03	16.59	11:54	7.08	9.51
MW-04	18.31	11:45	9.07	9.24
MW-05	12.24	11:32	7.18	5.06
River	USACE	8:00	n/a	12.79

*Water levels were measured on February 18, 2010

NOTE:
1. River Mile 129.6 elevation interpolated from hourly river stage data on US Army Corps of Engineers website (http://www.mvn.usace.army.mil/eng/edhd/Wcontrol/LA29090.htm).



	Ref. Pt. Elev. (ft NGVD)	August 23, 2010		
		Time	WL Depth (ft below TOC)	WL Elev (ft NGVD)
MW-01	20.66	n/a	n/a	13.27
MW-02	20.27	n/a	n/a	13.27
MW-03	16.59	7:33	5.16	11.43
MW-04	18.31	7:18	8.00	10.31
MW-05	12.24	7:09	4.65	7.59
River	USACE	8:00	n/a	6.54

*Water levels were measured on February 18, 2010

NOTE:
1. River Mile 129.6 elevation interpolated from hourly river stage data on US Army Corps of Engineers website (http://www.mvn.usace.army.mil/eng/edhd/Wcontrol/LA29090.htm).

	Ref. Pt. Elev. (ft NGVD)	November 16-17, 2010	
		WL Depth (ft below TOC)	WL Elev (ft NGVD)
MW-01	20.66	n/a	12.27
MW-02	20.27	n/a	12.27
MW-03	16.59	6.28	10.31
MW-04	18.31	8.29	10.02
MW-05	12.24	6.26	5.98
MW-06	14.01	4.44	9.57
MW-07	19.46	6.38	13.08
MW-08	19.84	7.68	12.16
MW-09	15.87	4.51	11.36
River	USACE	n/a	3.34

The information shown on this map was compiled from various sources and should not be considered authoritative for engineering, surveying, legal and/or other site-specific uses. Information shown on this map should not be used for property boundary resolution. This does not represent a boundary survey and is shown for reference only.

Legend

- Monitoring Well
- Potentiometric Surface Elevation
- Approximate Excavation Area
- Potential Tritium Sources
- Approximate Property Boundary

Entergy Waterford-3
Potentiometric Surface

BASEMAP SOURCE
NAIP 2009
St. Charles Parish, LA

0 200 400 800 Feet

N

By: SEM
Scale: 1"=400'
Date: 17JAN2011
Project No. 6045-460

S:\projects\6045-460\gis\mapdoc\Potentiometric_Map_Nov2010.mxd SEM [1-17-11]

	Ref. Pt. Elev. (ft NGVD 29)	March 28, 2011	
		WL Depth (ft below TOC)	WL Elev (ft NGVD 29)
MW-01	20.66	n/a	12.22
MW-02	20.27	n/a	12.22
MW-03	16.61	6.31	10.30
MW-04	18.34	8.93	9.41
MW-05	12.26	6.30	5.96
MW-06	14.02	4.45	9.57
MW-07	19.51	6.31	13.20
MW-08	19.88	5.81	14.07
MW-09	15.88	4.68	11.20
River	USACE	n/a	17.00

The information shown on this map was compiled from various sources and should not be considered authoritative for engineering, surveying, legal and/or other site-specific uses. Information shown on this map should not be used for property boundary resolution. This does not represent a boundary survey and is shown for reference only.

Legend

- Groundwater Monitoring Installation
- Potentiometric Surface Elevation
- Approximate Excavation Area
- Potential Tritium Sources
- Approximate Property Boundary

Entergy Waterford-3
Potentiometric Surface

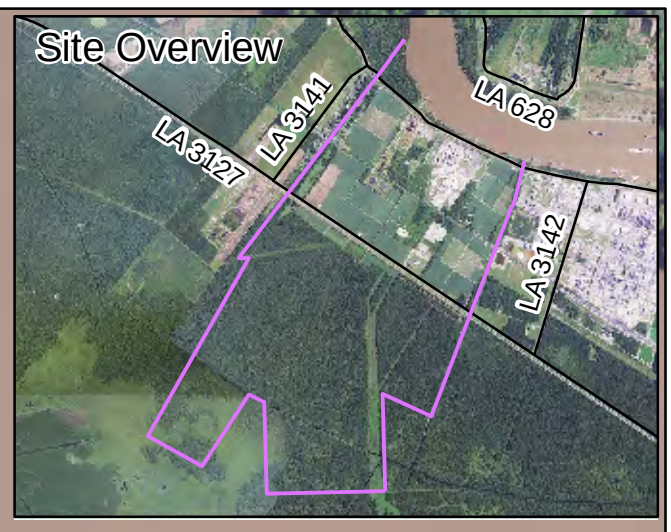
BASEMAP SOURCE
NAIP 2009
St. Charles Parish, LA

0 200 400 800 Feet

N

By: SEM
Date: August 3, 2011
Project No. 6045-460

S:\projects\6045-460\gis\mapdoc\Potentiometric_Map_28Mar2011.mxd SEM [5-19-11]



River Mile 129.6
El. 17.14

MW-08
14.13

MW-09
7.86

MW-07
12.78

MW-01
12.55

MW-02
12.59

MW-06
8.57

MW-03
9.71

MW-04
9.07

MW-05
4.15

		June 21, 2011	
	Ref. Pt. Elev. (ft NGVD)	WL Depth (ft below TOC)	WL Elev (ft NGVD)
MW-01	20.66	n/a	12.55
MW-02	20.27	n/a	12.59
MW-03	16.61	6.90	9.71
MW-04	18.34	9.27	9.07
MW-05	12.26	8.11	4.15
MW-06	14.02	5.45	8.57
MW-07	19.51	6.73	12.78
MW-08	19.88	5.75	14.13
MW-09	15.88	8.02	7.86
River	USACE	n/a	17.14

The information shown on this map was compiled from various sources and should not be considered authoritative for engineering, surveying, legal and/or other site-specific uses. Information shown on this map should not be used for property boundary resolution. This does not represent a boundary survey and is shown for reference only.

Legend

- Groundwater Monitoring Installation
- Potentiometric Surface Elevation
- Approximate Excavation Area
- Potential Tritium Sources
- Approximate Property Boundary

Entergy Waterford-3
Potentiometric Surface

BASEMAP SOURCE
NAIP 2009
St. Charles Parish, LA

0 200 400 800 Feet

N

By: SEM
Date: July 18, 2011
Project No. 6045-460

S:\projects\6045-460\gis\mapdoc\Potentiometric_Map_21June2011.mxd SEM [6-29-11]

Well ID	Ref. Pt. Elev. (ft NGVD)	September 13 ,2011	
		WL Depth (ft below TOC)	WL Elev (ft NGVD)
MW-01	20.66	---	12.92
MW-02	20.27	---	12.87
MW-03	16.61	5.59	11.02
MW-04	18.34	8.63	9.71
MW-05	12.26	6.06	6.20
MW-06	14.02	3.98	10.04
MW-07	19.51	5.54	13.97
MW-08	19.88	6.68	13.20
MW-09	15.88	4.46	11.42
River	USACE	n/a	4.30

The information shown on this map was compiled from various sources and should not be considered authoritative for engineering, surveying, legal and/or other site-specific uses. Information shown on this map should not be used for property boundary resolution. This does not represent a boundary survey and is shown for reference only.

Legend

- Groundwater Monitoring Installation
- Potentiometric Surface Elevation
- Approximate Excavation Area
- Potential Tritium Sources
- Approximate Property Boundary

Entergy Waterford-3
Potentiometric Surface

BASEMAP SOURCE
NAIP 2009
St. Charles Parish, LA

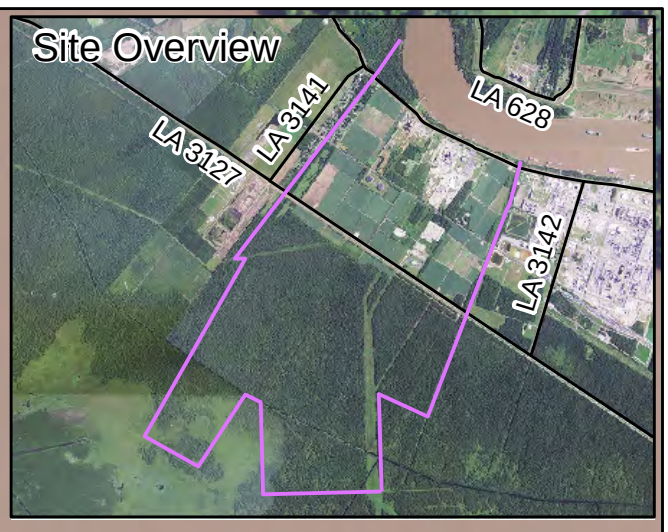
0 200 400 800 Feet

ftn

By: SEM
Date: October 12, 2011
Project No. 6045-460

N

S:\projects\6045-460\gis\mapdoc\Potentiometric Map 13Sept2011.mxd SEM [10-7-11]



River Mile 126.9
El. 14.74

MW-08
12.64

MW-09
9.14

MW-07
12.36

MW-01
11.97

MW-02
12.07

MW-06
8.73

MW-03
9.89

MW-04
9.04

MW-05
4.99

Well ID	Ref. Pt. Elev. (ft NGVD)	December 13 ,2011	
		WL Depth (ft below TOC)	WL Elev (ft NGVD)
MW-01	20.66	8.69	11.97
MW-02	20.27	8.20	12.07
MW-03	16.61	6.72	9.89
MW-04	18.34	9.30	9.04
MW-05	12.26	7.27	4.99
MW-06	14.02	5.29	8.73
MW-07	19.51	7.15	12.36
MW-08	19.88	7.24	12.64
MW-09	15.88	6.74	9.14
River	USACE	n/a	14.74

The information shown on this map was compiled from various sources and should not be considered authoritative for engineering, surveying, legal and/or other site-specific uses. Information shown on this map should not be used for property boundary resolution. This does not represent a boundary survey and is shown for reference only.

Legend

- Groundwater Monitoring Installation
- Potentiometric Surface Elevation
- Approximate Excavation Area
- Potential Tritium Sources
- Approximate Property Boundary

Entergy Waterford-3
Potentiometric Surface
December 13, 2011

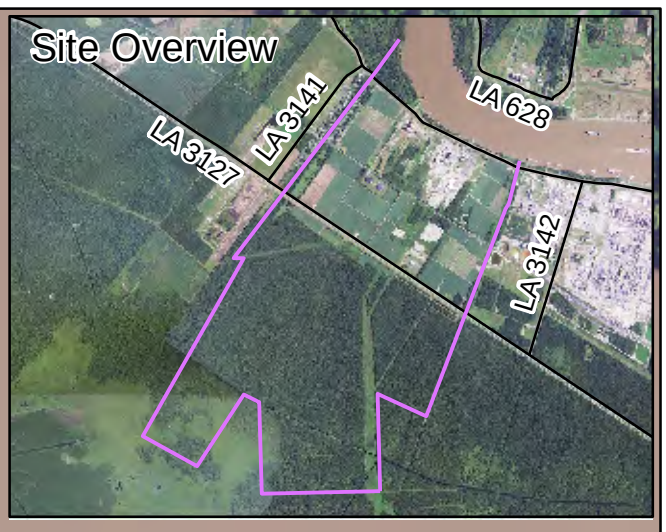
0 200 400 Feet

BASEMAP SOURCE
NAIP 2009
St. Charles Parish, LA

By: SEM
Date: January 4, 2012
Project No. 6045-460

N

S:\projects\6045-460\gis\mapdoc\Potentiometric Map 13DEC2011.mxd SEM [1-4-2012]



River Mile 126.9
El. 14.11

MW-08
13.78

MW-09
12.15

MW-07
13.26

MW-01
12.82

MW-02
12.87

MW-06
9.78

MW-03
7.68

MW-04
8.96

MW-05
6.60

14
13
12
11
10
9
8
7

Well ID	TOC Elevation (ft NAVD 88)	Depth to Water (ft below TOC)	WL Elevation (NAVD 88)
MW-01	20.66	7.84	12.82
MW-02	20.27	7.40	12.87
MW-03	16.61	8.93	7.68
MW-04	18.34	9.38	8.96
MW-05	12.26	5.66	6.60
MW-06	14.02	4.24	9.78
MW-07	19.51	6.25	13.26
MW-08	19.88	6.10	13.78
MW-09	15.88	3.73	12.15
River	USACE	n/a	14.11

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Legend

- Groundwater Monitoring Installation
- Potentiometric Surface Elevation
- Approximate Excavation Area
- Potential Tritium Sources
- Approximate Property Boundary

Entergy Waterford-3
Potentiometric Surface
March 30, 2012

0 200 400 Feet

BASEMAP SOURCE
NAIP 2009
St. Charles Parish, LA

By: SEM
Date: March 30, 2012
Project No. 6045-460

N

Path: K:\Projects\6045-460\backup_gis_03272012\gis\mapdoc\Potentiometric_Map_03302012.mxd

Well ID	TOC Elevation (ft NAVD 88)	Depth to Water (ft below TOC)	WL Elevation (ft NAVD 88)
MW-01	20.66	8.01	12.65
MW-02	20.27	7.00	13.27
MW-03	16.61	5.61	11.00
MW-04	18.34	8.96	9.38
MW-05	12.26	5.03	7.23
MW-06	14.02	4.06	9.96
MW-07	19.51	5.98	13.53
MW-08	19.88	7.22	12.66
MW-09	15.88	3.59	12.29
River	USACE	n/a	3.76

The information shown on this map was compiled from various sources and should not be considered authoritative for engineering, surveying, legal and/or other site-specific uses. Information shown on this map should not be used for property boundary resolution. This does not represent a boundary survey and is shown for reference only.

Legend

- Groundwater Monitoring Installation
- Potentiometric Surface Elevation
- Approximate Excavation Area
- Potential Tritium Sources
- Approximate Property Boundary

Entergy Waterford-3
Potentiometric Surface
June 18, 2012

0 200 400 Feet

BASEMAP SOURCE
NAIP 2009
St. Charles Parish, LA

By: JWB
Date: July 1, 2012
Project No. 6045-460

N

Path: K:\Projects\6045-460\backup_gis_03272012\gis\mapdoc\Potentiometric_Map_06182012.mxd

Well ID	TOC Elevation (ft NGVD 88)	Depth to Water (ft below TOC)	WL Elevation (NGVD 88)
MW-01	20.66	8.19	12.47
MW-02	20.27	7.90	12.37
MW-03	16.61	5.55	11.06
MW-04	18.34	8.42	9.92
MW-05	12.26	4.92	7.34
MW-06	14.02	4.02	10.00
MW-07	19.51	5.53	13.98
MW-08	19.88	6.90	12.98
MW-09	15.88	3.87	12.01
River	USACE	n/a	2.89

The information shown on this map was compiled from various sources and should not be considered authoritative for engineering, surveying, legal and/or other site-specific uses. Information shown on this map should not be used for property boundary resolution. This does not represent a boundary survey and is shown for reference only.

Legend

- Groundwater Monitoring Installation
- Potentiometric Surface Elevation
- Approximate Excavation Area
- Potential Tritium Sources
- Approximate Property Boundary

Entergy Waterford-3
Potentiometric Surface
September 18, 2012

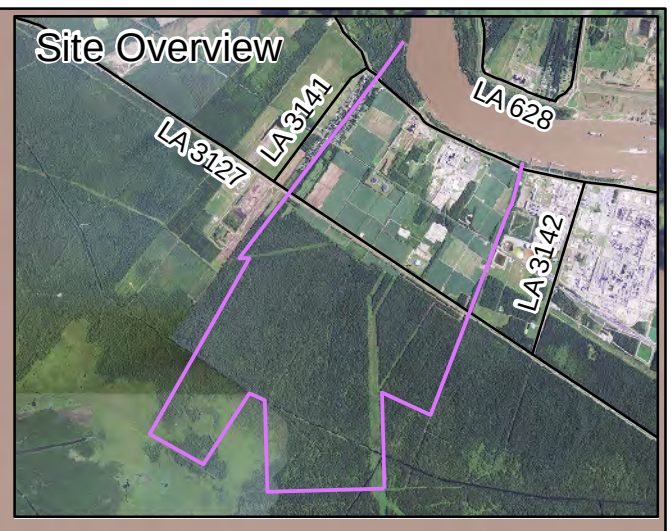
0 200 400 Feet

BASEMAP SOURCE
NAIP 2009
St. Charles Parish, LA

By: SEM
Date: Nov. 8, 2012
Project No. 6045-460

N

Path: K:\Projects\6045-460\backup_gis_03272012\gis\mapdoc\Potentiometric_Map_09182012.mxd



River Mile 126.9
El. 2.66

MW-08
11.66

MW-09
9.77

MW-07
12.53

BW-01
12.42

BW-02
12.27

MW-06
9.07

MW-03
10.43

MW-04
9.65

MW-05
5.12

MW-10

MW-11
9.05

Well ID	TOC Elevation (ft NGVD 29)	Depth to Water (ft below TOC)	WL Elevation (ft NGVD 29)
BW-01	20.66	8.24	12.42
BW-02	20.27	8.00	12.27
MW-03	16.61	6.18	10.43
MW-04	18.34	8.69	9.65
MW-05	12.26	7.14	5.12
MW-06	14.02	4.95	9.07
MW-07	19.51	6.98	12.53
MW-08	19.88	8.22	11.66
MW-09	15.88	6.11	9.77
MW-10*	18.47	n/a	n/a
MW-11	18.77	9.72	9.05
River	USACE	n/a	2.66

*Water Level Not Equilibrated.

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Legend

- Groundwater Monitoring Installation
- Potentiometric Surface Elevation
- Approximate Excavation Area
- Potential Tritium Sources
- Approximate Property Boundary

Entergy Waterford-3
Potentiometric Surface
November 2, 2012

0 200 400 Feet

BASEMAP SOURCE
NAIP 2009
St. Charles Parish, LA

By: SEM
Date: Jan. 28, 2013
Project No. 6045-460

N

Path: K:\Projects\6045-460\backup_gis_03272012\gis\mapdoc\Potentiometric_Map_11022012.mxd

Well ID	TOC Elevation (ft NGVD 29)	Depth to Water (ft below TOC)	WL Elevation (ft NGVD 29)
BW-01	20.66	8.09	12.57
BW-02	20.27	7.80	12.47
MW-03	16.61	5.35	11.26
MW-04	18.34	8.94	9.40
MW-05	12.26	4.28	7.98
MW-06	14.02	3.71	10.31
MW-07	19.51	5.30	14.21
MW-08	19.88	5.49	14.39
MW-09	15.88	3.03	12.85
MW-10	18.47	9.90	8.57
MW-11	18.77	10.18	8.59
River	USACE	n/a	11.73

The information shown on this map was compiled from various sources and should not be considered authoritative for engineering, surveying, legal and/or other site-specific uses. Information shown on this map should not be used for property boundary resolution. This does not represent a boundary survey and is shown for reference only.

Legend

- Groundwater Monitoring Installation
- Potentiometric Surface Elevation
- Approximate Excavation Area
- Potential Tritium Sources
- Approximate Property Boundary

Entergy Waterford-3
Potentiometric Surface
February 26, 2013

0 200 400 Feet

BASEMAP SOURCE
NAIP 2009
St. Charles Parish, LA

By: KLM
Date: March 12, 2013
Project No. 06045-0031-002

N

K:\Projects\6045-460\backup_gis_03272012\gis\mapdoc\Potentiometric_Map_1Q2013.mxd klm

River Mile 126.9
El. 17.00

MW-08
14.93

MW-09
10.72

MW-07
13.96

BW-01
12.92

BW-02
12.82

MW-06
9.78

MW-03
10.53

MW-04
9.42

MW-05
6.36

MW-10
8.57

MW-11
8.64

Well ID	TOC Elevation (ft NGVD 29)	Depth to Water (ft below TOC)	WL Elevation (NGVD 29)
BW-01	20.66	7.74	12.92
BW-02	20.27	7.45	12.82
MW-03	16.61	6.08	10.53
MW-04	18.34	8.92	9.42
MW-05	12.26	5.90	6.36
MW-06	14.02	4.24	9.78
MW-07	19.51	5.55	13.96
MW-08	19.88	4.95	14.93
MW-09	15.88	5.16	10.72
MW-10	18.47	9.90	8.57
MW-11	18.77	10.13	8.64
River	n/a	n/a	17.00

The information shown on this map was compiled from various sources and should not be considered authoritative for engineering, surveying, legal and/or other site-specific uses. Information shown on this map should not be used for property boundary resolution. This does not represent a boundary survey and is shown for reference only.

Legend

- Groundwater Monitoring Installation
- Potentiometric Surface Elevation
- Groundwater Flow Line
- Approximate Excavation Area
- Potential Tritium Sources
- Approximate Property Boundary

Entergy Waterford-3
Potentiometric Surface
June 3, 2013

0 200 400 Feet

BASEMAP SOURCE
NAIP 2009
St. Charles Parish, LA

By: DWP
Date: June 26, 2013
Project No. 06045-0031-002

N

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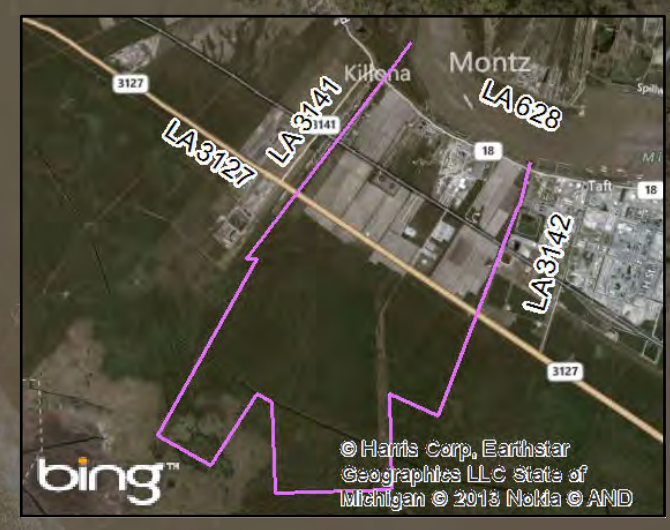

River Mile 126.9
El. 3.94

MW-08 12.76
MW-09 10.88
MW-07 13.26
BW-02 12.32
BW-01 12.32
MW-06 9.82
MW-03 10.98
MW-05 6.43
MW-04 9.93
MW-10 8.98
MW-11 9.06

Well ID	TOC Elevation (ft NGVD 29)	Depth to Water (ft below TOC)	WL Elevation (NGVD 29)
BW-01	20.66	8.34	12.32
BW-02	20.27	7.95	12.32
MW-03	16.61	5.63	10.98
MW-04	18.34	8.41	9.93
MW-05	12.26	5.83	6.43
MW-06	14.02	4.20	9.82
MW-07	19.51	6.25	13.26
MW-08	19.88	7.12	12.76
MW-09	15.88	5.00	10.88
MW-10	18.47	9.49	8.98
MW-11	18.77	9.71	9.06
River	n/a	n/a	3.94

The information shown on this map was compiled from various sources and should not be considered authoritative for engineering, surveying, legal and/or other site-specific uses. Information shown on this map should not be used for property boundary resolution. This does not represent a boundary survey and is shown for reference only.
Image courtesy of USGS State of Michigan

Legend

- Groundwater Monitoring Installation
- Potentiometric Surface Elevation
- Groundwater Flow Line
- Approximate Excavation Area
- Potential Tritium Sources
- Approximate Property Boundary

Entergy Waterford-3
Potentiometric Surface
September 10, 2013

0 200 400 Feet

BASEMAP SOURCE
2010 Microsof Corporation and its data suppliers

By: JWB
Date: October 9, 2013
Project No. 06045-0031-002

N

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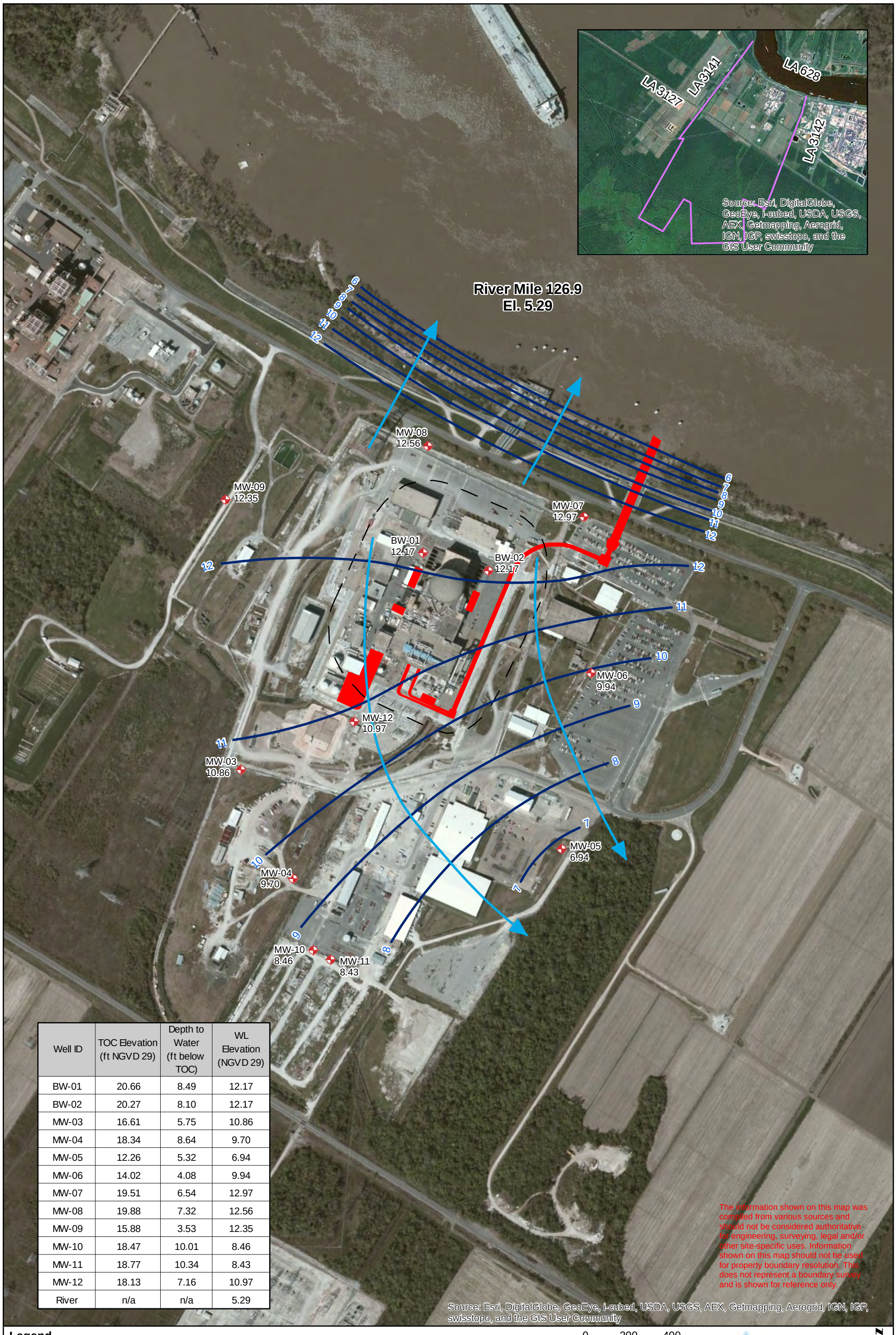

Well ID	TOC Elevation (ft NGVD 29)	Depth to Water (ft below TOC)	WL Elevation (NGVD 29)
BW-01	20.66	8.49	12.17
BW-02	20.27	8.10	12.17
MW-03	16.61	5.75	10.86
MW-04	18.34	8.64	9.70
MW-05	12.26	5.32	6.94
MW-06	14.02	4.08	9.94
MW-07	19.51	6.54	12.97
MW-08	19.88	7.32	12.56
MW-09	15.88	3.53	12.35
MW-10	18.47	10.01	8.46
MW-11	18.77	10.34	8.43
MW-12	18.13	7.16	10.97
River	n/a	n/a	5.29

The information shown on this map was compiled from various sources and should not be considered authoritative for engineering, surveying, legal and/or other site-specific uses. Information shown on this map should not be used for property boundary resolution. This does not represent a boundary survey and is shown for reference only.

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Legend

- Groundwater Monitoring Installation
- Potentiometric Surface Elevation
- Groundwater Flow Line
- Approximate Excavation Area
- Potential Tritium Sources
- Approximate Property Boundary

Entergy Waterford-3
Potentiometric Surface
December 17, 2013

0 200 400 Feet

BASEMAP SOURCE
2010 Microsof Corporation and its data suppliers

By: JWB
Date: February 7, 2014
Project No. 06045-0031-002

N

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APPENDIX E

Field Documentation

Daily Log

Site Location: Waterford-3	Date: 3/10/09
Project Number: 6045-183	Page 1 of 1

0630 - Leave Hotel

0700 - JWB + CLN arrive on site + start W.L. measurements

0705 - Rodney arrives on site + delivers Bottles for sampling

0730 - JWB calibrates SonDE + Turs meter

0800 - start sampling

0835 - Pull sample at MW-03
Pull Dup at MW-03 (MW-030)

0945 - Pull sample at MW-04

1045 - Pull sample at MW-05

1115 - sample Equipment Blank - EB-1

1140 - JWB + CLN off site

FTN Associates Calibration Form

Date/Time: 3/10/09 0800
Prepared By: JWR
Location: Waterford -7
Project #: 6045-183

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
mini-Sonde	4	- pH	7	su	20.02	7.00	Y (N)	—	
4a		- pH	4	su	20.00	3.95	(Y) N	4.00	
		pH	10	su	—	—	Y N	—	
		- Cond	0	uS/cm	—	0	Y (N)	—	
		- Cond	447	uS/cm	20.02	437	(Y) N	447	
		~~DO~~		mm/Hg		mg/l	Y N	mg/l	
		- Temp	—	Degrees C	19.89	20.0	Y (N)	N/A	
							Y N		
LaMotte							Y N		
2020		Turb	200	NTU	—	210	(Y) N	200	
		"	20	"	—	18	(Y) N	20	
		"	0.0	"	—	0.00	Y (N)	—	
							Y N		
							Y N		
							Y N		

Notes:

pH Calibration (pH Method: EPA 150.1)
Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
Temperature Calibration: No calibration is necessary. Simply record temperature of standard using thermometer while in calibration cup. Then record hydrolab temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

Groundwater Sampling Record

Facility: Waterford - 3	Site ID: MW-03	Sampler: SWB / CLN
Project Number: 6045-183	Date: 3/10/09	Sampler Organization: ETN

Site Description

Weather: Sunny | Air Temp (°F): ~65° | Wind: NONE

Site type:
- ☒ Monitoring Well
- ☐ Production Well
- ☐ Irrigation Well
- ☐ Other:
- ☐ Extraction Well
- ☐ Borehole
- ☐ Spring

Well casing material:
- ☒ PVC
- ☐ Steel
- ☐ Iron
- ☐ Other:

Well diameter	inches	2	Well locked? ☒ Yes ☐ No
Total depth from TOC	feet	37.51	
TOC below/above ground	feet	~2'	

Damages/repairs needed: NONE

Water Level Data

Measuring point description:
- ☒ Mark/notch on TOC
- ☐ North rim of TOC
- ☐ Other:

Water level meter: ☒ Heron Dipper-T ☐ Slope Water Level Indicator ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0721	0753	0805	0833	0915	
Depth to Water	feet	6.79	6.79	7.07	7.27	7.43	
Product	LNAPL/DNAPL	~~0755~~	~~0756~~				
Prod. thickness	feet	—					

Field Data

Field data meters:
- ☒ Hydrolab MiniSonde
- ☐ Hydrolab DataSonde
- ☐ Other:
- ☒ LaMotte 2020 Turbidimeter
- ☐ Hach 2100P Turbidimeter
- ☐ Other:

Pump description:
- ☒ Peristaltic
- ☐ Bladder (dedicated / portable)
- ☐ Submersible

Bailer description:
- ☐ Disposable polyethylene
- ☐ Disposable Teflon
- ☐ Disposable PVC

Purge depth	feet	30 bgs	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time	24-hour	0803	0806	0809	0812	0815	0818	0821	0826	0829	0832	Remarks
Purge vol.	gallons	0	0.2	0.3	0.4	0.5	0.6	0.7	0.9	1.2	1.3	
Purge rate	mL/min	150	150	150	150	150	150	150	150	150	150	
pH	su	7.16	7.06	6.82	6.71	6.69	6.70	6.75	6.92	6.92	6.92	
Temp.	°C	20.18	20.26	20.50	20.81	20.89	20.84	20.97	21.08	21.16	21.17	
Spec. cond.	µS/cm	2398	2470	2636	2733	2754	2768	3269	3531	3535	3546	
D.O.	mg/L	—	—	—	—	—	—	—	—	—	—	
ORP	mV	—	—	—	—	—	—	—	—	—	—	
Turbidity	ntu	0.70	2.2	3.8	2.6	2.6	2.4	0.90	0.10	0.95	0.86	
Color/tint		clear	→									
Odor		NONE	→									

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-03	3/10/09	0835	4	0	2x1L Plastic (GAMMA) each
MW-03D	3/10/09	0840	4	0	2x1L Glass (Tritium) each

Sampler's Name (print): Jacob Brickman | Sampler Signature: Jacob Brickman

Groundwater Sampling Record

Facility: Energy Northwest - 3	Site ID: MW-04	Sampler: JWS / CLN	
Project Number: 6045-182	Date: 3/10/09	Sampler Organization: FTN	

Site Description

Weather: Foggy	Air Temp (°F): 705	Wind: CALM				
Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Irrigation Well ☐ Spring ☐ Other:	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☐ Yes ☒ No	
		Total depth from TOC	feet	37.49		
		TOC below/above ground	feet	2.44		
Damages/repairs needed: NONE						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☒ Heron Dipper-T ☐ Slope Water Level Indicator ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0712	0925	0937	0942	1007	
Depth to Water	feet	9.16	9.10	9.95	10.47	10.90	
Product	LNAPL/DNAPL	—	—				
Prod. thickness	feet	—	—				

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☒ LaMotte 2020 Turbidimeter ☐ Hydrolab DataSonde ☐ Hach 2100P Turbidimeter ☐ Other: ☐ Other:

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	30 bgs	Well goes dry during purging: ☐ Yes ☐ No									
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time	24-hour	0931	0934	0937	0940							Remarks
Purge vol.	gallons	0.1	0.2	0.3	0.4							
Purge rate	mL/min	140	140	150	150							
pH	su	6.95	6.98	6.98	6.96							
Temp.	°C	21.79	21.66	21.79	21.77							
Spec. cond.	µS/cm	4791	4801	4803	4800							
D.O.	mg/L	—	—	—	—							
ORP	mV	—	—	—	—							
Turbidity	ntu	16	13	12								
Color/tint	~~clear~~	Clear w/ large particulates										
Odor	NONE	→										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-04	3/10/09	0945	4	—	2x 1L Gamma (Plastic)
					2x 1L Tritium (Glass)

Sampler's Name (print): Jacob Brickman

Sampler Signature: Jacob Brickman

Groundwater Sampling Record

Facility: ENTERGY LAFFERTY 3	Site ID: MW-05	Sampler: CLN/TWB	
Project Number: 6045-182	Date: 3/10/09	Sampler Organization: ENV	

Site Description

Weather: FOGGY	Air Temp (°F): 70s	Wind: CALM				
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No	
		Total depth from TOC	feet	37.66		
		TOC below/above ground	feet	2.66		
Damages/repairs needed: NONE						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☒ Heron Dipper-T ☐ Slope Water Level Indicator ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0659	1020	1036	1042	1108	
Depth to Water	feet	6.24	6.18	6.49	6.49	6.54	
Product	LNAPL/DNAPL	—					
Prod. thickness	feet	—					

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☒ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☐ Other:

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	30 bgs	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time	24-hour	1025	1028	1031	1034	1038	1041					Remarks
Purge vol.	gallons	0.0	0.2	0.3	0.4	0.5	0.6					
Purge rate	mL/min	120	120	120	120	120	120					
pH	su	7.91	7.92	7.91	7.88	7.88	7.89					
Temp.	°C	23.05	22.91	22.80	22.72	22.59	22.73					
Spec. cond.	µS/cm	1603	1596	1593	1589	1591	1591					
D.O.	mg/L	—										
ORP	mV	—										
Turbidity	ntu	0.90	1.1	2.3	1.6	1.7	1.5					
Color/tint		Clear →										
Odor		NONE →										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-05	3/10/09	1045	4	Ø	8 x 1L Glass (Tritium)
					2 x 1L Plastic (GAMMA)

Sampler's Name (print): CURTIS NUNN

Sampler Signature: [signature]

Groundwater Sampling Record

Facility: Waterford-3	Site ID: EB-1	Sampler: JWB CW
Project Number: 6045-183	Date: 3/10/09	Sampler Organization: FTN

Site Description

Weather: sunny	Air Temp (°F): 75°		Wind: 5-10		
Site type: ☐ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Irrigation Well ☐ Spring ☐ Other:	Well casing material: ☐ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	—	Well locked? ☐ Yes ☐ No
		Total depth from TOC	feet		
		TOC below/above ground	feet		
Damages/repairs needed:					

Water Level Data

Measuring point description: ☐ Mark/notch on TOC ☐ North rim of TOC ☐ Other:		Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☐ Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour						
Depth to Water	feet						
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ LaMotte 2020 Turbidimeter ☐ Hydrolab DataSonde ☐ Hach 2100P Turbidimeter ☐ Other: ☐ Other:	Pump description: ☐ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible	Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet		Well goes dry during purging: ☐ Yes ☐ No									
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time	24-hour											Remarks
Purge vol.	gallons											
Purge rate	mL/min		Equipment Blank									
pH	su		-used steam distilled from									
Temp.	°C		Wal-Greens, used plastic tubing									
Spec. cond.	µS/cm		heron dipper water level meter									
D.O.	mg/L											
ORP	mV											
Turbidity	ntu											
Color/tint												
Odor												

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
EB-1	3/10/09	1115	4		2x1L Glass (tritium) 2x1L Plastic (GAMMA

Sampler's Name (print): Jacob Brickman | Sampler Signature: Jacob Brickman

ftn

Date	Project Name	Project Number	Project Manager (Print)	Page ___ of ___
3/10/09	ENTERGY Watershed - 2	6045-172	[illegible]	1 1

Laboratory Name	Submitted by:	Parameters (Method Number)	Lab Turn-Around Time
ENTERGY RIVER BEND Phone: ( )	FTN Associates, Ltd. 124 W. Sunbridge Drive, Suite 3 Fayetteville, AR 72703 (479) 571-3334 • Fax (479) 571-3338	Turbidity, Coliform	☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ Other: Due: __/__/__
Sampler Signature(s): Jacob Buckman	Recorded By (Print): Jacob Buckman		

SAMPLE DESCRIPTION

Field Sample Number	Date (mm/dd/yy)	Time (hh:mm)	Matrix* W	Matrix* S	Matrix* O	Number of Containers	Method Comp	Method Grab	Laboratory Notes
MW-03	3/10/09	0855	X			4		X	
MW-03D	3/10/09	0840	X			4		X	
MW-04	3/10/09	0945	X			4		X	
MW-05	3/10/09	1015	X			4		X	
EB-1	3/10/09	1115	X			4		X	

* Matrix: W = Water S = Soil O = Other

Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time
Jacob Buckman	Jacob Buckman	3/10/09	[illegible]	[illegible]	[illegible] 0534	3/10/09	1425
Relinquished By (Signature)	Print Name	Date	Time	Received By Laboratory (Signature)	Print Name	Date	Time

Sampler Remarks	Laboratory Remarks:

Revision Date 11/22/02

Daily Log

Site Location: Waterfield 3	Date: 6-16-09
Project Number: 6045-183	Page 1 of

0715 - arrived on site
- began taking water levels

Rodney
Cell = 985-665-0166
0745 - calibrate Hydrolab & HF Scientific Turbidity
0805 - start sampling MW-03
1225 - Finish sampling - take Equipment Blank
1240 - JMB & ~~JKR~~ off site

Equipment Blank:
We used Great Value distilled water with poly tubing, silicone tubing, and the water level meter. Water was pumped into bottles through the parastaltic pump

NOTE: I don't have any Liquinox. We substituted Liquinox with Borax. (Phosphate & Chloride Free)

FTN Associates Calibration Form

Date/Time: 6-16-09 / 0753
Prepared By: JJR
Location: Warfield 3, MW-03
Project #: 6045-183

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
Hydrolab	FTN#4	pH	7	su	28.11	7.13	(Y) N	7.00	
Minisonde 4a		pH	4	su	4.16	28.08	(Y) N	4.00	
		~~pH~~	~~10~~	su			Y N		
		Cond	0	uS/cm	—	0	(Y) N	0	
		Cond	1413	uS/cm	28.68	1501	(Y) N	1412	
		~~DO~~		mm/Hg		mg/l	Y N	mg/l	
		Temp	~29	Degrees C	28.59	—	Y N	N/A	
							Y N		
HF Scientific		Turb	1000	NTU	—	1010	(Y) N	1003	
		"	10.0	"	—	9.83	(Y) N	10.53	
		"	0.02	"	—	0.05	(Y) N	0.00	
							Y N		
							Y N		
							Y N		
							Y N		

Notes:
pH Calibration (pH Method: EPA 150.1)
Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
Temperature Calibration: No calibration is necessary. Simply record temperature of standard using thermometer while in calibration cup. Then record hydrolab temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

Groundwater Sampling Record

Facility: Wakefield 3	Site ID: MW-03	Sampler: JWB, JJR	
Project Number: 6045-183	Date: 6/16/09	Sampler Organization: FTN	

Site Description

Weather: clear, sunny	Air Temp (°F): 82	Wind: calm			
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No
		Total depth from TOC	feet	35	
		TOC below/above ground	feet	2.5	
Damages/repairs needed: none					

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:		Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Keck (100')					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0744	0801	0816	0829	0900	
Depth to Water	feet	7.23	7.22	7.55	7.58	7.62	
Product	LNAPL/DNAPL	6/16/09 →					
Prod. thickness	feet						

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: HF Scientific	Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible	Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	30	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons	4.9	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	0805	0808	0812	0816	0820	0824	0828				Remarks
Purge vol.	gallons	0.0	0.2	0.3	0.45	0.6	0.7	0.8				
Purge rate	mL/min	200	155	110	110	110	110	110				
pH	su	6.77	6.81	6.81	6.84	6.86	6.86	6.86				
Temp.	°C	25.49	23.83	23.85	24.44	24.82	24.70	24.61				
Spec. cond.	µS/cm	2503	2504	2499	2505	2514	2518	2510				
D.O.	mg/L	–	–	–	–	–	–	–				
ORP	mV	–	–	–	–	–	–	–				
Turbidity	ntu	2.86	3.13	2.48	2.97	1.67	1.59	1.84				
Color/tint		clear →										
Odor		NONE →										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-03	6/16/09	0830	4	–	2x1L Plastic (Gamma)
					2x1L Glass (Tritium)

Sampler's Name (print): Jacob Brickman Sampler Signature: Jacob Brickman

Groundwater Sampling Record

Facility: Waterfield 3	Site ID: MW-04	Sampler: JWB, JJR
Project Number: 6045-183	Date: 6-16-09	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 85°	Wind: 5-15 mph

Site type	Well casing material				Well locked?
☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Irrigation Well ☐ Spring ☐ Other:	☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	☒ Yes ☐ No
		Total depth from TOC	feet	35	
		TOC below/above ground	feet	~~3~~ 2.5	

Damages/repairs needed: none

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: KnK

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0733	0912	0923	1012	1122	
Depth to Water	feet	9.14	9.04	9.87	10.42	10.72	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: HF scientific

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	30	Well goes dry during purging: ☐ Yes ☐ No												
Casing vol.	gallons	4.6	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408										1005	1009	
Time	24-hour	0915	0919	0925	0929	0933	0937	0942	0947	0951	0956	1000	Remarks	~~1009~~	1013
Purge vol.	gallons	0.1	0.2	0.3	0.35	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3
Purge rate	mL/min	150	100	100	100	100	100	100	100	100	100	100	100	100	100
pH	su	6.50	6.48	6.50	6.50	6.50	6.47	6.56	6.41	6.40	6.48	6.52	6.53	6.56	6.58
Temp.	°C	25.19	24.99	25.35	25.47	25.28	25.29	25.41	25.34	25.54	25.60	25.20	24.90	25.59	26.01
Spec. cond.	µS/cm	4551	4598	4602	4606	4612	4674	4826	4908	5011	5092	5177	5297	5347	5386
D.O.	mg/L	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ORP	mV	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Turbidity	ntu	17.56	21.57	9.12	11.59	12.39	15.85	19.32	12.24	13.79	8.07	5.98	4.21	10.98	5.77
Color/tint		clear →		v/	particulates										
Odor		NONE →													

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-04	6/16/09	1015	4	—	(2 Plastic 1L (Gamma),
MW-04D	6/16/09	1020	4	—	2 Glass 1L (Tritium))
					" "

Sampler's Name (print): Jacob Brickman	Sampler Signature:

Groundwater Sampling Record

Facility: Waterford 3	Site ID: MW-05	Sampler: JWB, JJR
Project Number: 6045-183	Date: 6-16-09	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 89°	Wind: 5-10

Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring

Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:

Well diameter	inches	2
Total depth from TOC	feet	33
TOC below/above ground	feet	0.5

Well locked? ☒ Yes ☐ No

Damages/repairs needed: none

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Keck

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0731	1136	1149	1153		
Depth to Water	feet	7.78	7.73	8.02	8.02		
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: HF Scientific.

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	30	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons	4.8	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1140	1144	1148	1152							Remarks
Purge vol.	gallons	0.0	0.1	0.2	0.3	(0.4)						
Purge rate	mL/min	~~134~~	110	110	110							
pH	su	7.24	7.20	7.19	7.18							
Temp.	°C	29.07	27.53	27.27	27.39							
Spec. cond.	µS/cm	1941	1959	1958	1955							
D.O.	mg/L	–	–	–	–							
ORP	mV	–	–	–	–							
Turbidity	ntu	12.76	6.88	8.65	4.51							
Color/tint		Clear	→									
Odor		NONE	→									

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-05	6/16/09	1155	4	–	2x 1L Plastic (Gamma)
EB-1	6/16/09	1230	4	–	2x 1L Glass (Tritium

Sampler's Name (print): Jacob Brickman Sampler Signature: [signature]

ftn

Date	Project Name	Project Number	Project Manager (Print)	Page of
6/16/09	Waterford - 3	6045-123	Rob West	Page 1 of 1

Laboratory Name	Submitted by:
Entergy Waterford - 3 Phone: ( )	FTN Associates, Ltd. 124 W. Sunbridge Drive, Suite 3 Fayetteville, AR 72703 (479) 571-3334 • Fax (479) 571-3338
Sampler Signature(s)	Recorded By (Print)
[signature]	Jacob Brickman

SAMPLE DESCRIPTION

Field Sample Number	Date (mm/dd/yy)	Time (hh:mm)	Matrix* W	Matrix* S	Matrix* O	Number of Containers	Method Comp	Method Grab	Parameters (Method Number)								Lab Turn-Around Time	Laboratory Notes
									Tritium	Gamma							☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ Other: Due: __/__/__	
MW-03	6/16/09	0930	X			4		X	X	X								
MW-04	"	1015	X			4		X	X	X								
MW-04D	"	1020	X			4		X	X	X								
MW-05	"	1155	X			4		X	X	X								
FB-1	"	1130	X			4		X	X	X								

* Matrix: W = Water S = Soil O = Other

Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time
[signature]	Jacob Brickman	6/16/09	1540				
Relinquished By (Signature)	Print Name	Date	Time	Received By Laboratory (Signature)	Print Name	Date	Time

Sampler Remarks	Laboratory Remarks:

Revision Date 11/22/02

Daily Log

Site Location: Waterford 3. Entergy	Date: 7/21/09
Project Number: 60445-4160	Page of

7:10 JWB/EJH arrive on site. Take water [redacted] depth measurments at MW-5 (7:19), MW-4 (7:30), & MW-3 (7:35)

7:40 Start calibrating @ MW-3

Wait for contact from Entergy Personel w/ Bottles

9:10 Begin sampling @ MW-3

9:50 Begin Sampling @ MW-4 & establishing well equilibrium

10:08 Take samples from MW-4.

1125: Take sample from MW-5

1130: Take sample from MW-5D

-1220: Take Equipment Blank w/ silicone & poly tubing and Keck 20' Water Level Meter. out of Wal-Mart Abita Springs Distilled H_2O.

12:23 Leave the site and travel to River Bend.

Groundwater Sampling Record

Facility: Entergy Waterford 3	Site ID: MW-3	Sampler: JWB/EJH
oject Number: 6045-460	Date: 7/21/09	Sampler Organization: FTN Assoc.

Site Description

Weather: Sunny	Air Temp (°F): ~70°		Wind: 5-10 mph			
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No	
		Total depth from TOC	feet	35		
		TOC below/above ground	feet	~3		
Damages/repairs needed: NONE						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Keck 200

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	7:35	8:04	8:57	9:06	9:35	
Depth to Water	feet	7.18	7.12	7.62	7.62	7.65	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: HF Scientific

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	30	Well goes dry during purging: ☐ Yes ☒ No												
Casing vol.	gallons	4.2	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408										9:00	9:06	
Time	24-hour	8:13	8:18	8:22	8:26	8:31	8:34	8:40	8:45	8:49	8:53	8:57	Remarks		
Purge vol.	gallons	0.0	0.4	0.45	0.5	0.7	0.85	0.9	1.0	1.3	1.5	1.75	2.0	2.3	
Purge rate	mL/min	95	95	95	95	95	95	95	95	95	95	95	95		
pH	su	6.92	6.91	6.93	6.93	6.95	6.94	6.93	6.91	6.93	6.96	6.94	6.96	6.93	
Temp.	°C	25.89	25.32	25.06	24.82	24.73	24.70	24.62	24.53	24.58	24.62	24.8	24.96	25.26	
Spec. cond.	µS/cm	3613	3553	3561	3584	3589	3590	3598	3598	3598	3595	3598	3608	3618	
D.O.	mg/L														
ORP	mV														
Turbidity	ntu	17.13	5.07	4.6	3.58	3.01	2.24	2.93	—	—	2.79	2.62	2.55	3.33	
Color/tint		clear	none												
Odor		—													

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-3	7/21/09	9:10	4	—	2 x 1L Plastic (Gamma)
					2 x 1L Glass (Tritium)

Sampler's Name (print): Emily Hollingsworth

Sampler Signature: E. Hollingsworth

Groundwater Sampling Record

Facility: Entergy Waterford 3	Site ID: MW-4	Sampler: JWB / EJH	
oject Number: 2045-460	Date: 7/21/09	Sampler Organization: FTN Assoc	

Site Description

Weather: Sunny	Air Temp (°F): ~80°	Wind: 5-10 mph				
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No	
		Total depth from TOC	feet	35		
		TOC below/above ground	feet	~3		
Damages/repairs needed: NONE						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Keck 200'

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0726	9:49	10:01	10:08	10:34	
Depth to Water	feet	9.04	9.04	9.80	9.96	10.45	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: HF Scientific

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	30	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons	3.9	= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time	24-hour	9:56	9:59	10:04	10:07							Remarks
Purge vol.	gallons	0.1	0.15	0.2	0.25							
Purge rate	mL/min	105 →		100	100							
pH	su	6.62	6.51	6.61	6.52							
Temp.	°C	25.71	25.50	25.58	25.67							
Spec. cond.	µS/cm	5029	4930	4908	4927							
D.O.	mg/L											
ORP	mV											
Turbidity	ntu	4.67	7.13	5.75	5.82							
Color/tint		clear	/ none									
Odor		—										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-4	7/21/09	10:08	3	—	2 x 1 L Tritium
					1 x 1 L Gamma

Sampler's Name (print): Emily Hollingsworth | Sampler Signature: E. Hollingsworth

Groundwater Sampling Record

Facility: Entergy Waterford 3	Site ID: MW-5	Sampler: JWB EJH	
Project Number: 60145-460	Date: 7/21/09	Sampler Organization: FTN Assoc.	

Site Description

Weather: 87°	Air Temp (°F): 87°	Wind: 5-10 mph				
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No	
		Total depth from TOC	feet	35		
		TOC below/above ground	feet	4.3		
Damages/repairs needed: NONE						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Keck 200

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	~~0908~~ EM	0931	1100	1116	1209	
Depth to Water	feet	7.68	7.68	8.00	8.02	8.03	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: HF Scientific

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	30	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons	4.1	= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time	24-hour	1051	1056	1100	1104	1107	1101	1115				Remarks
Purge vol.	gallons	0.2	0.4	0.5	0.6	0.7	0.8	0.9				
Purge rate	mL/min	200	140	140	140	140	140	140				
pH	su	7.04	7.21	7.17	7.13	7.12	7.13	7.12				
Temp.	°C	26.22	26.39	26.61	26.39	26.16	26.82	27.11				
Spec. cond.	µS/cm	2187	2262	3125	4110	4177	4175	4179				
D.O.	mg/L	—	—	—	—	—	—	—				
ORP	mV	—	—	—	—	—	—	—				
Turbidity	ntu	5.78	5.85	9.32	8.90	13.47	10.75	8.97				
Color/tint		clear	→	w/	Particulates							
Odor		NONE										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-5	7/21/09	1125	4	—	2x1L Gamma / 2x1L Tritium
MW-5D	"	1130	4	—	Duplicate
EB-1	"	1220	4	—	Equipment Blank

Sampler's Name (print): Jacob Brekman Sampler Signature:

ftn

Date	Project Name	Project Number	Project Manager (Print)	Page
7/21/09	Entergy Waterford 3	6045-4160	Bob West	1 of 1

Laboratory Name: Entergy

Phone: ( )

Submitted by:

FTN Associates, Ltd.
124 W. Sunbridge Drive, Suite 3
Fayetteville, AR 72703
(479) 571-3334 • Fax (479) 571-3338

Sampler Signature(s): Emily J. Hollingsworth, Jacob Brickman

Recorded By (Print): Emily Hollingsworth, Jacob Brickman

Lab Turn-Around Time
- ☐ 24 Hours
- ☐ 48 Hours
- ☐ 7 Days
- ☐ Other: Due: __/__/__

SAMPLE DESCRIPTION

Field Sample Number	Date (mm/dd/yy)	Time (hh:mm)	Matrix* W	Matrix* S	Matrix* O	Number of Containers	Method Comp	Method Grab	Parameters (Method Number): Tritium	Parameters (Method Number): Gamma	Laboratory Notes
MW-3	07/21/09	9:10	X			4		X	X	X	
MW-4		1008	X			4		X	X	X	
MW-5		1125	X			4		X	X	X	
MW-5D		1130	X			4		X	X	X	
EB-1	↓		X			4		X	X	X	

Parameters (Method Number): Tritium; Gamma

* Matrix: W = Water S = Soil O = Other

Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time
Jacob Brickman	Jacob Brickman	7/21/09	1531	B. Michura 0534	B. T. Michura	7/21/09	1530
Relinquished By (Signature)	Print Name	Date	Time	Received By Laboratory (Signature)	Print Name	Date	Time

Sampler Remarks

Laboratory Remarks:

Daily Log

Site Location: EMERSON WAREHOUSE 3	Date: 10/12/09
Project Number: 6045-460	Page 1 of 1

CLEAR, 60s, WARMING, CALM

0700 CLW ON SITE. BEGIN WL MEASUREMENTS, 3-BUCKET DECON.
0735 BEGIN SETTING UP ON MW-03 FOR GW SAMPLING.
0745 RODNEY LEBLANC DELIVERS SAMPLE BOTTLES. DISCUSS NEW SECURITY MEASURES.
0815 BEGIN GW SAMPLING AT MW-03
0840 COLLECT GW SAMPLE MW-03
0910 BEGIN GW SAMPLING AT MW-04
1005 COLLECT GW SAMPLE MW-04
1100 BEGIN GW SAMPLING AT MW-05
COLLECT GW SAMPLES MW-05 & MW-05D (DUPLICATE)
MW-05D GIVEN TIME OF 1105.
1200 PRIVATE EQUIPMENT BLANK SAMPLE EB-1. USING "ALWAYS SAFE" BRAND DISTILLED WATER, PLACE DECON-TAMINATED WATER LEVEL METER PROBE IN NEW JUG OF WATER - PUMP WATER VIA NEW POLYETHYLENE AND SILICONE TUBING DIRECTLY INTO SAMPLE CONTAINERS.
1230 CLW OFF SITE.

CLW 12 OCT 2009

FTN Associates Calibration Form

Date/Time: 10/12/09 – 0610
Prepared By: CLW
Location: Ennis, LA
Project #: 6045-460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
HYDROLAB	4	pH	7	su	21.90	7.08	(Y) N	7.00	
MINISONDE		pH	4	su	21.75	4.08	(Y) N	4.00	
4a		pH	10	su	—		Y N		
		Cond	0	uS/cm	21.75	0	(Y) N	0	
		Cond	1413	uS/cm	21.73	1556	(Y) N	1413	
		DO	—	mm/Hg		mg/l	Y N	mg/l	
		Temp	—	Degrees C	—	21.75	Y (N)	N/A	FACTORY CHECKED
							Y N		
							Y N		
LAMOTTE	2020	TURBIDITY	0	NTU	n/a	0.00	Y (N)	0.00	
TURBIDIMETER		"	20	NTU	n/a	16	(Y) N	19	
		"	200	NTU	n/a	250	Y (N)	250	
							Y N		
							Y N		
							Y N		

Notes:
pH Calibration (pH Method: EPA 150.1)
Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
Temperature Calibration: No calibration is necessary. Simply record temperature of standard using thermometer while in calibration cup. Then record hydrolab temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

Groundwater Sampling Record

Facility: WATERFORD - 3	Site ID: MW - 3	Sampler: CLN	
Project Number: 6045 - 460	Date: 10/12/09	Sampler Organization: FW	

Site Description

Weather: CLEAR	Air Temp (°F): 70s	Wind: CALM				
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No	
		Total depth from TOC	feet	37.51		
		TOC below/above ground	feet	2.51		
Damages/repairs needed: NONE						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☒ Heron Dipper-T ☐ Slope Water Level Indicator ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0733	0808	0827	0839	0908	
Depth to Water	feet	5.30	5.30	5.74	5.72	5.77	
Product	LNAPL/DNAPL	—					
Prod. thickness	feet	—					

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☒ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☐ Other:

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	~30	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons	5.3	= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time	24-hour	0816	0819	0823	0828	0831	0834	0837				Remarks
Purge vol.	gallons	—						1.25				
Purge rate	mL/min	160	160	160	120	120	120	120				
pH	su	6.81	6.82	6.83	6.83	6.85	6.85	6.85				
Temp.	°C	24.19	24.18	24.16	24.16	24.32	24.40	24.40				
Spec. cond.	µS/cm	3270	3237	3240	3248	3280	3272	3273				
D.O.	mg/L	—										
ORP	mV	—										
Turbidity	ntu	1.5	—	0.85	—	0.50	—	0.75				
Color/tint		CLEAR →										
Odor		NONE →										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW - 3	10/12/09	0840	4	Ø	2 x 1L PLASTIC (CARMA)
					2 x 1L GLASS (KATORA)

Sampler's Name (print): CURTIS NEAL Sampler Signature:

Groundwater Sampling Record

Facility: WATERFORD-3	Site ID: MW-4	Sampler: CLN	
Project Number: 605-460	Date: 10/12/09	Sampler Organization: FPN	

Site Description

Weather: SUNNY	Air Temp (°F): 80s	Wind: CALM				
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No	
		Total depth from TOC	feet	32.49		
		TOC below/above ground	feet	2.49		
Damages/repairs needed: NONE						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☒ Heron Dipper-T ☐ Slope Water Level Indicator ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0718	0921	0930	1004	1035	
Depth to Water	feet	8.39	8.31	9.33	9.99	9.94	
Product	LNAPL/DNAPL	—					
Prod. thickness	feet	—					

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☒ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☐ Other:

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	~32	Well goes dry during purging: ☐ Yes ☒ No										
Casing vol.	gallons	4.7	= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408										
Time	24-hour	0925	0929	0933	0937	0940	0943	0947	0951	0956	1000	1004	Remarks
Purge vol.	gallons											1.5	
Purge rate	mL/min	180	180	100	100	100	90	90	90	90	90	90	
pH	su	6.59	6.61	6.66	6.67	6.68	6.69	6.71	6.72	6.72	6.72	6.72	
Temp.	°C	24.60	24.79	24.98	24.73	24.80	24.81	25.11	25.19	25.13	25.11	25.22	
Spec. cond.	µS/cm	5435	5475	5608	5667	5706	5745	5847	5940	5961	5979	5974	
D.O.	mg/L	—											
ORP	mV	—											
Turbidity	ntu	4.2	—	5.4	—	1.5	—	0.55	—	4.6	—	0.00	
Color/tint		CLEAR →											
Odor		NONE →											

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-4	10/12/09	1005	4	Ø	2 x 1L GLASS (AMBER)
					2 x 1L PLASTIC (UNPRES)

Sampler's Name (print): CURTIS NUNN	Sampler Signature:

Groundwater Sampling Record

Facility:	WATERFORD - 3	Site ID:	MW-5	Sampler:	CLW
Project Number:	6045-460	Date:	10/12/09	Sampler Organization:	FTN

Site Description

Weather:	Air Temp (°F):	Wind:				
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No	
		Total depth from TOC	feet	37.66		
		TOC below/above ground	feet	2.66		
Damages/repairs needed: NONE						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☒ Heron Dipper-T ☐ Slope Water Level Indicator ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0709	1045	1056	1059	1154	
Depth to Water	feet	5.62	5.64	5.99	5.93	5.80	
Product	LNAPL/DNAPL	—					
Prod. thickness	feet	—					

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☒ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☐ Other:

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	~32	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons	5.2	= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time	24-hour	1050	1054	1057								Remarks
Purge vol.	gallons											
Purge rate	mL/min	160	160	140								
pH	su	7.15	7.13	7.13								
Temp.	°C	28.52	27.77	27.78								
Spec. cond.	µS/cm	1824	1802	1818								
D.O.	mg/L	—										
ORP	mV	—										
Turbidity	ntu	39	—	27								
Color/tint		CLEAR →										
Odor		NONE →										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-5	10/12/09	1100	4	Ø	
MW-5D	"	1105	4	Ø	DUPLICATE
EB-1	"	1000	4	Ø	EQUIPMENT BLANK

Sampler's Name (print): CURTIS MANN Sampler Signature:

ftn

Date	Project Name	Project Number	Project Manager (Print)	Page of
10/12/09	ENTERGY WATERFORD 3	6045-460	BOB WEST	Page 1 of 1

Laboratory Name	Submitted by:
ENTERGY RIVER BEND Phone: ( )	FTN Associates, Ltd. 124 W. Sunbridge Drive, Suite 3 Fayetteville, AR 72703 (479) 571-3334 • Fax (479) 571-3338
Sampler Signature(s)	Recorded By (Print)
	CURTIS NUNN

Parameters (Method Number)

Lab Turn-Around Time

- ☐ 24 Hours
- ☐ 48 Hours
- ☐ 7 Days
- ☐ Other: Due: ___/___/___

SAMPLE DESCRIPTION

Field Sample Number	Date (mm/dd/yy)	Time (hh:mm)	Matrix* W	Matrix* S	Matrix* O	Number of Containers	Method Comp	Method Grab	TRITIUM	GAMMA							Laboratory Notes
MW-3	10/12/09	0840	X			4		X	X	X							
MW-4	"	1005	X			4		X	X	X							
MW-5	"	1100	X			4		X	X	X							
MW-5D	"	1105	X			4		X	X	X							
EB-1	"	1200	X			4		X	X	X							

* Matrix: W = Water S = Soil O = Other

Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time
	CURTIS NUNN	10/12/09	1550	B T Michura .0534	B. T. Michura	10/12/09	1550
Relinquished By (Signature)	Print Name	Date	Time	Received By Laboratory (Signature)	Print Name	Date	Time

Sampler Remarks	Laboratory Remarks:

Revision Date 11/22/02

Daily Log

Site Location: Energy Innovations 3	Date: 2/23/2016
Project Number: 6045-460	Page 1 of 1

OVERCAST, 50s, WINDY

1100 CLW ON SITE. BEGIN SETUP FOR WLS AND GW SAMPLING AT MW-05

1125 BEGIN WLS

1235 SAMPLE MW-03

1335 SAMPLE MW-04. COLLECT DUPLICATE OF MW-04 (MW-040) GROW TIME OF 1345.

1530 SAMPLE MW-05

1630 PREPARE EQUIPMENT BLANK SAMPLE EB-01 CLW OFF SITE.

FTN Associates Calibration Form

Date/Time: 2/19/2010
Prepared By: JWR / ESH
Location: OFFICE
Project #: 6045-460 W-3

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
Hydrolab	4	pH	7	su	13.51	6.44	(Y) N	7.01	
minisonde		pH	4	su	13.96	5.12	(Y) N	3.99	
4a		~~pH~~	~~10~~	su			Y N		
		Cond	0	uS/cm	—	20	(Y) N	0	
		Cond	1413	uS/cm	17.59	15759	(Y) N	1409	
		~~DO~~		mm/Hg		mg/l	Y N	mg/l	
	↓	.Temp	—	Degrees C	23.76	23.75	Y N	N/A	
							Y N		
LaMotte		Turb		NTU	—	0	Y (N)	0	
20/20		↓		↓	—	17	(Y) N	19	
		↓		↓	—	240	Y N	200	
							Y N		
							Y N		
							Y N		
							Y N		

Notes:
pH Calibration (pH Method: EPA 150.1)
Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
Temperature Calibration: No calibration is necessary. Simply record temperature of standard using thermometer while in calibration cup. Then record hydrolab temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

Groundwater Sampling Record

Facility: Emeryville Marina 3	Site ID: MW-03	Sampler: CLN	
Project Number: 6045-460	Date: 2/23/2010	Sampler Organization: FTN	

Site Description

Weather: 50's overcast	Air Temp (°F): 50's	Wind: ~5 mph North	
Site type: [X] Monitoring Well [ ] Production Well [ ] Irrigation Well [ ] Other: [ ] Extraction Well [ ] Borehole [ ] Spring	Well casing material: [X] PVC [ ] Steel [ ] Iron [ ] Other:	Well diameter: inches 2	Well locked? [X] Yes [ ] No
		Total depth from TOC: feet 37.66	
		TOC below/above ground: feet 2.66	
Damages/repairs needed: NONE			

Water Level Data

Measuring point description: [X] Mark/notch on TOC [ ] North rim of TOC [ ] Other:

Water level meter: [ ] Heron Dipper-T [ ] Slope Water Level Indicator [X] Other: KECK

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1125	1144	1200	1233	1255	
Depth to Water	feet	5.47	5.47	5.85	5.59	6.03	
Product	LNAPL/DNAPL	—					
Prod. thickness	feet	—					

Field Data

Field data meters: [X] Hydrolab MiniSonde [ ] Hydrolab DataSonde [ ] Other: [X] LaMotte 2020 Turbidimeter [ ] Hach 2100P Turbidimeter [ ] Other:

Pump description: [X] Peristaltic [ ] Bladder (dedicated / portable) [ ] Submersible

Bailer description: [ ] Disposable polyethylene [ ] Disposable Teflon [ ] Disposable PVC

Purge depth	feet	30 bgs	Well goes dry during purging: [ ] Yes [X] No
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time	24-hour	1155	1157	1203	1207	1212	1217	1222	1227	1228	1231	Remarks
Purge vol.	gallons										2	
Purge rate	mL/min	110	110	110	110	110	110	110	110	110	110	
pH	su	7.35	7.59	7.57	6.89	6.86	6.86	6.91	6.95	6.99	6.99	
Temp.	°C	16.90	17.44	17.69	17.86	17.97	18.04	18.51	18.54	18.79	18.72	
Spec. cond.	µS/cm	2437	2440	2430	2452	2613	2740	2896	3021	3112	3110	
D.O.	mg/L	—										
ORP	mV	—										
Turbidity	ntu	8.4	—	12	—	8.6	—	6.7	—	—	7.1	
Color/tint		CLEAR →										
Odor		NONE →										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-03	2/23/2010	1235	4	Ø	2 x 1L GLASS (AMBER)
					2 x 1L PLASTIC (GANMA)

Sampler's Name (print): CURTIS NUNN Sampler Signature:

Groundwater Sampling Record

Facility: ENTERGY WATERFORD 3	Site ID: MW-04	Sampler: CLN	
Project Number: 6095-460	Date: 2/23/2010	Sampler Organization: FTN	

Site Description

Weather: OVERCAST	Air Temp (°F): 50s	Wind: 5-10 N				
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No	
		Total depth from TOC	feet	37.49		
		TOC below/above ground	feet	2.49		
Damages/repairs needed: NONE						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: KECK

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	11.15	1310	1325	1333	1455	
Depth to Water	feet	8.67	8.54	9.02	9.56	9.93	
Product	LNAPL/DNAPL	—					
Prod. thickness	feet	—					

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☒ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☐ Other:

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	30 keys	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time	24-hour	1320	1324	1328	1331							Remarks
Purge vol.	gallons				0.25							
Purge rate	mL/min	150	120	120	120							
pH	su	7.43	7.31	7.31	7.28							
Temp.	°C	17.58	17.62	17.51	17.47							
Spec. cond.	µS/cm	4650	4659	4665	4660							
D.O.	mg/L	—										
ORP	mV	—										
Turbidity	ntu	24	—	—	24							
Color/tint		CLEAR →										
Odor		NONE →										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-04	2/23/2010	1335	4	Ø	2 x 1L GLASS (TRITIUM)
MW-040	2/23/2010	1345	4	Ø ↖	2 x 1L PLASTIC (GAMMA)
					DUPLICATE, SAME ↑

Sampler's Name (print): CURTIS NUNN Sampler Signature:

Groundwater Sampling Record

Facility: ENERGY WAREHOUSE 3	Site ID: MW-05	Sampler: FTW
Project Number: 6045-460	Date: 2/23/2010	Sampler Organization: CLW

Site Description

Weather: PARTLY CLOUDY	Air Temp (°F): 50s	Wind: BREEZY			
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No
		Total depth from TOC	feet	33.66	
		TOC below/above ground	feet	2.66	
Damages/repairs needed: NONE					

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: KECK

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1057	1512	1522	1529	1612	
Depth to Water	feet	4.93	4.94	5.02	5.16	5.18	
Product	LNAPL/DNAPL	—					
Prod. thickness	feet	—					

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☒ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☐ Other:

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	30 bgs	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time	24-hour	1515	1520	1525	1529							Remarks
Purge vol.	gallons				0.75							
Purge rate	mL/min	160	120	120	120							
pH	su	8.02	8.07	8.05	8.04							
Temp.	°C	16.71	16.81	16.60	16.63							
Spec. cond.	µS/cm	1526	1527	1529	1529							
D.O.	mg/L	—										
ORP	mV	—										
Turbidity	ntu	30	—	—	30							
Color/tint		CLEAR →										
Odor		NONE →										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-05	2/23/2010	1530	4	Ø	2×1L PLASTIC (GAMMA)
					2×1L GLASS (TRITIUM)

Sampler's Name (print): CURTIS NUNN	Sampler Signature:

Groundwater Sampling Record

Facility: EMERSON WARMFORD 3	Site ID: EB-01	Sampler: CLN
Project Number: 6045-460	Date: 2/23/2010	Sampler Organization: FTN

Site Description

Weather: PARTLY CLOUDY	Air Temp (°F): 50s	Wind: BREEZY

Site type:
- ☐ Monitoring Well
- ☐ Production Well
- ☐ Irrigation Well
- ☐ Other:
- ☐ Extraction Well
- ☐ Borehole
- ☐ Spring

Well casing material:
- ☐ PVC
- ☐ Steel
- ☐ Iron
- ☐ Other:

Well diameter	inches	
Total depth from TOC	feet	
TOC below/above ground	feet	

Well locked? ☐ Yes ☐ No

Damages/repairs needed:

Water Level Data

Measuring point description:
- ☐ Mark/notch on TOC
- ☐ North rim of TOC
- ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	N/A →					
Depth to Water	feet	↓	→				
Product	LNAPL/DNAPL	↓					
Prod. thickness	feet						

Field Data

Field data meters:
- ☐ Hydrolab MiniSonde
- ☐ Hydrolab DataSonde
- ☐ Other:
- ☐ LaMotte 2020 Turbidimeter
- ☐ Hach 2100P Turbidimeter
- ☐ Other:

Pump description:
- ☐ Peristaltic
- ☐ Bladder (dedicated / portable)
- ☐ Submersible

Bailer description:
- ☐ Disposable polyethylene
- ☐ Disposable Teflon
- ☐ Disposable PVC

Purge depth	feet		Well goes dry during purging: ☐ Yes ☐ No
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time	24-hour	DECONTAMINATED WATER LOW FLOW PUMPS											Remarks
Purge vol.	gallons	PLACED INTO NEW CONTAINER OF MATCHES PRIOR TO EQUIPMENT											
Purge rate	mL/min	(TARGET 200) DISTILLED WATER. WATER PUMPED											BLANK
pH	su	VIA NEW POLY AND SILICONE TUBING DIRECTLY											
Temp.	°C	INTO SAMPLE CONTAINERS.											
Spec. cond.	µS/cm												
D.O.	mg/L												
ORP	mV												
Turbidity	ntu												
Color/tint													
Odor													

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
EB-01	2/23/2010	1630	4	Ø	2 x 1L GLASS (TRITIUM)
					2 x 1L PLASTIC (GAMMA)

Sampler's Name (print): CURTIS NUNN

Sampler Signature:

FIELD SUPPLIES AND EQUIPMENT PROJECT WORKSHEET

PROJECT NUMBER: 6045-460

DATE(S): 2/23/2010 **TO** 2/23/2010

FTN RENTAL	UNIT		Day 1 Units	Day 2 Units	Day 3 Units	Day 4 Units	Day 5 Units		Week 1 Units	Total Units
Peristaltic Pump	day		1							1
Submersible pump	day									
Hydrolab	day		1							1
Hydrolab	week									
Meters	day		1							1
Geoprobe, augers	day									
PPE	day									
GPS	day									
Other	day/week									
FIELD SUPPLIES	**UNIT**		Day 1	Day 2	Day 3	Day 4	Day 5			Total Units
Silicone tubing	ft		5							5
Polyethylene tubing	ft		115							115
Vinyl tubing	ft									
Disposable bailers	ea									
0.45 micron filters	ea									
Tyvek suit	ea									
field notebook	ea		1							1
misc. supplies	day		1							1
Gloves	Box		0.5							0.5

NOTES:

Revision Date: 08/20/03

Daily Log

Site Location: W-3	Date: 5/11/10
Project Number: 6045-460	Page 1 of 1

1130 - JWB Arrives on site
Starts Taking water level meas.
1140 - Meets w/ Rodney.

1200 - Calibrate / Try to calibrate Sonde, but unsuccessful.
1245 - Sample MW-03
1350 - Sample MW-04
1535 - Sample MW-05
1540 - Sample MW-05D
1620 - EB-01
1700 - JWB off site

FTN Associates Calibration Form

Date/Time: 5/11/10
Prepared By: JWB
Location: W-3
Project #: 6045-460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
Hydrolab		pH	7	su	28.86	6.79	Y (N)		
MiniSonde		pH	4	su	31.05	4.05	Y (N)		
		~~pH~~	~~10~~	~~su~~			~~Y N~~		
		Cond	0	uS/cm	30.21	0	Y (N)		
		Cond		uS/cm	28.95	452	Y (N)		
		~~DO~~		~~mm/Hg~~		~~mg/l~~	~~Y N~~	~~mg/l~~	
↓		Temp		Degrees C	29.42	30	Y (N)	N/A	
							Y N		
							Y N		
							Y N		
							Y N		
							Y N		
							Y N		
							Y N		
							Y N		
							Y N		

Notes:
pH Calibration (pH Method: EPA 150.1)
Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
Temperature Calibration: No calibration is necessary. Simply record temperature of standard using thermometer while in calibration cup. Then record hydrolab temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

Groundwater Sampling Record

Facility: MW-3	Site ID: MW-03	Sampler: JWB
Project Number: 6045-460	Date: 5/11/10	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 75	Wind: 5-10			
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No
		Total depth from TOC	feet	35	
		TOC below/above ground	feet	~2	
Damages/repairs needed: NONE					

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Keck

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1154	1225	1237	1245	1313	
Depth to Water	feet	7.08	7.05	7.27	7.45	7.54	
Product	LNAPL/DNAPL	5/11/10	→				
Prod. thickness	feet						

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: HF Scientific

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	30	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1230	1235	1240	1245							Remarks
Purge vol.	gallons	0.2	0.3	0.4	0.5							
Purge rate	mL/min	110	110	110	110							
pH	su	7.06	7.08	7.08	7.09							
Temp.	°C	26.27	26.28	25.78	25.62							
Spec. cond.	µS/cm	2663	2663	2667	2675							
D.O.	mg/L	—	—	—	—							
ORP	mV	—	—	—	—							
Turbidity	ntu	28	15	8.5	8.9							
Color/tint		clear	→									
Odor		none	→									

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-03	5/11/10	1245	4	—	2x1L GAMMA
					2x1L Tritium

Sampler's Name (print): Jacob Brickman Sampler Signature: Jacob Brickman

Groundwater Sampling Record

Facility: W-3	Site ID: MW-04	Sampler: JMB
roject Number: 6045-460	Date: 5/11/10	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 80°	Wind: 5-10				
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No	
		Total depth from TOC	feet	35		
		TOC below/above ground	feet	~2		
Damages/repairs needed: NONE						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:		Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Keck 100					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1145	1326	1343	1345	1420	
Depth to Water	feet	9.07	8.95	9.89	10.20	10.39	
Product	LNAPL/DNAPL	5/11/10 →					
Prod. thickness	feet						

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☒ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☐ Other:	Pump description: ☑ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible	Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	20	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1330	1335	1340	1345							Remarks
Purge vol.	gallons	0.0	0.2	0.3	0.4							
Purge rate	mL/min	130	110	110	110							
pH	su	6.55	6.65	6.67	6.59							
Temp.	°C	25.77	25.78	25.97	26.07							
Spec. cond.	µS/cm	4932	4953	4935	4931							
D.O.	mg/L	—	—	—	—							
ORP	mV	—	—	—	—							
Turbidity	ntu	16	16	12	13							
Color/tint		clear →		W/ Particulate								
Odor		NONE →										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-04	5/11/10	1350	4	—	2 GAMMA
					2 Tritium

Sampler's Name (print): Jacob Brickman	Sampler Signature: Jacob Br

Groundwater Sampling Record

Facility: W-3	Site ID: MW-05	Sampler: JWB
roject Number: 6045-0460	Date: 5/11/10	Sampler Organization: ETN

Site Description

Weather: Sunny	Air Temp (°F): 90°		Wind: 10 - 15			
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No	
		Total depth from TOC	feet	35		
		TOC below/above ground	feet	~2		
Damages/repairs needed: None						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Keck

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1132	1432	1442	1530	1621	
Depth to Water	feet	7.18	7.14	7.49	7.55	7.61	
Product	LNAPL/DNAPL	5/11/10 -7					
Prod. thickness	feet						

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: Keck

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	30	Well goes dry during purging: ☐ Yes ☒ No										
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408										
Time	24-hour	1440	1445	1450	1455	1501	1505	1510	1515	1520	1525	1530	Remarks
Purge vol.	gallons	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	
Purge rate	mL/min	120	120	120	120	120	120	120	120	120	120	120	
pH	su	7.21	7.20	6.82	6.99	6.95	7.00	7.06	7.02	7.02	7.02	7.02	
Temp.	°C	26.46	26.11	25.81	26.08	26.13	26.37	26.16	26.16	26.08	26.15	25.72	
Spec. cond.	µS/cm	2045	2062	5564	5828	5787	5569	5457	5180	4944	4929	4850	
D.O.	mg/L	—	—	—	—	—	—	—	—	—	—	—	
ORP	mV	—	—	—	—	—	—	—	—	—	—	—	
Turbidity	ntu	24	20	19	16	10	19	8.6	15	14	14	13	
Color/tint		clear	w/	Particulate									
Odor		NONE											

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-05	5/11/10	1535	4	—	2 GAMMA 1,2,3-trichloropropane
MW-05D	↓	1540	4	—	Duplicate

Sampler's Name (print): Jacob Brichman Sampler Signature: Jacob Brichman

Groundwater Sampling Record

Facility: W-3	Site ID: EB-1	Sampler:
roject Number: 6045	Date:	Sampler Organization:

Site Description

Weather:	Air Temp (°F):		Wind:			
Site type: ☐ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Irrigation Well ☐ Spring ☐ Other:	Well casing material: ☐ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches		Well locked? ☐ Yes ☐ No	
		Total depth from TOC	feet			
		TOC below/above ground	feet			
Damages/repairs needed:						

Water Level Data

Measuring point description: ☐ Mark/notch on TOC ☐ North rim of TOC ☐ Other:		Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☐ Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour						
Depth to Water	feet						
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ LaMotte 2020 Turbidimeter ☐ Hydrolab DataSonde ☐ Hach 2100P Turbidimeter ☐ Other: ☐ Other:	Pump description: ☐ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible	Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet		Well goes dry during purging: ☐ Yes ☐ No										
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408										
Time	24-hour												Remarks
Purge vol.	gallons		Equipment Blank using Peristaltic										
Purge rate	mL/min		pump w/ poly tubing. W.L. meter										
pH	su		submerged into 1 gallon D.I. water										
Temp.	°C		(Always Same) w/ water level meter										
Spec. cond.	µS/cm												
D.O.	mg/L												
ORP	mV												
Turbidity	ntu												
Color/tint													
Odor													

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
EB-1	5/11/10	1626	4	–	2 GAMMA / 2 Tritium

Sampler's Name (print):	Sampler Signature:

ftn

Date	Project Name	Project Number	Project Manager (Print)	Page of
5/11/10	~~R+~~ W-3	6045-460	ROB WEST	Page 1 of 1

Laboratory Name	Submitted by:
RBS LAB Phone: ( )	FTN Associates, Ltd. 124 W. Sunbridge Drive, Suite 3 Fayetteville, AR 72703 (479) 571-3334 • Fax (479) 571-3338
Sampler Signature(s): Jacob Brickman	Recorded By (Print): Jacob Brickman

Parameters (Method Number): Tritium; GAMMA

Lab Turn-Around Time: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ Other: Due: / / — NORMAL

SAMPLE DESCRIPTION

Field Sample Number	Date (mm/dd/yy)	Time (hh:mm)	Matrix* W	Matrix* S	Matrix* O	Number of Containers	Method Comp	Method Grab	Tritium	GAMMA	Laboratory Notes
MW-05	5/11/10	1535	X			4		X	X	X	
MW-05D	↓	1540	X			4		X	X	X	
MW-04		1350	X			4		X	X	X	
MW-03		1245	X			4		X	X	X	
EB-01		1620	X			4		X	X	X	

* Matrix: W = Water S = Soil O = Other

Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time
	Jacob Brickman	5/12/10	0817		R. T. Michura	5-12-10	0817
Relinquished By (Signature)	Print Name	Date	Time	Received By Laboratory (Signature)	Print Name	Date	Time

Sampler Remarks

Laboratory Remarks:

Revision Date 11/22/02

Daily Log

Site Location: MW-3	Date: 8/23/10
Project Number: 6045-460	Page 1 of 1

1050 - JWB Arrives on site
start taking Water Levels
- Meet w/ Rodney and receive bottles
1115 - start sampling at MW-03

1250 - Sample at MW-04

1420 - Sampled and made Duplicate at MW-05

1510 - Equipment Blank was made with store bought DI using peristaltic pump w/ hexon Dipper T Water level meter.

1530 JWB off site

Sold

Groundwater Sampling Record

Facility: W-3	Site ID: MW-3	Sampler: JWB
oject Number: 6045-460	Date: 8/23/10	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 95°	Wind 0.5 mph			
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No
		Total depth from TOC	feet	35	
		TOC below/above ground	feet	~2	
Damages/repairs needed: NONE					

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☒ Heron Dipper-T ☐ Slope Water Level Indicator ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1118	1127	1139	1151	1220	
Depth to Water	feet	5.16	5.13	5.50	5.52	5.57	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: HF Scientific

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	30	Well goes dry during purging: ☐ Yes ☒ No										
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408										
Time	24-hour	1130	1135	1140	1145								Remarks
Purge vol.	gallons	0.1	0.3	0.4	0.5								
Purge rate	mL/min	120	110	110	110								
pH	su	6.73	6.75	6.75	6.77								
Temp.	°C	27.49	27.68	27.29	27.49								
Spec. cond.	µS/cm	3059	3133	3164	3163								
D.O.	mg/L	–	–	–	–								
ORP	mV	–	–	–	–								
Turbidity	ntu	1.59	1.58	1.56	1.15								
Color/tint		NONE											
Odor		NONE											

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-3	8/23/10	1150	4	–	2x1L GAMMA 2x1L Tritium

Sampler's Name (print): Jacob Brickman Sampler Signature: Jacob Brickman

Groundwater Sampling Record

Facility: W-3	Site ID: MW-4	Sampler: JWB
oject Number: 6045-460	Date: 8/23/10	Sampler Organization: FTN

Site Description

Weather: sunny	Air Temp (°F): 100°		Wind: —		
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ~~☒~~ Yes ☐ No
		Total depth from TOC	feet	35	
		TOC below/above ground	feet	~2.5	
Damages/repairs needed: NONE					

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ~~☒~~ Heron Dipper-T ☐ Slope Water Level Indicator ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1111	1231	1242	1256	1356	
Depth to Water	feet	8.00	7.98	8.73	8.89	9.03	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: HP Scientific

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	30	Well goes dry during purging: ☐ Yes ~~☒~~ No									
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1238	1242	1246	1250	1254						Remarks
Purge vol.	gallons	0.1	0.2	0.3	0.4	0.5						
Purge rate	mL/min	120	110	110	110	110						
pH	su	6.54	6.56	6.61	6.58	6.61						
Temp.	°C	27.75	27.98	30.14	28.82	28.68						
Spec. cond.	µS/cm	5525	5522	5655	5692	5702						
D.O.	mg/L	—	—	—	—	—						
ORP	mV	—	—	—	—	—						
Turbidity	ntu	17.97	28.82	21.03	13.22	15.62						
Color/tint		clear										
Odor		NONE	some	Red	particulate							

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-04	8/23/10	1255	4	—	2 Tritium & 2 GAMMA

Sampler's Name (print): Jacob Brickman | Sampler Signature: JB

Groundwater Sampling Record

Facility: W-3	Site ID: MW-5	Sampler: JWB
oject Number: 6045-460	Date: 8/23/10	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 105°	Wind: —

Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Irrigation Well ☐ Spring ☐ Other:

Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:

Well diameter	inches	2	Well locked? ☒ Yes ☐ No
Total depth from TOC	feet	35	
TOC below/above ground	feet		

Damages/repairs needed: NONE

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☒ Heron Dipper-T ☐ Slope Water Level Indicator ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1100	1350	1402	1410	1508	
Depth to Water	feet	4.65	4.66	4.89	4.91	4.94	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: HF Scientific

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	30	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time	24-hour	1355	1359	1404	1408							Remarks
Purge vol.	gallons	0.2	0.1	0.2	0.3							
Purge rate	mL/min	100	100	100	100							
pH	su	7.00	6.98	6.99	6.97							
Temp.	°C	29.01	28.98	29.18	29.31							
Spec. cond.	µS/cm	2004	1965	1974	1958							
D.O.	mg/L	—	—	—	—							
ORP	mV	—	—	—	—							
Turbidity	ntu	15.78	23.95	15.12	16.41							
Color/tint		Clear										
Odor		NONE										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-5	8/23/10	1415	4	—	2 Tritium / 2 GAMMA
MW-100	↓	1410	↓	—	Duplicate
MW-101	↓	1510	↓	—	MW-101 = Equipment Blank

Sampler's Name (print): Jacob Brickman Sampler Signature: [signature]

ftn

Date	Project Name	Project Number	Project Manager (Print)	Page of
8/23/10	W-3	4045-460	BOB WEST	Page 1 of 1

Laboratory Name	Submitted by:
RBS Laboratory Phone: ( )	FTN Associates, Ltd. 124 W. Sunbridge Drive, Suite 3 Fayetteville, AR 72703 (479) 571-3334 • Fax (479) 571-3338
Sampler Signature(s): Jarod Bickman	Recorded By (Print): Jarod Bickman

Parameters (Method Number): Tritium; Gamma

Lab Turn-Around Time
- ☐ 24 Hours
- ☐ 48 Hours
- ☐ 7 Days
- ☐ Other: Due: __/__/__

NORMAL

SAMPLE DESCRIPTION

Field Sample Number	Date (mm/dd/yy)	Time (hh:mm)	Matrix* W	Matrix* S	Matrix* O	Number of Containers	Method Comp	Method Grab	Tritium	Gamma	Laboratory Notes
MW-03	8/23/10	1150	X			4		X	X	X	
MW-04	↓	1255	X			↓		X	X	X	
MW-05		1415	X					X	X	X	
MW-100		1410	X					X	X	X	
MW-101		1510	X					X	X	X	

* Matrix: W = Water S = Soil O = Other

Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time
Jarod Bickman	Jarod Bickman	8/24/10	0715	[illegible]	S.T. Michael	8/24/10	0723
Relinquished By (Signature)	Print Name	Date	Time	Received By Laboratory (Signature)	Print Name	Date	Time

Sampler Remarks	Laboratory Remarks:

Revision Date 11/22/02

FIELD SUPPLIES AND EQUIPMENT PROJECT WORKSHEET

PROJECT NUMBER: 6045-460

DATE(S): Aug 23 ~~to~~ 2010

FTN RENTAL	UNIT		Day 1	Day 2	Day 3	Day 4	Day 5		Week 1	
			Units	Units	Units	Units	Units		Units	Total Units
Peristaltic Pump	day		1							1
Submersible pump	day									
Hydrolab	day		1							1
Hydrolab	week									
Meters	day		1							1
Geoprobe, augers	day									
PPE	day									
GPS	day									
Other	day/week									

FIELD SUPPLIES	UNIT		Day 1	Day 2	Day 3	Day 4	Day 5		Total Units
Silicone tubing	ft		5						5
Polyethylene tubing	ft		110						110
Vinyl tubing	ft								
Disposable bailers	ea								
0.45 micron filters	ea								
Tyvek suit	ea								
field notebook	ea								1
misc. supplies	day								1

NOTES:

Daily Log

Site Location: Entergy W-3	Date: 11-16-10
Project Number: 6045-466	Page 1 of 1

0645 - arrived on site @ MW-5
- called Rodney - said he would meet here shortly
- began calibration → see sheet.

0700 - Rodney met and provided sample bottles
- trouble with screwgun, kept shutting off, fully charged only worked when plugged into power

0730 - installed dedicated tubing in MW-5

0740 - began water level @ each well and installing tubing

0840 - returned to MW-5 after water levels complete
- 3 bucket rinse of Decon water - discharge to ground
- set up new decon water
- began sampling → see sampling records

1715 - collected equipment blank: MW-101
- used new tubing, drew water out of gallon jugs of distilled water using peristaltic pump. Water level meter was placed in jug of distilled water as blank was collected.

1730 - left site

11-17-10

0750 - dropped off samples @ river bend lab → see COC

FTN Associates Calibration Form

Date/Time: 1/ 0650

Prepared By: JJ2

Location: Waterbird 3 – MW-5

Project #:

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
Hydrolab Minisonde	45796	pH	7	su	17.53	7.07	(Y) N	7.00	
		pH	4	su	17.79	3.95	(Y) N	4.00	
		~~pH~~	~~10~~	~~su~~			~~Y N~~		
		Cond	0	uS/cm	—	0.6	(Y) N	0.0	
		Cond	447	uS/cm	17.73	419.4	(Y) N	446.3	
		~~DO~~		mm/Hg		mg/l	Y N	mg/l	
		Temp	18	Degrees C	—	17.86	Y N	N/A	
							Y N		
							Y N		
							Y N		
							Y N		
							Y N		
							Y N		
							Y N		
							Y N		
							Y N		

Notes:

pH Calibration (pH Method: EPA 150.1)

Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.

DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.

Temperature Calibration: No calibration is necessary. Simply record temperature of standard using thermometer while in calibration cup. Then record hydrolab temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

Groundwater Sampling Record

Facility: W-3	Site ID: MW-3	Sampler: JJR
oject Number: 6045-460	Date: 11-16-10	Sampler Organization: FTN

Site Description

Weather: partly sunny	Air Temp (°F): 69°		Wind: slight breeze			
Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Irrigation Well ☐ Spring ☐ Other:	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No	
		Total depth from TOC	feet			
		TOC below/above ground	feet			
Damages/repairs needed: none						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:		Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Solinst					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0756	1137	1153	1157	1256	
Depth to Water	feet	6.08	6.36	6.67	6.70	6.83	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters:	Pump description:	Bailer description:
☒ Hydrolab MiniSonde ☐ LaMotte 2020 Turbidimeter	☒ Peristaltic	☐ Disposable polyethylene
☐ Hydrolab DataSonde ☐ Hach 2100P Turbidimeter	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
☐ Other: ☒ Other: MicroTPW	☐ Submersible	☐ Disposable PVC

Purge depth	feet		Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1144	1148	1152	1156							Remarks
Purge vol.	gallons				~0.5							
Purge rate	mL/min	135	135	135	135							
pH	su	6.82	6.81	6.80	6.81							
Temp.	°C	23.56	23.23	23.40	23.24							
Spec. cond.	µS/cm	3580	3604	3610	3613							
D.O.	mg/L	-	-	-	-	-						
ORP	mV	-	-	-	-	-						
Turbidity	ntu	17.70	7.47	7.31	7.91							
Color/tint		clear	→	→	→	→						
Odor		none	→	→	→	→						

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-3	11-16-10	1200	4	–	2 Gamma / 2 Tritium
MW-100	11-16-10	1220	4	–	Duplicate

Sampler's Name (print): Jimmy Rose	Sampler Signature:

Groundwater Sampling Record

Facility: W-3	Site ID: MW-4	Sampler: JJR
oject Number: 8045-460	Date: 11-16-10	Sampler Organization: FTN

Site Description

Weather: Mostly Cloudy	Air Temp (°F): 68	Wind: breezy

Site type:	Well casing material:				
☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Irrigation Well ☐ Spring ☐ Other:	☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No
		Total depth from TOC	feet		
		TOC below/above ground	feet		

Damages/repairs needed: None

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Solinst

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0749	1031	1034	1050	1129	
Depth to Water	feet	8.29	8.44	9.21	9.37	9.76	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: Micro TPW

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet		Well goes dry during purging: ☐ Yes ☒ No								
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408								
Time	24-hour	1025	1029	1033	1037	1041	1045	1049			Remarks
Purge vol.	gallons							~0.7			
Purge rate	mL/min	110	100	100	85	85	80	80			
pH	su	6.73	6.61	6.70	6.68	6.71	6.75	6.73			
Temp.	°C	22.57	22.46	22.53	22.70	22.73	22.75	22.58			
Spec. cond.	µS/cm	5938	6153	6205	6276	6311	6346	6385			
D.O.	mg/L	–	–	–	–						
ORP	mV	–	–	–	–						
Turbidity	ntu	12.23	8.13	4.86	4.53	3.88	4.00	4.03			
Color/tint		clear	→	→	→	→	→	→			
Odor		none	→	→	→	→	→	→			

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-4	11-16-10	1055	4	—	2 Tritium / 2 Gamma

Sampler's Name (print): Jimmy Rogers Sampler Signature:

Groundwater Sampling Record

Facility: W-3	Site ID: MW-5	Sampler: SJR
oject Number: 6045-460	Date: 11-16-10	Sampler Organization: FTN

Site Description

Weather: Mostly Cloudy	Air Temp (°F): 68		Wind: moderate gusts		
Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Irrigation Well ☐ Spring ☐ Other:	Well casing material: ☐ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No
		Total depth from TOC	feet		
		TOC below/above ground	feet		
Damages/repairs needed: none					

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:		Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Solinst					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0735	0850	0904	0911	1011	
Depth to Water	feet	6.06	6.06	6.47	6.48	6.54	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters:			Pump description:	Bailer description:
☒ Hydrolab MiniSonde	☐ LaMotte 2020 Turbidimeter		☒ Peristaltic	☐ Disposable polyethylene
☐ Hydrolab DataSonde	☐ Hach 2100P Turbidimeter		☐ Bladder (dedicated / portable)	☐ Disposable Teflon
☐ Other:	☒ Other: Micro TPW		☐ Submersible	☐ Disposable PVC

Purge depth	feet		Well goes dry during purging: ☐ Yes ☒ No								
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408								
Time	24-hour	0854	0858	0902	0906	0910					Remarks
Purge vol.	gallons					~~0.2~~ ~1					
Purge rate	mL/min	120	100	100	100	100					
pH	su	6.52	6.98	7.07	7.02	7.08					
Temp.	°C	22.79	22.77	22.87	22.87	22.94					
Spec. cond.	µS/cm	6683	6700	6662	6635	6598					
D.O.	mg/L	–	–	–	–						
ORP	mV	–	–	–	–						
Turbidity	ntu	13.15	8.19	7.14	6.83	7.59					slight yellowish color
Color/tint		clear →	→	→	→	→					observed as sample bottles
Odor		none →	→	→	→	→					were filling

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-5	11-16-10	0915	~~3~~ 5	–	2 tritium / 2 Gamma / 1 other

Sampler's Name (print): Jimmy Rogers	Sampler Signature:

Groundwater Sampling Record

Facility: W-3	Site ID: MW-6	Sampler: JJR
oject Number: 6045-460	Date: 11-16-16	Sampler Organization: FTN

Site Description

Weather: Mostly Sunny	Air Temp (°F): 70°		Wind: slight breeze			
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No	
		Total depth from TOC	feet			
		TOC below/above ground	feet			
Damages/repairs needed: None						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:		Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Solinst					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0804	1302	1312	1318	1400	
Depth to Water	feet	4.44	4.62	5.32	5.41	5.67	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: Micro TPW	Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible	Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet		Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1305	1309	1313	1317							Remarks
Purge vol.	gallons				~0.5							* Top of PVC casing a male threaded end. Cap with tubing inlet sets over but does not fit snugly
Purge rate	mL/min	125	95	95	85							
pH	su	7.14	6.34	7.03	7.07							
Temp.	°C	23.17	22.99	22.93	22.83							
Spec. cond.	µS/cm	3790	3899	3835	3731							
D.O.	mg/L	-	-	-	-							
ORP	mV	-	-	-	-							
Turbidity	ntu	14.25	8.10	6.95	5.15							
Color/tint		clear →	→	→								
Odor		none →	→	→								

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-6	11-16-16	1320	4		2 Glass / 2 Teflon

Sampler's Name (print): Jimmy Rogers	Sampler Signature:

Groundwater Sampling Record

Facility: W-3	Site ID: MW-7	Sampler: JJ/	
oject Number: 6045-466	Date: 11-16-10	Sampler Organization: FTN	

Site Description

Weather: partly sunny	Air Temp (°F): 68°	Wind: breezy			
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No
		Total depth from TOC	feet		
		TOC below/above ground	feet		
Damages/repairs needed: none					

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Solinst

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0814	1410	1418	1429	1506	
Depth to Water	feet	6.38	6.51	7.05	7.21	7.28	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: Micro TPW

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet		Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1412	1416	1420	1424	1428						Remarks
Purge vol.	gallons											
Purge rate	mL/min	115	100	106	106	100						
pH	su	6.68	6.75	6.75	6.72	6.76						
Temp.	°C	24.01	23.98	23.93	23.96	23.95						
Spec. cond.	µS/cm	1809	1885	1929	1961	1976						
D.O.	mg/L	-	-	-	-	-						
ORP	mV	-	-	-	-	-						
Turbidity	ntu	7.91	5.25	4.44	4.77	4.65						
Color/tint		clear	→	→	→	→						
Odor		none	→	→	→	→						

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-7	11-16-10	1430	4	-	2 Gamma / 2 Trifluo

Sampler's Name (print): Jimmy Rogers Sampler Signature:

Groundwater Sampling Record

Facility: W-3	Site ID: MW-8	Sampler: JJR	
oject Number: 6045-460	Date: 11-16-10	Sampler Organization: FTN	

Site Description

Weather: mostly sunny	Air Temp (°F): 68°	Wind: slight breeze			
Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Irrigation Well ☐ Spring ☐ Other:	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No
		Total depth from TOC	feet		
		TOC below/above ground	feet		
Damages/repairs needed: None					

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:		Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Solinst					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0825	1525	1536	1542	1617	
Depth to Water	feet	7.68	7.80	8.03	8.08	8.11	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters:		Pump description:	Bailer description:
☒ Hydrolab MiniSonde	☐ LaMotte 2020 Turbidimeter	☒ Peristaltic	☐ Disposable polyethylene
☐ Hydrolab DataSonde	☐ Hach 2100P Turbidimeter	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
☐ Other:	☒ Other: ~~Micro~~ TFN	☐ Submersible	☐ Disposable PVC

Purge depth	feet		Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1529	1533	1537	1541							Remarks
Purge vol.	gallons				~0.5							
Purge rate	mL/min	140	110	110	110							
pH	su	6.84	6.71	6.72	6.71							
Temp.	°C	23.56	23.76	23.66	23.56							
Spec. cond.	µS/cm	1383	1393	1407	1410							
D.O.	mg/L	–	–	–	–							
ORP	mV	–	–	–	–							
Turbidity	ntu	46.16	7.86	6.45	5.83							
Color/tint		clear →	→	→								
Odor		none →	→	→								

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-8	11-16-10	1545	4	–	2 Gamma / 2 tritium

Sampler's Name (print): Jimmy Rogers | Sampler Signature:

Groundwater Sampling Record

Facility: W-3	Site ID: MW-9	Sampler: JJR
oject Number: 6045-460	Date: 11-16-16	Sampler Organization:

Site Description

Weather: clear	Air Temp (°F): 65°	Wind: light breeze

Site type	Well casing material				
☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Irrigation Well ☐ Spring ☐ Other:	☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No
		Total depth from TOC	feet		
		TOC below/above ground	feet		

Damages/repairs needed: None

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Solinst

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0832	1625	1635	1643	1715	
Depth to Water	feet	4.51	4.49	4.55	4.54	4.56	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☒ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☐ Other: ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: Micro TPW

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet		Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1630	1634	1638	1642							Remarks
Purge vol.	gallons				~0.5							
Purge rate	mL/min	125	125	125	125							
pH	su	6.81	6.73	6.75	6.75							
Temp.	°C	21.78	21.61	21.68	21.86							
Spec. cond.	µS/cm	2449	2475	2481	2467							
D.O.	mg/L	–	–	–	–							
ORP	mV	–	–	–	–							
Turbidity	ntu	18.44	8.80	7.10	7.12							
Color/tint		clear →	→	→								
Odor		none →	→	→								

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-9	11-16-16	1645	4	–	2 gamma / 2 tritium
MW-101	11-16-16	1715	4	–	~~Field Blank~~ Equipment Blank

Sampler's Name (print): Jimmy Rogers

Sampler Signature: Jimmy Rogers

ftn

Date	Project Name	Project Number	Project Manager (Print)	Page of
11-17-10	W-3	6045-410	Bob West	Page 1 of 1

Laboratory Name	Submitted by:
RBS Laboratory Phone: ( )	FTN Associates, Ltd. 2949 Point Circle, Suite 1 Fayetteville, AR 72704 (479) 571-3334 • Fax (479) 571-3338
Sampler Signature(s): Jimmy Rogers	Recorded By (Print): Jimmy Rogers

SAMPLE DESCRIPTION

Field Sample Number	Date (mm/dd/yy)	Time (hh:mm)	Matrix* W	Matrix* S	Matrix* O	Number of Containers	Method Comp	Method Grab	Parameters (Method Number): Tritium	Gamma	- other -						Lab Turn-Around Time / Laboratory Notes
MW-5	11-16-10	0915	X			5		X	X	X	X						
MW-4		1055	X			4		X	X	X							
MW-3		1200	X			4		X	X	X							
MW-100		1220	X			4		X	X	X							
MW-6		1320	X			4		X	X	X							
MW-7		1430	X			4		X	X	X							
MW-8		1545	X			4		X	X	X							
MW-9		1645	X			4		X	X	X							
MW-101		1715	X			4		X	X	X							

* Matrix: W = Water S = Soil O = Other

Lab Turn-Around Time
- ☐ 24 Hours
- ☐ 48 Hours
- ☐ 7 Days
- ☐ Other: Due: __/__/__

Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time
Jimmy Rogers	Jimmy Rogers	11-17-10		Arthur Robinson	Arthur Robinson	11/18/10	0905
Relinquished By (Signature)	Print Name	Date	Time	Received By Laboratory (Signature)	Print Name	Date	Time

Sampler Remarks	Laboratory Remarks:

Daily Log

Site Location: W3	Date: 23Mar 11
Project Number: 6045-460	Page 1 of 1

0730 - Arrived on site, located MW-5 & called Rodney. Began to prepe calibrate.

0800 Water Levels

PTG	ID	DTW TOC (FT)	Sample Order
0840	MW-05	6.30	3
0905	MW-04	5.93	4
0911	MW-03	6.31	6
0914	MW-06	4.45	7 Dup
0921	MW-07	6.31	8
0933	MW-08	5.81	9
0945	MW-09	4.68	5
			EB

1720 Departed Site

29Mar11

0705 Arrived on site

1030 departed Site

FTN Associates Calibration Form

Date/Time: 28 Mar 11 0750
Prepared By: DWP
Location: W3
Project #: 6045-460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
YSI 556 MPS		pH	7	su	19.52	7.11	(Y) N	7.00	
		pH	4	su	19.56	3.94	(Y) N	4.00	
		pH	10	su			Y N		
		Cond	0	uS/cm			Y N		
		Cond	447	uS/cm	19.37	475	(Y) N	447	
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C			Y N	N/A	
							Y N		
			DWP				Y N		
HF Scientific #1		Turb	1000	NTU	N/A	1022	(Y) N	990.7	
			10			10.10	(Y) N	9.97	
			0.02			0.19	(Y) N	0.08	
							Y N		
							Y N		
							Y N		

Notes:

pH Calibration (pH Method: EPA 150.1)
Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
Temperature Calibration: No calibration is necessary. Simply record temperature of standard using thermometer while in calibration cup. Then record hydrolab temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

FTN Associates Calibration Form

Date/Time: 3/28/11 0710
Prepared By: DWP
Location: W3
Project #: 6045-460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
YSI 556		pH	7	su	19.92	6.85	(Y) N	7.00	
		pH	4	su	20.01	4.16	(Y) N	4.00	
		pH	10	su			Y N		
		Cond	0	uS/cm			Y N		
		Cond	447	uS/cm	20.34	506	Y (N)		outofrange
		DO		mm/Hg			Y N	mg/l	
		Temp		Degrees C	20.00	20.65 mg/l	(Y) N	N/A	
		~~Temp~~ Cond	447	uS/cm	465	20.51	(Y) N	447	
							Y N		
HF Scientific		Turb	1000	NTU		991.4	(Y) N	999.7	
			10			9.73	(Y) N	10.07	
			0.02			0.00	(Y) N	0.00	
							Y N		
							Y N		
							Y N		

Notes:

pH Calibration (pH Method: EPA 150.1)
Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
Temperature Calibration: No calibration is necessary. Simply record temperature of standard using thermometer while in calibration cup. Then record hydrolab temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

Groundwater Sampling Record

Facility: W3	Site ID: MW-03	Sampler: DWP	
oject Number: 60445-460	Date: 28 Mar 11	Sampler Organization: FTN	

Site Description

Weather: Cloudy	Air Temp (°F): 66		Wind: 13 mph			
Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Irrigation Well ☐ Spring ☐ Other:	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No	
		Total depth from TOC	feet	37.58 DWP 35.4		
		TOC below/above ground	feet	2.58		
Damages/repairs needed:						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:		Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Heath Geotech 200'					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0911	1020	1044	1054	1127	
Depth to Water	feet	6.31	6.30	6.60	6.65	6.74	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ LaMotte 2020 Turbidimeter ☐ Hydrolab DataSonde ☐ Hach 2100P Turbidimeter ☒ Other: YSI 556 ☒ Other: 14F Scientific #1		Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible	Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	~~35~~ 30	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons	~~4.66~~ 4.86	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1032	1035	1040	1042	1044	1047	1049	1051	1053		Remarks
Purge vol.	gallons			DWP						~1		
Purge rate	mL/min	300	90	190	120							
pH	su	6.57	6.78	6.81	6.82	6.82	6.83	6.83	6.83	6.83		
Temp.	°C	24.99	23.49	24.20	23.71	24.06	23.84	23.94	24.13	24.06		
Spec. cond.	µS/cm	1467	2036*	3043	3006	3042	3054	3059	3065	3060		* bubble in flow cell
D.O.	mg/L											
ORP	mV											
Turbidity	ntu	27.17	33.29	30.99	18.96	25.62	21.06	25.11	15.61	16.92		
Color/tint		clear →	→	→	→	→	→	→	→	→		
Odor		None →	→	→	→	→	→	→	→	→		

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-03	3/28/11	1100	4	No	2 1L Gamma 2 1L brittain

Sampler's Name (print): Darrell Pennington Sampler Signature: Darrell Pennington

Groundwater Sampling Record

Facility: W3	Site ID: MW-04	Sampler: DWP	
oject Number: 6045-460	Date: 3/28/11	Sampler Organization: FTN	

Site Description

Weather: ~~Sunny~~ Mostly Cloudy	Air Temp (°F): 70		Wind: 13 mph			
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No	
		Total depth from TOC	feet	~~37.73~~ 41.15 DWP		
		TOC below/above ground	feet	~~3.15~~ 2.73 DWP		
Damages/repairs needed:						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Lock Seotech 200'

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0905	1138	1201	1203	1241	
Depth to Water	feet	8.93	8.93	10.05	10.09	10.37	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ Other: YSI 556 ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: ~~HF Scientific~~ MC #1

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	~~38~~ 40 DWP	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons	~~4.20~~ 4.50 DWP	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1148	1151	1153	1156	1158	1201					Remarks
Purge vol.	gallons						0.5					
Purge rate	mL/min	180	120		100							
pH	su	6.89	6.47	6.47	6.46	6.50	6.51					
Temp.	°C	23.22	23.59	23.96	24.16	24.28	24.21					
Spec. cond.	µS/cm	4540	4460	4544	4605	4719	4787					
D.O.	mg/L											
ORP	mV											
Turbidity	ntu	37.15	24.26	25.93	23.47	26.88	24.30					
Color/tint		None	clear →	→	→	→	→					
Odor		Clear	None →	→	→	→	→					

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-04	3/28/11	1205	4		2 1L 5amm 2 1L tritium

Sampler's Name (print): Darrell Pennington Sampler Signature: Darrell Pennington

Groundwater Sampling Record

Facility: W3	Site ID: MW-05	Sampler: DWP	
Project Number:	Date: 3/29/11 DWP	Sampler Organization: ETN	

Site Description

Weather: partly cloudy	Air Temp (°F): ~ 66		Wind: 13 mph		
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No
		Total depth from TOC	feet	37.59	
		TOC below/above ground	feet	2.59	
Damages/repairs needed:					

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Solinst 101 Level

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour 3/28/11	840	844	906	921	951	
Depth to Water	feet	6.30	6.39	6.66	6.67	6.73	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ Other: YSI 556 ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☐ Other: HF Scientific

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	30	Well goes dry during purging: ☐ Yes ☐ No										
Casing vol.	gallons	4.67	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408										
Time	24-hour	850	854	857	859	901	903	906	908	910	913	915	Remarks
Purge vol.	gallons												917 920 0.5 gal
Purge rate	mL/min	140	100										
pH	su	7.30	7.28	7.27	7.26	7.25	7.24	7.24	7.23	7.23	7.23	7.22	7.22 7.22
Temp.	°C	22.33	22.15	22.20	22.18	22.25	22.40	22.43	22.45	22.44	22.53	22.60	22.64 22.58
Spec. cond.	µS/cm	4337	4391	4432	4542	4614	4694	4757	4792	4814	4825	4830	4822 4806
D.O.	mg/L												
ORP	mV												
Turbidity	ntu	15.33	17.37	18.92	16.72	21.36	15.75	13.24	17.48	19.13	21.11	17.44	13.17 13.80
Color/tint		clear	→	→	→	→	→	→	→	→	→	→	→
Odor		None	→	→	→	→	→	→	→	→	→	→	→

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-05	3/29/11	0923	4	No	2L brown 2L Summa
EB-01	3/29/11	1000	4	NO	SAA

Sampler's Name (print): Darrell Pennington Sampler Signature: Darrell Pennington

Groundwater Sampling Record

Facility: W3	Site ID: MW-06	Sampler: DWP	
Project Number: 6045.460	Date: 3/28/11	Sampler Organization: FTW	

Site Description

Weather: Cloudy	Air Temp (°F): 73	Wind: 9mph			
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No
		Total depth from TOC	feet	35.40	
		TOC below/above ground	feet	2.4	
Damages/repairs needed:					

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other Keck Geotech 200'

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0914	1302	1317	1322	1353	After Dup
Depth to Water	feet	~~4.53~~ DWP	↑	↑	↑	↑	1421
Product	LNAPL/DNAPL	4.45	4.44	5.58	5.60	5.99	6.18
Prod. thickness	feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ Other: YSI 556 ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: HF Scientific #1

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	28	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons	4.66	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1306	1308	1310	1313	1317	1319	1322				Remarks
Purge vol.	gallons							0.75				
Purge rate	mL/min	120		140		130						Below 130 mL/min pump would stop
pH	su	7.73	7.14 ~~7.32~~	7.05	7.01	7.02	7.02	7.03				
Temp.	°C	24.92	~~28.78~~	24.21	24.36	24.54	24.58	24.39				
Spec. cond.	µS/cm	2950	2878	2854	2830	2824	2810	2810				
D.O.	mg/L											
ORP	mV											
Turbidity	ntu	6.56	12.19	7.00	4.45	5.77	7.53	4.56				
Color/tint		Clear	→	→	→	→	→					
Odor		None	→	→	→	→	→					

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW06	3/28/11	1325	4	ND	2 1L Tritium, 2 1L gamma SAA
DupMW06	3/28/11	1400	4	No	

Sampler's Name (print): Darnell Pennington Sampler Signature: Darnell Pennington

Groundwater Sampling Record

Facility: W3	Site ID: MW07	Sampler: DWP	
oject Number: 6046-460	Date: 3/28/11	Sampler Organization: FTN	

Site Description

Weather: Cloudy	Air Temp (°F): 72	Wind: 6 mph				
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2in	Well locked? ☒ Yes ☐ No	
		Total depth from TOC	feet	41.15		
		TOC below/above ground	feet	3.15		
Damages/repairs needed:						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Leak Scotch 200'

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0921	1454	1507	1529	1566	
Depth to Water	feet	6.31	6.33	7.16	7.39	7.34	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ Other: YSI 556 ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: HF Scientific (#1)

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	33	Well goes dry during purging: ☐ Yes ☒ No										
Casing vol.	gallons	5.16	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408										
Time	24-hour	1458	1500	1502	1505	1507	1509	1511	1513	1517	1519	1520	Remarks
Purge vol.	gallons												1523 1527
Purge rate	mL/min	140		110									Volume 1.5 gal
pH	su	7.46	6.99	6.91	6.88	6.87	6.85	6.84	6.82	6.82	6.81	6.80	6.80 6.80
Temp.	°C	25.84	25.20	25.44	25.57	25.75	25.63	25.55	25.54	25.77	25.88	25.12	25.65 25.73
Spec. cond.	µS/cm	1108	1051	1064	1073	1082	1096	1103	1125	1156	1213	1249	1264 1277
D.O.	mg/L												
ORP	mV												
Turbidity	ntu	8.33	21.73	11.36	13.17	14.5	15.18	19.21	24.60	25.29	18.73	53.84	39.11 37.29
Color/tint		clear →	→	→	→	→	→	→	→	→	→	→	→
Odor		None →	→	→	→	→	→	→	→	→	→	→	→

Orangish tint, possible cyanobacteria present

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-07	3/28/11	1530	4	NO	2L tritium 2L Gamma

Sampler's Name (print): Darrell Pennington	Sampler Signature: Darrell Pennington

*cleared 1½ way & 2nd tritium sample

Groundwater Sampling Record

Facility: W3	Site ID: MW-08	Sampler: DWP	
Project Number: 6045-460	Date: 3/28/11	Sampler Organization: FTN	

Site Description

Weather: Cloudy	Air Temp (°F): 71	Wind: 6 mph				
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No	
		Total depth from TOC	feet	41.47		
		TOC below/above ground	feet	3.47		
Damages/repairs needed:						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Keck geotech 400'

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0933	1625	1638	1647	1717	
Depth to Water	feet	5.81	5.77	6.15	6.19	6.23	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ Other: YSI 556 ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: HF Scientific

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	33	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons	5.25	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1630	1632	1634	1637	1639	1641	1643				Remarks
Purge vol.	gallons											
Purge rate	mL/min	140		100								
pH	su	6.98	6.07	6.68	6.72	6.74	6.75	6.75				
Temp.	°C	24.97	26.44	26.44	26.80	26.73	26.41	26.63				
Spec. cond.	µS/cm	1027	20.08	995	1032	1069	1063	1063				
D.O.	mg/L											
ORP	mV											
Turbidity	ntu	22.61	25.35	19.95	16.98	15.87	15.05	16.23				
Color/tint		Clear	Clear	→	→	→	→	→				
Odor		None	None	→	→	→	→	→				

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-08	3/28/11	1650	4	No	2L gamma 2L tritium

Sampler's Name (print): Darrell Pennington

Sampler Signature: Darrell Pennington

Groundwater Sampling Record

Facility: W3	Site ID: MW-09	Sampler: DWP	
Project Number: 6045-460	Date: 3/29/11 DWP	Sampler Organization: FTN	

Site Description

Weather: Mostly Cloudy	Air Temp (°F): 66	Wind: 7mph				
Site type: ☒ Monitoring Well ☐ Production Well ☐ Irrigation Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? ☒ Yes ☐ No	
		Total depth from TOC	feet	40.22		
		TOC below/above ground	feet	2.22		
Damages/repairs needed:						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☐ Slope Water Level Indicator ☒ Other: Keck Geotech 200'

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour 3/28	0945	0730	751	801	825	
Depth to Water	feet	4.68	4.77	4.85	4.87	4.89	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ Other: YSI 556 ☐ LaMotte 2020 Turbidimeter ☐ Hach 2100P Turbidimeter ☒ Other: WFScientific #1

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	33	Well goes dry during purging: ☐ Yes ☒ No									
Casing vol.	gallons	5.42	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	741	744	747	749	751	753	755	757			Remarks
Purge vol.	gallons								0.5			
Purge rate	mL/min	110										
pH	su	6.40	6.62	6.70	6.76	6.77	6.78	6.79	6.79			
Temp.	°C	19.92	19.95	19.76	19.80	19.85	19.99	20.03	20.15			
Spec. cond.	µS/cm	1797	1834	1895	1901	1896	6.78 1897 DWP	1899	1899			
D.O.	mg/L											
ORP	mV											
Turbidity	ntu	9.29	6.84	7.98	4.85	6.05	4.74	5.43	5.97			
Color/tint		clear →	→	→	→	→	→	→	→			
Odor		None →	→	→	→	→	→	→	→			

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-09	3/28/11	800 ⇔ 825	4	No	2 1L tritium 2 1L gamma

Sampler's Name (print): Darrell Pennington Sampler Signature: Darrell Pennington

ftn

Date	Project Name	Project Number	Project Manager (Print)	Page of
3/29/11	W3	6045-460	Bob West	Page 1 of 1

Laboratory Name: RBS

Phone: ( )

Submitted by:
FTN Associates, Ltd.
124 W. Sunbridge Drive, Suite 3
Fayetteville, AR 72703
(479) 571-3334 • Fax (479) 571-3338

Sampler Signature(s): Darrell Pennington

Recorded By (Print): Darrell Pennington

Lab Turn-Around Time
- ☐ 24 Hours
- ☐ 48 Hours
- ☐ 7 Days
- ☐ Other: Due: __/__/__

SAMPLE DESCRIPTION

Field Sample Number	Date (mm/dd/yy)	Time (hh:mm)	Matrix* W	Matrix* S	Matrix* O	Number of Containers	Method Comp	Method Grab	Parameters (Method Number): TRITIUM	Parameters (Method Number): GAMMA	Laboratory Notes
MW-03	3/28/11	1100	X			4		X	X	X	
MW-04	↓	1205	X			↓		X	X	X	
MW-05	3/29/11	0923	X					X	X	X	
MW-06	3/28/11	1325	X					X	X	X	
DUP MW-06	↓	1400	X					X	X	X	
MW-07	↓	1530	X					X	X	X	
MW-08	↓	1650	X					X	X	X	
MW-09	3/29/11	0900	X					X	X	X	
EB-01	↓	1000	X			↓		X	X	X	

* Matrix: W = Water S = Soil O = Other

Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time
Darrell Pennington	Darrell Pennington	3/29/11	1230	B. Mel 0534	B. T. Michael	3/29/11	1230
Relinquished By (Signature)	Print Name	Date	Time	Received By Laboratory (Signature)	Print Name	Date	Time

Sampler Remarks

Laboratory Remarks:

Revision Date 11/22/02

Daily Log

Site Location: Waterford 3	Date: 6/21/11
Project Number: 6045-466	Page 1 of 1

Sunny, Hot 90 to 100°F, Breezy, Humid. Chance of Showers

0700 EJH/JWB arrive on site. Unload trailer near MW-05. JWB calls Rodney & left a message. Calibrate

0715 Eric called & will be late because he missed a turn.

0746 Eric on site.

0800 Rodney on site to have a safety meeting & give us bottles

0840 EJH heads to MW-05 MW-04, & MW-03D collect water level measurements

1000 Sample MW-03

1135 Sample MW-04

1300 Sample MW-05

1400 Sample MW-06 Collect a duplicate sample MW-06-D

1435 JWB & EFN come to MW-06 to pack up & collect an equipment blank

1530 JWB/EJH/EFN off site. JWB & EJH head to RBS to drop off samples

EJH 6/21/11

FTN Associates Calibration Form

Date/Time: 6/21/2011 0715
Prepared By: EH / JWB
Location: WF-3
Project #: 6045-460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
YSI	FTN#1	pH	7	su	29.40	5.92	(Y) N	7.00	
		pH	4	su	29.88	4.30	(Y) N	4.00	
		~~pH~~	~~10~~	~~su~~			Y N		
		~~Cond~~	~~0~~	~~uS/cm~~			Y N		
		Cond	447	uS/cm	30.08	453	(Y) N	447	
		~~DO~~		~~mm/Hg~~		mg/l	Y N	mg/l	
		Temp		Degrees C	30.06	30	Y (N)	N/A	
							Y N		
HF Scientific	#1	turbidity	0.02	NTU	—	0.00	(Y) N	0.01	
			10		—	10.16	(Y) N	10.01	
			1000		—	1045	(Y) N	1005	
YSI	FTN#2	pH	7	su	32.72	6.97	(Y) N	7.00	
		pH	4	su	32.88	4.02	(Y) N	4.00	
		Cond	447	uS/cm	31.60	459	(Y) N	447	
					32.30	32	Y (N)	N/A	

Notes:

pH Calibration (pH Method: EPA 150.1)
Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
Temperature Calibration: No calibration is necessary. Simply record temperature of standard using thermometer while in calibration cup. Then record hydrolab temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

FTN Associates Calibration Form

Date/Time: 6/21/11 0715
Prepared By: SJH / JWB
Location: WF3
Project #: 6045-460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
SJH ~~HF Scientific~~ YSI	~~#2~~ #2	pH	7	su	29.41	7.14	(Y) N	7.00	
		pH	4	su	29.08	3.88	(Y) N	4.00	
		pH	10	su			Y N		
		Cond	0	uS/cm			Y N		
		Cond	447	uS/cm	28.63	477	(Y) N	447	
		~~DO~~		mm/Hg		mg/l	Y N	mg/l	
		Temp	—	Degrees C	27.03	27	Y N	(N/A)	
							Y N		
HF Scientific	#2	TURBIDITY	0.02	NTU	—	0.00	(Y) N	0.02	
		↓	10.0	↓	—	10.16	(Y) N	10.04	
		↓	1000	↓	—	1069	(Y) N	999.4	
							Y N		
							Y N		
							Y N		
							Y N		

Notes:
pH Calibration (pH Method: EPA 150.1)
Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
Temperature Calibration: No calibration is necessary. Simply record temperature of standard using thermometer while in calibration cup. Then record hydrolab temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

Groundwater Sampling Record

Facility: ENTERGY Waterford-3	Site ID: MW-03	Sampler: EJH
oject Number: 6045-460	Date: 6/21/11	Sampler Organization: FTN

Site Description

Weather: Sunny With Showers	Air Temp (°F): 90°	Wind: Breezy to Strong

Site type:	Well casing material:				
☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Dewatering Well ☐ Spring ☐ Other:	☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? (Yes) No
		Total depth from TOC	feet	37.58	
		TOC below/above ground	feet	2.58	

Damages/repairs needed: —

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper -T ☐ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0928	0954 →		1000	1048	
Depth to Water	feet TOC +	6.90	7.03		7.10	7.20	
Date	mm/dd/yy PV	6.88					
Product/ Thickness	LNAPL/DNAPL feet	6/21/11					

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ YSI MPS 556 ☐ LaMotte 2020 Turbidimeter ☑ H. F. Scientific Turbidimeter ☐ Other:

Pump description: ☒ Peristaltic (dedicated / portable) ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet		Well goes dry during purging: Yes (No)									
Casing vol.	gallons	5.00	= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time	24-hour	0939	0943	0945	0949	0952	0955					Remarks
Purge vol.	gallons	0.01	0.2	0.25	0.35	0.4	0.5					
Purge rate	mL/min	100	100	100	100	100	100					
pH	su	6.91	6.90	6.90	6.90	6.90	6.90					
Temp.	°C	27.56	27.97	27.82	28.28	28.11	28.01					
Spec. cond.	µS/cm	3472	3480	3475	3470	3483	3493					
D.O.	mg/L	—										
ORP	mV	—										
Turbidity	NTU	132.2	85.65	70.82	44.33	32.85	27.82					
Color/tint		cloudy orange										
Odor		—										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-03	6/21/11	1000	4	—	2 1L Nitric (glass), 2 1L gamma (plastic)

Sampler's Name (print): Emily Hollingsworth Sampler Signature: Emily Hollingsworth

Groundwater Sampling Record

Facility: ENTERGY Waterford-3	Site ID: MW-04	Sampler: EJH
Project Number: 6045-460	Date: 6/21/11	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 87°	Wind: Breezy

Site type	Well casing material				
☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Dewatering Well ☐ Spring ☐ Other:	☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? (Yes) No
		Total depth from TOC	feet	37.73	
		TOC below/above ground	feet	2.73	

Damages/repairs needed: None

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper -T ☒ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0915	1105	1123	1134	1205	
Depth to Water	feet TOC	9.27	9.31	9.95	10.04	10.23	
Date	mm/dd/yy PVC	9.24					
Product/ Thickness	LNAPL/DNAPL feet	6/21/11 →					

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ YSI MPS 556 ☐ LaMotte 2020 Turbidimeter ☒ H. F. Scientific Turbidimeter ☐ Other:

Pump description: ☒ Peristaltic (dedicated / portable) ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet		Well goes dry during purging: Yes No									
Casing vol.	gallons	4.64	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1111	1116	1119	1122	1126	1129	1132				Remarks
Purge vol.	gallons	0.01	0.2	0.25	0.3	0.4	0.45	0.5				
Purge rate	mL/min	100	100	100	100	100	100	100				
pH	su	6.68	6.60	6.61	6.61	6.61	6.64	6.67				
Temp.	°C	24.70	24.90	24.54	24.88	25.12	24.38	24.19				
Spec. cond.	µS/cm	5043	4849	4823	4919	5056	5065	5155				
D.O.	mg/L	—										
ORP	mV	—										
Turbidity	NTU	16.72	10.09	8.39	9.07	7.31	6.60	5.2				
Color/tint		Clear										
Odor		None										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-04	6/21/11	1135	4	—	2 1L Tritium (glass)
					2 1L Gamma (plastic)

Sampler's Name (print): Emily Hollingsworth Sampler Signature: Emily Hollingsworth

Groundwater Sampling Record

Facility: ENTERGY Waterford-3	Site ID: MW-05	Sampler: EJH
Project Number: 6045-460	Date: 6/21/11	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F):	Wind: Breezy			
Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Dewatering Well ☐ Spring ☐ Other:	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? (Yes) No
		Total depth from TOC	feet	37.59	
		TOC below/above ground	feet	2.59	
Damages/repairs needed:					

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper -T ☒ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	8 41	1239	1253	1300	1345	
Depth to Water	feet TOC	8.11	8.14	8.33	8.32	8.45	
Date	mm/dd/yy PVC	8.09					
Product/ Thickness	LNAPL/DNAPL feet	6/21/11 →					

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ YSI MPS 556 ☐ LaMotte 2020 Turbidimeter ☒ H. F. Scientific Turbidimeter ☐ Other:

Pump description: ☒ Peristaltic (dedicated / portable) ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet		Well goes dry during purging: Yes (No)										
Casing vol.	gallons	4.81	= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408										
Time	24-hour	1245	1250	1254	1258								Remarks
Purge vol.	gallons	0.01	0.15	0.25	0.35								
Purge rate	mL/min	100	100	100	100								
pH	su	7.38	7.20	7.20	7.20								
Temp.	°C	26.11	25.26	25.56	25.78								
Spec. cond.	µS/cm	5391	6081	6057	6037								
D.O.	mg/L	—											
ORP	mV	—											
Turbidity	NTU	10.89	2.39	3.03	2.74								
Color/tint		clear	↓	↓	↓	very light yellow	tint						
Odor		None	↓	↓	↓	↓	↓						

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-05	6/21/11	1300	4	—	2 1L tritium
					2 1L gamma

Sampler's Name (print): Emily Hollingsworth | Sampler Signature: Emily Hollingsworth

Groundwater Sampling Record

Facility:	Waterford-3	Site ID:	MW-06	Sampler:	EJH
Project Number:	6045-460	Date:	6/21/11	Sampler Organization:	ETN

Site Description

Weather:	Overcast to Stormy	Air Temp (°F):	90°	Wind:	Breezy

Site type: ☒ Monitoring Well ☐ Production Well ☐ Dewatering Well ☐ Other: / ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2"	Well locked? Yes / No
		Total depth from TOC	feet	35.46	
		TOC below/above ground	feet	2.4	

Damages/repairs needed: —

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper -T ☒ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0845	1341	1356	1400	1445	
Depth to Water	feet TOC+	5.45	6.49	6.46	6.49	6.88	
Date	mm/dd/yy PVC	5.44	6/21/11 →				
Product/ Thickness	LNAPL/DNAPL feet	6/21/11					

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ YSI MPS 556 ☐ LaMotte 2020 Turbidimeter ☒ H. F. Scientific Turbidimeter ☐ Other:

Pump description: ☐ Peristaltic ☒ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet		Well goes dry during purging: Yes / (No)									
Casing vol.	gallons	4.89	= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time	24-hour	1346	1350	1354	1358							Remarks
Purge vol.	gallons	0.01	0.15	0.2	0.3							
Purge rate	mL/min	100	100	100	100							
pH	su	7.16	7.14	7.13	7.13							
Temp.	°C	27.30	27.53	27.53	27.54							
Spec. cond.	µS/cm	316	304	301	301							
D.O.	mg/L	—										
ORP	mV	—										
Turbidity	NTU	4.84	2.86	5.60	4.27							
Color/tint		Clear										
Odor		None										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-06	6/21/2011	1400	4	—	2 Tritium 1L, 2 Gamma 1L
MW-06-D	6/21/2011	1405	4	—	" "
EB-MW-06	" "	1500	4	—	" "

Sampler's Name (print): E. J. Hollingsworth Sampler Signature: Emily Hollingsworth

Groundwater Sampling Record

Facility: ENTERGY Waterford-3	Site ID: MW-07	Sampler: Brickman / Eric Necaise
Project Number: 6045-460	Date: 6/21/11	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 88°	Wind: 5-15°

Site type	Well casing material				
☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Dewatering Well ☐ Spring ☐ Other:	☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? (Yes) No
		Total depth from TOC	feet	41.15	
		TOC below/above ground	feet	3.15	

Damages/repairs needed: —

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper -T ☐ Keck 100' ☒ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0857	1251	13:05	1330	14:10	
Depth to Water	feet	6.68/6.73	6.74	7.42	7.51	7.75	
Date	mm/dd/yy	6/21/11					
Product/ Thickness	LNAPL/DNAPL feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ LaMotte 2020 Turbidimeter ☐ Hydrolab DataSonde ☒ H. F. Scientific Turbidimeter ☒ YSI MPS 556 ☐ Other:

Pump description: ☒ Peristaltic (dedicated) portable) ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet		Well goes dry during purging: Yes (No)									
Casing vol.	gallons	5.62	= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time	24-hour	1251	1301	1305	1310	1315	1320	1325	1330			Remarks
Purge vol.	gallons	0.1	0.1	0.2	0.2	0.3	0.5	0.6	0.7			
Purge rate	mL/min	100	100	100	100	100	100	100	100			
pH	su	6.80	6.80	6.81	6.93	6.85	6.86	6.86	6.86			
Temp.	°C	25.73	25.82	25.88	25.96	25.82	25.95	25.90	26.14			
Spec. cond.	µS/cm	1199	1166	1220	1675	2233	2277	2294	2300			
D.O.	mg/L	—	—	—	—	—	—	—	—			
ORP	mV	—	—	—	—	—	—	—	—			
Turbidity	NTU	4.90	141.3	50.94	166.5	154.3	4.21	3.98	3.51			
Color/tint												
Odor	Sulfide/H_2S	SO_2	SO_2	SO_2	SO_2	SO_2	SO_2	SO_2	SO_2			

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-07	6/21/2011	~~1337~~	4	—	
		1335			

Sampler's Name (print): Eric Necaise	Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: ENTERGY Waterford-3	Site ID: MW-08	Sampler: JWB / EFN
Project Number: 6045-460	Date: 6/21/2011	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 88°	Wind: S-15			
Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Dewatering Well ☐ Spring ☐ Other:	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? (Yes) No
		Total depth from TOC	feet	41.97	
		TOC below/above ground	feet	3.47	
Damages/repairs needed: None					

Water Level Data

Measuring point description: ☐ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper -T ☐ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0924	1115	1127	1140	1220	
Depth to Water	feet	5.31/5.35	5.77	6.01	6.06	5.81	
Date	mm/dd/yy						
Product/ Thickness	LNAPL/DNAPL feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ YSI MPS 556 ☐ LaMotte 2020 Turbidimeter ☒ H. F. Scientific Turbidimeter ☐ Other:

Pump description: ☒ Peristaltic (dedicated / portable) ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet		Well goes dry during purging: Yes (No)									
Casing vol.	gallons	5.91	= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time	24-hour	1120	1123	1127	1131	1135	1139					Remarks
Purge vol.	gallons	0.1	0.1	0.2	0.3	0.3	0.4					
Purge rate	mL/min	170	95	95	95	95	105					
pH	su	6.88	6.86	6.87	6.88	6.90	6.90					
Temp.	°C	25.45	25.71	26.24	26.32	26.04	26.01					
Spec. cond.	µS/cm	1414	1409	1446	1509	1538	1532					
D.O.	mg/L	~~0.44~~	~~6.8~~	~	~	~	~					
ORP	mV	~	~	~	~	~	~					
Turbidity	NTU	~	8.54	7.87	8.43	5.82	5.04					
Color/tint												
Odor		Sulf	SO_2	SO_2	SO_2	SO_2	SO_2					

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-08	6/21/2011	1140	4	~	

Sampler's Name (print): ERIC NECAISE	Sampler Signature:

Groundwater Sampling Record

Facility: ENTERGY Waterford-3	Site ID: MW-09	Sampler: JWB / EFD
Project Number: 6045-460	Date: 6/21/11	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 85°	Wind: 5-15

Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Dewatering Well ☐ Spring ☐ Other:

Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:

			Well locked?
Well diameter	inches	2	(Yes) No
Total depth from TOC	feet	40.22	
TOC below/above ground	feet	2.22	

Damages/repairs needed: NONE

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper -T ☒ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0932	0940	0955	1035	1103	
Depth to Water	feet	8.01/2.08	8.03	8.09	8.12	8.13	
Date	mm/dd/yy						
Product/ Thickness	LNAPL/DNAPL feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ YSI MPS 556 ☐ LaMotte 2020 Turbidimeter ☒ H. F. Scientific Turbidimeter ☐ Other:

Pump description: ☒ Peristaltic (dedicated / portable) ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet		Well goes dry during purging: Yes (No)
Casing vol.	gallons	5.25	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time	24-hour	0947	0951	0955	0959	1003	1007	1011	1015	1019	1023	1027	1030	Remarks
Purge vol.	gallons	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	
Purge rate	mL/min	105	105	105	105	105	105	105	105	105	105	105	105	
pH	su	6.93	6.96	6.97	6.98	6.97	6.97	6.96	6.95	6.95	6.95	6.94	6.94	
Temp.	°C	25.07	24.72	24.97	23.77	23.49	23.21	23.14	23.07	23.08	23.04	23.04	23.12	
Spec. cond.	µS/cm	3011	3011	3037	3985	3913	3952	3902	3878	3848	3825	3796	3765	
D.O.	mg/L	—	—	—	—	—	—	—	—	—	—	—	—	
ORP	mV	—	—	—	—	—	—	—	—	—	—	—	—	
Turbidity	NTU	33.8	19.09	9.16	15.28	5.32	4.70	4.70	4.59	3.21	4.19	2.81	3.04	
Color/tint		clear	→											
Odor		silver odor	→											

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-09	6/21/11	1035	4	—	

Sampler's Name (print): Jacob Brickman	Sampler Signature:

Daily Log

Site Location: Waterford 3	Date: 9/13/2011
Project Number: 6045-460	Page of

ID	Time	DOW
MW-05	9:03	6.06
MW-04	9:13	8.63
MW-03	9:24	5.59
MW-06	9:37	3.98
MW-07	9:45	5.54
MW-08	9:52	6.68
MW-09	10:06	4.46

FTN Associates Calibration Form

Date/Time: 9/13/2011 1045
Prepared By: EFN
Location: Waterford 3
Project #: 6045-460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
YSI #3		pH	7	su	29.94	7.08	(Y) N	7.00	
		pH	4	su	31.77	3.94	(Y) N	4.00	
		pH	10	su			Y N		
		Cond		uS/cm		445	(Y) N	447	
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C	33.2	33.25	Y N	N/A	
							Y N		
HFSci 2		Turbidity	1000	NTU	N/A	851.7	(Y) N	1002	
		Turbidity	10.0	NTU	N/A	9.70	(Y) N	10.02	
		Turbidity	0.02	NTU	N/A	0.58	(Y) N	0.52	
							Y N		
							Y N		
							Y N		
							Y N		

Notes:
pH Calibration (pH Method: EPA 150.1)
DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
Temperature Calibration: No calibration is necessary. Simply record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

$$\text{Relative Percent Difference (RPD)} = 100 * (\text{rep1} - \text{rep2})/(\text{rep1} + \text{rep2})/2$$

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

$$\text{Percent Difference} = 100 * (\text{observed} - \text{target})/\text{target}$$

FTN Associates Calibration Form

Date/Time: 9/14/2011 0910
Prepared By: EFW
Location: Waterford 3
Project #: 6045-460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
YSI #3		pH	7	su	27.84	6.70	(Y) N	7.00	
		pH	4	su	27.95	4.21	(Y) N	4.00	
		pH	10	su			Y N		
		Cond		uS/cm	28.69	468	(Y) N	447	
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C	~~28.85~~ 29.5	28.75	Y N	N/A	
							Y N		
HF Sci #2		Turbidity	1000	NTU	N/A	1100	(Y) N	931.8	
		Turbidity	10.0	NTU	N/A	10.07	(Y) N	9.54	
		Turbidity	0.02	NTU	N/A	0.00	(Y) N	0.00	
							Y N		
							Y N		
							Y N		
							Y N		

Notes:
pH Calibration (pH Method: EPA 150.1)
DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
Temperature Calibration: No calibration is necessary. Simply record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

Groundwater Sampling Record

cility: ENTERGY Waterford-3	Site ID: MW-03	Sampler: EFN
roject Number: 6045-460	Date: 9/13	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 83	Wind: S~10 LW				
Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Dewatering Well ☐ Spring ☐ Other:	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? (Yes) No	
		Total depth from TOC	feet	37.58		
		TOC below/above ground	feet	2.58		
Damages/repairs needed:						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper -T ☐ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	~~5.59~~ 924	~~5.58~~ 1109	11:15	1120	1140	
Depth to Water	feet	5.59	5.58	6.05	6.10	5.96	
Date	mm/dd/yy	9/13/11	9/13/11	9/13/11	9/13/11	9/13/11	
Product/ Thickness	LNAPL/DNAPL feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ YSI MPS 556 #3 ☐ LaMotte 2020 Turbidimeter ☒ H. F. Scientific Turbidimeter 2 ☐ Other:

Pump description: ☒ Peristaltic (dedicated / portable) ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	32.58	Well goes dry during purging: Yes (No)									
Casing vol.	gallons	5.2	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	11:09	11:11	11:12	11:13	11:15	11:16	11:18				Remarks
Purge vol.	gallons	–	0.25	0.4	0.5	0.6	0.7	0.75				
Purge rate	mL/min	300	300	300	300	300	300	300				
pH	su	6.72	6.78	6.80	6.82	6.84	6.86	6.87				
Temp.	°C	27.87	27.42	27.46	27.46	27.40	27.57	27.59				
Spec. cond.	µS/cm	2860	2881	2886	2893	2901	2906	2908				
D.O.	mg/L	–	–	–	–	–						
ORP	mV	–	–	–	–	–						
Turbidity	NTU	11.63	9.41	6.34	10.90	6.92	7.23	14.92				
Color/tint		–	–	–	–							
Odor		–	–	–	–							

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-03	9/13/11	1120	2-H3; 2-α	None	Total of 4-1L

Sampler's Name (print): For EFN Darrell Pennington	Sampler Signature: For EFN Darrell Pennington

Groundwater Sampling Record

cility: ENTERGY Waterford-3	Site ID: MW-04	Sampler: EFN
roject Number: 6045-460	Date: 9/13/11	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 85°	Wind: 5-10 (W)			
Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Dewatering Well ☐ Spring ☐ Other:	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? (Yes) No
		Total depth from TOC	feet	37.73	
		TOC below (above) ground	feet	2.73	
Damages/repairs needed:					

Water Level Data

Measuring point description:
☒ Mark/notch on TOC
☐ North rim of TOC
☐ Other:

Water level meter: ☐ Heron Dipper -T ☒ Keck 100' ☐ Keck 200'
☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	9:13	12:00	1210	1215	1235	
Depth to Water	feet	8.63	8.63	9.12	10.05	9.90	
Date	mm/dd/yy	9/13/11	9/13/11	9/13/11	9/13/11	9/13/11	
Product/ Thickness	LNAPL/DNAPL feet						

Field Data

Field data meters:
☐ Hydrolab MiniSonde ☐ LaMotte 2020 Turbidimeter
☐ Hydrolab DataSonde ☒ H. F. Scientific Turbidimeter 2
☒ YSI MPS 556 #3 ☐ Other:

Pump description:
☒ Peristaltic (dedicated / portable)
☐ Bladder (dedicated / portable)
☐ Submersible

Bailer description:
☐ Disposable polyethylene
☐ Disposable Teflon
☐ Disposable PVC

Purge depth	feet	32.73	Well goes dry during purging: Yes (No)
Casing vol.	gallons	4.7	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

		~~0850~~	1207	1208	1209	1210	1211	1212	1213			Remarks
Purge vol.	gallons	–	–	0.1	0.2	0.3	0.4	0.5	0.75			
Purge rate	mL/min		250	250	250	250	250	250	250			
pH	su		6.76	6.74	6.74	6.72	6.73	6.73	6.74			
Temp.	°C		28.20	27.80	27.67	27.43	27.40	27.40	27.30			
Spec. cond.	µS/cm		5190	5210	5205	5223	5237	5257	5248			
D.O.	mg/L		–	–								
ORP	mV		–	–								
Turbidity	NTU		10.38	18.22	8.83	13.09	8.88	8.41	7.74			
Color/tint												
Odor												

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-04	9/13/11	1220	(4) 2H3; 2α	None	

Sampler's Name (print): ERIC F. NECAISE
Sampler Signature: Eric F Necaise

Groundwater Sampling Record

cility: ENTERGY Waterford-3	Site ID: MW-05	Sampler: EFN
roject Number: 6045-460	Date: 9/13/11	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 85°	Wind: 5-10 W				
Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Dewatering Well ☐ Spring ☐ Other:	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? (Yes) No	
		Total depth from TOC	feet	37.59		
		TOC below/above ground	feet	2.59		
Damages/repairs needed:						

Water Level Data

Measuring point description:
☒ Mark/notch on TOC
☐ North rim of TOC
☐ Other:

Water level meter: ☐ Heron Dipper -T ☒ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	903	1410	1417	1419	1444	
Depth to Water	feet	6.06	6.08	6.65	6.67	6.40	
Date	mm/dd/yy	9/13/11	9/13/11	9/13/11	9/13/11	9/13/11	
Product/ Thickness	LNAPL/DNAPL feet						

Field Data

Field data meters:
☐ Hydrolab MiniSonde ☐ LaMotte 2020 Turbidimeter
☐ Hydrolab DataSonde ☒ H. F. Scientific Turbidimeter 2
☒ YSI MPS 556 3 ☐ Other:

Pump description:
☒ Peristaltic (dedicated) / portable)
☐ Bladder (dedicated / portable)
☐ Submersible

Bailer description:
☐ Disposable polyethylene
☐ Disposable Teflon
☐ Disposable PVC

Purge depth	feet	32.59	Well goes dry during purging: Yes (No)									
Casing vol.	gallons	5.1	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1412	1413	1414	1415	1416	1417	1418	1419			Remarks
Purge vol.	gallons	~~0~~	0.1	0.2	0.3	0.4	0.5	0.6	0.7			
Purge rate	mL/min	250	250	250	250	250	250	250	250			
pH	su	7.42	7.29	7.26	7.22	7.21	7.20	7.19	7.17			
Temp.	°C	29.60	28.90	28.77	28.54	2784	27.72	28.02	27.79			
Spec. cond.	µS/cm	2903	2772	2738	2718	2701	2678	2653	2662			
D.O.	mg/L	–	–									
ORP	mV	–	–									
Turbidity	NTU	180.5	10.24	12.32	11.01	12.36	9.88	9.80	9.97			
Color/tint												
Odor												

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-05	9/13/11	~~1420~~ 1430	2H3; 2N	No	4 1L Bottles

Sampler's Name (print): ERIC F. NECAISE	Sampler Signature: Eric F. Necaise

Groundwater Sampling Record

cility: ENTERGY Waterford-3	Site ID: MW-06	Sampler: EFN
roject Number: 6045-460	Date: 9/13/11	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 85		Wind: 5-10 (W)		
Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Dewatering Well ☐ Spring ☐ Other:	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? (Yes) No
		Total depth from TOC	feet	35.40	
		TOC below/above ground	feet	2.4	
Damages/repairs needed:					

Water Level Data

Measuring point description:
☒ Mark/notch on TOC
☐ North rim of TOC
☐ Other:

Water level meter: ☐ Heron Dipper -T ☒ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	937	1312	1329	1355	1408	
Depth to Water	feet	3.98	3.95	5.27	5.98	6.10	
Date	mm/dd/yy						
Product/ Thickness	LNAPL/DNAPL feet						

Field Data

Field data meters:
☐ Hydrolab MiniSonde ☐ LaMotte 2020 Turbidimeter
☐ Hydrolab DataSonde ☒ H. F. Scientific Turbidimeter 2
☒ YSI MPS 556 3 ☐ Other:

Pump description:
☒ Peristaltic (dedicated / portable)
☐ Bladder (dedicated / portable)
☐ Submersible

Bailer description:
☐ Disposable polyethylene
☐ Disposable Teflon
☐ Disposable PVC

Purge depth	feet	30.40	Well goes dry during purging: Yes (No)									
Casing vol.	gallons	5.1	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1326	1327	1328	1329	1330	1331					Remarks
Purge vol.	gallons	~~5.0~~	0.1	0.2	0.3	0.4	0.5					
Purge rate	mL/min	250	250	250	250	250	250					
pH	su	7.62	7.43	7.37	7.32	7.29	7.25					
Temp.	°C	30.95	29.37	29.14	29.10	29.12	29.26					
Spec. cond.	µS/cm	3430	3368	3342	3260	3181	3092					
D.O.	mg/L	–	–									
ORP	mV	–	–									
Turbidity	NTU	23.4	12.42	10.61	15.17	18.39	12.42					
Color/tint		–										
Odor		–										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-06	9/13/11	1335	2-HCl; 2x	None	(4) Total; 1 L Bottles

Sampler's Name (print): ERIC F. NEGAISE | Sampler Signature: Eric F. Negaise

Groundwater Sampling Record

Facility: ENTERGY Waterford-3	Site ID: MW-07	Sampler: EFN
Project Number: 6045-460	Date: 9/14/11	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 80°	Wind: 0-5 W			
Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Dewatering Well ☐ Spring ☐ Other:	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? (Yes) No
		Total depth from TOC	feet	41.15	
		TOC below/above ground	feet	3.15	
Damages/repairs needed:					

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper -T ☒ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	945	930	1007	1010	1030	
Depth to Water	feet	5.54	5.58	8.72	9.61	9.83	
Date	mm/dd/yy	9/13/11	9/14/11	9/14/11	9/14/11	9/14/11	
Product/ Thickness	LNAPL/DNAPL feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ YSI MPS 556 #3 ☐ LaMotte 2020 Turbidimeter ☒ H. F. Scientific Turbidimeter #2 ☐ Other:

Pump description: ☒ Peristaltic (dedicated / portable) ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	36.15	Well goes dry during purging: Yes (No)
Casing vol.	gallons	5.9	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time	24-hour	1002	1003	1004	1005	1006	1007	1008	1009			Remarks
Purge vol.	gallons	–	0.1	0.2	0.3	0.4	0.5	0.6	0.7			
Purge rate	mL/min	250	250	250	250	250	250	250	250			
pH	su	6.90	6.91	6.93	6.95	6.97	6.99	7.00	7.01			
Temp.	°C	25.71	25.73	25.72	25.74	25.64	25.60	25.57	25.63			
Spec. cond.	µS/cm	1237	1293	1318	1340	1407	1500	1530	1562			
D.O.	mg/L	–	–	–	–	–	–	–	–			
ORP	mV	–	–	–	–	–	–	–	–			
Turbidity	NTU	12.66	12.11	10.25	12.56	9.44	10.31	19.69	12.47			
Color/tint		–										
Odor		–										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-07	09/14/11	1010	2 1L-H3; 2 1Lx	None	
DUPMW-07	9/14/11	1010	2 1L-H3; 2 1Lx	None	

Sampler's Name (print): For EFN Darrell Pennington

Sampler Signature: Darrell Pennington

Groundwater Sampling Record

cility: ENTERGY Waterford-3	Site ID: MW-08	Sampler: EFN
roject Number: 6045-460	Date: 9/14/11	Sampler Organization: FTN

Site Description

Weather: 90 Sunny	Air Temp (°F): 90°	Wind: Wind S W				
Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Dewatering Well ☐ Spring ☐ Other:	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? (Yes) No	
		Total depth from TOC	feet	41.97		
		TOC below/above ground	feet	3.47		
Damages/repairs needed:						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper -T ☑ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	952	1102	1110	1114	1130	
Depth to Water	feet	6.68	6.74	7.36	7.43	7.41	
Date	mm/dd/yy	9/13/11	9/14/11	9/14/11	9/14/11	9/14/11	
Product/ Thickness	LNAPL/DNAPL feet						

Field Data

Field data meters:
☐ Hydrolab MiniSonde ☐ LaMotte 2020 Turbidimeter
☐ Hydrolab DataSonde ☒ H. F. Scientific Turbidimeter
☒ YSI MPS 556 #3 ☐ Other: #2

Pump description:
☒ Peristaltic (dedicated / portable)
☐ Bladder (dedicated / portable)
☐ Submersible

Bailer description:
☐ Disposable polyethylene
☐ Disposable Teflon
☐ Disposable PVC

Purge depth: feet: 36.97 — Well goes dry during purging: Yes (No)

Casing vol.: gallons: 5.6 — = [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time	24-hour	1107	1108	1109	1110	1111	1112	1113				Remarks
Purge vol.	gallons	~~250~~	0.1	0.2	0.3	0.4	0.5	0.6				
Purge rate	mL/min	250	250	250	250	250	250	250				
pH	su	7.12	6.94	6.90	6.89	6.90	6.91	6.92				
Temp.	°C	27.58	27.09	26.88	26.64	26.58	26.50	26.51				
Spec. cond.	µS/cm	1117	1090	1086	1092	1104	1107	1114				
D.O.	mg/L	–				-						
ORP	mV	–				-						
Turbidity	NTU	35.89	26.37	14.28	17.10	12.52	13.29	9.21				
Color/tint		–	–	–								
Odor		–	–	–								

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
~~MW-08~~	~~9/14/11~~	~~11/15/11~~			
MW-08	9/14/11	1115	2 1L#3; 2 1L#	None	

Sampler's Name (print): For EFN Darrell Pennington

Sampler Signature: For EFN Darrell Pennington

Groundwater Sampling Record

cility: ENTERGY Waterford-3	Site ID: MW-09	Sampler: EFN
roject Number: 6045-460	Date: 9/14/11	Sampler Organization: FTN

Site Description

Weather: 90 Sunny	Air Temp (°F): 90	Wind: W - 5 mph

Site type:	Well casing material:				Well locked?
☒ Monitoring Well ☐ Extraction Well	☒ PVC	Well diameter	inches	2	
☐ Production Well ☐ Borehole	☐ Steel	Total depth from TOC	feet	40.22	(Yes) No
☐ Dewatering Well ☐ Spring	☐ Iron	TOC below/above ground	feet	2.22	
☐ Other:	☐ Other:				

Damages/repairs needed:

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper -T ☒ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1006	1146	1154	1155	12:32	
Depth to Water	feet	4.46	4.61	4.75	4.79	4.75	
Date	mm/dd/yy	9/13/11	9/14/11	9/14/11	9/14/11	9/14/11	
Product/ Thickness	LNAPL/DNAPL feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ YSI MPS 556 #3 ☐ LaMotte 2020 Turbidimeter ☒ H. F. Scientific Turbidimeter #2 ☐ Other:

Pump description: ☒ Peristaltic (dedicated / portable) ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	35.22	Well goes dry during purging: Yes (No)									
Casing vol.	gallons	5.5	= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time	24-hour	1151	1152	1153	1154	1155						Remarks
Purge vol.	gallons	–	–									
Purge rate	mL/min	250	250	250	250	250						
pH	su	7.11	7.07	7.06	7.06	7.06						
Temp.	°C	29.30	27.93	27.50	27.38	27.31						
Spec. cond.	µS/cm	2210	2140	2116	2111	2113						
D.O.	mg/L	~	–									
ORP	mV	–	–									
Turbidity	NTU	19.53	20.36	13.28	19.76	13.71						
Color/tint		–										
Odor		–										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-09	9/14/11	1200	2-1L H3; 2-1L	No	1 Gal samples filled w/ 2000ml
EBMW09	9/14/11	1240	2-1L H3; 2-1L	No	

Sampler's Name (print): for EFN Daniel Rhodes Jr. Sampler Signature: for EFN Daniel Rhodes

ftn

Date	Project Name	Project Number	Project Manager (Print)	Page ___ of ___
9/14/11	Waterford 3	6045-460	BOB WEST	

Laboratory Name	Submitted by:
RBS Phone: ( )	FTN Associates, Ltd. 124 W. Sunbridge Drive, Suite 3 Fayetteville, AR 72703 (479) 571-3334 • Fax (479) 571-3338
Sampler Signature(s) Eric F. Necaise	Recorded By (Print)

Lab Turn-Around Time
- ☐ 24 Hours
- ☐ 48 Hours
- ☐ 7 Days
- ☐ Other: Due: __/__/__

SAMPLE DESCRIPTION

Field Sample Number	Date (mm/dd/yy)	Time (hh:mm)	Matrix* W	Matrix* S	Matrix* O	Number of Containers	Method Comp	Method Grab	Parameters (Method Number)								Laboratory Notes
									X	I-W							
MW-03	9/13/11	11:20	X			4		X	X	X							
MW-04	9/13/11	12:20	X			4		X	X	X							
MW-05	9/13/11	14:20	X			4		X	X	X							
MW-06	9/13/11	13:35	X			4		X	X	X							
MW-07	9/14/11	10:10	X			4		X	X	X							
DUP MW-07	9/14/11	10:10	X			4		X	X	X							
MW-08	9/14/11	11:15	X			4		X	X	X							
MW-09	9/14/11	12:00	X			4		X	X	X							
EB MW-09	9/14/11	12:40	X			4		X	X	X							
									X								

* Matrix: W = Water S = Soil O = Other

Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time
Eric F. Necaise	ERIC F. NECAISE	9/14/11	1604	B.T. Michard 0534	B.T. Michard	9/14/11	1604
Relinquished By (Signature)	Print Name	Date	Time	Received By Laboratory (Signature)	Print Name	Date	Time

Sampler Remarks	Laboratory Remarks:

Revision Date 11/22/02

Daily Log

Site Location: Waterford-3	Date: 12/13/11
Project Number: 6045-460	Page 1 of 1

ID	Time	DOW
MW-09	11:00	6.74
MW-08	10:53	7.24
MW-07	10:48	7.15
MW-06	10:35	5.29
MW-03	10:25	6.72
MW-04	10:17	9.30
MW-05	10:04	7.27

FTN Associates Calibration Form

Date/Time: 12/13/11 1200
Prepared By: EFN
Location: W-3
Project #: 6045-460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		pH	7	su	19.26	6.98	(Y) N	7.00	
YSI	#2	pH	4	su	18.93	4.01	(Y) N	4.00	
#		pH	10	su			Y N		
		Cond		uS/cm	18.90	515	(Y) N	447	
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C			Y N	N/A	
							Y N		
HF SCI	#2	Turbidity	1000	NTU	N/A	949 ~~701~~	(Y) N	1000	
#2		Turbidity	10.0	NTU	N/A	9.01	(Y) N	10.0	
		Turbidity	0.02	NTU	N/A	0.00	(Y) N	0.0	
							Y N		
							Y N		
							Y N		
							Y N		

Notes:

pH Calibration (pH Method: EPA 150.1)

DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.

Temperature Calibration: No calibration is necessary. Simply record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

$$\text{Relative Percent Difference (RPD)} = 100 * (\text{rep1} - \text{rep2})/(\text{rep1} + \text{rep2})/2$$

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

$$\text{Percent Difference} = 100 * (\text{observed} - \text{target})/\text{target}$$

Groundwater Sampling Record

Facility: ENTERGY Waterford-3	Site ID: MW-03	Sampler: EFN
Project Number: 6045-460	Date: 12/13/11	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 57				Wind: 5-10 (E)	
Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Dewatering Well ☐ Spring ☐ Other:	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? (Yes) No	
		Total depth from TOC	feet	37.58		
		TOC below/above ground	feet	2.58		
Damages/repairs needed: NONE						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper-T ☒ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1025	1538	1542	1545	1615	
Depth to Water	feet	6.72	6.71	7.27	7.31	7.02	
Date	mm/dd/yy	12/13/11	12/13/11	12/13/11	12/13/11	12/13/11	
Product/ Thickness	LNAPL/DNAPL feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ YSI MPS 556 #2 ☐ LaMotte 2020 Turbidimeter ☒ H. F. Scientific Turbidimeter ☐ Other: #2

Pump description: ☒ Peristaltic (dedicated / portable) ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	32.58	Well goes dry during purging: Yes (No)									
Casing vol.	gallons	5.03	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1540	1541	1542	1543							Remarks
Purge vol.	gallons	0	0.1	0.2	0.3							
Purge rate	mL/min	300	300	300	300							
pH	su	6.86	6.86	6.86	6.87							
Temp.	°C	22.34	22.33	22.30	22.26							
Spec. cond.	µS/cm	2499	2502	2518	2532							
D.O.	mg/L	–										
ORP	mV	–										
Turbidity	NTU	1.14	3.23	4.53	6.43							
Color/tint												
Odor												

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-03	12/13/11	15:50	2-1L H3; 2-1L a	–	Total of 4-1 Liter
Dup MW-03	12/13/11	16:00	2-1L H-3; 2-1L a	–	Total of 4-1 Liter

Sampler's Name (print): Eric Necaise Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: ENTERGY Waterford-3	Site ID: MW-04	Sampler: EFN
Project Number: 6045-460	Date: 12/13/11	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 57				Wind: 5-10 (E)	
Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Dewatering Well ☐ Spring ☐ Other:	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? (Yes) No	
		Total depth from TOC	feet	37.73		
		TOC below/above ground	feet	2.73		
Damages/repairs needed: NONE						

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper -T ☒ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1017	1630	1638	1639	~~1658~~ 1658	
Depth to Water	feet	9.30	9.30	10.44	10.81	11.78	
Date	mm/dd/yy	12/13/11	12/13/11	12/13/11	12/13/11	12/13/11	
Product/ Thickness	LNAPL/DNAPL feet						

Field Data

Field data meters:
☐ Hydrolab MiniSonde ☐ LaMotte 2020 Turbidimeter
☐ Hydrolab DataSonde ☒ H. F. Scientific Turbidimeter
☒ YSI MPS 556 #2 ☐ Other: #2

Pump description:
☒ Peristaltic (dedicated / portable)
☐ Bladder (dedicated / portable)
☐ Submersible

Bailer description:
☐ Disposable polyethylene
☐ Disposable Teflon
☐ Disposable PVC

Purge depth	feet	32.73	Well goes dry during purging: Yes (No)									
Casing vol.	gallons	4.64	= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time	24-hour	1634	1635	1636	1637	1638	1639	~~1640~~				Remarks
Purge vol.	gallons	0	0.1	0.2	0.3	0.4	0.5					
Purge rate	mL/min	300	300	300	300	300	300					
pH	su	6.72	6.65	6.63	6.61	6.63	6.64					
Temp.	°C	20.44	20.94	21.03	21.14	21.26	21.30					
Spec. cond.	µS/cm	4420	~~4230~~	4190	4130	4133	4143					
D.O.	mg/L	–	–									
ORP	mV	–	–									
Turbidity	NTU	9.32	4.50	1.43	3.15	0.63	3.02					
Color/tint												
Odor												

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-04	12/13/11	1640	2-1L H-3; 2 1L	—	Total of 4-1L bottles

Sampler's Name (print): ERIC NECASE Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: ENTERGY Waterford-3	Site ID: MW-05	Sampler: EFN
Project Number: 6045-460	Date: 12/13/11	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 57°	Wind: 5-10 (E)

Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Dewatering Well ☐ Spring ☐ Other:

Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:

Well diameter	inches	2	Well locked? (Yes) No
Total depth from TOC	feet	37.59	
TOC below/above ground	feet	2.59	

Damages/repairs needed: NONE

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper -T ☒ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1004	17:05	17:10	17:12	1730	
Depth to Water	feet	7.27	7.29	8.02	8.12	8.29	
Date	mm/dd/yy	12/13/11	12/13/11	12/13/11	12/13/11	12/13/11	
Product/ Thickness	LNAPL/DNAPL feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ YSI MPS 556 #2 ☐ LaMotte 2020 Turbidimeter ☒ H. F. Scientific Turbidimeter ☐ Other: #2

Pump description: ☒ Peristaltic (dedicated / portable) ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	32.53	Well goes dry during purging: Yes (No)									
Casing vol.	gallons	4.95	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1708	1709	1710	1711							Remarks
Purge vol.	gallons	0.0	0.1	0.1	0.2							
Purge rate	mL/min	300	300	300	300							
pH	su	7.31	7.26	7.25	7.25							
Temp.	°C	21.94	22.24	22.28	22.34							
Spec. cond.	µS/cm	5105	5242	5249	5252							
D.O.	mg/L	–	–	–	–							
ORP	mV	–	–	–	–							
Turbidity	NTU	5.98	0.61	3.90	2.65							
Color/tint		–										
Odor		–										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-05	12/13/11	1715	2-1L HP; 2 1L UA	–	Total of 4 1-Liter bottles
EBMW-05	12/13/11	1714		–	

Sampler's Name (print): Eric Necaise

Sampler Signature: Eric F. Necaise

Groundwater Sampling Record

Facility: ENTERGY Waterford-3	Site ID: MW-06	Sampler: EFN
Project Number: 6045-460	Date: 12/13/11	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 60		Wind: 10-15 (E)		
Site type: ☒ Monitoring Well ☐ Production Well ☐ Dewatering Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? (Yes) No
		Total depth from TOC	feet	35.40	
		TOC below/above ground	feet	2.4	
Damages/repairs needed: NONE					

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper -T ☒ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1035	1502	1509	1512	1522	
Depth to Water	feet	5.29	5.23	6.83	7.22	8.19	
Date	mm/dd/yy	12/13/11	12/13/11	12/13/11	12/13/11	12/13/11	
Product/ Thickness	LNAPL/DNAPL feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ YSI MPS 556 # 2 ☐ LaMotte 2020 Turbidimeter ☒ H. F. Scientific Turbidimeter #2 ☐ Other:

Pump description: ☒ Peristaltic (dedicated / portable) ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	30.4	Well goes dry during purging: Yes (No)									
Casing vol.	gallons	4.91	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1506	1507	1508	1509	1510						Remarks
Purge vol.	gallons	~~3000~~	0.1	0.2	0.3	0.4						
Purge rate	mL/min	300	300	300	300	300						
pH	su	7.22	7.19	7.19	7.19	7.19						
Temp.	°C	22.39	22.41	22.44	22.42	22.44						
Spec. cond.	µS/cm	2890	2762	2736	2718	2719						
D.O.	mg/L	-	-	-	-							
ORP	mV	-	-	-	-							
Turbidity	NTU	3.39	11.11	0.00	0.00	0.20						
Color/tint		-										
Odor		-										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-06	12/13/11	1515	2-1L H-3; 2-1L N	-	Total of 4 1-L Bottles

Sampler's Name (print): Eric Necaise Sampler Signature: Eric F. Necaise

Groundwater Sampling Record

Facility: ENTERGY Waterford-3	Site ID: MW-07	Sampler: EFN
Project Number: 6045-460	Date: 12/13/11	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 60	Wind: 10 - 15 (E)

Site type: ☒ Monitoring Well ☐ Extraction Well ☐ Production Well ☐ Borehole ☐ Dewatering Well ☐ Spring ☐ Other:

Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:

Well diameter	inches	2
Total depth from TOC	feet	41.15
TOC below (above) ground	feet	3.15

Well locked? (Yes) No

Damages/repairs needed: NONE

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper -T ☒ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1048	1333	1413	1415	1432	
Depth to Water	feet	7.15	7.15	9.52	9.56	9.61	
Date	mm/dd/yy	12/13/11	12/13/11	12/13/11	12/13/11	12/13/11	
Product/ Thickness	LNAPL/DNAPL feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ YSI MPS 556 #2 ☐ LaMotte 2020 Turbidimeter ☒ H. F. Scientific Turbidimeter ☐ Other: #2

Pump description: ☒ Peristaltic (dedicated / portable) ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	36.15	Well goes dry during purging: Yes (No)									
Casing vol.	gallons	5.60	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1408	1409	1410	1411	1412	1413	1414				Remarks
Purge vol.	gallons	0.0	0.1	0.2	0.3	0.4	0.5	0.6				
Purge rate	mL/min	300	300	300	300	300	300	300				
pH	su	6.84	6.85	6.85	6.84	6.87	6.88	6.88				
Temp.	°C	22.88	22.88	22.90	22.89	22.86	22.83	22.85				
Spec. cond.	µS/cm	1006	1093	1153	1200	1300	1357	1405				
D.O.	mg/L	~										
ORP	mV	~										
Turbidity	NTU	2.67	0.19	0.23	0.00	0.10	1.05	1.27				
Color/tint												
Odor												

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-07	12/13/11	1416	2-1L HB, 2-1L	—	Total of 4 1-Liter bottles

Sampler's Name (print): ERIC NECHASE	Sampler Signature: Eric Nechase

Groundwater Sampling Record

Facility: ENTERGY Waterford-3	Site ID: MW-08	Sampler: EFN
Project Number: 6045-460	Date: 12/13/11	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 40		Wind: 10-15 (E)		
Site type: ☒ Monitoring Well ☐ Production Well ☐ Dewatering Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? (Yes) No
		Total depth from TOC	feet	41.97	
		TOC below/(above) ground	feet	3.47	
Damages/repairs needed: NONE					

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper -T ☒ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1053	12:40	12:45	12:47	1:03	
Depth to Water	feet	7.24	7.23	7.82	7.89	8.00	
Date	mm/dd/yy	12/13/11	12/13/11	12/13/11	12/13/11	12/13/11	
Product/ Thickness	LNAPL/DNAPL feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ YSI MPS 556 #2 ☐ LaMotte 2020 Turbidimeter ☒ H. F. Scientific Turbidimeter #2 ☐ Other:

Pump description: ☒ Peristaltic (dedicated / portable) ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	36.97	Well goes dry during purging: Yes (No)									
Casing vol.	gallons	5.70	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1242	1243	1244	1245	1246						Remarks
Purge vol.	gallons	~~30.0~~	0.2	0.3	0.4	0.5						
Purge rate	mL/min	300	300	300	300	300						
pH	su	6.89	6.77	6.78	6.79	6.83						
Temp.	°C	22.83	23.01	23.05	22.97	22.71						
Spec. cond.	µS/cm	1036	1008	1015	1024	1037						
D.O.	mg/L	–										
ORP	mV	–										
Turbidity	NTU	3.47	4.09	3.49	4.33	4.07						
Color/tint		N/a	none	none	none	none						
Odor		none	none	none	none	none						

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-08	12/13/11	12:50	2-1L, #3; 2-1La	—	Total of 4 1-Liter bottles

Sampler's Name (print): ERIC NECHASE Sampler Signature: Eric Nechase

Groundwater Sampling Record

Facility: ENTERGY Waterford-3	Site ID: MW-09	Sampler: ETN
Project Number: 6045-460	Date: 12/13/11	Sampler Organization: FTN

Site Description

Weather: Sunny	Air Temp (°F): 40	Wind: 10 - 15 (E)			
Site type: ☒ Monitoring Well ☐ Production Well ☐ Dewatering Well ☐ Other: ☐ Extraction Well ☐ Borehole ☐ Spring	Well casing material: ☒ PVC ☐ Steel ☐ Iron ☐ Other:	Well diameter	inches	2	Well locked? (Yes) No
		Total depth from TOC	feet	40.22	
		TOC below/above ground	feet	2.22	
Damages/repairs needed: NONE					

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level meter: ☐ Heron Dipper -T ☒ Keck 100' ☐ Keck 200' ☐ Solonist Interface Probe ☐ Other:

		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1100	1147	1153	1156	12:10	
Depth to Water	feet	6.74	6.74	6.85	6.96	6.85	
Date	mm/dd/yy	12/13/11	12/13/11	12/13/11	12/13/11	12/13/11	
Product/ Thickness	LNAPL/DNAPL feet						

Field Data

Field data meters: ☐ Hydrolab MiniSonde ☐ Hydrolab DataSonde ☒ YSI MPS 556 #2 ☐ LaMotte 2020 Turbidimeter ☒ H. F. Scientific Turbidimeter #2 ☐ Other:

Pump description: ☒ Peristaltic (dedicated / portable) ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth	feet	35.22	Well goes dry during purging: Yes (No)									
Casing vol.	gallons	5.5	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408									
Time	24-hour	1149	1150	1151	1152	1153	1154	1155				Remarks
Purge vol.	gallons	0.1	0.2	0.3	0.3	0.6	0.8	1.0				
Purge rate	mL/min	300	300	300	300	300	300	300				
pH	su	6.94	6.96	6.96	6.96	6.96	6.96	6.94				
Temp.	°C	21.14	20.30	21.17	21.29	21.24	21.26	21.24				
Spec. cond.	µS/cm	1977	1978	1969	1979	1982	1984	1984				
D.O.	mg/L	–										
ORP	mV	–										
Turbidity	NTU	31.82	9.29	1.81	2.00	1.29	1.73	2.72				
Color/tint		–										
Odor		–										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-09	12/13/11	1156	2-1L H-3, 2-1L	–	Total of 4-1L

Sampler's Name (print): ERIC NECAISE	Sampler Signature: Eric Necaise

ftn

Date	Project Name	Project Number	Project Manager (Print)	Page ___ of ___
12/13/11	Entergy - Waterford 3	6045-460	BOB WEST	

Laboratory Name	Submitted by:	Parameters (Method Number)	Lab Turn-Around Time
RBS Phone: ( )	FTN Associates, Ltd. 124 W. Sunbridge Drive, Suite 3 Fayetteville, AR 72703 (479) 571-3334 • Fax (479) 571-3338	8 F-3	☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ Other: Due: ___/___/___
Sampler Signature(s): Eric Necaise	Recorded By (Print): ERIC NECAISE		

SAMPLE DESCRIPTION

Field Sample Number	Date (mm/dd/yy)	Time (hh:mm)	Matrix* W	S	O	Number of Containers	Method Comp	Grab	8	F-3	Laboratory Notes
MW-03	12/13/11	15:50	X			4		X	X	X	
Dup MW-03	12/13/11	16:00	X			4		X	X	X	
MW-04	12/13/11	16:40	X			4		X	X	X	
MW-05	12/13/11	17:15	X			4		X	X	X	
EB MW-05	12/13/11	17:40	X			4		X	X	X	
MW-06	12/13/11	15:15	X			4		X	X	X	
MW-07	12/13/11	14:16	X			4		X	X	X	
MW-08	12/13/11	12:50	X			4		X	X	X	
MW-09	12/13/11	11:56	X			4		X	X	X	

* Matrix: W = Water S = Soil O = Other

Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time
Eric Necaise	ERIC NECAISE	12/13/11	17:50		Rodney LeBlanc	12/13/11	17:50
Relinquished By (Signature)	Print Name	Date	Time	Received By Laboratory (Signature)	Print Name	Date	Time

Sampler Remarks	Laboratory Remarks:

Revision Date 11/22/02

Daily Log

Site Location: Waterford 3	Date: 3/20/2012
Project Number: 6045-460	Page 1 of 2

8:00 Arrived on site Pre-job Safety meeting at MW-05
8:15 Began taking Pre purge water levels
9:20 Finish recording pre purge water levels and began purging MW-07
3:20 Left site as Rodney had to leave for personal reasons

Daily Log

Site Location: Walker Ford 3	Date: 3/21/12
Project Number: 6045.446	Page 2 of 2

8:30 Arrived at site after picking up DI water at Wal mart
8:45 Begin calibration of equipment
11:00 - Left site tornado watch and Lunch
13:10 - Begin purge sample of MW-05
18 45 - Left site after giving samples to Brian Falgoust

FTN Associates Calibration Form

Date/Time: 3/20/12 9:20
Prepared By: EFN
Location: Waterford 3
Project #: 6045-480

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		Cond	0	uS/cm			Y N		
		Cond	1413	uS/cm	23.14	1200	(Y) N	1413	1AH601 Exp 9/12
YSI MPS	#1	pH	7	su	23.79	7.03	(Y) N	7.00	1AI4[illegible] Exp 9/13
556		pH	4/10	su	~~23.88~~	4.09	(Y) N	4.00	1AI238 Exp 9/13
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C	23.16	23.00	N	N/A	
							Y N		
AF Scientific	#1	Turbidity	1000	NTU	N/A	999.1	Y N		10903 EXP 9/13
		Turbidity	10.0	NTU	N/A	9.92	Y N		10901 Exp 9/13
		Turbidity	0.02	NTU	N/A	0.03	Y N		No lot Exp 11/4/4
		Turbidity		NTU	N/A		Y N		

Comments:

Notes:

1. Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
2. pH Calibration (pH Method EPA 150.1)
3. DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
4. Temperature Calibration: No calibration is necessary. Record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

FTN Associates Calibration Form

Date/Time: 3/21/12 0845
Prepared By: EFN
Location: Waterford 3
Project #: 6045-460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		Cond	0	uS/cm			Y N		
YSI MPS		Cond	1413	uS/cm	21.75	1640	(Y) N	1413	LOT 1AH601 Exp 8/12
556	#1	pH	7	su	22.31	6.94	(Y) N	7.00	LOT 1A1412 Exp 9/13
		pH	(4) 10	su	22.75	4.23	(Y) N	4.00	LOT 1AG214 Exp 7/13
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C	22.75	23.00	N	N/A	
HF							Y N		
Scientific	#1	Turbidity	1000	NTU	N/A	1100	(Y) N	1006	10903 Exp 9/13
		Turbidity	10.0	NTU	N/A	10.66	Y N	10.65	10901 EXP 9/13
		Turbidity	0.02	NTU	N/A	0.00	(Y) N	0.05	N0104 Exp 11/4/11
		Turbidity		NTU	N/A		Y N		

Comments:

Notes:

1. Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
2. pH Calibration (pH Method: EPA 150.1)
3. DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
4. Temperature Calibration: No calibration is necessary. Record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

Groundwater Level Data Sheet

Project Name:	Project Number:	Investigator:	Page 1 of 1
Waterford 3	6045 460	EFN	
Weather Conditions:	**Measuring Device:**		
Overcast 70°	Keck 100 #3		

Well ID	Date	Time	Depth to Water (feet below RP)	Damages/Repairs		
MW03	3/20/12	0832	8.93	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW04	3/20/12	0841	9.38	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW05	3/20/12	0847	5.64	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW06	3/20/12	0853	4.24	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW07	3/20/12	0859	6.25	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW08	3/20/12	0909	6.10	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility Cannot ☐ Lacks access hole ☒ See gw sample record
MW09	3/20/12	0919	3.73	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record

Notes:
RP = Reference Point
TOC = Top of Casing
gw = groundwater

Groundwater Sampling Record

Facility: Watuford 3	Site ID: MW03	Sampler: EFN
oject Number: 6045-460	Date: 3/21/12	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Overcast / Rain	Air Temp (°F): 68°	Wind: 10-15 W
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.58	Damage/repairs needed:
Remarks:		

Water Level Data

Measuring point description:
☒ Mark/notch on TOC
☐ North rim of TOC
☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0832	1715	1730	1745	1835	
Depth to Water (ft)	8.93	5.94	6.15	6.34	6.45	
Date (mm/dd/yy)	3/20/12	3/21/12	3/21/12	3/21/12	3/21/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No.: YSI 556 / HF Scientific
Unit or Serial No.: #1 / #1

Pump description:
☒ Peristaltic
☐ Bladder (dedicated / portable)
☐ Submersible

Bailer description:
☐ Disposable polyethylene
☐ Disposable Teflon
☐ Disposable PVC

Purge depth (ft): 22.75

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable)

= [total depth (feet) – depth to water (feet)] * [well ID (inches)^2] * 0.0408

										Remarks
Time ("24:00" hr)	1720	1724	1728	1732	1736	1740				
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5				
Purge rate (mL/min)	125	125	125	125	125	125				
pH (su)	6.94	6.91	6.86	6.81	6.82	6.84				
Temp. (°C)	17.78	17.80	17.58	17.58	17.92	17.98				
Spec. cond. (µS/cm)	2973	2910	2850	2861	2880	2923				
D.O. (mg/L)	–	–	–	–	–	–				
ORP (mV)	–	–	–	–	–	–				
Turbidity (NTU)	9.23	21.23	11.56	10.67	18.43	8.67				
Color/tint	none	none	none	none	none	none				
Odor	none	none	none	none	none	none				

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW03	3/21/12	1745	7	None	1-500ml H-3; 2-250ml ox; 4-250ml EB31
EB MW03	3/21/12	1705	7	None	" " "

Sampler's Name (print): ERIC NEGAISE

Sampler Signature: Eric Negaise

Groundwater Sampling Record

Facility: Waterford 3	Site ID: MW-04	Sampler: EFN
oject Number: 6005466	Date: 3/21/12	FTN Associates, Ltd

Site Description

Type: [X] Monitoring Well [ ] Temporary Well [ ] Extraction Well [ ] Production Well [ ] Dewatering Well [ ] Borehole [ ] Other

Weather: Overcast	Air Temp (°F): 75	Wind: 20-30 (SE)
Well Locked? [X] Yes [ ] No	Total Depth (ft) 37.73	Damage/repairs needed:
Remarks:		

Water Level Data

Measuring point description: [X] Mark/notch on TOC [ ] North rim of TOC [ ] Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0841	1517	1530	1535	1705	
Depth to Water (ft)	9.38	9.29	9.73	9.77	9.83	
Date (mm/dd/yy)	3/20/12	3/21/12	3/21/12	3/21/12	3/21/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI 556	#1	[X] Peristaltic	[ ] Disposable polyethylene
HF Scientific	#1	[ ] Bladder (dedicated / portable)	[ ] Disposable Teflon
		[ ] Submersible	[ ] Disposable PVC

Purge depth (ft): 29.75

Well goes dry during purging: [ ] Yes [X] No

Casing vol. (gal): (where applicable) = [total depth (feet) – depth to water (feet)] * [well ID (inches)^2] * 0.0408

Time ("24:00" hr)	1523	1527	1531	1535						Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3						
Purge rate (mL/min)	150	150	125	125						
pH (su)	6.57	6.50	6.48	6.51						
Temp. (°C)	19.44	20.21	20.14	20.00						
Spec. cond. (µS/cm)	5233	5229	5190	5267						
D.O. (mg/L)	-	-	-	-						
ORP (mV)	-	-	-	-						
Turbidity (NTU)	83.54	88.22	12.41	56.27						
Color/tint	none	none	none	none						
Odor	none	none	none	none						

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW04	3/21/12	1540	7	none	1-500mL H-3, 2-250mL QK, 4-250mL H-N
Dup MW04	3/21/12	1540	7	none	" " "

Sampler's Name (print): Eric Negaard

Sampler Signature: Eric Negaard

Groundwater Sampling Record

Facility: Wakefield - 3	Site ID: MW-05	Sampler: EFW
oject Number: 6045-460	Date: 3/21/12	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Overcast	Air Temp (°F): 730	Wind: 20-30 (SE)
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.59	Damage/repairs needed:
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0847	13.19	1324	1416	1510	
Depth to Water (ft)	5.66	5.55	5.80	5.85	5.84	
Date (mm/dd/yy)	3/20/12	3/21/12	3/21/12	3/21/12	3/21/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI 556	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 29.75

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) = [total depth (feet) – depth to water (feet)] • [well ID (inches)^2 / 19.2] • 0.0408 / 4.16

Time ("24:00" hr)	1329	1334	1337	1341	1344	1348	1352	1356	1400	1404	1408	Remarks	
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2
Purge rate (mL/min)	100	100	100	100	100	100	100	100	100	100	100	100	100
pH (su)	7.26	7.19	7.14	7.15	7.14	7.13	7.11	7.09	7.08	7.04	7.01	7.02	7.01
Temp. (°C)	19.72	18.62	19.43	19.31	19.40	19.47	19.41	19.33	19.89	20.13	20.31	20.57	20.63
Spec. cond. (µS/cm)	3012	2890	2790	2426	2316	2210	2078	2038	1998	1923	1911	1923	1918
D.O. (mg/L)	–	–	–	–	–	–	–	–	–	–	–	–	–
ORP (mV)	–	–	–	–	–	–	–	–	–	–	–	–	–
Turbidity (NTU)	5.26	2.09	1.83	1.43	1.23	0.97	42.60	1.13	1051	9.67	13.24	11.21	2.56
Color/tint	none	none	none	none	none	none	tan	none	none	none	none	none	tan
Odor	none	none	none	none	none	none	none	none	none	none	none	none	none

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW05	3/21/12	1420	7	1200	1-500ml H3; 2-250ml A; 4-250ml U-121

Sampler's Name (print): Eric Wenrich	Sampler Signature:

Groundwater Sampling Record

Facility: Waterford 3	Site ID: MW 06	Sampler: EFN
Project Number: 6045.460	Date: 3/21/12	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Overcast	Air Temp (°F): 72°	Wind: 20-30 (SE)
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 35.40	Damage/repairs needed:
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: Keck 100 # 3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)		0900	0929	0932	10:45	Dropped
Depth to Water (ft)	4.24	4.24	5.58	5.61	4.64	1.3 ft pumping
Date (mm/dd/yy)	3/20/12	3/21/12	3/21/12	3/21/12		as slow as possible during purging
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI MPS 556	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 25.7

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) = [total depth (feet) − depth to water (feet)] × [well ID (inches)^2] × 0.0408

Time ("24:00" hr)	0909	0913	0917	0921	0925	0929	Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.29	0.3	0.4	
Purge rate (mL/min)	100	100	100	100	100	100	
pH (su)	6.90	6.95	6.98	6.98	7.00	6.98	
Temp. (°C)	24.13	24.05	23.66	23.64	23.45	23.39	
Spec. cond. (µS/cm)	3224	3207	3212	3207	3209	3219	
D.O. (mg/L)	–	–	–	–	–	–	
ORP (mV)	–	–	–	–	–	–	
Turbidity (NTU)	112.7	9.12	48.05	2.44	2.18	12.24	
Color/tint	none	none	none	none	none	none	
Odor	none	none	none	none		none	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW06	3/21/12	0935	7	none	1x500ml H3; 2x250ml ∝; 4x250ml EX31

Sampler's Name (print): Eric Necaise	Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: Waterford 3	Site ID: MW07	Sampler: EFN
oject Number: 0045-460	Date: 3/20/12	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other_____

Weather: Overcast	Air Temp (°F): 75	Wind: 20 - 25
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 41.13	Damage/repairs needed:

Remarks:

Water Level Data

Measuring point description:
☒ Mark/notch on TOC
☐ North rim of TOC
☐ Other:

Water level Meter Make/Model No.: Keck 100 ft 3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0859	1340	1400	1405	1520	
Depth to Water (ft)	6.25	6.25	6.82	6.84	6.56	
Date (mm/dd/yy)	3/20/12	3/20/12	3/20/12	3/20/12	3/20/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No: YSI 556 MPS; HF Scientific

Unit or Serial No: #1; #1

Pump description:
☒ Peristaltic
☐ Bladder (dedicated / portable)
☐ Submersible

Bailer description:
☐ Disposable polyethylene
☐ Disposable Teflon
☐ Disposable PVC

Purge depth (ft): 32.7

Casing vol. (gal): (where applicable)

Well goes dry during purging: ☐ Yes ☒ No

= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	1347	1351	1355	1359	1403					Remarks
Purge vol. (gal)	0.0	0.1	0.15	0.2	0.25					
Purge rate (mL/min)	100	75	75	75	75					
pH (su)	6.66	6.58	6.52	6.54	6.55					
Temp. (°C)	25.14	24.96	25.52	25.58	25.63					
Spec. cond. (µS/cm)	1778	1392	1347	1332	1411					
D.O. (mg/L)	–	–	–	–	–					
ORP (mV)	–	–	–	–	–					
Turbidity (NTU)	15.91	11.84	12.72	17.82	21.31					
Color/tint	none	none	none	none	none					
Odor	none	none	none	none	none					

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW07	3/20/12	1405	7	None	1-500ml H2SO4; 2-250ml; 4-150ml + 1SI

Sampler's Name (print): Eric Nechanicky

Sampler Signature:

Groundwater Sampling Record

Facility: Waterford 3	Site ID: MW 08	Sampler: EFN	
Project Number: 6045	Date: 3/20/12	FTN Associates, Ltd	

Site Description

Type: [X] Monitoring Well [ ] Temporary Well [ ] Extraction Well [ ] Production Well [ ] Dewatering Well [ ] Borehole [ ] Other

Weather: Overcast	Air Temp (°F): 73	Wind: 20 25 (SE)
Well Locked? [X] Yes [ ] No	Total Depth (ft) 41.47	Damage/repairs needed: hole appr 3ft from pad
Remarks:		

Water Level Data

Measuring point description: [X] Mark/notch on TOC [ ] North rim of TOC [ ] Other:

Water level Meter Make/Model No. Keck 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0909	1112	1130	1152	1300	
Depth to Water (ft)	6.10	6.11	6.40	6.45	6.38	
Date (mm/dd/yy)	3/20/12	3/20/12	3/20/12	3/20/12	3/20/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No: YSI MPS 556 MPS Unit or Serial No: 11F #1

Pump description: [X] Peristaltic [ ] Bladder (dedicated / portable) [ ] Submersible

Bailer description: [ ] Disposable polyethylene [ ] Disposable Teflon [ ] Disposable PVC

Purge depth (ft): 32.7

Well goes dry during purging: [ ] Yes [X] No

Casing vol. (gal): (where applicable) = [total depth (feet) – depth to water (feet)] * [well ID (inches)^2] * 0.0408

Time ("24:00" hr)	1115	1119	1123	1127	1131	1135	1139	1143	1147	1151	Remarks
Purge vol. (gal)	0.0	0.1	0.25	0.35	0.5	0.6	0.7	0.8	0.9	1.0	
Purge rate (mL/min)	150	100	100	100	100	100	100	100	100	100	
pH (su)	6.50	6.51	6.55	6.60	6.62	6.64	6.63	6.64	6.61	6.60	
Temp. (°C)	23.64	24.02	23.90	24.35	24.39	24.20	24.04	24.35	24.12	23.98	
Spec. cond. (µS/cm)	1372	1386	1425	1500	1525	1548	1555	1564	1542	1559	
D.O. (mg/L)	-	-		-	-	-	-	-			
ORP (mV)	-	-	-	-	-	-	-	-			
Turbidity (NTU)	442.3	8.52	8.04	18.00	9.13	8.51	6.68	5.19	12.13	18.13	
Color/tint	None	None	None	None	None	None	None	None	None	None	
Odor	None	None	None	None	None	None	None	None	None	None	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-08	3/20/12	1155	7	None	1 500mL HNO3, 2 250mL A, 4 VOAs

Sampler's Name (print): ERIC NECKIES Sampler Signature:

Groundwater Sampling Record

Facility: Waterford 3	Site ID: MW 09	Sampler: EFN
Project Number: 6045-460	Date: 3/20/12	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Sunny	Air Temp (°F): 73°	Wind: 20-25 (SE)
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 40.22	Damage/repairs needed:
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional): 4260

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0919	0940	1000	1016	1058	
Depth to Water (ft)	3.73	3.73	3.86	3.88	3.87	
Date (mm/dd/yy)	3/20/12	3/20/12	3/20/12	3/20/12	3/20/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No.: YSI 556 MPS #1; HF Scientific

Unit or Serial No.: #1; #1

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 32.7

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal) (where applicable): = [total depth (feet) – depth to water (feet)] * [well ID (inches)^2] * 0.0408

Time ("24:00" hr)	944	948	0952	0956	1000	1004	1008	1012	1016	Remarks
Purge vol. (gal)	0.0	0.2	0.4	0.5	0.7	0.7	1.0	1.2	1.4	
Purge rate (mL/min)	120	120	120	120	120	120	120	120	120	
pH (su)	6.52	6.53	6.55	6.57	6.62	6.64	6.65	6.62	6.61	
Temp. (°C)	22.45	22.26	22.23	22.40	22.31	22.33	22.32	22.42	22.53	
Spec. cond. (µS/cm)	2747	2734	2742	2763	2781	2796	2800	2785	2792	
D.O. (mg/L)	-									
ORP (mV)	-									
Turbidity (NTU)	4.06	56.90	41.11	2.60	39.15	1.42	1.37	21.17	31.30	
Color/tint										
Odor										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW09	3/20/12	1020	7	none	1500ml H-3; 2-250ml A; 1-250ml Iodine 131

Sampler's Name (print): ERIC MECKFESSEL

Sampler Signature: Eric Meckfessel

Daily Log

Site Location: Waterford 3	Date: 6/18/12
Project Number: 6045-460	Page 1 of 2

0700 - Left home
1000 - Arrived on site and calibrated equipment.
1030 - Began taking water levels
1115 - Completed water levels
1120 - Begin sampling MW-02
1830 - Finish Sampling MW-05 and Left Site

Daily Log

Site Location:	Date: 6/19/12
Project Number:	Page 2 of 2

0730 - Calibrate Equipment
0800 - Arrive on Site meet Rodney
0830 - Begin Sampling MW04
1115 - Left Site

FTN Associates Calibration Form

Date/Time: 6/19/12 0725
Prepared By: EFN
Location: Waterford - 3
Project #: 6045 - 460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		pH	7	su	25.69	7.07	(Y) N	7.00	
YSI	#1	pH	4	su	25.94	4.09	(Y) N	4.00	
		pH	10	su			Y N		
		Cond	1413	uS/cm	2541	1444	(Y) N	1413	1AH601 Ex 8/12
		DO		mm/Hg		mg/l	Y N	mg/l	1AL480 Ex 12/13
		Temp		Degrees C			Y N	N/A	B025-11 Ex 1/26/14
							Y N		
		Turbidity	1000	NTU	N/A	883	(Y) N	0.83	10612 Ex 12/12
HF Scientific	#2	Turbidity	10.0	NTU	N/A	4.58	(Y) N	9.87	20239 Ex 2/14
		Turbidity	0.02	NTU	N/A	1.43	(Y) N	963.2	10605 Ex 12/12
							Y N		
							Y N		
							Y N		
							Y N		

Notes:
pH Calibration (pH Method: EPA 150.1)
DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
Temperature Calibration: No calibration is necessary. Simply record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

$$\text{Relative Percent Difference (RPD)} = 100 * (\text{rep1} - \text{rep2})/(\text{rep1} + \text{rep2})/2$$

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

$$\text{Percent Difference} = 100 * (\text{observed} - \text{target})/\text{target}$$

FTN Associates Calibration Form

Date/Time: 6/18/12 0950
Prepared By: EFN
Location: Waterford - 3
Project #: 6045 - 460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		Cond	0	uS/cm			Y N		
YSI	#1	Cond	1413	uS/cm	29.62	1359	(Y) N	1413	1AH601 Ex 8/12
		pH	7	su	29.60	7.16	(Y) N	7.00	1AL480 Ex 12/13
		pH	(4) 10	su	25.94	4.08	(Y) N	4.00	B025-11 Ex 1/26/14
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C	26.20	26.0	N	N/A	
							Y N		
		Turbidity	0.02	NTU	N/A	0.82	Y N	0.32	10605 Ex 12/12
HF Scientific	#2	Turbidity	10.0	NTU	N/A	1.07	Y N	12.43	20239 Ex 2/14
		Turbidity	1000	NTU	N/A	808.9	Y N	988.3	10612 Ex 12/12
		Turbidity		NTU	N/A		Y N		

Comments:

Notes:

1. Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
2. pH Calibration (pH Method: EPA 150.1)
3. DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
4. Temperature Calibration: No calibration is necessary. Record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

Groundwater Level Data Sheet

Project Name:	Project Number:	Investigator:	Page 1 of 1
Waterford - 3	6045-460	EFN	
Weather Conditions:	**Measuring Device:**		
Partly Cloud	KECK 100 # 3		

Well ID	Date	Time	Depth to Water (feet below RP)	Damages/Repairs		
MW-03	6/18/12	1033	5.61	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-04	6/18/12	1042	8.96	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-05	6/18/12	1052	5.03	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-06	6/18/12	1058	4.06	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-07	6/18/12	1105	5.98	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-08	6/18/12	1110	7.22	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access (hole) ☒ See gw sample record
MW-09	6/18/12	1115	3.59	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record

Notes:
RP = Reference Point
TOC = Top of Casing
gw = groundwater

R/LeBlanc/WF3 6-19-12 11:00

Groundwater Sampling Record

Facility: ~~6045-46~~ Wakefield 3	Site ID: MW-03	Sampler: EFN	
Project Number: 6045-460	Date: 6/19/12		FTN Associates, Ltd

Site Description

Type: [X] Monitoring Well [ ] Temporary Well [ ] Extraction Well [ ] Production Well [ ] Dewatering Well [ ] Borehole [ ] Other

Weather: Sunny 85	Air Temp (°F): 85	Wind: 10 mph W
Well Locked? [X] Yes [ ] No	Total Depth (ft) 37.58	Damage/repairs needed: None

Remarks:

Water Level Data

Measuring point description: [ ] Mark/notch on TOC [ ] North rim of TOC [ ] Other:

Water level Meter Make/Model No.: ELECT 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1033	0950	1000	1012	1050	
Depth to Water (ft)	5.61	5.54	5.97	6.04	6.09	
Date (mm/dd/yy)	6/18/12	6/19/12	6/19/12	6/19/12	6/19/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No.: YSI / HF Scientific — Unit or Serial No.: #1 / #2

Pump description: [X] Peristaltic [ ] Bladder (dedicated / portable) [ ] Submersible

Bailer description: [ ] Disposable polyethylene [ ] Disposable Teflon [ ] Disposable PVC

Purge depth (ft): 32.58

Well goes dry during purging: [ ] Yes [X] No

Casing vol. (gal): (where applicable) N/A

= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

										Remarks
Time ("24:00" hr)	0953	0956	0959	1002	1005	1008	1011			
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.6	0.9			
Purge rate (mL/min)	150	150	150	150	150	150	150			
pH (su)	7.08	6.68	6.64	6.63	6.64	6.64	6.63			
Temp. (°C)	25.48	25.54	25.57	25.58	25.66	25.59	25.58			
Spec. cond. (µS/cm)	2563	2339	2396	2500	2505	2583	2595			
D.O. (mg/L)	–	–	–	–	–	–	–			
ORP (mV)	–	–	–	–	–	–	–			
Turbidity (NTU)	20.15	21.37	26.16	17.83	12.52	22.43	18.23			
Color/tint	–	–	–	–	–	–	–			
Odor	–	–	–	–	–	–	–			

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-03	6/19/12	1015	~~6~~ 7	None	1-500mL H-3; 4-1L T-131; 2-1L X
EB MW-03	"	1015	7	None	" "

Sampler's Name (print): ERIC NECASE — Sampler Signature: [signature]

FB/LB Blank / WF3

Groundwater Sampling Record

Facility: Waterford 3	Site ID: MW-04	Sampler: EFN
Project Number: 6045-460	Date: 6/19/12	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other _____

Weather: Sunny 80	Air Temp (°F): 80	Wind: 10 mph W
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.73	Damage/repairs needed: None

Remarks:

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1042	0827	0840	0853	0940	
Depth to Water (ft)	8.96	8.96	9.63	9.73	9.97	
Date (mm/dd/yy)	6/18/12	6/19/12	6/19/12	6/19/12	6/19/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No.: YSI HF Scientific — Unit or Serial No.: #1 #2

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 32.73

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) N/A = [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	0830	0833	0836	0839	0841	0843	0846	0849	0851	Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.5	0.75	1.0	1.2	1.5	
Purge rate (mL/min)	250	250	250	250	250	250	250	250	250	
pH (su)	6.26	6.39	6.41	6.49	6.53	6.58	6.61	6.61	6.60	
Temp. (°C)	24.33	24.41	24.31	24.08	24.18	24.04	24.18	24.20	24.07	
Spec. cond. (µS/cm)	5252	4974	5052	5240	5390	5509	5660	5712	5695	
D.O. (mg/L)	–	–	–	–	–	–	–	–	–	
ORP (mV)	–	–	–	–	–	–	–	–	–	
Turbidity (NTU)	16.90	20.11	20.69	20.16	22.12	19.87	13.88	18.76	23.21	
Color/tint	–	–	–	–	–	–	–	–	–	
Odor	–	–	–	–	–	–	–	–	–	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-04	6/19/12	0855	7	None	1-500ml H-3, 4-1L I-131; 2-1L Gr

Sampler's Name (print): ERIC NECKER — Sampler Signature: [signature]

T/R Blanc / WF3

Groundwater Sampling Record

Facility: Waterford 3	Site ID: MW-05	Sampler: EFN	
Project Number: 6045-460	Date: 6/18/12	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other			
Weather: Sunny	Air Temp (°F): 85°	Wind: S 15	
Well Locked? ☐ Yes ☐ No	Total Depth (ft) 37.59	Damage/repairs needed: None	
Remarks:			

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:	Water level Meter Make/Model No. KECK 100 #3			Serial No. (Optional):		
	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1052	1652	1705	1722	1825	
Depth to Water (ft)	5.03	5.04	5.57	5.58	5.67	
Date (mm/dd/yy)	6/18/12	6/18/12	6/18/12	6/18/12	6/18/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
KE Scientific	#2	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 32.59					Well goes dry during purging: ☐ Yes ☒ No							
Casing vol. (gal): (where applicable) N/A					= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408							
Time ("24:00" hr)	1652	1655	1658	1701	1704	1707	1710	1713	1716	1719	1722	Remarks
Purge vol. (gal)	0.0	0.15	0.30	0.45	0.50	0.75	1.0	1.1	1.25	1.4	1.6	
Purge rate (mL/min)	200	200	200	200	200	200	200	200	200	200	200	
pH (su)	7.26	7.22	7.15	7.13	7.09	7.07	7.06	7.05	7.04	7.04	7.08	
Temp. (°C)	26.11	25.99	25.93	25.89	25.62	25.61	25.43	25.30	25.19	25.25	25.24	
Spec. cond. (µS/cm)	2168	2166	2064	2049	1976	1964	1944	1932	1926	1918	1922	
D.O. (mg/L)	–	–	–	–	–	–	–	–	–	–	–	
ORP (mV)	–	–	–	–	–	–	–	–	–	–	–	
Turbidity (NTU)	4.97	7.36	81.72	6.36	10.24	6.50	5.99	5.61	8.03	12.72	11.36	
Color/tint	–	–	–									
Odor	–	–	–									

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-05	6/18/12	1725	~~5~~ 7	None	1-500mL H-3; 4-1L I-131; 2-1L α
DUP MW-05	6/18/12	1725	~~5~~ 7	None	1L 1L

Sampler's Name (print): ERIC NECAISE	Sampler Signature:

Groundwater Sampling Record

Facility:	Waterford-3	Site ID:	MW-06	Sampler:	EFN
Project Number:	6045-4600	Date:	6/18/12		FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other					
Weather:	Partly cloudy	Air Temp (°F):	85°	Wind:	SE 15
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 35.40	Damage/repairs needed:	None		
Remarks:					

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:	Water level Meter Make/Model No. ICEC 100 #3			Serial No. (Optional):		
	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1058	1540	1550	1600	1630	
Depth to Water (ft)	4.06	4.00	5.56	5.87	5.93	
Date (mm/dd/yy)	6/18/12	6/18/12	6/18/12	6/18/12	6/18/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI HF Scientific	#1 #2	☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible	☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft):	30.40				Well goes dry during purging: ☐ Yes ☒ No						
Casing vol. (gal): (where applicable)	N/A				= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408						
Time ("24:00" hr)	1545	1548	1551	1554	1557	1600					Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5					
Purge rate (mL/min)	250	250	250	250	250	250					
pH (su)	7.17	7.16	7.15	7.15	7.15	7.16					
Temp. (°C)	27.04	26.68	26.59	26.61	26.79	26.76					
Spec. cond. (µS/cm)	3119	3126	3133	3144	3170	3159					
D.O. (mg/L)	–	–	–	–	–	–					
ORP (mV)	–	–	–	–	–	–					
Turbidity (NTU)	5.39	6.90	7.63	12.32	14.23	11.43					
Color/tint	–										
Odor	–										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-06	6/18/12	1600	6	None	1-500ml H3; 4-1L I-131; 1-1L Ir

Sampler's Name (print):	Eric Nelson	Sampler Signature:	

Groundwater Sampling Record

Facility: Waterford-3	Site ID: MW-07	Sampler: EFN	
Project Number: 6045-460	Date: 6/12/18		FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other			
Weather: Partly Cloudy	Air Temp (°F): 85	Wind: SW - 15	
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 41.15	Damage/repairs needed: None	
Remarks:			

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:	Water level Meter Make/Model No. KECK 100 #3				Serial No. (Optional):	
	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1105	1431	1445	1503	1530	
Depth to Water (ft)	5.98	5.96	6.43	6.56	6.63	
Date (mm/dd/yy)	6/18/12	6/18/12	6/18/12	6/18/12	6/18/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI / HF Scientific	#1 / #2	☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible	☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 36.15												Well goes dry during purging: ☐ Yes ☒ No
Casing vol. (gal): (where applicable) N/A												= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408
Time ("24:00" hr)	1435	1438	1441	1444	1447	1450	1453	1456	1459	1502		Remarks
Purge vol. (gal)	0.0	0.15	0.3	0.45	0.6	0.75	0.90	1.0	1.1	1.2		
Purge rate (mL/min)	200	200	200	200	200	200	200	200	200	200		
pH (su)	6.83	6.81	6.80	6.79	6.78	6.78	6.79	6.78	6.79	6.80		
Temp. (°C)	26.67	27.98	28.14	28.13	27.85	26.62	27.13	27.19	27.33	27.35		
Spec. cond. (µS/cm)	1119	1175	1184	1207	1257	1310	1348	1349	1342	1340		
D.O. (mg/L)	–	–	–	–	–	–	–	–	–	–		
ORP (mV)	–	–	–	–	–	–	–	–	–	–		
Turbidity (NTU)	7.06	7.85	12.36	22.43	13.64	15.63	11.23	12.36	10.11	7.63		
Color/tint	–	–	–	–	–	–	–	–	–	–		
Odor	–	–	–	–	–	–	–	–	–	–		

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-07	6/18/12	1505	6	none	1-500ml H-3; 4-1L I-131; 1-1L α

Sampler's Name (print): ERIC NECAISE	Sampler Signature:

T. Rebstock / WF3

Groundwater Sampling Record

Facility: Waterford-3	Site ID: MW-08	Sampler: EFN
Project Number: 6045-460	Date: 6/18/12	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other _____

Weather: Partly Cloudy	Air Temp (°F): 85	Wind: SW 15 mph
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 41.47	Damage/repairs needed: Hole in calvert
Remarks: Safety hazard near well pad.		

Water Level Data

Measuring point description:
☒ Mark/notch on TOC
☐ North rim of TOC
☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1110	1315	1328	1340	1420	
Depth to Water (ft)	7.22	7.22	7.62	7.64	7.73	
Date (mm/dd/yy)	6/18/12	6/18/12	6/18/12	6/18/12	6/18/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No.: YSI 556 MPS

Unit or Serial No.: #1 #2

Pump description:
☒ Peristaltic
☐ Bladder (dedicated / portable)
☐ Submersible

Bailer description:
☐ Disposable polyethylene
☐ Disposable Teflon
☐ Disposable PVC

Purge depth (ft): 36.94

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) N/A

= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	1317	1320	1323	1326	1329	1331	1334	1337	1340	Remarks
Purge vol. (gal)	0.0	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	
Purge rate (mL/min)	250	250	250	250	250	250	250	250	250	
pH (su)	6.82	6.71	6.65	6.69	6.71	6.72	6.74	6.74		
Temp. (°C)	25.81	25.85	25.61	25.79	25.51	25.51	25.65	25.42	25.54	
Spec. cond. (µS/cm)	1118	1110	1146	1213	1261	1290	1309	1313	1308	
D.O. (mg/L)	–	–	–	–	–	–	–			
ORP (mV)	–	–	–	–	–	–	–			
Turbidity (NTU)	10.40	10.45	6.65	11.87	9.83	7.67	8.69	7.66	8.43	
Color/tint	–	–	–	–	–	–	–	–	–	
Odor	–	–	–	–	–	–	–	–	–	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-08	6/18/12	1345	6	None	

Sampler's Name (print): ERIC NEGAISE

Sampler Signature:

Ty/LaRue/WF3

Groundwater Sampling Record

Facility: Waterford 3	Site ID: MW-09	Sampler: EFN
Project Number: 6045 - 460	Date: 6/18/12	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Partly Cloudy	Air Temp (°F): 80°	Wind: SW-10
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 40.22	Damage/repairs needed: NONE

Remarks:

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1115	1121	1134	1143	1310	
Depth to Water (ft)	3.57	3.57	3.73	3.78	3.89	
Date (mm/dd/yy)	6/18/12	6/18/12	6/18/12	6/18/12	6/18/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No.: YSI, HF Scientific — Unit or Serial No.: #1, #2

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 35.22

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) N/A = [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	1121	1124	1127	1130	1133	1136	1139	1142		Remarks
Purge vol. (gal)	0.0	0.2	0.4	0.6	0.8	1.0	1.2	1.4		
Purge rate (mL/min)	250	250	250	250	250	250	250	250		
pH (su)	6.51	6.59	6.62	6.66	6.71	6.73	6.75	6.74		
Temp. (°C)	24.91	24.90	24.47	24.27	24.06	24.07	24.08	24.11		
Spec. cond. (µS/cm)	2334	2349	2367	2375	2387	2390	2396	2393		
D.O. (mg/L)	–	–	–	–	–	–	–	–		
ORP (mV)	–	–	–	–	–	–	–	–		
Turbidity (NTU)	10.23	8.95	5.96	5.27	6.42	4.96	7.18	11.13		
Color/tint	–	–	–	–	–	–	–	–		
Odor	–	–	–	–	–	–	–	–		

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-09	6/18/12	1145	6	none	1-500mL H-3; 4-1L I-131; 1-1L

Sampler's Name (print): ERIC NECKER	Sampler Signature:

T. Kellum / WF3

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

Section A Required Client Information:

Company:	ENTERGY WATERFORD 3
Address:	17265 River Road
	Killona, LA 70057
Email To:	deblan@entergy.com
Phone: (504) 464-3267	Fax:
Requested Due Date/TAT:	15 WORKING DAYS

Section B Required Project Information:

Report To:	Rodney LeBlanc
Copy To:	
Purchase Order No.:	
Project Name:	
Project Number:	

Section C Invoice Information:

Attention:	SAME
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Cindy Olavesen (504) 305-3626
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW WT
WATER	WW
WASTE WATER	P
PRODUCT	SL
SOIL/SOLID	OL
OIL	WP
WIPE	AR
AIR	OT
OTHER	TS
TISSUE	

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	GAMMA	GROSS BETA	I-131	TRITIUM	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW #9	~~DT~~	G	6/18/12			1145		7	5		1						Y	Y	Y	Y	Y		
2	MW #8	DT	G	6/18/12			1345		1			1												
3	MW # 7	DT	G	6/18/12			1505					1												
4	MW # 6	DT	G	6/18/12			1600					1												
5	MW # 5	DT	G	6/18/12			1725					2												
6	MW # 5 duplicate	DT	G	6/18/12			1725					2												
7	~~MW # 4 RJK 6/18/12~~	~~DT~~	G																					
8																								
9	~~MW #3 RJK 6/18/12~~	~~DT~~	G																					
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
MW#9 one 1L I-135 bottle broken	Eric Necaise / FTN	6/19/12	1830	R. Fitzgerald / Entergy	6/19/12	1830

SAMPLE CONDITIONS

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
NA	N		

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: ERIC NECAISE

SIGNATURE of SAMPLER: Eric Necaise

DATE Signed (MM/DD/YY): 6/19/12

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical
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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

Section A Required Client Information:

Company:	ENTERGY WATERFORD 3
Address:	17265 River Road
	Killona, LA 70057
Email To:	rleblan@entergy.com
Phone: (504) 464-3267	Fax:
Requested Due Date/TAT:	15 WORKING DAYS

Section B Required Project Information:

Report To:	Rodney LeBlanc
Copy To:	
Purchase Order No.:	
Project Name:	
Project Number:	

Section C Invoice Information:

Attention:	SAME
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Cindy Olavesen (504) 305-3626
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE:

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW WT
WATER	WW
WASTE WATER	P
PRODUCT	SL
SOIL/SOLID	OL
OIL	WP
WIPE	AR
AIR	OT
OTHER	TS
TISSUE	

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test: GAMMA	GROSS BETA	I-131	TRITIUM	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW #4	OT	G	6/19/12			0855		7	5		2						Y	Y	Y	Y		
2	MW #3	OT	G	6/19/12			1015		7	5		2						Y	Y	Y	Y		
3	EB (Equip. Blank)	OT	G	6/19/12			1015		7	5		2						Y			Y		
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	ERIC NECAISE FTN	6/19/12	1050		6/19/12	1050	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: ERIC NECAISE

SIGNATURE of SAMPLER: Eric Necaise

DATE Signed (MM/DD/YY): 6/19/12

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

MW-04 RESAMPLE

Daily Log

Site Location: Waterford-3	Date: 9/6/12
Project Number:	Page 1 of 1

0715 - Arrived on Site - Calibrate Equipment
0930 - Prejob Safety Meeting with Rodney
0940 - Setup Equipment at MW-04 and begin Sampling
1030 - Complete Sampling
1045 - Install new tubing in MW-07 well
1055 - Leave site

FTN Associates Calibration Form

Date/Time: 9/6/12 0900

Prepared By: EFN

Location: Waterford-3

Project #:

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		pH	7	su	23.72	7.24	(Y) N	7.00	2AC244 Ex 3/14
		pH	4	su	22.93	4.07	(Y) N	4.00	1AI238 Ex 9/13
YSI	#1	pH	10	su			Y N		
		Cond	1413	uS/cm	23.42	1223	(Y) N	1413	1AH601 Ex 8/12
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C			Y N	N/A	
							Y N		
		Turbidity	1000	NTU	N/A	762.6	(Y) N	998.0	Lot 10932 Ex 9/13
HF Scientific	#2	Turbidity	10.0	NTU	N/A	14.34	(Y) N	12.25	Lot 20239 Ex 2/14
		Turbidity	0.02	NTU	N/A	3.75	(Y) N	0.01	Lot 10901 Ex 9/13
							Y N		
							Y N		
							Y N		
							Y N		

Notes:

pH Calibration (pH Method: EPA 150.1)

DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.

Temperature Calibration: No calibration is necessary. Simply record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

$$\text{Relative Percent Difference (RPD)} = 100 * (\text{rep1} - \text{rep2})/(\text{rep1} + \text{rep2})/2$$

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

$$\text{Percent Difference} = 100 * (\text{observed} - \text{target})/\text{target}$$

Groundwater Sampling Record

Facility: Waterford-3	Site ID: MW-04	Sampler: EFN	
Project Number: 6045-460	Date: 9/6/12		FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other_____

Weather:	Air Temp (°F): 80°	Wind: North-5 mph
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.73	Damage/repairs needed:
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)		0940	1005	1015		
Depth to Water (ft)		9.46	10.03	10.06		
Date (mm/dd/yy)		9/6/12	9/6/12	9/6/12		
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#2	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 32.73

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) 4.6

= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	0941	0944	0947	0950	0953	0956	0959	1002	1005	1008	1011	Remarks 1014	1017
Purge vol. (gal)	0.0	0.15	0.3	0.45	0.6	0.75	0.9	1.0	1.2	1.3	1.5	1.6	1.75
Purge rate (mL/min)	100	100	100	100	100	100	100	100	100	100	100	100	100
pH (su)	6.99	6.98	6.99	7.02	7.08	7.06	7.06	7.06	7.11	7.09	7.07	7.04	7.04
Temp. (°C)	24.57	24.52	24.44	24.84	24.88	24.90	24.74	24.98	25.31	25.21	25.17	25.03	25.13
Spec. cond. (µS/cm)	4646	4701	4805	4910	5125	5145	5237	5315	5376	5434	5448	5451	5446
D.O. (mg/L)	–	–											
ORP (mV)	–	–											
Turbidity (NTU)	5.26	1.37	0.36	0.00	0.00	18.87	0.99	1.25	0.03	0.35	2.00	2.32	1.36
Color/tint	none	none	–	–	–	–	–	–	–	–	–	–	–
Odor	none	none	–	–	–	–	–	–	–	–	–	–	–

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-04	9/6/12	1020	2	none	2-1L AG
EB MW-04	9/6/12	1040	2	none	"

Sampler's Name (print):	Sampler Signature:
ERIC NECAISE	Eric Necaise

ftn

Date	Project Name	Project Number	Project Manager (Print)	Page 1 of 1

Laboratory Name	Submitted by:	Parameters (Method Number)	Lab Turn-Around Time
RBS Phone: ( )	FTN Associates, Ltd. 124 W. Sunbridge Drive, Suite 3 Fayetteville, AR 72703 (479) 571-3334 • Fax (479) 571-3338		☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ Other: Due: __/__/__
Sampler Signature(s)	Recorded By (Print)		

SAMPLE DESCRIPTION

Field Sample Number	Date (mm/dd/yy)	Time (hh:mm)	Matrix* W	Matrix* S	Matrix* O	Number of Containers	Method Comp	Method Grab	Laboratory Notes
MW-01	9/6/12	1020	X			2		X	
EB MW-01	"	1040	X			2		X	

* Matrix: W = Water S = Soil O = Other

Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time
	Eric Nichols	9/6/12	1100				
Relinquished By (Signature)	Print Name	Date	Time	Received By Laboratory (Signature)	Print Name	Date	Time

Sampler Remarks	Laboratory Remarks:

Revision Date 11/22/02

Daily Log

Site Location: Waterford - 3	Date: 9/18/12
Project Number: 6045-460	Page 1 of 2

0900 - Arrived on site Calibrate Equipment
0920 Waiting on Rodney for Prejob Brief
1000 - Finish Prejob Safety - Loaded Sample bottles
- 1 Tritium 4 - I-131 2 - ∝ : Dup # MW-9
1130 - Left site

Daily Log

Site Location: Waterford - 3	Date: 9/19/12
Project Number: 6045-460	Page 2 of 2

0830 - Arrived on site for Prejob Safety meeting
0900 - Begin sampling MW-05
1345 - Finished Sampling MW-03 Proceed to warehouse to make copies
1400 - Left site
1420 - Drop off samples at Pace
1430 - Left Pace

FTN Associates Calibration Form

Date/Time: 9/18/12 0910
Prepared By: EFN
Location: WATERFORD - 3
Project #: 6045-460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
YSI	#1	Cond	0	uS/cm			Y N		
		Cond	1413	uS/cm	22.75	1187	(Y) N	1413	LOT 1AH601 Ex 8/12
		pH	7	su	22.94	7.32	(Y) N	7.00	LOT 2AC244 Ex 3/14
		pH	(4) / 10	su	22.59	4.03	(Y) N	4.00	LOT 1AT238 Ex 9/13
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C	22.73	23.0	N	N/A	
							Y N		
		Turbidity	0.02	NTU	N/A	0.00	(Y) N	0.03	LOT 10903 Ex 9/13
HF Scientific	#2	Turbidity	10.0	NTU	N/A	15.30	(Y) N	9.67	LOT 20239 Ex 2/14
		Turbidity	1000	NTU	N/A	7100	Y N	985.4	LOT 10932 Ex 9/13
		Turbidity		NTU	N/A		Y N		

Comments:

Notes

1. Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
2. pH Calibration (pH Method: EPA 150.1)
3. DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
4. Temperature Calibration: No calibration is necessary. Record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

FTN Associates Calibration Form

Date/Time: 9/19/12 0530
Prepared By: ~~9/19/12~~ EEN
Location: Waterford 3
Project #: 6045-460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		Cond	0	uS/cm			Y N		
YSI	#1	Cond	1413	uS/cm	22.93	1383	(Y) N	1413	LOT 1AH601 Ex 5/12
		pH	7	su	23.12	7.20	(Y) N	7.00	LOT 2AC244 Ex 3/14
		pH	4/10	su	22.87	4.06	(Y) N	4.00	LOT 1AJ238 Ex 9/13
		DO		mm/Hg		mg/l	Y N	mg/l	
Thermometer		Temp		Degrees C	22.93	23.0	N	N/A	
							Y N		
		Turbidity		NTU	N/A	147.6	(Y) N	1006	LOT 10932 Ex 9/13
HF Scientific	#2	Turbidity		NTU	N/A	16.46	(Y) N	9.76	LOT 20239 Ex 2/14
		Turbidity		NTU	N/A	0.13	(Y) N	0.01	Lot 10901 Ex 9/13
		Turbidity		NTU	N/A		Y N		

Comments:

Notes:
1. Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
2. pH Calibration (pH Method: EPA 150.1)
3. DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
4. Temperature Calibration: No calibration is necessary. Record temperature of standard using thermometer while in calibration cup.
   Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

Groundwater Level Data Sheet

Project Name:	Project Number:	Investigator:	Page 1 of 1
Waterford 3	6045-460	Eric Necaise	
Weather Conditions:	**Measuring Device:**		
Partly Cloudy	KECK 100 #3		

Well ID	Date	Time	Depth to Water (feet below RP)	Damages/Repairs		
MW-05	9/18/12	920	4.92	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-04	"	1010	8.42	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-03	"	1020	5.55	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-06	"	1028	4.02	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-07	"	1035	5.53	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-08	"	1045	6.90	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-09	"	1051	3.87	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record

Notes:
RP = Reference Point
TOC = Top of Casing
gw = groundwater

Groundwater Sampling Record

Facility: Waterford - 3	Site ID: MW-03	Sampler: ERIC NECAISE	
Project Number: 6045.460	Date: 9/19/12	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other_____

Weather: Sunny	Air Temp (°F): 85	Wind: N - 5-10
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.58	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: ICEC IC 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1020	1110	1226	1239	1310	
Depth to Water (ft)	5.55	5.49	5.92	5.96	6.08	
Date (mm/dd/yy)	9/18/12	9/19/12	9/19/12	9/19/12	9/19/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No.: YSI, HF Scientific — Unit or Serial No.: #1, #2

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 32.58

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) N/A

= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24.00" hr)	1213	1216	1219	1224	1225	1228	1231	1234	1237	Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.4	0.5	0.6	0.75	0.8	1.0	
Purge rate (mL/min)	150	150	150	150	150	150	150	150	150	
pH (su)	7.48	6.91	6.82	6.65	6.56	6.48	6.46	6.46	6.47	
Temp. (°C)	26.92	25.95	25.72	25.38	25.35	25.26	25.27	25.29	25.30	
Spec. cond. (µS/cm)	3200	2936	2939	2950	3011	3080	3113	3253	3247	
D.O. (mg/L)	–	–	–	–	–	–	–	–	–	
ORP (mV)	–	–	–	–	–	–	–	–	–	
Turbidity (NTU)	21.51	7.49	7.01	7.78	7.42	5.21	3.50	4.25	8.41	
Color/tint	–	–	–	–	–					
Odor	–	–	–	–	–					

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-03	9/19/12	1240	7	None	1-500mL H3; 4 IL I-131; 2500mL DI
~~Dup MW-03~~	~~9/19/12~~	~~1320~~	~~7~~	~~none~~	" " "
EB MW-03	9/19/12	1320	7	None	" " "

Sampler's Name (print): ERIC NECAISE — Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: Waterford-3	Site ID: MW-04	Sampler: EFN
Project Number:	Date: 9/19/12	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other		
Weather: Sunny	Air Temp (°F): 80°	Wind: N - 5-10
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.73	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:	Water level Meter Make/Model No. KECK 100 # 3				Serial No. (Optional):	
	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1010	1050	1105	1110	1200	
Depth to Water (ft)	8.42	8.43	9.41	9.57	10.02	
Date (mm/dd/yy)	9/18/12	9/19/12	9/19/12	9/19/12	9/19/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#2	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 32.73					Well goes dry during purging: ☐ Yes ☒ No					
Casing vol. (gal): (where applicable) N/A					= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408					
Time ("24:00" hr)	1055	1058	1101	1104	1107	1110				Remarks
Purge vol. (gal)	0.0	0.15	0.3	0.4	0.5	0.6				
Purge rate (mL/min)	100	100	100	100	100	100				
pH (su)	7.21	6.70	6.54	6.45	6.40	6.41				
Temp. (°C)	25.15	24.68	24.69	24.79	24.71	24.73				
Spec. cond. (µS/cm)	6150	5680	5710	5860	5956	5985				
D.O. (mg/L)	~	~	~	~	~	~				
ORP (mV)	~	~	~	~	~	~				
Turbidity (NTU)	11.19	5.83	2.80	2.58	3.44	6.16				
Color/tint										
Odor										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-04	9/19/12	1115	7	None	1-500ml H-3; 4-1L I-131; 2 500mlpe

Sampler's Name (print): Eric Nelson	Sampler Signature: Eric Nelson

Groundwater Sampling Record

Facility: Waterford - 3	Site ID: MW-05	Sampler: ETN	
Project Number: 6045.460	Date: 9/19/12	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other			
Weather: Sunny	Air Temp (°F): 75	Wind: N 5-10	
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.59	Damage/repairs needed: None	
Remarks:			

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:	Water level Meter Make/Model No. ICECK 100 # 3				Serial No. (Optional):	
	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0920	0825	0920	0942	1035	
Depth to Water (ft)	4.92	5.04	5.38	5.39	5.40	
Date (mm/dd/yy)	9/18/12	9/19/12	9/19/12	9/19/12	9/19/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	# 1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	# 2	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 32.59					Well goes dry during purging: ☐ Yes ☒ No									
Casing vol. (gal): (where applicable) N/A					= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408									
Time ("24:00" hr)	0905	0908	911	914	0917	0920	0923	0926	0929	0932	0935	Remarks 938	0941	
Purge vol. (gal)	0.0	0.2	0.4	0.5	0.7	0.9	1.0	1.2	1.4	1.6	1.7	1.8	2.0	
Purge rate (mL/min)	150	150	150	150	150	150	150	150	150	150	150	150	150	
pH (su)	7.40	7.30	7.23	7.15	7.08	6.99	6.97	6.95	6.94	6.93	6.95	6.96	6.98	
Temp. (°C)	24.61	24.84	24.78	24.83	24.61	24.74	24.83	24.99	25.06	25.09	25.06	25.09	25.11	
Spec. cond. (µS/cm)	4294	4325	4147	3912	3749	3650	3623	3399	3285	3260	3220	3220	3234	
D.O. (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	
ORP (mV)	-	-	-	-	-	-	-	-	-	-	-	-	-	
Turbidity (NTU)	4.52	2.43	3.82	2.49	3.13	2.43	2.52	2.23	2.14	5.62	4.18	4.12	3.22	
Color/tint	-													
Odor	-													

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-05	9/19/12	0945	7	None	1-500ml H-3; 4 1L I-131; 2500ml α

Sampler's Name (print): ERIC NECAISE	Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: Waterford - 3	Site ID: MW-06	Sampler: EFN	
Project Number: 6045-460	Date: 9/18/12	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Partly Cloudy	Air Temp (°F): 85	Wind: W-S
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 35.40	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1028	1605	1615	1630	1715	
Depth to Water (ft)	4.02	3.98	4.32	5.31	5.61	
Date (mm/dd/yy)	9/18/12	9/18/12	9/18/12	9/18/12	9/18/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No.: YSI / HF Scientific — Unit or Serial No.: #1 / #2

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 30.4

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) N/A

= [total depth (feet) – depth to water (feet)] * [well ID (inches)^2] * 0.0408

Time ("24:00" hr)	1610	1613	1616	1619	1622	1625	1628			Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5	0.75			
Purge rate (mL/min)	150	150	150	150	150	150	150			
pH (su)	7.07	7.03	7.01	6.98	6.97	6.98	6.96			
Temp. (°C)	26.12	26.34	26.23	26.34	26.26	26.30	26.24			
Spec. cond. (µS/cm)	3349	3351	3361	3371	3382	3375	3373			
D.O. (mg/L)	-	-	-	-	-	-	-			
ORP (mV)	-	-	-	-	-	-	-			
Turbidity (NTU)	6.58	6.09	7.42	9.91	12.24	13.82	6.19			
Color/tint	-									
Odor	-									

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-06	9/18/12	1630	7	None	1-500mL H-3; 4-1L I-131; 2 500mL

Sampler's Name (print): ERIC NECAISE — Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: Waterford - 3	Site ID: MW-07	Sampler: EFN	
Project Number: 4045-460	Date: 9/18/12	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Partly Cloudy	Air Temp (°F): 85	Wind: N - 5 mph
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 41.15	Damage/repairs needed: None

Remarks:

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1035	1445	1502	1512	1600	
Depth to Water (ft)	5.53	5.55	6.25	6.42	6.58	
Date (mm/dd/yy)	9/18/12	9/18/12	9/18/12	9/18/12	9/18/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No.: YSI, HF Scientific Inc — Unit or Serial No.: #1, #2

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 36.15

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) N/A

= [total depth (feet) – depth to water (feet)] * [well ID (inches)^2] * 0.0408

Time ("24:00" hr)	1447	1450	1453	1456	1459	1502	1505	1508	1511	Remarks
Purge vol. (gal)	0.0	0.1	0.25	0.3	0.5	0.6	0.7	0.8	0.9	
Purge rate (mL/min)	125	125	125	125	125	125	125	125	125	
pH (su)	7.57	6.96	6.79	6.70	6.60	6.48	6.48	6.48	6.49	
Temp. (°C)	27.28	27.25	27.33	27.18	26.85	26.74	26.80	26.79	26.78	
Spec. cond. (µS/cm)	1179	1140	1139	1141	1140	1146	1143	1146	1144	
D.O. (mg/L)	–	–	–	–	–	–	–	–	–	
ORP (mV)	–	–	–	–	–	–	–	–	–	
Turbidity (NTU)	4.47	5.03	6.12	3.23	11.18	5.31	5.62	5.11	4.12	
Color/tint	none	none	none	none	none	none	none	none	none	
Odor	none	none	none	none	none	none	none	none	none	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-07	9/18/12	1515	7	None	1-500 ml H-3; 4 1L I-131; 2 500ml α

Sampler's Name (print): ERIC NECASTRO — Sampler Signature: Eric Necastro

Groundwater Sampling Record

Facility: Waterford - 3	Site ID: MW-08	Sampler: EFN	
Project Number: 6045-460	Date: 9/18/12		FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Partly Cloudy	Air Temp (°F): 85	Wind: N - 5
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 41.47	Damage/repairs needed: None

Remarks:

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: ICEC 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1045	1255	1310	1324	1405	
Depth to Water (ft)	6.90	6.92	7.28	7.30	7.32	
Date (mm/dd/yy)	9/18/12	9/18/12	9/18/12	9/18/12	9/18/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No.: YSI / HF Scientific — Unit or Serial No.: #1 / #2

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 36.97

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) N/A

= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	1300	1303	1306	1309	1312	1315	1318	1321	1323	Remarks
Purge vol. (gal)	0.0	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	
Purge rate (mL/min)	150	150	150	150	150	150	150	150	150	
pH (su)	7.28	6.94	6.65	6.59	6.45	6.37	6.37	6.37	6.38	
Temp. (°C)	26.84	27.31	27.34	27.16	27.43	26.23	26.63	26.74	26.72	
Spec. cond. (µS/cm)	1218	1205	1209	1227	1272	1368	1407	1416	1412	
D.O. (mg/L)	-	-	-	-	-	-	-	-	-	
ORP (mV)	-	-	-	-	-	-	-	-	-	
Turbidity (NTU)	4.70	11.74	8.23	6.72	8.17	12.41	5.27	3.02	2.82	
Color/tint	none	none	none	none	none	-	-	-	-	
Odor	none	none	none	none	-	-	-	-	-	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-08	9/18/12	1325	7	None	1-500ml H-3; 4 L - I-131; 2 500ml α

Sampler's Name (print): ERIC NECASE — Sampler Signature: Eric Necase

Groundwater Sampling Record

Facility: Wakefield-3	Site ID: MW-07	Sampler: EFN
Project Number: 6045 460	Date: 9/18/12	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Partly Cloudy	Air Temp (°F): 50°	Wind: None
Well Locked? ☐ Yes ☐ No	Total Depth (ft) 40.22	Damage/repairs needed: None

Remarks:

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: Geotech 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1051	1054	1112	1117	1240	
Depth to Water (ft)	3.87	3.87	3.94	3.95	3.98	
Date (mm/dd/yy)	9/18/12	9/18/12	9/18/12	9/18/12	9/18/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No.: YSI, Hf Scientific — Unit or Serial No.: #1, #2

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 35.22

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal) (where applicable): N/A = [total depth (feet) – depth to water (feet)] * [well ID (inches)^2] * 0.0408

Time ("24:00" hr)	1055	1058	1101	1104	1107	1110	1113	1116		Remarks
Purge vol. (gal)	0.0	0.2	0.4	0.6	0.8	1.0	1.2	1.4		
Purge rate (mL/min)	150	150	150	150	150	150	150	150		
pH (su)	6.35	6.47	6.49	6.52	6.54	6.55	6.54	6.53		
Temp. (°C)	25.56	25.25	25.32	25.31	25.32	25.43	25.40	25.36		
Spec. cond. (µS/cm)	2480	2527	2533	2541	2545	2559	2566	2563		
D.O. (mg/L)	-	-	-	-	-	-	-	-		
ORP (mV)	-	-	-	-	-	-	-	-		
Turbidity (NTU)	6.15	6.80	7.14	2.92	4.43	8.16	7.24	4.12		
Color/tint	none	none	none	none	none	none	none	none		
Odor	none	none	none	none	none	none	none	none		

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-07	9/18/12	1120	7	None	1-500ml H2SO4; 4 L I-131; 250ml Na
DupMW-07	"	1155	7	None	" " "

Sampler's Name (print): Eric Necaise — Sampler Signature: Eric Necaise

Daily Log

Site Location: Entergy - Waterford 3	Date: 10/31/12
Project Number: 6045-460	Page 1 of 3

~~Activity~~

0915 - Arrived on site - Calibrate Equipment
1000 - Sampling MW-05
1035 - Finish Purging MW-05 - no bottles
1615 - Finish Sampling MW-04 Move to Developing Project 6045-463
1715 Left MW-11
1900 - Left site

Daily Log

Site Location: Waterford - 3	Date: 11/1/12
Project Number: 6045.460	Page 2 of 3

0645 - Arrived on site
0705 - Started with well development on MW-11
1145 - Left MW-11 - Transfer samples from Rodney
1215 - Lunch
1245 - MW-03 - Sampling
1450 - Drop off samples at pace
1600 - MW-08
1900 - Leave site

Daily Log

Site Location: Waterford - 3	Date: 11/2/12
Project Number: 6045 - 463	Page 3 of 3

0715 - ARRIVE on site
0730 - Begin taking water levels
0840 - Completed Water Levels
0900 - Begin purging/Sampling MW-06
1010 - Finished sampling MW-06
1030 - Left site for tubing supplies
1100 - Arrived back at mw-10 for purging.
1130 - Began purging MW-10
1205 - Completed Purging MW-10
1220 - Begin Sampling MW-10
1330 - Completed Sampling MW-10
1350 Leave Site

FTN Associates Calibration Form

Date/Time: 10/31/12 0915
Prepared By: EFN
Location: Entergy Waterford 3
Project #: 6045-460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		Cond	0	uS/cm			Y N		
		Cond	1413	uS/cm	16.07	1325	(Y) N	1413	LOT 1AIC064 Ex 12/12
YSI	#1	pH	7	su	14.25	6.98	(Y) N	7.00	LOT 2AC244 Ex 3/14
		pH	4/10	su	16.49	4.14	(Y) N	4.00	LOT 2AC547 Ex 3/14
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C	17.0	16.53	N	N/A	
							Y N		
HF Scientific	#2	Turbidity	1000	NTU	N/A	602.2	(Y) N	1073	Lot 10932 Ex 9/13
		Turbidity	10.0	NTU	N/A	15.82	(Y) N	12.04	10931 Ex 9/13
		Turbidity	0.02	NTU	N/A	4.72	(Y) N	0.14	10901 Ex 9/13
		Turbidity		NTU	N/A		Y N		

Comments:

Notes:

1. Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
2. pH Calibration (pH Method: EPA 150.1)
3. DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
4. Temperature Calibration: No calibration is necessary. Record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

$$\text{Relative Percent Difference (RPD)} = 100 * (\text{rep1} - \text{rep2})/(\text{rep1} + \text{rep2})/2$$

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

$$\text{Percent Difference} = 100 * (\text{observed} - \text{target})/\text{target}$$

FTN Associates Calibration Form

Date/Time: 11/1/12 0735
Prepared By: EFN
Location: Waterford-3
Project #: 6045-460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		Cond	0	uS/cm			Y N		
		Cond	1413	uS/cm	17.93	1487	(Y) N	1413	Lot 1AK0604 Ex 11/12
YSI	#1	pH	7	su	18.21	7.04	(Y) N	7.00	2AC244 Ex 3/14
		pH	4 / 10	su	18.07	4.11	(Y) N	4.00	2AC547 Ex 3/14
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C	18.0	18.11	N	N/A	
HF Scientific	#2						Y N		
		Turbidity	1000	NTU	N/A	912.2	Y N	1013	10932 Ex 9/13
		Turbidity	10.0	NTU	N/A	8.73	Y N	10.18	10931 Ex 9/13
		Turbidity	0.02	NTU	N/A	0.23	Y N	0.01	10901 Ex 9/13
		Turbidity		NTU	N/A		Y N		

Comments:

Notes

1. Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
2. pH Calibration (pH Method: EPA 150.1)
3. DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
4. Temperature Calibration: No calibration is necessary. Record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

FTN Associates Calibration Form

Date/Time: 11/2/12 0545
Prepared By: EFN
Location: Waterford - 3
Project #: 60045-460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		pH	7	su	17.34	7.07	(Y) N	7.00	LOT 2AC244 Ex 3/14
		pH	4	su	17.43	4.13	(Y) N	4.00	2AC547 Ex 3/14
YSI	#1	pH	10	su			Y N		
		Cond	0	uS/cm			Y N		
		Cond	1413	uS/cm	18.23	1426	(Y) N	1413	LOT 1A1606.4 Ex 11/12
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C	18.0	18.17	Y N	N/A	
							Y N		
							Y N		
HF Scientific	#2	Turb	1000	NTU	N/A	876.3	(Y) N	1017	10932 Ex 9/13
		Turb	10.0	NTU	N/A	12.14	(Y) N	10.82	10931 Ex 9/13
		Turb	0.02	NTU	N/A	0.01	(Y) N	0.02	10901 Ex 9/13
							Y N		
							Y N		
							Y N		

Notes:
pH Calibration (pH Method: EPA 150.1)
Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
Temperature Calibration: No calibration is necessary. Simply record temperature of standard using thermometer while in calibration cup. Then record hydrolab temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

Groundwater Level Data Sheet

Project Name:	Project Number:	Investigator:	Page 1 of __
6045-460	6045 460	EFN	
Weather Conditions:	**Measuring Device:**		
	KECK 100#3		

Well ID	Date	Time	Depth to Water (feet below RP)	Damages/Repairs		
MW-09	11/2/12	0735	6.11	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-08	"	0745	8.22	☒ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☒ See gw sample record
MW-07	"	0755	6.98	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-06	"	0805	4.95	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-05	"	0810	7.14	☒ Damaged well pad/casing ☒ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☒ See gw sample record
MW-04	"	0815	8.69	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-03	"	0825	6.18	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-10	"	0835	9.48	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-11	"	0840	9.72	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record

Notes:
RP – Reference Point
TOC – Top of Casing
gw – groundwater

Groundwater Sampling Record

Facility: Waterford-3	Site ID: MW-03	Sampler: ERIC NECHASE	
Project Number: 6045-460	Date: 11/1/12	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Sunny	Air Temp (°F): 78°	Wind: S - Simple
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.58	Damage/repairs needed: Bollards need painting
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0825	1300	1315	1329	14.25	
Depth to Water (ft)	6.18	6.15	6.59	6.62	6.65	
Date (mm/dd/yy)	11/2/12	11/1/12	11/1/12	11/1/12	11/1/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No: YSI, HF Scientific — Unit or Serial No: #1, #2

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 32.58

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) NA

= [total depth (feet) – depth to water (feet)] * [well ID (inches)^2] * 0.0408

Time ("24:00" hr)	1301	1304	1307	1310	1313	1316	1319	1322	1325	Remarks
Purge vol (gal)	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	
Purge rate (mL/min)	150	150	150	150	150	150	150	150	150	
pH (su)	7.24	7.27	7.29	7.20	7.11	7.08	7.05	7.01	7.02	
Temp. (°C)	25.26	24.62	24.67	24.64	24.65	24.57	24.48	24.53	24.58	
Spec. cond. (µS/cm)	3199	3095	3107	3263	3306	3390	3496	3492	3492	
D.O. (mg/L)	–	–	–	–	–	–	–	–	–	
ORP (mV)	–	–	–	–	–	–	–	–	–	
Turbidity (NTU)	12.34	11.24	9.81	17.22	14.11	8.26	7.19	6.18	9.47	
Color/tint	–	–	–	–	–	–	–	–	–	
Odor	–	–	–	–	–	–	–	–	–	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-03	11/1/12	1330	7	None	1-500mL H2SO4, 2-1L X, 4-(L I-13C

Sampler's Name (print): ERIC NECHASE — Sampler Signature: Eric D. Nechase

Groundwater Sampling Record

Facility: Waberton - 3	Site ID: MW-04	Sampler: EFN	
roject Number: 6045.460	Date: 10/31/12		FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other			
Weather: Sunny	Air Temp (°F): 75°		Wind: W - 5 mph
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.73	Damage/repairs needed:	Bollards need painting
Remarks:			

Water Level Data

Measuring point description: ☐ Mark/notch on TOC ☐ North rim of TOC ☐ Other:	Water level Meter Make/Model No. Keck 100 #3				Serial No. (Optional):	
	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0815	1448	1455	1502	1605	
Depth to Water (ft)	8.69	8.68	9.74	10.14	11.28	
Date (mm/dd/yy)	11/2/12	10/31/12	10/31/12	10/31/12	10/31/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#2	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 32.73					Well goes dry during purging: ☐ Yes ☒ No					
Casing vol. (gal): (where applicable)					[total depth (feet) – depth to water (feet)] * [well ID (inches)^2] * 0.0408					
Time ("24:00" hr)	1450	1453	1456	1459	1502					Remarks
Purge vol. (gal)	0.0	0.15	0.30	0.45	0.60					
Purge rate (mL/min)	200	200	200	200	200					
pH (su)	6.99	6.83	6.70	6.77	6.74					
Temp. (°C)	24.57	24.60	24.11	24.16	24.02					
Spec. cond. (µS/cm)	5380	5282	5358	5412	5443					
D.O. (mg/L)	-	-	-	-	-					
ORP (mV)	-	-	-	-	-					
Turbidity (NTU)	20.72	15.38	8.14	9.73	8.68					
Color/tint	-	-	-	-	-					
Odor	-	-	-	-	-					

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-04	10/31/12	1505	7	none	1-500ml H-3, 2-1L ox, 4-1L I-131
Dup MW-04	"	1535	7	none	" " "

Sampler's Name (print): Eric Nechasek	Sampler Signature: Eric Nechasek

Groundwater Sampling Record

Facility: Waterford - 3	Site ID: MW-05	Sampler: EFN	
Project Number: 6045-460	Date: 10/31/12		FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other			
Weather: Sunny	Air Temp (°F): 68°		Wind: West 0-5 mph
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.59	Damage/repairs needed: Bollards need painting and erosion near pad.	
Remarks:			

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:	Water level Meter Make/Model No. KECK 200 # 3				Serial No. (Optional):	
	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0810	1000	1020	~~1434~~ 1330	1424	
Depth to Water (ft)	7.14	7.08	7.62	7.64	7.64	
Date (mm/dd/yy)	11/1/12	10/31/12	10/31/12	10/31/12		
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#2	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 32.59	Well goes dry during purging: ☐ Yes ☒ No
Casing vol. (gal): (where applicable) N/A	= [total depth (feet) – depth to water (feet)] * [well ID (inches)^2] * 0.0408

Time ("24:00" hr)	1012	1015	1018	1021	1024	1027	1030	1033		Remarks
Purge vol. (gal)	0.0	0.15	0.30	0.45	0.60	0.75	0.9	1.05		
Purge rate (mL/min)	200	200	200	200	200	200	200	200		
pH (su)	6.67	7.27	7.30	7.31	7.31	7.31	7.30	7.31		
Temp. (°C)	23.91	24.0	23.95	24.16	23.74	23.92	23.96	23.94		
Spec. cond. (µS/cm)	5856	6226	5753	5474	5601	5675	5683	5643		
D.O. (mg/L)	-	-	-	-	-	-	-	-		
ORP (mV)	-	-	-	-	-	-	-	-		
Turbidity (NTU)	9.00	6.40	7.38	10.63	8.27	10.72	8.41	9.17		
Color/tint										
Odor										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-05	10/31/12	1350	7	None	1-500mL H-3; 2-1L a; 4-1L I-171

Sampler's Name (print): ERIC NECKASE	Sampler Signature: Eric Neckase

Groundwater Sampling Record

Facility: Waterford-3	Site ID: MW-06	Sampler: EFN
Project Number: 6045-460	Date: 11/2/12	FTN Associates, Ltd

Site Description

Type: [X] Monitoring Well [ ] Temporary Well [ ] Extraction Well [ ] Production Well [ ] Dewatering Well [ ] Borehole [ ] Other _____

Weather: Foggy	Air Temp (°F): 70°	Wind: None
Well Locked? [X] Yes [ ] No	Total Depth (ft) 35.10	Damage/repairs needed:
Remarks:		

Water Level Data

Measuring point description: [X] Mark/notch on TOC [ ] North rim of TOC [ ] Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0805	0900	0912	0920	1010	
Depth to Water (ft)	4.95	7.97	5.89	6.21	6.52	
Date (mm/dd/yy)	11/2/12	11/2/12	11/2/12	11/2/12	11/2/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	[X] Peristaltic	[ ] Disposable polyethylene
HF Scientific	#2	[ ] Bladder (dedicated / portable)	[ ] Disposable Teflon
		[ ] Submersible	[ ] Disposable PVC

Purge depth (ft): 30.40

Well goes dry during purging: [ ] Yes [X] No

Casing vol. (gal): (where applicable) N/A

= [total depth (feet) – depth to water (feet)] * [well ID (inches)^2] * 0.0408

Time ("24:00" hr)	0905	0900	0911	0914	0917	0920				Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.35	0.4				
Purge rate (mL/min)	175	175	175	125	125	125				
pH (su)	7.97	7.64	7.53	7.48	7.47	7.48				
Temp. (°C)	22.57	23.02	23.00	23.12	23.14	23.11				
Spec. cond. (µS/cm)	3249	3265	3272	3277	3271	3264				
D.O. (mg/L)	-	-	-	-	-	-				
ORP (mV)	-	-	-	-	-	-				
Turbidity (NTU)	15.26	11.27	17.24	19.18	16.73	17.01				
Color/tint	-	-	-	-	-	-				
Odor	-	-	-	-	-	-				

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-06	11/2/12	0920	7	None	1-500 ml H3; 2-1L α; 4-1L I-131

Sampler's Name (print): ERIC NEGASE

Sampler Signature: Eric Negase

Groundwater Sampling Record

Facility: Waterford-3	Site ID: MW-7	Sampler: EFN	
Project Number: 6045-460	Date: 10/31/12	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Sunny	Air Temp (°F): 68	Wind: None
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 41.15	Damage/repairs needed:
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0755	1738	1750	1806	1845	
Depth to Water (ft)	6.98	6.84	8.38	8.54	8.60	
Date (mm/dd/yy)	11/2/12	10/31/12	10/31/12	10/31/12	10/31/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No.: YSI, Hf Scientific

Unit or Serial No.: #1, #2

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 36.15

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): N/A (where applicable)

= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24.00" hr)	1739	1742	1745	1748	1751	1754	1757	1800	1803	1806	Remarks
Purge vol (gal)	0.0	0.15	0.3	0.45	0.60	0.75	0.90	1.0	1.2	1.3	
Purge rate (mL/min)	200	200	200	200	200	200	200	200	200	200	
pH (su)	7.43	7.24	7.08	7.03	6.98	6.97	6.96	6.95	6.95	6.95	
Temp. (°C)	24.34	24.26	24.16	24.09	24.08	24.02	24.00	23.98	23.99	24.02	
Spec. cond. (µS/cm)	1139	1112	1079	1085	1088	1113	1135	1188	1240	1232	
D.O. (mg/L)	-	-	-	-	-	-	-	-	-		
ORP (mV)	-	-	-	-	-	-	-	-	-		
Turbidity (NTU)	16.50	7.42	12.18	18.22	11.26	5.73	4.15	9.24	8.31	6.37	
Color/tint	-	-	-	-	-	-	-				
Odor	-	-	-	-	-	-	-				

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-07	10/31/12	1810	7	None	1-500mL H-3, 2-1L X; 4 1L-131

Sampler's Name (print): Eric Nechase

Sampler Signature: Eric Nechase

Groundwater Sampling Record

Facility: Waterford - 3	Site ID: MW-08	Sampler: ETN	
Project Number: 6045 460	Date: 11/1/12	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Sunny	Air Temp (°F): 80	Wind: Nom
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 41.47	Damage/repairs needed: Well needs dirt under pad.
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: ICE CK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0745	1605	1625	1630	1730	
Depth to Water (ft)	8.22	8.24	8.54	8.54	8.58	
Date (mm/dd/yy)	11/2/12	11/1/12	11/1/12	11/1/12	11/1/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI 556 MPS	#1 #2	☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible	☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 36.97

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) N/A

= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24.00" hr)	1610	1613	1616	1619	1622	1625	1627	1630		Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7		
Purge rate (mL/min)	150	150	150	150	150	150	150	150		
pH (su)	7.20	6.95	6.88	6.89	6.89	6.90	6.90	6.92		
Temp. (°C)	25.04	24.77	24.67	24.60	24.52	24.50	24.52	24.58		
Spec. cond. (µS/cm)	1278	1156	1149	1150	1182	1243	1267	1288		
D.O. (mg/L)	–	–	–							
ORP (mV)	–	–	–							
Turbidity (NTU)	17.84	12.63	13.57	12.11	13.86	11.44	16.83	11.31		
Color/tint	–	–								
Odor	–	–								

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-08	11/1/12	1630	7	None	1-500mL H2S, 2-1L, 4-1L T-131

Sampler's Name (print): Eric Necaise

Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: Waterford - 3	Site ID: MW-09	Sampler:	
Project Number: 6045-460	Date: 11/1/12		FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Sunny	Air Temp (°F): 75	Wind: Nom
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 40.22	Damage/repairs needed:
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No. KECK 100 # 3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0735	1740	1754	1756	1830	
Depth to Water (ft)	6.11	6.08	6.19	6.21	6.18	
Date (mm/dd/yy)	11/2/12	11/1/12	11/1/12	11/1/12	11/1/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No: YSI, HF Scientific — Unit or Serial No: #1, #2

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 35.22

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal) (where applicable): N/A

= [total depth (feet) – depth to water (feet)] * [well ID (inches)^2] * 0.0408

										Remarks
Time ("24.00" hr)	1741	1744	1747	1750	1753	1756				
Purge vol. (gal)	0.0	0.15	0.30	0.45	0.60	0.75				
Purge rate (mL/min)	200	200	200	200	200.	200				
pH (su)	7.28	7.20	7.18	7.17	7.17	7.18				
Temp. (°C)	22.87	22.74	22.72	22.76	22.74	22.70				
Spec. cond. (µS/cm)	2621	2691	2693	2690	2683	2681				
D.O. (mg/L)	-	-	-	-	-	-				
ORP (mV)	-	-	-	-	-	-				
Turbidity (NTU)	20.47	11.16	13.79	11.17	7.69	7.85				
Color/tint	-	-	-	-	-	-				
Odor	"	"	"	"	"	-				

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-09	11/1/12	1800	7	None	1-500ml 4-3; 2-1L ∝; 4-1C I-131

Sampler's Name (print): Eric Nechas — Sampler Signature: Eric Nechas

Groundwater Sampling Record

Facility: Waterford - 3	Site ID: MW-10	Sampler: EFW
Project Number: 6045 463	Date: 11/2/12	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other _____

Weather: Sunny	Air Temp (°F): 80	Wind: NW 5 mph
Well Locked? ☒ Yes ☐ No	Total Depth (ft) —	Damage/repairs needed:
Remarks:		

Water Level Data

Measuring point description:
☒ Mark/notch on TOC
☐ North rim of TOC
☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24.00" hr)	835	1220	1240	1250	1330	
Depth to Water (ft)	9.48	10.48	10.46	10.46	10.42	
Date (mm/dd/yy)	11/2/12	11/2/12	11/2/12	11/2/12	11/2/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#2	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): —	Well goes dry during purging: ☐ Yes ☒ No
Casing vol. (gal): (where applicable) N/A	= [total depth (feet) – depth to water (feet)] * [well ID (inches)^2] * 0.0408

Time ("24.00" hr)	1225	1228	1231	1234	1237	1240	1243	1246	1249	Remarks
Purge vol. (gal)	0.0	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	
Purge rate (mL/min)	200	200	200	200	200	200	200	200	200	
pH (su)	7.04	7.00	6.99	6.99	6.98	6.98	6.98	6.98	7.00	
Temp. (°C)	26.32	26.11	25.95	26.03	25.68	25.81	25.73	25.84	25.98	
Spec. cond. (µS/cm)	7045	7057	7049	7036	7072	7057	7037	7040	7048	
D.O. (mg/L)	—	—	—	—	—	—	—	—	—	
ORP (mV)	—	—	—	—	—	—	—	—	—	
Turbidity (NTU)	358.8	304.7	261.3	185.4	107.4	143.6	172.3	186.2	261.3	
Color/tint	—									
Odor	—									

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-10	11/2/12	1250	7	None	1-500mL H-3; 2-1L X; 4-1L I-131

Sampler's Name (print): ERIC WECKLER	Sampler Signature:

Groundwater Sampling Record

Facility: Waterford-3	Site ID: MW-11	Sampler: EFN	
Project Number: 6045-463	Date: 11/1/12	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other		
Weather: Sunny	Air Temp (°F): 75	Wind: 5-5mph
Well Locked? ☐ Yes ☒ No	Total Depth (ft) —	Damage/repairs needed:
Remarks: New well		

Water Level Data

Measuring point description: ☐ Mark/notch on TOC ☒ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: Keck 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0840	1006	1039	1057	1145	
Depth to Water (ft)	9.72	10.02	13.13	13.54	13.48	
Date (mm/dd/yy)	11/2/12	11/1/12	11/1/12	11/1/12	11/1/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
YF Scientific	#2	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): —

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) N/A = [total depth (feet) – depth to water (feet)] * [well ID (inches)^2] * 0.0408

Time ("24:00" hr)	1012	1015	1018	1021	1024	1027	1030	1033	1036	1039	1042	Remarks	1048
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.25
Purge rate (mL/min)	150	150	150	150	150	150	150	150	150	150	150	150	200
pH (su)	7.05	6.99	6.98	6.97	6.96	6.94	6.93	6.92	6.95	6.92	6.91	6.86	6.85
Temp. (°C)	22.87	22.90	22.94	23.03	23.01	22.99	23.00	23.02	23.05	23.09	23.12	23.19	23.18
Spec. cond. (µS/cm)	7119	7163	7201	7169	7161	6885	6820	6741	6670	6563	6054	5296	5210
D.O. (mg/L)	–	–	–	–	–	–	–	–	–	–	–	–	–
ORP (mV)	–	–	–	–	–	–	–	–	–	–	–	–	–
Turbidity (NTU)	648.3	512.4	443.5	370.6	279.0	263.1	211.3	154.9	124.4	100.6	75.36	49.10	60.46
Color/tint	–	–	–	–	–	–	–	–	–	–	–		
Odor	–	–	–	–	–	–	–	–	–	–	–		

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-11	11/1/12	1100	7	None	1-500ml H.3; 2-1L x; 4-1L I-13 C

Sampler's Name (print): Eric N Efcalk	Sampler Signature: Eric N Efcalk

Groundwater Sampling Record

Facility:	Site ID: MW-11 conf	Sampler:
roject Number:	Date:	FTN Associates, Ltd

Site Description

Type: ☐ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other_____		
Weather:	Air Temp (°F):	Wind:
Well Locked? ☐ Yes ☐ No	Total Depth (ft)_____	Damage/repairs needed:
Remarks:		

Water Level Data

Measuring point description: ☐ Mark/notch on TOC ☐ North rim of TOC ☐ Other:	Water level Meter Make/Model No.			Serial No. (Optional):		
	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)						
Depth to Water (ft)						
Date (mm/dd/yy)						
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#2	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft):					Well goes dry during purging: ☐ Yes ☐ No						
Casing vol. (gal); (where applicable)					= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408						
Time ("24:00" hr)	1051	1054	1057								Remarks
Purge vol. (gal)	1.40	1.55	1.70								
Purge rate (mL/min)	200	200	200								
pH (su)	6.85	6.84	6.85								
Temp. (°C)	23.16	23.16	23.17								
Spec. cond. (µS/cm)	5059	5051	5057								
D.O. (mg/L)	-	-	-								
ORP (mV)	-	-	-								
Turbidity (NTU)	45.69	41.13	101.0								
Color/tint	-	-									
Odor	-	-									

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-11	11/1/12	1100	7	None	1-500mL H-3; 2-1L; 1-1L I-131

Sampler's Name (print): ERIC NEDRICH	Sampler Signature: Eric P. Nedrich

Pace Analytical
www.paceanalytic.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:

Company:	ENTERGY WATERFORD 3
Address:	17265 River Road
	Killona, LA 70057
Email To:	rleblan@entergy.com
Phone: (504) 464-3267	Fax:
Requested Due Date/TAT:	15 WORKING DAYS

Section B Required Project Information:

Report To:	Rodney LeBlanc
Copy To:	
Purchase Order No.:	
Project Name:	Radiology
Project Number:	

Section C Invoice Information:

Attention:	SAME
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Cindy Olavesen (504) 305-3626
Pace Profile #:	5448

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE:

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW WT
WATER	WW
WASTE WATER	P
PRODUCT	SL
SOIL/SOLID	OL
OIL	WP
WIPE	AR
AIR	OT
OTHER	TS
TISSUE	

ITEM #	SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COLLECTED: COMPOSITE START TIME	COLLECTED: COMPOSITE END/GRAB DATE	COLLECTED: COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Requested Analysis Filtered (Y/N): # Analysis Test ▼	GAMMA	GROSS BETA	I-131	TRITIUM	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		N	N	N	N				
1	MW-05	OT	G	10/31	1350	—	—		7	5		2							X	X	X	X			
2	MW-04			10/31	1535	—	—		7	5		2							X	X	X	X			
3	MW-07			10/31	1810	—	—		7	5		2							X	X	X	X			
4	DUP MW-04			10/31	1535				7	5		2							X	X	X	X			
5	MW-11			11/1	1100				7	5		2							X	X	X	X			
6	MW-03			11/1	1330				7	5		2							X	X	X	X			
7																									
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Eric Necaise/FTN	11/1/12	1510	J Miller	11-1-12	1510	A N N Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: ERIC NECAISE

SIGNATURE of SAMPLER: Eric Necaise DATE Signed (MM/DD/YY): 11/1/12

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:

Company:	ENTERGY WATERFORD 3
Address:	17265 River Road
	Killona, LA 70057
Email To:	rleblan@entergy.com
Phone: (504) 464-3267	Fax:
Requested Due Date/TAT:	15 WORKING DAYS

Section B Required Project Information:

Report To:	Rodney LeBlanc
Copy To:	
Purchase Order No.:	
Project Name:	Waterford 3
Project Number:	6045-460

Section C Invoice Information:

Attention:	SAME
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Cindy Olavesen (504) 305-3626
Pace Profile #:	5448

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW WT
WATER	WW
WASTE WATER	P
PRODUCT	SL
SOIL/SOLID	OL
OIL	WP
WIPE	AR
AIR	OT
OTHER	TS
TISSUE	

ITEM #	SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: GAMMA	GROSS BETA	I-131	TRITIUM	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		N	N	N	N			
1	MW-08	OT	G	11/1	1630				7	5		2							X	X	X	X		
2	MW-09			11/1	1800														X	X	X	X		
3	MW-06			11/2	920														X	X	X	X		
4	MW-10			11/2	1250														X	X	X	X		
5	EB-MW-10			11/2	1350														X	X	X	X		
6																								
7																								
8																								
9																								
10																								
11																								
12																								

Requested Analysis Filtered (Y/N)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Eric Heacock / FTN	11/2/12	1400	J Mell	11-2-12	1400	A

SAMPLE CONDITIONS: Temp in °C: A | Received on Ice (Y/N): ON | Custody Sealed Cooler (Y/N): N | Samples Intact (Y/N): Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: ERIC HEACOCK

SIGNATURE of SAMPLER: Eric Heacock

DATE Signed (MM/DD/YY): 11/2/12

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Daily Log

Site Location: Entergy - Waterford - 3	Date: 12/10/12
Project Number:	Page 1 of 1

1230 - Arrive on site and calibrate equipment
1300 - Prejob safety meeting with Rodney
1325 - Begin sampling well
1500 - Turn in samples and leave site

FTN Associates Calibration Form

Date/Time: 12/10/12 1230
Prepared By: FFN
Location: Waterford-3
Project #: Entergy ~~[illegible]~~ Waterford-3

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		Cond	0	uS/cm			Y N		
		Cond	1413	uS/cm	19.12	1350	(Y) N	1413	
YSI	#1	pH	7	su	18.60	6.99	(Y) N	7.0	
		pH	4/10	su	18.83	4.03	(Y) N	4.0	
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C	18.93	19.0	N	N/A	
HF							Y N		
		Turbidity	0.02	NTU	N/A	0.12	(X) N	0.03	
Scientific	#1	Turbidity	10.0	NTU	N/A	10.33	(X) N	10.11	
		Turbidity	1000	NTU	N/A	1022	(X) N	998.1	
		Turbidity		NTU	N/A		Y N		

Comments:

Notes:

1. Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
2. pH Calibration (pH Method: EPA 150.1)
3. DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
4. Temperature Calibration: No calibration is necessary. Record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

Groundwater Sampling Record

Facility: Waterford 3	Site ID: MW-11	Sampler: EFN	
Project Number: 6045-460	Date: 12/10/12	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other_____

Weather: Overcast	Air Temp (°F): 65	Wind: W-SmpL
Well Locked? ☒ Yes ☐ No	Total Depth (ft)_____	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: IRECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)		1325	1400	1426	1455	
Depth to Water (ft)	N/a	9.99	10.37	10.83	11.21	
Date (mm/dd/yy)		12/10/12	12/10/12	12/10/12	12/10/12	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft):

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) = [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	1327	1330	1333	1336	1339	1342	1345	1348	1351	1354	Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
Purge rate (mL/min)	125	125	125	125	125	125	125	125	125	125	
pH (su)	6.05	6.49	6.59	6.62	6.70	6.71	6.72	6.73	6.83	6.77	
Temp. (°C)	20.21	20.66	20.51	20.45	20.17	20.20	20.30	20.36	20.33	20.44	
Spec. cond. (µS/cm)	5250	5242	5227	5235	5271	5382	5465	5480	5672	5726	
D.O. (mg/L)	–	–	–	–	–	–	–	–	–	–	
ORP (mV)	–	–	–	–	–	–	–	–	–	–	
Turbidity (NTU)	3.29	3.61	14.79	3.39	4.23	6.21	5.17	2.77	3.51	2.27	
Color/tint	–	–	–	–	–	–	–	–	–	–	
Odor	–	–	–	–	–	–	–	–	–	–	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks

Sampler's Name (print):	Sampler Signature:

Groundwater Sampling Record

Facility: Waterford 3	Site ID: MW-11	Sampler: EFN
Project Number: 6045-460	Date: 12/10/12	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other _____

Weather: Overcast	Air Temp (°F): 65	Wind: W-5mph
Well Locked? ☒ Yes ☐ No	Total Depth (ft) _____	Damage/repairs needed: None

Remarks:

Water Level Data

Measuring point description:
☒ Mark/notch on TOC
☐ North rim of TOC
☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)						
Depth to Water (ft)						
Date (mm/dd/yy)						
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No.: HF Scientific YSI

Unit or Serial No.: #1 #1

Pump description:
☒ Peristaltic
☐ Bladder (dedicated / portable)
☐ Submersible

Bailer description:
☐ Disposable polyethylene
☐ Disposable Teflon
☐ Disposable PVC

Purge depth (ft):

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable)

= [total depth (feet) – depth to water (feet)] * [well ID (inches)^2] * 0.0408

Time ("24:00" hr)	1357	1400	1403	1406	1409	1412	1415	1418	1421	1424	Remarks
Purge vol. (gal)	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	
Purge rate (mL/min)	125	125	125	125	125	125	125	125	125	125	
pH (su)	6.76	6.74	6.71	6.71	6.69	6.70	6.69	6.67	6.67	6.66	
Temp. (°C)	20.49	20.61	20.68	20.82	20.79	20.63	20.62	20.60	20.59	20.60	
Spec. cond. (µS/cm)	5983	5976	6031	6209	6369	6433	6473	6581	6528	6523	
D.O. (mg/L)	-	-	-	-	-	-	-	-	-	-	
ORP (mV)	-	-	-	-	-	-	-	-	-	-	
Turbidity (NTU)	3.82	4.57	3.30	4.24	3.22	3.53	3.27	3.82	4.57	5.81	
Color/tint	-	-	-	-	-	-	-	-	-	-	
Odor	-	-	-	-	-	-	-	-	-	-	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-11	12/10/12	1440	1	None	1-500ml H-3
Dup MW-11	"	1445	"	"	"
EB MW-11	"	1450	"	"	"

Sampler's Name (print): ERIC NECAISE

Sampler Signature: [signature]

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:

Company:	ENTERGY WATERFORD 3
Address:	17265 River Road
	Killona, LA 70057
Email To:	rleblan@entergy.com
Phone: (504) 464-3267	Fax:
Requested Due Date/TAT:	15 WORKING DAYS

Section B Required Project Information:

Report To:	Rodney LeBlanc
Copy To:	
Purchase Order No.:	
Project Name:	
Project Number:	

Section C Information:

Attention:	SAME
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Cindy Olavesen (504) 305-3626
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW WT
WATER	WW
WASTE WATER	P
PRODUCT	SL
SOIL/SOLID	OL
OIL	WP
WIPE	AR
AIR	OT
OTHER	TS
TISSUE	

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	GAMMA	GROSS BETA	I-131	TRITIUM	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-11	OT	G	12/10/12	1440				7	5		2									X			
2	DUP MW11	↓	↓	↓	1445				1												X			
3	EB MW-11	↓	↓	↓	1450				1												X			
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

Requested Analysis Filtered (Y/N)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Re sample for Tritium	ERIC NECAISE, FTN	12/10/12	1500	R. LeBlanc / Entergy	12/10/12	1500	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: ERIC NECAISE

SIGNATURE of SAMPLER: Eric Necaise

DATE Signed (MM/DD/YY): 12/10/12

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical
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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:

Company:	ENTERGY WATERFORD 3
Address:	17265 River Road
	Killona, LA 70057
Email To:	rleblan@entergy.com
Phone: (504) 464-3267	Fax:
Requested Due Date/TAT:	15 WORKING DAYS

Section B Required Project Information:

Report To:	Rodney LeBlanc
Copy To:	
Purchase Order No.:	
Project Name:	
Project Number:	

Section C Invoice Information:

Attention:	SAME
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Cindy Olavesen (504) 305-3626
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location: Waterford 3
STATE: LA

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW WT
WATER	WW
WASTE WATER	P
PRODUCT	SL
SOIL/SOLID	OL
OIL	WP
WIPE	AR
AIR	OT
OTHER	TS
TISSUE	

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COLLECTED: COMPOSITE START TIME	COLLECTED: COMPOSITE END/GRAB DATE	COLLECTED: COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	Preservatives: H_2SO_4	Preservatives: HNO_3	Preservatives: HCl	Preservatives: NaOH	Preservatives: $Na_2S_2O_3$	Preservatives: Methanol	Preservatives: Other	Analysis Test (Y/N)	GAMMA	GROSS BETA	I-131	TRITIUM	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Dup MW-09	OT	G	9/18	1120				7	5		2						X	X		X	X		
2	MW-08			9/18	1155																			
3	MW-07			9/18	1325																			
4	MW-06			9/18	515																			
5	MW-05			9/18	1630																			
6	MW-04			9/19	945																			
7	MW-03			9/19	915																			
8	EB MW-03			9/19	1320																			
9		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Eric Necaise/ETN	9/19/12	1425		9-19-12	1425	A	N	N	Y

SAMPLER NAME AND SIGNATURE			Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Eric Necaise					
SIGNATURE of SAMPLER:	Eric Necaise	DATE Signed (MM/DD/YY): 9/19/12				

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Daily Log

Site Location: Entergy - Waterford - 3	Date: 2/26/13
Project Number: 6045-460	Page 1 of 2

1100 Arrive on site - calibrate equipment
1145 Finish Prejob Safety mtg - Begin water Levels
1330 Begin Sampling MW-11
1735 Finish sampling MW-03
1800 - Left site

Daily Log

Site Location: Waterford 3	Date: 2/27/13
Project Number: 6045-460	Page 2 of 2

0700 Arrive on site for Prejob Safety meeting
Calibrate equipment
0730 Setup at MW-05 and Begin Purging

1800 Complete Sampling of MW-08
1815 Left Site

FTN Associates Calibration Form

Date/Time: 2/26/13 1120
Prepared By: EFF
Location: Waterford
Project #: 6045-460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		Cond	0	uS/cm			Y N		
		Cond	1413	uS/cm	17.79	1410	(Y) N	1413	14K064 Ex 11/12
YSI	#1	pH	7	su	17.56	6.97	(Y) N	7.00	2AC244 Ex 3/14
		pH	(4) 10	su	16.75	4.07	(Y) N	4.00	2AD530 Ex 4/14
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C	17.23	17.1	N	N/A	
							Y N		
		Turbidity	1000	NTU	N/A	873	(Y) N	1023	26404 Ex 4/14
HF Scientific	#1	Turbidity	10.0	NTU	N/A	9.87	(Y) N	10.10	20239 Ex 2/14
		Turbidity	0.02	NTU	N/A	0.01	(Y) N	0.02	20201 Ex 2/14
		Turbidity		NTU	N/A		Y N		

Comments:

Notes:
1. Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
2. pH Calibration (pH Method: EPA 150.1)
3. DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
4. Temperature Calibration: No calibration is necessary. Record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

$$\text{Relative Percent Difference (RPD)} = 100 * (\text{rep1} - \text{rep2})/(\text{rep1} + \text{rep2})/2$$

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

$$\text{Percent Difference} = 100 * (\text{observed} - \text{target})/\text{target}$$

FTN Associates Calibration Form

Date/Time: 2/27/13 0700
Prepared By: FTN
Location: Water Ford 3
Project #: 6045-460

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		Cond	0	uS/cm			Y N		
		Cond	1413	uS/cm	9.87	1287	(Y) N	1413	1AK064 Ex 11/14
YSI	#1	pH	7	su	9.24	7.18	(Y) N	7.00	2AC244 Ex 3/14
		pH	(4) 10	su	9.41	3.96	(Y) N	4.00	2AD530 Ex 4/14
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C			N	N/A	
							Y N		
		Turbidity	1000	NTU	N/A	1013	(Y) N	9.89	20404 Ex 4/14
HF Scientific	#1	Turbidity	10.0	NTU	N/A	11.32	(Y) N	10.02	20239 Ex 2/14
		Turbidity	0.02	NTU	N/A	0.17	(Y) N	0.01	20201 Ex 2/14
		Turbidity		NTU	N/A		Y N		

Comments:

Notes:
1. Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
2. pH Calibration (pH Method: EPA 150.1)
3. DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
4. Temperature Calibration: No calibration is necessary. Record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

$$\text{Relative Percent Difference (RPD)} = 100 * (\text{rep1} - \text{rep2})/(\text{rep1} + \text{rep2})/2$$

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

$$\text{Percent Difference} = 100 * (\text{observed} - \text{target})/\text{target}$$

Groundwater Level Data Sheet

Project Name:	Project Number:	Investigator:	Page 1 of 1
Entergy Waterford 3	6045-460	EFN	
Weather Conditions:	**Measuring Device:**		
Sunny 54°	KECK 100 #3		

Well ID	Date	Time	Depth to Water (feet below RP)	Damages/Repairs		
MW-05	2/26/13	1145	4.28	☒ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☒ See gw sample record
MW-03	"	1200	5.35	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-04	"	1210	8.94	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-06	"	1220	3.71	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-07	"	1230	5.30	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-08	"	1240	5.49	☒ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-09	"	1250	3.03	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☒ See gw sample record
MW-10	"	1300	9.90	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-11	"	1310	10.18	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record

Notes:
RP = Reference Point
TOC = Top of Casing
gw = groundwater

2/27/13 1800

Groundwater Sampling Record

Facility: Waterford 3	Site ID: MW-03	Sampler: EFN	
Project Number: 6045-460	Date: 2/27/13	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other_____

Weather: Overcast	Air Temp (°F): 60	Wind: None
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.58	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: LEICK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1200	0900	0920	0937	10.25	
Depth to Water (ft)	5.35	5.36	5.73	5.91	5.89	
Date (mm/dd/yy)	2/26/13	2/27/13	2/27/13	2/27/13	2/27/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 32.58

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal) (where applicable): 32.58 − 5.36 × 2^2 × 0.0408 = 4.44 = [total depth (feet) − depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	0903	0906	0909	0912	0915	0918	0921	0924	0927	0930	0933	Remarks 0936
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1
Purge rate (mL/min)	150	150	150	150	150	150	150	150	150	150	150	150
pH (su)	6.66	6.64	6.67	6.67	6.69	6.67	6.66	6.67	6.69	6.70	6.69	6.68
Temp. (°C)	17.55	18.68	18.92	19.12	19.42	19.84	19.86	20.06	20.08	20.03	20.05	20.07
Spec. cond. (µS/cm)	2870	2844	2818	2760	2603	2521	2597	2683	2763	2803	2796	2810
D.O. (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-
ORP (mV)	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	16.31	18.32	27.41	15.83	28.41	12.11	9.41	6.17	3.21	3.83	4.18	4.74
Color/tint	-	-	-	-	-	-	-	-	-	-	-	-
Odor	-	-	-	-	-	-	-	-	-	-	-	-

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-03	2/27/13	0940	7	None	1-500 ml H-3; 4-1L I-131; 2 1L α

Sampler's Name (print): Eric Necaise	Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: Waterford 3	Site ID: MW-04	Sampler: ETN	
Project Number: 6045-460	Date: 2/27/13	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Sunny	Air Temp (°F): 20	Wind: N-Smpl
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.73	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1210	1040	1100	1105	1210	
Depth to Water (ft)	8.96	8.95	9.27	9.34	9.68	
Date (mm/dd/yy)	2/26/13	2/27/13	2/27/13	2/27/13	2/27/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): ~~32.59~~ 32.73

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) ~~3.88~~ 3.889

= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	1045	1048	1051	1054	1057	1100	1103			Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.25	0.3	0.4	0.5			
Purge rate (mL/min)	100	100	100	100	100	100	100			
pH (su)	6.59	6.44	6.45	6.43	6.44	6.46	6.45			
Temp. (°C)	21.71	21.63	21.51	21.44	21.47	21.39	21.48			
Spec. cond. (µS/cm)	4967	4960	4935	4993	5022	5064	5071			
D.O. (mg/L)	-	-	-	-	-	-	-			
ORP (mV)	-	-	-	-	-	-	-			
Turbidity (NTU)	36.83	42.13	26.72	23.46	17.12	9.83	11.17			
Color/tint	-	-	-	-	-	-	-			
Odor	-	-	-	-	-	-	-			

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-04	2/27/13	1105	7	None	1-500ml H-3; 4-1L I-131; 1-1L α

Sampler's Name (print): ERIC NECASE

Sampler Signature: Eric Necase

Groundwater Sampling Record

Facility: Waterford-3	Site ID: MW-05	Sampler: EFN	
Project Number: 6045-460	Date: 2/27/13	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other_____

Weather: Cloudy	Air Temp (°F): 48	Wind: None
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.59	Damage/repairs needed: Some erosion under well pad
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1145	0710	0742	0759	0855	
Depth to Water (ft)	4.28	4.43	4.92	4.95	4.97	
Date (mm/dd/yy)	2/26/13	2/27/13	2/27/13	2/27/13	2/27/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No.: YSI HFC, Quanta — Unit or Serial No.: #1, #1

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 32.59

Casing vol. (gal): (where applicable) 4.59 g

Well goes dry during purging: ☐ Yes ☒ No

= [total depth (feet) – depth to water (feet)] * [well ID (inches)^2] * 0.0408

Time ("24:00" hr)	0734	0737	0744	0743	0748	0749	0752	0755	0758	Remarks
Purge vol. (gal)	0.0	0.15	0.25	0.4	0.5	0.6	0.75	0.9	1.0	
Purge rate (mL/min)	150	150	150	150	150	150	150	150	150	
pH (su)	6.96	7.04	7.09	7.06	7.04	7.00	7.00	6.99	6.98	
Temp. (°C)	17.21	17.77	18.37	19.11	19.33	19.47	19.59	19.61	19.60	
Spec. cond. (µS/cm)	2088	1982	1735	1624	1605	1616	1623	1618	1614	
D.O. (mg/L)	-	-	-	-	-	-	-	-	-	
ORP (mV)	-	-	-	-	-	-	-	-	-	
Turbidity (NTU)	10.63	8.72	14.12	16.67	23.88	11.14	16.22	9.27	14.81	
Color/tint	-	-	-	-	-	-	-	-	-	
Odor	-	-	-	-	-	-	-	-	-	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-05	2/27/13	0800	7	None	1-500ml H-3; 4-1L I-131; 2-1L α

Sampler's Name (print): ERIC NECAISE — Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: Waterford 3	Site ID: MW-06	Sampler: EFN	
Project Number: 6045-460	Date: 2/27/13	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Sunny	Air Temp (°F): 75	Wind: 5-10 mph
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 35.40	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 H3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1220	1330	1339	1349	1455	
Depth to Water (ft)	3.71	3.65	~~4.65~~	4.82	4.85	
Date (mm/dd/yy)	2/26/13	2/~~26~~/13	2/27/13	2/27/13	2/27/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No.: YSI ~~YES~~ Unit or Serial No.: #1 #1

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): ~~32.57~~ 30.4

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) ~~4.72~~ 4.96

= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	1327	1330	1333	1336	1339	1342	1345	1348		Remarks
Purge vol. (gal)	0.0	0.1	0.15	0.25	0.3	0.4	0.5	0.6		
Purge rate (mL/min)	100	100	100	100	100	100	100	100		
pH (su)	7.10	7.02	7.02	7.00	6.99	6.98	6.97	6.99		
Temp. (°C)	21.60	21.49	21.37	21.30	21.17	21.27	21.24	21.21		
Spec. cond. (µS/cm)	2976	2965	2971	2964	2965	2962	2963	2966		
D.O. (mg/L)	-	-	-	-	-	-				
ORP (mV)	-	-	-	-	-	-				
Turbidity (NTU)	8.17	6.73	12.11	13.81	43.86	12.72	11.83	8.63		
Color/tint	-	-	-	-	-	-	-	-		
Odor	-	-	-	-	-	-	-	-		

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-06	2/27/13	1358	7	None	1 500mL H3; 4-1L I131; 2 1L ∝

Sampler's Name (print): ERIC NECAISE	Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: Waterford-3	Site ID: MW-07	Sampler: EFN	
Project Number: 6045-460	Date: 2/27/13	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other		
Weather: Sunny	Air Temp (°F): 25	Wind: S - 5mph
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 41.15	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:	Water level Meter Make/Model No. LEC K COO #3			Serial No. (Optional):		
	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1230	1507	1520	1529	1605	
Depth to Water (ft)	5.30	5.35	5.72	6.06	6.21	
Date (mm/dd/yy)	2/27/13	2/27/13	2/27/13	2/27/13	2/27/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 36.15	Well goes dry during purging: ☐ Yes ☒ No
Casing vol. (gal): (where applicable) 5.03 g	= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	1510	1513	1516	1519	1522	1525	1528			Remarks
Purge vol. (gal)	0.0	0.1	0.25	0.30	0.5	0.75	0.9			
Purge rate (mL/min)	200	200	200	200	200	200	200			
pH (su)	6.67	6.60	6.57	6.56	6.57	6.57	6.59			
Temp. (°C)	22.85	22.56	22.45	22.51	22.47	22.48	22.55			
Spec. cond. (µS/cm)	1434	1380	1152	1036	1003	1004	1019			
D.O. (mg/L)	-	-	-	-	-	-	-			
ORP (mV)	-	-	-	-	-	-	-			
Turbidity (NTU)	6.73	5.22	2.01	0.96	0.73	0.78	1.23			
Color/tint	-	-	-	-	-					
Odor	-	-	-	-	-	-	-			

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-07	2/27/13	1530	7	None	

Sampler's Name (print): ERIC NECASE	Sampler Signature: Eric Necase

Groundwater Sampling Record

Facility: Waterford - 3	Site ID: MW-08	Sampler: EFN
Project Number: 6045-460	Date: 2/27/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other _____

Weather: Sunny | Air Temp (°F): 70° | Wind: S - 5mph

Well Locked? ☒ Yes ☐ No | Total Depth (ft) 41.42 | Damage/repairs needed: Well pad eroding

Remarks:

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1240	1615	1625	1630	1800	
Depth to Water (ft)	5.49	5.62	5.81	6.08	5.99	
Date (mm/dd/yy)	2/26/13	2/27/13	2/27/13	2/27/13	2/27/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No.: YSI / IF Scientific | Unit or Serial No.: #1 / #1

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 36.47

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) 5.03

= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	1618	1621	1624	1627	1630					Remarks
Purge vol. (gal)	0.0	0.1	0.3	0.4	0.5					
Purge rate (mL/min)	200	200	200	200	200					
pH (su)	6.95	6.58	6.53	6.55	6.60					
Temp. (°C)	21.27	21.40	21.55	21.61	21.60					
Spec. cond. (µS/cm)	1250	1189	1087	1089	1137					
D.O. (mg/L)	-	-	-	-	-					
ORP (mV)	-	-	-	-	-					
Turbidity (NTU)	17.63	4.17	2.91	1.28	0.86					
Color/tint	-	-	-	-	-					
Odor	-	-	-	-	-					

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-08	2/27/13	1635	7	None	
Dup MW-08	"	1720	7	None	
EB MW-08	"	1800	7	None	

Sampler's Name (print): ERIC NECASE | Sampler Signature: Eric Necase

Groundwater Sampling Record

Facility: Waterford-3	Site ID: MW-09	Sampler: EFN
roject Number: 6045-460	Date: 2/26/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other_____

Weather: Sunny	Air Temp (°F): 55	Wind: N-10
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 40.22	Damage/repairs needed: None

Remarks:

Water Level Data

Measuring point description:
☒ Mark/notch on TOC
☐ North rim of TOC
☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1250	1645	1700	1709	1735	
Depth to Water (ft)	3.03	3.08	3.23	3.24	3.26	
Date (mm/dd/yy)	2/26/13	2/26/13	2/26/13	2/26/13	2/26/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 35.22

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal) (where applicable): 5.25g

= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

										Remarks
Time ("24:00" hr)	1647	1650	1653	1656	1659	1702	1705	1708		
Purge vol. (gal)	0.0	0.25	0.5	0.75	1.0	1.25	1.50	1.75		
Purge rate (mL/min)	275	275	275	275	275	275	275	275		
pH (su)	7.10	7.07	7.03	7.02	7.01	6.99	7.00	7.00		
Temp. (°C)	17.45	18.23	18.97	19.35	19.80	20.01	19.98	19.97		
Spec. cond. (µS/cm)	2251	2203	2110	2102	2087	2090	2086	2090		
D.O. (mg/L)	-	-	-	-	-	-	-	-		
ORP (mV)	-	-	-	-	-	-	-	-		
Turbidity (NTU)	~~1009~~	47.36	37.21	20.01	18.76	21.32	10.11	9.83		
Color/tint	-	-	-	-	-	-	-	-		
Odor	-	-	-	-	-	-	-	-		

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-09	2/26/13	1710	7	None	1-500mlH-3; 4-1L E-131; 2-1L α

Sampler's Name (print): Eric Necaise	Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: Waterford - 3	Site ID: MW-10	Sampler: ERN
Project Number: 6045-460	Date: 2/26/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Sunny	Air Temp (°F): 60	Wind: N-10
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 38.51	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: ICEC 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1300	1530	1540	1545		
Depth to Water (ft)	9.90	9.91	10.23	10.28		
Date (mm/dd/yy)	2/26/13	2/26/13	2/26/13	2/26/13		
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No.: YSI / HF Scientific — Unit or Serial No.: #1 / #1

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 33.51

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal) (where applicable): 3.85g

= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	1530	1533	1536	1539	1542	1545				Remarks
Purge vol. (gal)	0.0	0.2	0.4	0.6	0.8	1.0				
Purge rate (mL/min)	250	250	250	250	250	250				
pH (su)	6.93	6.92	6.90	6.88	6.89	6.91				
Temp. (°C)	19.35	20.18	20.83	20.73	20.74	20.68				
Spec. cond. (µS/cm)	5305	54.52	5718	5706	5723	5720				
D.O. (mg/L)	-	-	-	-	-					
ORP (mV)	-	-	-	-	-					
Turbidity (NTU)	24.17	48.63	32.18	43.12	36.23	17.14				
Color/tint	-	-	-	-	-	-				
Odor	-	-	-	-	-	-				

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-10	2/26/13	1550	7	None	1-500mL H-3; 4-1L I131; 2-1L ∝

Sampler's Name (print): ERIC NECASE — Sampler Signature: Eric Necase

Groundwater Sampling Record

Facility: Entergy Waterford-3	Site ID: MW-11	Sampler: EFN
Project Number: 6045-460	Date: 2/26/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other _____

Weather: Sunny	Air Temp (°F): 60	Wind: N-10
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 42.84	Damage/repairs needed: None

Remarks:

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: ICE IC 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1310	1330	1345	1352	1520	
Depth to Water (ft)	10.18	10.18	11.71	12.01	12.18	
Date (mm/dd/yy)	2/26/13	2/26/13	2/26/13	2/26/13		
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 37.84

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) 4.51g

= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	1330	1333	1336	1339	1342	1345	1348	1351		Remarks
Purge vol. (gal)	0.0	0.15	0.25	0.3	0.35	0.40	0.45	0.5		
Purge rate (mL/min)	100	100	100	100	100	100	100	100		
pH (su)	6.74	6.78	6.84	6.88	6.92	6.94	6.92	6.93		
Temp. (°C)	18.68	18.63	18.75	18.81	18.86	19.04	19.03	19.05		
Spec. cond. (µS/cm)	5370	5396	5448	5492	5476	5453	5465	5451		
D.O. (mg/L)	-	-	-	-	-	-	-	-		
ORP (mV)	-	-	-	-	-	-	-	-		
Turbidity (NTU)	53.63	37.83	17.32	12.83	27.14	18.27	16.42	11.15		
Color/tint	-	-	-							
Odor	-	-	-							

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-11	1555	—			
MW-11	2/26/13	1355	7	None	1-500mL H-3; 4 1-L I-131, 2-1L α

Sampler's Name (print): ERIC NEICAISE

Sampler Signature: Eric Neicaise

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:

Company:	ENTERGY WATERFORD 3
Address:	17265 River Road
	Killona, LA 70057
Email To:	rieblan@entergy.com
Phone: (504) 464-3267	Fax:
Requested Due Date/TAT:	15 WORKING DAYS

Section B Required Project Information:

Report To:	Rodney LeBlanc
Copy To:	
Purchase Order No.:	
Project Name:	
Project Number:	

Section C Invoice Information:

Attention:	SAME
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Cindy Olavesen (504) 305-3626
Pace Profile #:	5448

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: Waterford 3 LA

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW WT
WATER	WW
WASTE WATER	P
PRODUCT	SL
SOIL/SOLID	OL
OIL	WP
WIPE	AR
AIR	OT
OTHER	TS
TISSUE	

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test: GAMMA	GROSS BETA	I-131	TRITIUM	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N	N	
1	MW-11	OT	G	~~2/26/13~~		2/26/13	1355		7	5		2						X	X	X	X		
2	MW-10					2/26/13	1550																
3	MW-09					2/26/13	1710																
4	MW-05					2/27/13	0300																
5	MW-03					2/27/13	0940																
6	MW-04					2/27/13	1105																
7	MW-06					2/27/13	1355																
8	MW-07					2/27/13	1536																
9	MW-08					2/27/13	1635																
10	DUP MW-08					2/27/13	1720																
11	EB MW-08					2/27/13	1800																
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	ERIC NECAISE	2/27/13	1800	[signature] / WF 3	2/27/13	1800	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: ERIC NECAISE

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY):

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Daily Log

Site Location: Waterford - 3	Date: June 3, 2013
Project Number: 06045-0031-002	Page 1 of

0945 - Arrive on site, Calibrate equipment Project Safety meeting
1010 - Begin water level measurements
1115 - Begin sampling MW-03
1645 - Finish sampling MW-10
1700 - Leave site

Daily Log

Site Location: Waterford 3	Date: 6/4/13
Project Number: 06045-0031-002	Page 2 of 2

0700 - Arrive on site - Calibrate Equipment
Prejob Safety Meeting
0715 - Begin Sampling MW-05
1200 - Leave Site

FTN Associates Calibration Form

Date/Time: 6/3/13 0945
Prepared By: EFN
Location: Waterford - 3
Project #: 06045-003/-002

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		Cond	0	uS/cm			Y N		
YSI	#1	Cond	1413	uS/cm	28.87	1427	(Y) N	1413	2AL351 EX 12/13
		pH	7	su	28.49	6.98	(Y) N	7.00	3AC066 EX 3/15
		pH	4/10	su	29.52	4.06	Y N	4.00	2AD530 EX 4/14
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C	30.0	29.67	N	N/A	
							Y N		
HF Scientific	#1	Turbidity	0.02	NTU	N/A	0.27	Y N	0.01	20201 EX 2/14
		Turbidity	100	NTU	N/A	10.10	Y N	1014	20239 EX 2/14
		Turbidity	1000	NTU	N/A	987.4	Y N	1028	20401 EX 4/14
		Turbidity		NTU	N/A		Y N		

Comments:

Notes:

1. Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
2. pH Calibration (pH Method: EPA 150.1)
3. DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
4. Temperature Calibration: No calibration is necessary. Record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

$$\text{Relative Percent Difference (RPD)} = 100 * (\text{rep1} - \text{rep2})/(\text{rep1} + \text{rep2})/2$$

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

$$\text{Percent Difference} = 100 * (\text{observed} - \text{target})/\text{target}$$

FTN Associates Calibration Form

Date/Time: 6/4/13 0645
Prepared By: FTN
Location: Water Lab 4-3
Project #: 0604S 0031-002

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		Cond	0	uS/cm			Y N		
YSI	#1	Cond	1413	uS/cm	21.80	1487	(Y) N	1413	2AL351 Ex 12/13
		pH	7	su	21.79	7.07	(Y) N	7.00	3AC066 Ex 3/15
		pH	4 / 10	su	22.00	4.02	Y N		2AD530 Ex 4/14
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C	22.00	20.02	N	N/A	
							Y N		
HF Scientific	#1	Turbidity	6.02	NTU	N/A	0.00	(Y) N	0.04	20201 Ex 2/14
		Turbidity	10.0	NTU	N/A	9.48	(Y) N	10.05	20234 Ex 2/14
		Turbidity	1000	NTU	N/A	1017	(Y) N	1063	20404 Ex 4/14
		Turbidity		NTU	N/A		Y N		

Comments:

Notes:

1. Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
2. pH Calibration (pH Method: EPA 150.1)
3. DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
4. Temperature Calibration: No calibration is necessary. Record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

Groundwater Level Data Sheet

Project Name:	Project Number:	Investigator:	Page 1 of ___
Waterford - 3	06045-0031-002	EFN	
Weather Conditions:	**Measuring Device:**		
Partly Cloudy 85°	KECK 100 #3		

Well ID	Date	Time	Depth to Water (feet below RP)	Damages/Repairs		
MW-09	6/3/13	1030	5.16	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-08	"	1035	4.95	☒ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☒ See gw sample record
MW-07	"	1040	5.55	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-06	"	1045	4.24	☒ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☒ See gw sample record
MW-05	"	1050	5.90	☒ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☒ See gw sample record
MW-10	"	1055	9.90	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☒ See gw sample record
MW-11	"	1100	10.13	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☒ See gw sample record
MW-04	"	1105	8.92	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☒ See gw sample record
MW-03	"	1110	6.08	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record

Notes
RP = Reference Point
TOC = Top of Casing
gw = groundwater

Groundwater Sampling Record

Facility: Walker Cord 3	Site ID: MW-03	Sampler: EFN
Project Number: 0604S-0031-002	Date: 6/3/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other		
Weather: Partly Cloudy	Air Temp (°F): 85°	Wind: SE - 5 mph
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.58	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:	Water level Meter Make/Model No. IEEK 100 #3			Serial No. (Optional):		
	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1110	1115	1130	1136	1220	
Depth to Water (ft)	6.08	6.08	6.37	6.41	6.52	
Date (mm/dd/yy)	6/3/13	6/3/13	6/3/13	6/03/13	6/3/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 32.58	Well goes dry during purging: ☐ Yes ☒ No
Casing vol. (gal): (where applicable) N/A	= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	1118	1121	1124	1127	1130	1133	1136			Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.4	0.5	0.6	0.75			
Purge rate (mL/min)	150	150	150	150	150	150	150			
pH (su)	6.74	6.79	6.82	6.81	6.86	6.83	6.82			
Temp. (°C)	24.11	24.46	24.43	24.36	24.57	24.53	24.56			
Spec. cond. (µS/cm)	3216	3273	3286	3246	3318	3329	3325			
D.O. (mg/L)	-	-	-	-	-	-	-			
ORP (mV)	-	-	-	-	-	-	-			
Turbidity (NTU)	13.48	15.14	16.87	12.42	11.17	9.86	8.11			
Color/tint	-	-	-	-	-	-	-			
Odor	-	-	-	-	-	-	-			

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-03	6/3/13	1140	2	None	1-250 mL H2SO4; 1-1gal/L

Sampler's Name (print): ERIC NECAISE	Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: Waterford - 3	Site ID: MW-04	Sampler: EFN
Project Number: 060455-0031-002	Date: 6/3/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other		
Weather: Partly Cloudy	Air Temp (°F): 85°	Wind: SE 5 mPh
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 32.73	Damage/repairs needed: Bollards need painting
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 # 3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1105	1230	1242	1300	1345	
Depth to Water (ft)	8.92	8.93	9.27	9.36	9.41	
Date (mm/dd/yy)	6/3/13	6/3/13	6/3/13	6/3/13	6/3/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 32.73

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) N/A

= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	1233	1236	1239	1241	1244	1247	1250	1253	1256	1259	Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1.3	
Purge rate (mL/min)	125	125	125	125	125	125	125	125	125	125	
pH (su)	6.55	6.59	6.52	6.57	6.58	6.67	6.63	6.68	6.71	6.74	
Temp. (°C)	24.35	24.42	24.43	24.32	24.28	24.18	23.77	23.83	23.86	23.98	
Spec. cond. (µS/cm)	4881	4969	5063	5153	5278	5393	5495	5683	5826	5817	
D.O. (mg/L)	-	-	-	-	-	-	-	-	-	-	
ORP (mV)	-	-	-	-	-	-	-	-	-	-	
Turbidity (NTU)	26.98	23.50	17.14	15.17	21.37	14.85	9.87	23.17	14.81	16.23	
Color/tint	-	-									
Odor	-		-								

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-04	6/3/13	1300	2	None	1-250 ml H3; 1-1 gal ∝

Sampler's Name (print): ERIC NECAISE

Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: Watford-3	Site ID: MW 05	Sampler: EFN
Project Number: D6045-003-002	Date: 6/4/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other		
Weather: Overcast	Air Temp (°F): 70	Wind: None
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 32.52	Damage/repairs needed: Bollards need painting. Erosion around well pad.
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:	Water level Meter Make/Model No. KECK 100 #3				Serial No. (Optional):	
	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1050	0700	0730	0735	0805	
Depth to Water (ft)	5.90	5.98	6.43	6.44	6.49	
Date (mm/dd/yy)	6/3/13	6/4/13	6/4/13	6/4/13	6/4/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft):	32.39				Well goes dry during purging: ☐ Yes ☒ No						
Casing vol. (gal): (where applicable)	N/A				= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408						
Time ("24:00" hr)	0713	0716	0719	0722	0725	0728	0731	0733			Remarks
Purge vol. (gal)	0.0	0.1	0.25	0.3	0.5	0.6	0.7	0.8			
Purge rate (mL/min)	150	150	150	150	150	150	150	150			
pH (su)	6.93	7.02	7.08	7.10	7.11	7.09	7.08	7.09			
Temp. (°C)	23.27	23.35	23.41	23.37	23.48	23.52	23.55	23.54			
Spec. cond. (µS/cm)	5466	5488	5460	53.3	4402	9298	4047	4043			
D.O. (mg/L)	–	–	–	–	–	–	–	–			
ORP (mV)	–	–	–	–	–	–	–	–			
Turbidity (NTU)	7.62	7.58	5.06	12.71	4.86	5.17	7.09	6.87			
Color/tint	–	–	–	–	–	–	–	–			
Odor	–	–	–	–	–	–	–	–			

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-05	6/4/13	0740	2	None	1- 250mL HNO3, 1- 1gal Cubitainer

Sampler's Name (print): Eric Necaise	Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: Walberton-3	Site ID: MW 06	Sampler: EFN	
Project Number: 60645-003-002	Date: 6/4/13		FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Overcast	Air Temp (°F): 75°	Wind:
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 35.40	Damage/repairs needed: ~~None~~ Soil washed away from bollards and well pad
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 # 3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1045	0810	0820	0824	0925	
Depth to Water (ft)	4.24	4.28	5.03	5.05	5.86	
Date (mm/dd/yy)	6/3/13	6/4/13	6/4/13	6/4/13	6/4/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI ProSeries	#1	☒ Peristaltic	☐ Disposable polyethylene
	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 30.40

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) N/A

[total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	0815	0818	0821	0824						Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.25						
Purge rate (mL/min)	150	150	150	150						
pH (su)	7.16	7.10	7.12	7.13						
Temp. (°C)	24.79	24.71	24.81	24.82						
Spec. cond. (µS/cm)	2785	2790	2788	2793						
D.O. (mg/L)	–	–	–	–						
ORP (mV)	–	–	–	–						
Turbidity (NTU)	6.43	7.46	8.13	6.71						
Color/tint	–									
Odor	–									

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-06	6/4/13	0825	2	None	1250 ml H 3, 1-1gal X
Dup MW-06	"	0955	2	None	" "

Sampler's Name (print): ERIC NECAISE

Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: Waterford-3	Site ID: MW-07	Sampler: EFN	
Project Number: 26045-003L-002	Date: 6/4/13	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other_____		
Weather: Partly cloudy	Air Temp (°F): 80	Wind: Now
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 41.15	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:	Water level Meter Make/Model No. KECK 100 #3			Serial No. (Optional):		
	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1040	0930	0945	0950	1020	
Depth to Water (ft)	5.55	5.59	6.63	6.64	6.64	
Date (mm/dd/yy)	6/3/13	6/4/13	6/4/13	6/4/13	6/4/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft):	36.15				Well goes dry during purging: ☐ Yes ☒ No					
Casing vol. (gal): (where applicable)	N/A				= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408					
Time ("24:00" hr)	0933	0936	0939	1142	0945					Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.25	1 ~~4~~					
Purge rate (mL/min)	150	150	150	150	150					
pH (su)	6.78	6.73	6.73	6.72	6.73					
Temp. (°C)	25.18	25.10	25.18	24.95	24.02					
Spec. cond. (µS/cm)	976	959	955	956	958					
D.O. (mg/L)	–	–	–	–	–					
ORP (mV)	–	–	–	–	–					
Turbidity (NTU)	12.57	4.00	2.07	2.95	3.82					
Color/tint	–	–	–	–						
Odor	–	–	–	–						

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-07	6/4/13	0950	2	None	1 250mL H-3; 1 1gal O

Sampler's Name (print):	Sampler Signature:
Eric Necaise	Eric Necaise

Groundwater Sampling Record

Facility: Waterford-3	Site ID: MW-08	Sampler: EFN
Project Number: 06045-0031-002	Date: 6/4/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Overcast	Air Temp (°F): 85	Wind: None
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 41.47	Damage/repairs needed: Erosion of soil around well pad
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: ICEC 100 H3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1035	1040	1100	1103	1130	
Depth to Water (ft)	4.95	5.01	5.39	5.42	5.44	
Date (mm/dd/yy)	6/3/13	6/4/13	6/4/13	6/4/13	6/4/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 36.97

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal) (where applicable): N/A = [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	1048	1051	1053	1056	1059	1102				Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5				
Purge rate (mL/min)	150	150	150	150	150	150				
pH (su)	7.17	6.70	6.71	6.72	6.76	6.77				
Temp. (°C)	25.74	24.73	24.60	24.72	24.68	24.87				
Spec. cond. (µS/cm)	1281	1203	1219	1255	1277	1283				
D.O. (mg/L)	-	-	-	-		-				
ORP (mV)	-	-	-	-		-				
Turbidity (NTU)	19.13	23.31	15.52	12.89	9.86	6.12				
Color/tint										
Odor										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-08	6/4/13	1105	2	None	1-250 ml H3; 1-1gal A

Sampler's Name (print): ERIC NECHAS[illegible] Sampler Signature: [signature]

Groundwater Sampling Record

Facility: Waterford-3	Site ID: MW-09	Sampler: EFN	
Project Number: 06045-0031-002	Date: 6/4/13	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other_____		
Weather: Partly Cloudy	Air Temp (°F): 85	Wind: None
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 40.22	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☐ Mark/notch on TOC ☑ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1030	1147	1159	1200	1235	
Depth to Water (ft)	5.16	5.30	5.40	5.41	5.41	
Date (mm/dd/yy)	6/3/13	6/4/13	6/4/13	6/4/13	6/4/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No.: YSI / HF Scientific

Unit or Serial No.: #1 / #1

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 35.22

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal) (where applicable): N/a = [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	1151	1154	1157	1200						Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3						
Purge rate (mL/min)	150	150	150	150						
pH (su)	6.74	6.72	6.73	6.72						
Temp. (°C)	24.80	24.58	24.50	24.58						
Spec. cond. (µS/cm)	2296	2299	2307	2305						
D.O. (mg/L)	–	–	–	–						
ORP (mV)	–	–	–	–						
Turbidity (NTU)	5.54	3.05	1.61	1.19						
Color/tint	–									
Odor	–									

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-09	6/4/13	1205	2	None	1-250mL H2S; 1-1gal ∝
EBMW-09	"	1210	2	None	"

Sampler's Name (print): Eric Necaise

Sampler Signature:

Groundwater Sampling Record

Facility: Waterford 3	Site ID: MW-10	Sampler: EFN
Project Number: D6045-0031-002	Date: 6/3/13	FTN Associates, Ltd

Site Description

Type: [X] Monitoring Well [ ] Temporary Well [ ] Extraction Well [ ] Production Well [ ] Dewatering Well [ ] Borehole [ ] Other		
Weather: Sunny	Air Temp (°F): 90	Wind: SE 5mph
Well Locked? [X] Yes [ ] No	Total Depth (ft) unknown	Damage/repairs needed: Well casing needs paint
Remarks:		

Water Level Data

Measuring point description: [ ] Mark/notch on TOC [ ] North rim of TOC [ ] Other:	Water level Meter Make/Model No. KECK 100 #3				Serial No. (Optional):	
	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1055	1535	1550	1600	1635	
Depth to Water (ft)	9.90	9.90	10.15	10.16	10.15	
Date (mm/dd/yy)	6/3/13	6/3/13	6/3/13	6/3/13	6/3/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI 556 Sonde	#1	[X] Peristaltic [ ] Bladder (dedicated / portable) [ ] Submersible	[ ] Disposable polyethylene [ ] Disposable Teflon [ ] Disposable PVC

Purge depth (ft): 30	Well goes dry during purging: [ ] Yes [X] No
Casing vol. (gal): (where applicable) N/A	= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	1536	1539	1541	1544	1547	1550	1553	1556		Remarks
Purge vol. (gal)	0.0									
Purge rate (mL/min)	150	150	150	150	150	150	150	150		
pH (su)	6.90	6.82	6.78	6.77	6.78	6.79	6.78	6.77		
Temp. (°C)	25.38	25.00	24.78	24.84	24.82	24.71	24.76	24.77		
Spec. cond. (µS/cm)	5309	5447	5562	6087	6391	6477	6498	6491		
D.O. (mg/L)	–	–	–	–	–	–	–	–		
ORP (mV)	–	–	–	–	–	–	–	–		
Turbidity (NTU)	25.69	20.11	11.59	6.03	3.72	3.15	3.24	2.73		
Color/tint	–	–	–	–	–					
Odor	–	–	–	–	–					

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-10	6/3/13	1600	2	None	1-250mL H-3; 1-1gal ∝

Sampler's Name (print): ERIC NECASEK	Sampler Signature:

Groundwater Sampling Record

Facility: Waterford-3	Site ID: MW-11	Sampler: EFN
Project Number: 060450-0031-002	Date: 6/3/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other		
Weather: Sunny 90°	Air Temp (°F):	Wind: SE - 5mph
Well Locked? ☐ Yes ☐ No	Total Depth (ft) Unknown	Damage/repairs needed: Well casing not painted
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:	Water level Meter Make/Model No. KECK 100 #3			Serial No. (Optional):		
	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	~~1410~~ 1100	1405	1420	1423	1530	
Depth to Water (ft)	10.13	10.63	10.64	10.67	10.79	
Date (mm/dd/yy)	6/3/13	6/3/13	6/3/13	6/3/13	6/3/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 30	Well goes dry during purging: ☐ Yes ☒ No
Casing vol. (gal): (where applicable)	= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	1410	1413	1416	1419	1421	1423				Remarks
Purge vol. (gal)	0.0	0.10	0.25	0.3	0.35	0.4				
Purge rate (mL/min)	100	100	100	100	100	100				
pH (su)	6.93	6.83	6.79	6.76	6.76	6.78				
Temp. (°C)	26.79	26.46	26.08	26.11	26.05	26.10				
Spec. cond. (µS/cm)	5860	5697	5690	5699	5709	5714				
D.O. (mg/L)	–	–	–	–	–	–				
ORP (mV)	–	–	–	–	–	–				
Turbidity (NTU)	20.89	11.16	6.69	3.17	4.27	7.82				
Color/tint	–	–	–	–	–					
Odor	–	–	–	–	–					

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-11	6/3/13	1425	2	None	1-250mL H2SO4, 1-1gal A.

Sampler's Name (print): Eric Nemise	Sampler Signature: Eric Nemise

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Date	Project Name	Project Number	Project Manager (Print)	Page of
6/4/13	Entergy Waterford 3	060105-0031-002	Ben West	Page 2 of 2

Laboratory Name	Submitted by:	Parameters (Method Number)	Lab Turn-Around Time
TELEDYNE Phone: ( )	FTN Associates, Ltd. 124 W. Sunbridge Drive, Suite 3 Fayetteville, AR 72703 (479) 571-3334 • Fax (479) 571-3338	TDS R	☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ Other: Due: __/__/__
Sampler Signature(s)	Recorded By (Print)		
Ben West	Eric Nichols		

SAMPLE DESCRIPTION

Field Sample Number	Date (mm/dd/yy)	Time (hh:mm)	Matrix* W	Matrix* S	Matrix* O	Number of Containers	Method Comp	Method Grab	Laboratory Notes
EB MW-09	6/4/13	1240	X			2		X	

* Matrix: W = Water S = Soil O = Other

Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time
Ben West	Eric Nichols	6/5/13	1240	Danielle Picard	Danielle Picard	6/5/13	1245
Relinquished By (Signature)	Print Name	Date	Time	Received By Laboratory (Signature)	Print Name	Date	Time

Sampler Remarks	Laboratory Remarks:

Revision Date 11/22/02

ftn

Date	Project Name	Project Number	Project Manager (Print)	Page of
6/4/13	Entergy Waterford 3	060145-0031-002	BOB WEST	Page 1 of 2

Laboratory Name	Submitted by:
TELEDYNE Phone: ( )	FTN Associates, Ltd. 124 W. Sunbridge Drive, Suite 3 Fayetteville, AR 72703 (479) 571-3334 • Fax (479) 571-3338
Sampler Signature(s): Eric Neeley	Recorded By (Print): ERIC NEELEY

Parameters (Method Number): 8260 B

Lab Turn-Around Time
- ☐ 24 Hours
- ☐ 48 Hours
- ☐ 7 Days
- ☐ Other: Due: __/__/__

SAMPLE DESCRIPTION

Field Sample Number	Date (mm/dd/yy)	Time (hh:mm)	Matrix* W	Matrix* S	Matrix* O	Number of Containers	Method Comp	Method Grab	Laboratory Notes
MW-03	6/3/13	1140	X			2		X	
MW-04	"	1300	X			2		X	
MW-11	"	1425	X			2		X	
MW-10	"	1600	X			2		X	
MW-05	6/4/13	0740	X			2		X	
MW-06	"	0825	X			2		X	
DUP MW-06	"	0855	X			2		X	
~~MW-07~~	"	0950	X			2		X	
MW-08	"	1105	X			2		X	
MW-09	"	1205	X			2		X	

* Matrix: W = Water S = Soil O = Other

Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time
Eric Neeley	Eric Neeley	6/4/13	1230	Pamela Powell	Pamela Powell	6/4/13	1230
Relinquished By (Signature)	Print Name	Date	Time	Received By Laboratory (Signature)	Print Name	Date	Time

Sampler Remarks	Laboratory Remarks:

Revision Date 11/22/02

Daily Log

Site Location: Waterford-3	Date: 9/10/13
Project Number: 06045-0031-002	Page 1 of 2

0845- ARRIVE ON SITE
0930 - Complete JOB SAFETY BRIEF AND CALIBRAION
0935- Start collecting water Levels at MW-09
1100 - Start Sampling at MW-03
1210-1245- Raining
1400-1445 Raining
1745- Left Site

Daily Log

Site Location: WF-3	Date: 7/11/13
Project Number: 06045-0031-002	Page 2 of 2

0730 - Arrive onsite, calibrate equipment
0745 - Presolo safety meeting
0815 - Begin sampling MW-06
1400 - Finish sampling MW-11
1420 - Transferred COC to Danielle Breaud
1430 - Left site

FTN Associates Calibration Form

Date/Time: 9/10/13 0900
Prepared By: EFN
Location: Waterford - 3
Project #: 06045-0031-002

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		Cond	0	uS/cm			Y N		
		Cond	1413	uS/cm	28.94	1435	(Y) N	1413	LOT 2AL351 Ex 12/13
YSI	#1	pH	7	su	27.13	2.19	(Y) N	7.00	LOT 3AC066 Ex 3/15
		pH	4/10	su	27.99	3.99	(Y) N	4.00	LOT 2AK644 Ex 11/14
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C	28.0	28.4	N	N/A	
							Y N		
HF Scientific	#1	Turbidity	0.02	NTU	N/A	0.00	(Y) N	0.01	LOT 20201 Ex 2/14
		Turbidity	10.0	NTU	N/A	8.99	(Y) N	10.03	LOT 20239 Ex 2/14
		Turbidity	1000	NTU	N/A	819.4	(Y) N	998.6	LOT 20204 Ex 4/14
		Turbidity		NTU	N/A		Y N		

Comments:

Notes:
1. Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
2. pH Calibration (pH Method: EPA 150.1)
3. DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
4. Temperature Calibration: No calibration is necessary. Record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

FTN Associates Calibration Form

Date/Time: 9/11/13 0730
Prepared By: EFW
Location: WF-3
Project #: 06045-0031-002

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		Cond	0	uS/cm			Y N		
		Cond	1413	uS/cm	25.00	1363	(Y) N	1413	Lot 2AL351 Ex 12/13
YSI	#1	pH	7	su	25.40	7.01	(Y) N	7.00	Lot 3AC066 Ex 3/15
		pH	4/10	su	25.03	4.04	(Y) N	4.00	Lot 2AK644 Ex 11/14
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C	25.0	24.97	N	N/A	
							Y N		
HF Scientific	#1	Turbidity	0.02	NTU	N/A	0.16	(Y) N	0.01	Lot 20201 Ex 2/14
		Turbidity	10.0	NTU	N/A	10.02	(Y) N	9.97	Lot 20239 Ex 2/14
		Turbidity	1000	NTU	N/A	1006	(Y) N	1007	Lot 20404 Ex 4/14
		Turbidity		NTU	N/A		Y N		

Comments:

Notes:
1. Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
2. pH Calibration (pH Method: EPA 150.1)
3. DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
4. Temperature Calibration: No calibration is necessary. Record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

$$\text{Relative Percent Difference (RPD)} = 100 * (\text{rep1} - \text{rep2})/(\text{rep1} + \text{rep2})/2$$

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

$$\text{Percent Difference} = 100 * (\text{observed} - \text{target})/\text{target}$$

Groundwater Level Data Sheet

Project Name:	Project Number:	Investigator:	Page 1 of 1
Waterford-3	060450031.002	EFN	
Weather Conditions:	**Measuring Device:**		
Sunny Wind 5mphish	KECK 100 # 3		

Well ID	Date	Time	Depth to Water (feet below RP)	Damages/Repairs		
MW-09	9/10/13	0935	5.00	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-08	"	0945	7.12	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☒ See gw sample record
* MW-07	"	0955	6.25	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-06	"	1005	4.20	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☒ See gw sample record
MW-05	"	1015	5.83	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☒ See gw sample record
MW-10	"	1025	9.49	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-11	"	1035	9.71	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-04	"	1045	8.41	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☒ See gw sample record
MW-03	"	1055	5.63	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☒ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record

Notes:
RP = Reference Point
TOC = Top of Casing
gw = groundwater

Groundwater Sampling Record

Facility: WF-3	Site ID: MW-03	Sampler: EFN
Project Number: 06045-0031-002	Date: 9/10/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other _____

Weather: Sunny	Air Temp (°F): 85	Wind: W - 5 mph
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.58	Damage/repairs needed: Bollards need painting

Remarks:

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 # 3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1055	1100	1120	1135	1210	
Depth to Water (ft)	5.63	5.63	5.89	5.97	6.02	
Date (mm/dd/yy)	9/10/13	9/10/13	9/10/13	9/10/13	9/10/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 37.58

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) 5.71 = [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	1102	1105	1108	1111	1114	1117	1120	1123	1126	1129	1132 Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Purge rate (mL/min)	125	125	125	125	125	125	125	125	125	125	125
pH (su)	6.52	6.58	6.62	6.68	6.71	6.74	6.77	6.80	6.83	6.83	6.82
Temp. (°C)	26.35	26.44	26.44	26.30	26.35	26.26	26.31	26.43	26.41	26.38	26.36
Spec. cond. (µS/cm)	2650	2693	2727	2749	2760	2791	2860	3012	3123	3118	3113
D.O. (mg/L)	-	-	-	-	-	-		-	-	-	-
ORP (mV)	-	-	-	-	-	-		-	-	-	-
Turbidity (NTU)	152.8	25.60	9.30	5.11	4.71	6.18	3.47	8.23	4.41	6.87	3.82
Color/tint	-	-	-	-	-	-	-	-	-	-	-
Odor	-	-	-	-	-	-	-	-	-	-	-

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-03	9/10/13	1135	2	None	1-250mL H-3; 1-1gal cubitainer

Sampler's Name (print): ERIC NECKISH	Sampler Signature: Eric Neckish

Groundwater Sampling Record

Facility: WF-3	Site ID: MW-04	Sampler: EFN
Project Number: 06045-0031-002	Date: 9/10/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other _____

Weather: Sunny 85	Air Temp (°F): 85	Wind: 5mph West
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.73	Damage/repairs needed: Bollards need paint and dirt is washed away from bollards and pad
Remarks:		

Water Level Data

Measuring point description: ☐ Mark/notch on TOC ☒ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: ICECK 100 ft 3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1041	1245	1300	1303	1345	
Depth to Water (ft)	8.41	8.41	9.11	9.23	9.67	
Date (mm/dd/yy)	9/10/13	9/10/13	9/10/13	9/10/13	9/10/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No.: YSI, HF Scientific — Unit or Serial No.: #1, #1

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): ~~37.42~~ 32.73

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) 4.42 4.79

= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	1248	1251	1254	1257	1300	1303				Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.6				
Purge rate (mL/min)	125	125	125	125	125	125				
pH (su)	6.80	6.61	6.58	6.56	6.54	6.56				
Temp. (°C)	26.13	25.89	26.00	26.07	26.02	26.06				
Spec. cond. (µS/cm)	4862	4729	4742	4798	4827	4864				
D.O. (mg/L)	–	–	–	–	–	–				
ORP (mV)	–	–	–	–	–	–				
Turbidity (NTU)	12.95	13.81	9.83	11.09	8.49	11.81				
Color/tint	–	–	–	–	–	–				
Odor	–	–	–	–	–	–				

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-04	9/10/13	1305	2	none	1-250 ml H-3; 1-1 gal ambient

Sampler's Name (print): ERIC NECAISE — Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: WF-3	Site ID: MW-05	Sampler: EFN
Project Number: 06045-0031-002	Date: 9/10/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other _____

Weather: Overcast	Air Temp (°F): 85	Wind: None
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.59	Damage/repairs needed: Bollards need painting and dirt replaced near pad.
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: ICECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1015	1440	1457	1520	1600	
Depth to Water (ft)	5.83	5.85	6.13	6.12	6.15	
Date (mm/dd/yy)	9/10/13	9/10/13	9/10/13	9/10/13	9/10/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No.: YSI, HF Scientific — Unit or Serial No.: #1, #1

Pump description: ☒ Peristaltic ☐ Bladder (dedicated / portable) ☐ Submersible

Bailer description: ☐ Disposable polyethylene ☐ Disposable Teflon ☐ Disposable PVC

Purge depth (ft): 32.59

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal) (where applicable): 5.18 = [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	1445	1448	1451	1454	1457	1500	1503	1506	1509	1512	1515	Remarks 1518
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1
Purge rate (mL/min)	125	125	125	125	125	125	125	125	125	125	125	125
pH (su)	7.58	7.33	7.26	7.22	7.20	7.18	7.16	7.11	7.08	7.03	7.03	7.06
Temp. (°C)	26.62	26.53	27.06	26.85	26.74	26.83	27.96	27.09	27.17	27.33	27.46	27.61
Spec. cond. (µS/cm)	4974	5217	5200	5169	5052	4803	4808	4617	4163	4017	4137	4228
D.O. (mg/L)	–	–	–	–	–	–	–	–	–	–	–	–
ORP (mV)	–	–	–	–	–	–	–	–	–	–	–	–
Turbidity (NTU)	35.19	4.03	11.13	6.71	4.18	3.72	2.11	6.81	7.23	11.18	42.13	36.22
Color/tint	–	–	–	–	–	–	–	–	–	–	–	–
Odor	–	–	–	–	–	–	–	–	–	–	–	–

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-05	9/10/13	1520	2	None	1-250ml H-3; 1-1gal Cube A

Sampler's Name (print): Eric Necaise — Sampler Signature: [signature]

Groundwater Sampling Record

Facility: WF3	Site ID: MW-06	Sampler: EFN	
Project Number: 0604S-0031-002	Date: 9/11/13	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other		
Weather: Sunny	Air Temp (°F): 80	Wind: E- 5 mph
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 35.40	Damage/repairs needed: Bollards and well need paint.
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100#3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1005	0815	0835	0845	0935	
Depth to Water (ft)	4.20	4.22	4.61	4.75	5.06	
Date (mm/dd/yy)	9/10/13	9/11/13	9/11/13	9/11/13	9/11/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 30.40

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) 5.09 = [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	0820	0823	0826	0829	0832	0835	0838	0841	0844	Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	
Purge rate (mL/min)	125	125	125	125	125	125	125	125	125	
pH (su)	6.86	7.00	7.07	7.10	7.13	7.15	7.18	7.19	7.17	
Temp. (°C)	26.11	25.93	25.88	25.93	26.13	26.60	26.47	26.82	26.38	
Spec. cond. (µS/cm)	3026	2923	2986	2992	2990	2993	2994	3004	3013	
D.O. (mg/L)	-	-	-	-	-	-	-	-	-	
ORP (mV)	-	-	-	-	-	-	-	-	-	
Turbidity (NTU)	1.57	1.07	0.74	0.59	0.86	1.86	5.17	3.30	4.73	
Color/tint	-	-	-	-	-	-	-	-	-	
Odor	-	-	-	-	-	-	-	-	-	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-06	9/11/13	0845	2	none	1-250ml H-3; 1-1gal cube

Sampler's Name (print): ERIC NECASE	Sampler Signature:

Groundwater Sampling Record

Facility: WF-3	Site ID: MW-07	Sampler: EFN
Project Number: 06045-003-002	Date: 9/10/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other_____

Weather: Sunny	Air Temp (°F): 85	Wind:
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 41.15	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: Keck 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0955	1619	1625	1633	1740	
Depth to Water (ft)	6.25	6.25	7.12	7.23	7.03	
Date (mm/dd/yy)	9/10/13	9/10/13	9/10/13	9/10/13	9/10/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 36.15

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) 5.69 = [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	1620	1623	1626	1629	1632					Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4					
Purge rate (mL/min)	125	125	125	125	125					
pH (su)	6.89	6.72	6.67	6.68	6.67					
Temp. (°C)	25.64	25.90	25.87	25.77	25.78					
Spec. cond. (µS/cm)	1021	1008	1002	1002	1002					
D.O. (mg/L)	–	–	–	–	–					
ORP (mV)	–	–	–	–	–					
Turbidity (NTU)	6.89	2.60	3.14	2.76	4.82					
Color/tint	–	–	–	–	–					
Odor	–	–	–	–	–					

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-07	9/10/13	1635	2	None	1-250ml H-3; 1-1gal ∠
DUP MW-07	"	1710	2	None	" "

Sampler's Name (print): ERIC NECAISE	Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: LUF 3	Site ID: MW-08	Sampler: EFN
Project Number: 06045-0031-002	Date: 9/11/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other		
Weather: Overcast	Air Temp (°F): 85	Wind: E-5 mph
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 41.47	Damage/repairs needed: Dirt needs to be replaced around pad
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0945	0945	0952	1003	1040	
Depth to Water (ft)	7.12	7.13	7.32	7.41	7.53	
Date (mm/dd/yy)	9/10/13	9/11/13	9/11/13	9/11/13	9/11/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 36.97

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) 5.60

= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	0950	0953	0956	0959	1002					Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4					
Purge rate (mL/min)	125	125	125	125	125					
pH (su)	7.22	6.67	6.59	6.58	6.59					
Temp. (°C)	27.23	26.11	26.13	26.16	26.15					
Spec. cond. (µS/cm)	1234	1083	1060	1055	1059					
D.O. (mg/L)	–	–	–	–	–					
ORP (mV)	–	–	–	–	–					
Turbidity (NTU)	3.24	7.88	2.50	2.26	3.68					
Color/tint	–	–	–	–	–					
Odor	–	–	–	–	–					

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-08	9/11/13	1005	2	None	1-250ml H-3; 1-1gal α

Sampler's Name (print): ERIC NECASE	Sampler Signature:

Groundwater Sampling Record

Facility: WF-3	Site ID: MW-09	Sampler: EFN	
Project Number: 06045-0031-002	Date: 9/11/13	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other		
Weather: Overcast	Air Temp (°F): 85	Wind: 5 mph East
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 40.22	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:	Water level Meter Make/Model No. KECK 100 #3				Serial No. (Optional):	
	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0935	1046	1100	1105	1140	
Depth to Water (ft)	5.00	5.05	5.15	5.16	5.18	
Date (mm/dd/yy)	9/10/13	9/10/13	9/10/13	9/11/13	9/11/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 35.22					Well goes dry during purging: ☐ Yes ☒ No						
Casing vol. (gal): (where applicable) 5.74					= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408						
Time ("24:00" hr)	1048	1051	1054	1057	1100	1103				Remarks	
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5					
Purge rate (mL/min)	125	125	125	125	125	125					
pH (su)	6.93	6.88	6.87	6.88	6.88	6.88					
Temp. (°C)	25.59	25.63	25.68	25.54	25.48	25.71					
Spec. cond. (µS/cm)	25.42	2562	2541	2535	2513	2526					
D.O. (mg/L)	–	–	–	–	–	–					
ORP (mV)	–	–	–	–	–	–					
Turbidity (NTU)	4.18	18.41	1.59	4.01	3.73	4.92					
Color/tint	–	–	–	–	–	–					
Odor	–	–	–	–	–	–					

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-09	9/11/13	1105	2	None	1-250ml H-3; 1-1gal ox

Sampler's Name (print): ERIC NECASE	Sampler Signature: Eric Necase

Groundwater Sampling Record

Facility: WF 3	Site ID: MW-10	Sampler: EFN	
Project Number: 06045-0031-087	Date: 9/11/13		FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Overcast	Air Temp (°F): 85	Wind: 10 mpl East
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 32.82	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: Geotech 100 #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1025	1151	1210	1217	1255	
Depth to Water (ft)	9.49	9.50	9.65	9.71	9.73	
Date (mm/dd/yy)	9/10/13	9/11/13	9/11/13	9/11/13	9/11/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 27.82

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) 3.81

= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	1155	1158	1201	1204	1207	1210	1213	1216		Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.2	0.3	0.4	0.5	0.6		
Purge rate (mL/min)	125	125	125	125	125	125	125	125		
pH (su)	6.86	6.76	6.73	6.72	6.72	6.72	6.74	6.75		
Temp. (°C)	25.71	26.17	25.78	26.00	25.70	25.73	25.41	25.42		
Spec. cond. (µS/cm)	4844	5006	5137	5249	6178	6437	6489	6471		
D.O. (mg/L)	-	-	-	-	-	-	-	-		
ORP (mV)	-	-	-	-	-	-	-	-		
Turbidity (NTU)	5.62	3.90	2.46	2.67	1.88	1.33	1.63	1.61		
Color/tint	-	-	-	-	-	-	-	-		
Odor	-	-	-	-	-	-	-	-		

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-10	9/11/13	1220	2	None	1-250 ml H-3, 1-1 gal ℄

Sampler's Name (print): Eric Necaise

Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: WF 3	Site ID: MW-11	Sampler: ENN	
Project Number: 06045-0031-002	Date: 9/11/13	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other		
Weather: Overcast	Air Temp (°F): 85	Wind: 10 mph SW
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 38.29	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: KECK COO #3

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1035	1300	1315	1320	1355	
Depth to Water (ft)	9.71	9.75	11.61	11.70	12.37	
Date (mm/dd/yy)	9/10/13	9/11/13	9/11/13	9/11/13	9/11/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#1	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#1	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 33.29

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) = [total depth (feet) – depth to water (feet)] * [well ID (inches)^2] * 0.0408

Time ("24:00" hr)	1301	1304	1307	1310	1313	1316	1319			Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5	0.6			
Purge rate (mL/min)	125	125	125	125	125	125	125			
pH (su)	6.97	6.81	6.75	6.72	6.70	6.68	6.70			
Temp. (°C)	26.62	26.07	25.92	26.09	25.89	25.97	26.05			
Spec. cond. (µS/cm)	5325	4885	4836	4842	4866	4921	4979			
D.O. (mg/L)	-	-	-	-	-	-	-			
ORP (mV)	-	-	-	-	-	-	-			
Turbidity (NTU)	25.58	11.51	6.20	3.67	3.55	3.08	3.91			
Color/tint	-	-	-	-	-	-	-			
Odor	-	-	-	-	-	-	-			

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-11	9/11/13	1320	2	none	1-250ml HNO3; 1-1gal ∝
EB MW-11	"	1400	2	none	" "

Sampler's Name (print): ERIC NECAISE	Sampler Signature:

ftn

Date	Project Name	Project Number	Project Manager (Print)	Page of
9/11/13	WF-3	0604S-0031-002	BOB WEST	Page 1 of 2

Laboratory Name	Submitted by:	Parameters (Method Number)	Lab Turn-Around Time
Phone: ( )	FTN Associates, Ltd. 124 W. Sunbridge Drive, Suite 3 Fayetteville, AR 72703 (479) 571-3334 • Fax (479) 571-3338	I W, X	☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ Other: Due: __/__/__
Sampler Signature(s): Eric Necaise	Recorded By (Print): ERIC NECAISE		

SAMPLE DESCRIPTION

Field Sample Number	Date (mm/dd/yy)	Time (hh:mm)	Matrix* W	Matrix* S	Matrix* O	Number of Containers	Method Comp	Method Grab	I	W	X						Laboratory Notes
MW-03	9/10/13	1135	X			2		X	X	X							
MW-04		1305	X			2		X	X	X							
MW-05		1520	X			2		X	X	X							
MW-07		1635	X			2		X	X	X							
DUP MW-07		1710	X			2		X	X	X							
MW-06	9/11/13	0845	X			2		X	X	X							
MW-08		1005	X			2		X	X	X							
MW-09		1105	X			2		X	X	X							
MW-10		1220	X			2		X	X	X							
MW-11		1320	X			2		X	X	X							

* Matrix: W = Water S = Soil O = Other

Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time
Eric Necaise	ERIC NECAISE	9/11/13	1410	Danielle Breaud	Danielle Breaud	9/11/13	1410
Relinquished By (Signature)	Print Name	Date	Time	Received By Laboratory (Signature)	Print Name	Date	Time

Sampler Remarks	Laboratory Remarks:

Revision Date 11/22/02

ftn

Date	Project Name	Project Number	Project Manager (Print)	Page of
9/11/13	WF 3	06045.0031.002	BOB WEST	Page 2 of 2

Laboratory Name	Submitted by:
Phone: ( )	FTN Associates, Ltd. 124 W. Sunbridge Drive, Suite 3 Fayetteville, AR 72703 (479) 571-3334 • Fax (479) 571-3338
Sampler Signature(s)	Recorded By (Print)
Eric Necaise	Eric Necaise

Parameters (Method Number): F, I, W, R

Lab Turn-Around Time
- ☐ 24 Hours
- ☐ 48 Hours
- ☐ 7 Days
- ☐ Other:
  Due: / /

SAMPLE DESCRIPTION

Field Sample Number	Date (mm/dd/yy)	Time (hh:mm)	Matrix* W	Matrix* S	Matrix* O	Number of Containers	Method Comp	Method Grab	Laboratory Notes
EB MW-11	9/11/13	1400	X			2		X	

* Matrix: W = Water S = Soil O = Other

Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time
Eric Necaise	Eric Necaise	9/11/13	1410	Danielle Breaud	Danielle Breaud	9/11/13	1410
Relinquished By (Signature)	Print Name	Date	Time	Received By Laboratory (Signature)	Print Name	Date	Time

Sampler Remarks

Laboratory Remarks:

Revision Date 11/22/02

Daily Log

Site Location: Weber Ford - 3	Date: 12/17/13
Project Number: 06045-0031-002	Page 1 of 2

0730 - ARRIVE ON site
0745 - Calibrate Equipment
0800 - Start Water Level Measurements
0930 - Load Equipment and enter SOCA
1100 - Begin Well Development of MW-12
1300 - Begin Sampling MW-12 (purging)
1430 - Exit SOCA and Begin purging MW03
1700 - Left Site

Daily Log

Site Location: WF3	Date: 12/18/13
Project Number: 06045-0031-002	Page 2 of 2

0730 - Arrive on site
0745 Calibrate Equipment
0830 - Prejob Safety
0840 - Begin Purging MW-05
1700 - Leave site

FTN Associates Calibration Form

Date/Time: 12/17/13 0745
Prepared By: EFN
Location: Wakefield-3
Project #: 06045-0031-002

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		Cond	0	uS/cm			Y N		
451	#2	Cond	1413	uS/cm	12.10	1365	(Y) N	1413	2A1351 Ex 12/13
		pH	7	su	11.87	7.05	(Y) N	7.00	3AG547 7/15
		pH	(4)/ 10	su	13.66	4.04	(Y) N	4.00	3AI959 9/15
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp		Degrees C	13.68	14.0	N	N/A	
							Y N		
HF Scientific	#2	Turbidity	0.02	NTU	N/A	0.00	Y N	0.05	20201 Ex 2/14
		Turbidity	10.0	NTU	N/A	8.54	Y N	9.79	20239 Ex 2/14
		Turbidity	1000	NTU	N/A	997.9	Y N	1001	20404 Ex 4/14
		Turbidity		NTU	N/A		Y N		

Comments:

Notes:
1. Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
2. pH Calibration (pH Method: EPA 150.1)
3. DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
4. Temperature Calibration: No calibration is necessary. Record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

Relative Percent Difference (RPD) = 100 * (rep1 - rep2)/(rep1 + rep2)/2

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

Percent Difference = 100 * (observed - target)/target

FTN Associates Calibration Form

Date/Time: 12/18/13 0730
Prepared By: EFN
Location: Waterford - 3
Project #: 06045_0031-002

Instrument Type	Instrument ID	Parameter	Standard (su)	Units	Temp. of Standard (degrees C)	Reading Prior to Calibration	Calibrated	Post Calibration Reading	Comments
		Cond	0	uS/cm			Y N		
YSI	#2	Cond	1413	uS/cm	7.34	1488	(Y) N	1413	2AL351 Ex 12/13
		pH	7	su	8.60	6.87	(Y) N	7.00	3AG547 7/15
		pH	(A) 10	su	8.17	3.95	(Y) N	4.00	3AI959 9/15
		DO		mm/Hg		mg/l	Y N	mg/l	
		Temp	8.23	Degrees C	8.0		N	N/A	
							Y N		
HF Scientific	#2	Turbidity	0.02	NTU	N/A	0.71	Y N	0.01	20201 Ex 2/14
		Turbidity	10.0	NTU	N/A	12.84	Y N	9.83	20239 Ex 2/14
		Turbidity	1000	NTU	N/A	961.5	Y N	1032	20404 Ex 4/14
		Turbidity		NTU	N/A		Y N		

Comments:

Notes:
1. Specific Conductivity Calibration: Calibrate first to zero using air, then to standard using standard solution.
2. pH Calibration (pH Method: EPA 150.1)
3. DO Calibration: Use 100% air saturation method. Use pressure in mm/Hg as standard to calibrate in DO% saturation. Record readings in mg/l.
4. Temperature Calibration: No calibration is necessary. Record temperature of standard using thermometer while in calibration cup. Then record sonde temperature reading.

Precision and accuracy targets are commonly based on relative percent differences. Precision is either based on a relative percent difference between replicates (analytical precision) or duplicate samples (method precision) as follows:

$$\text{Relative Percent Difference (RPD)} = 100 * (\text{rep1} - \text{rep2})/(\text{rep1} + \text{rep2})/2$$

The standard deviation of the average of a group of replicate (or duplicate) pairs represents the precision for a measurement parameter. For accuracy, percent difference is determined relative to a known or target value and is as follows:

$$\text{Percent Difference} = 100 * (\text{observed} - \text{target})/\text{target}$$

Groundwater Level Data Sheet

Project Name:	Project Number:	Investigator:	Page 1 of 1
Waterford-3	6045-0031-002	EFN	
Weather Conditions:	**Measuring Device:**		
Sunny	Solonist 200'		

Well ID	Date	Time	Depth to Water (feet below RP)	Damages/Repairs		
MW-03	12/12/13	0800	5.75	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-04		0815	8.64	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-10		0825	10.03	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-11		0830	10.34	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-05		0840	5.32	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-06		0850	4.08	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-07		0900	6.54	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-08		0910	7.32	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-09		0920	3.53	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
MW-12	↓	1100	9.16	☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record
				☐ Damaged well pad/casing ☐ Damaged bollards ☐ Damaged equipment	☐ Damaged TOC ☐ Damaged lock ☐ Un-kept vegetation	☐ Lacks visibility ☐ Lacks access ☐ See gw sample record

Notes:
RP = Reference Point
TOC = Top of Casing
gw = groundwater

Groundwater Sampling Record

Facility: Waterford - 3	Site ID: MW-03	Sampler: EFN	
Project Number: 06045-0031-002	Date: 12/17/13	FTN Associates, Ltd	

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other_____

Weather: Sunny	Air Temp (°F): 65	Wind: Norm
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.58	Damage/repairs needed:
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: Solinst Mod 122

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0800	1450	1505	1507	1525	
Depth to Water (ft)	5.75	5.75	5.92	5.93	6.04	
Date (mm/dd/yy)	12/17/13	12/17/13	12/17/13	12/17/13	12/17/13	
LNAPL Thickness (ft) *(If present)*	-					
DNAPL Thickness (ft) *(If present)*	-					

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#2	☒ Peristaltic	☐ Disposable polyethylene
Hf Scientific	#2	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 32.58

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) N/A

= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	1455	1458	1501	1504	1507					Remarks
Purge vol. (gal)	0.0	0.08	0.15	0.25	0.4					
Purge rate (mL/min)	125	125	125	125	125					
pH (su)	7.60	7.45	7.35	7.32	7.34					
Temp. (°C)	21.10	21.38	21.44	21.23	21.21					
Spec. cond. (µS/cm)	2695	2711	2722	2769	2782					
D.O. (mg/L)	-			-	-					
ORP (mV)	-			-	-					
Turbidity (NTU)	18.47	16.82	15.05	13.49	11.81					
Color/tint	-	-	-	-	-					
Odor	-	-	-	-	-					

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-03	12/17/13	1510	2	None	1-250 ml H-3; 1-1 gal Gamma

Sampler's Name (print): Eric Necaise

Sampler Signature: [signature]

Groundwater Sampling Record

Facility: WATERFORD - 3	Site ID: MW-04	Sampler: EFN
Project Number: 06045-0031-002	Date: 12/17/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other_____

Weather: Sunny	Air Temp (°F): 65	Wind: None
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.73	Damage/repairs needed: None

Remarks:

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: Solinst Model 122

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1515	1550	1600	1609	1640	
Depth to Water (ft)	8.64	8.68	8.71	8.76	9.03	
Date (mm/dd/yy)	12/17/13	12/17/13	12/17/13	12/17/13	12/17/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#2	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#2	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 32.73

Well goes dry during purging: ☒ Yes ☐ No

Casing vol. (gal): (where applicable) N/A

= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	1551	1554	1557	1600	1603	1606	1609			Remarks
Purge vol. (gal)	0.0	0.08	0.16	0.25	0.4	0.45	0.5			
Purge rate (mL/min)	125	125	125	125	125	125	125			
pH (su)	7.15	6.92	6.91	6.89	6.85	6.90	6.91			
Temp. (°C)	20.87	21.09	21.06	20.95	21.01	22.01	22.26			
Spec. cond. (µS/cm)	5096	5067	5175	5214	5329	5240	5237			
D.O. (mg/L)	–	–	–	–	–	–	–			
ORP (mV)	–	–	–	–	–	–	–			
Turbidity (NTU)	13.11	8.43	2.71	3.90	2.18	3.81	4.37			
Color/tint	–									
Odor	–									

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-04	12/17/13	1610	2	None	1-250 ml H-3 ; 1-1gal Gamma

Sampler's Name (print): ERIC NECAISE

Sampler Signature:

Groundwater Sampling Record

Facility: WF-3	Site ID: MW-05	Sampler: ERIC NECAISE
Project Number: 06045-0031-002	Date: 12/18/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other		
Weather: Sunny	Air Temp (°F): 45	Wind: None
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 37.59	Damage/repairs needed: Fill needed around bollards
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:	Water level Meter Make/Model No. Solinst Model 122				Serial No. (Optional):	
	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0840	0840	0905	0918	0950	
Depth to Water (ft)	5.32	5.38	5.72	5.71	5.71	
Date (mm/dd/yy)	12/17/13	12/18/13	12/18/13	12/18/13	12/18/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#2	☒ Peristaltic	☐ Disposable polyethylene
YSI Screentec	#2	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 32.59	Well goes dry during purging: ☐ Yes ☒ No
Casing vol. (gal): (where applicable) N/A	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	0845	0848	0851	0854	0857	0901	0903	0906	0909	0912	0915	Remarks 0918
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1
Purge rate (mL/min)	125	125	125	125	125	125	125	125	125	125	125	125
pH (su)	8.80	9.10	9.89	9.79	9.70	9.64	9.57	9.48	9.43	9.36	9.31	9.30
Temp. (°C)	12.43	18.91	19.40	19.47	19.66	19.81	20.34	20.32	20.37	20.41	20.29	20.24
Spec. cond. (µS/cm)	4673	4485	3623	3213	2928	2755	2512	2456	2427	2365	2350	2358
D.O. (mg/L)	-	-	-	-	-	-	-	-	-	-		-
ORP (mV)	-	-	-	-	-	-	-	-	-	-		-
Turbidity (NTU)	6.54	7.11	7.81	7.08	5.70	3.74	6.40	9.21	7.52	4.18	3.86	6.81
Color/tint	-	-	-	-	-	-	-	-	-			
Odor	-	-	-	-	-	-	-	-	-			

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-05	12/18/13	0920	2	None	1-250mL H-3; 1-1 gal A

Sampler's Name (print): ERIC NECAISE	Sampler Signature:

Groundwater Sampling Record

Facility: WF3	Site ID: MW-06	Sampler: EFN
Project Number: 06045-0031-002	Date: 12/18/13	FTN Associates, Ltd

Site Description

Type: [X] Monitoring Well [ ] Temporary Well [ ] Extraction Well [ ] Production Well [ ] Dewatering Well [ ] Borehole [ ] Other_____		
Weather: Sunny	Air Temp (°F): 50	Wind: N-5
Well Locked? [X] Yes [ ] No	Total Depth (ft) 35.40	Damage/repairs needed:
Remarks:		

Water Level Data

Measuring point description: [X] Mark/notch on TOC [ ] North rim of TOC [ ] Other:	Water level Meter Make/Model No. Solinst Model 122			Serial No. (Optional):		
	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0850	1000	1015	1029	1100	
Depth to Water (ft)	4.08	4.11	4.88	4.93	5.11	
Date (mm/dd/yy)	12/17/13	12/18/13	12/18/13	12/18/13	12/18/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#2	[X] Peristaltic	[ ] Disposable polyethylene
HF Scientific	#2	[ ] Bladder (dedicated / portable)	[ ] Disposable Teflon
		[ ] Submersible	[ ] Disposable PVC

Purge depth (ft): 30.40					Well goes dry during purging: [ ] Yes [X] No					
Casing vol. (gal): (where applicable) N/A					= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408					
Time ("24:00" hr)	1006	1009	1012	1015	1018	1021	1023	1026	1029	Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	
Purge rate (mL/min)	125	125	125	125	125	125	125	125	125	
pH (su)	9.43	9.35	9.25	9.23	9.21	9.18	9.14	9.10	9.12	
Temp. (°C)	19.32	19.68	20.17	20.24	20.45	20.28	20.33	20.41	20.42	
Spec. cond. (µS/cm)	2887	2881	2884	2894	2902	2910	2903	2906	2900	
D.O. (mg/L)	-	-	-	-	-	-	-	-	-	
ORP (mV)	-	-	-	-	-	-	-	-	-	
Turbidity (NTU)	21.52	18.06	11.75	7.23	4.09	3.71	2.86	4.11	4.82	
Color/tint	-	-	-	-	-	-	-	-	-	
Odor	-	-	-	-	-	-	-	-	-	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-06	12/18/13	1030	2	None	1-250mlH-3; 1-1gal ox

Sampler's Name (print): ERIC NECAISE	Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: WF-3	Site ID: MW-07	Sampler: EFN	
Project Number: 06045-0031-002	Date: 12/18/13	FTN Associates, Ltd	

Site Description

Type: ☐ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other _____

Weather: Sunny	Air Temp (°F): 60	Wind:
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 41.15	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: Solinst Mod 122

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0900	1110	1130	1135	1215	
Depth to Water (ft)	6.54	6.58	7.22	7.31	7.33	
Date (mm/dd/yy)	12/17/13	12/18/13	12/18/13	12/18/13	12/18/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#2	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#2	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 36.15

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal) (where applicable): N/A

= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	1118	1121	1124	1127	1130	1133				Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.25	0.3	0.4				
Purge rate (mL/min)	100	100	100	100	100	100				
pH (su)	9.58	8.94	8.81	8.74	8.72	8.73				
Temp. (°C)	20.95	22.09	22.12	22.23	22.17	22.16				
Spec. cond. (µS/cm)	1254	969	953	955	957	961				
D.O. (mg/L)	-	-	-	-	-	-				
ORP (mV)	-	-	-	-	-	-				
Turbidity (NTU)	7.79	7.43	6.97	5.13	4.27	4.06				
Color/tint	-									
Odor	-									

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-07	12/18/13	1135	2	None	1-250ml H-3; 1-1gal ∝

Sampler's Name (print): ERIC NECAISE

Sampler Signature: [signature]

Groundwater Sampling Record

Facility: WF-3	Site ID: MW-08	Sampler: EFN
Project Number: 06045-0031-002	Date: 12/18/13	FTN Associates, Ltd

Site Description

Type: [X] Monitoring Well [ ] Temporary Well [ ] Extraction Well [ ] Production Well [ ] Dewatering Well [ ] Borehole [ ] Other _____

Weather: Sunny	Air Temp (°F): 65	Wind: N-5
Well Locked? [X] Yes [ ] No	Total Depth (ft) 41.47	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: [X] Mark/notch on TOC [ ] North rim of TOC [ ] Other:

Water level Meter Make/Model No.: Solinst Mod 122

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0910	1240	1300	1303	1335	
Depth to Water (ft)	7.32	7.33	7.72	7.75	7.71	
Date (mm/dd/yy)	12/17/13	12/18/13	12/18/13	12/18/13	12/18/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#2	[X] Peristaltic	[ ] Disposable polyethylene
HF Scientific	#2	[ ] Bladder (dedicated / portable)	[ ] Disposable Teflon
		[ ] Submersible	[ ] Disposable PVC

Purge depth (ft): 36.97

Well goes dry during purging: [ ] Yes [X] No

Casing vol. (gal): N/A (where applicable)

= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	1249	1252	1255	1258	1301	1303				Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5				
Purge rate (mL/min)	150	150	150	150	150	150				
pH (su)	8.81	8.66	8.64	8.60	8.59	8.61				
Temp. (°C)	22.20	22.78	22.71	22.72	22.70	22.64				
Spec. cond. (µS/cm)	1095	1021	1024	1030	1036	1052				
D.O. (mg/L)	-	-								
ORP (mV)	-	-								
Turbidity (NTU)	12.54	6.83	8.50	5.06	5.57	6.11				
Color/tint	-	-	-	-	-	-				
Odor	-	-	-	-	-	-				

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-08	12/18/13	1305	2	None	1-250ml H-3; 1-1gal gamma

Sampler's Name (print): ERIC NECAISE

Sampler Signature: [signature]

Groundwater Sampling Record

Facility: WE3	Site ID: MW-09	Sampler: EFN
Project Number: 06645-003I-002	Date: 12/18/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other_____

Weather: Sunny	Air Temp (°F): 65	Wind: N - 5
Well Locked? ☐ Yes ☐ No	Total Depth (ft) 40.22	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: Solinst Model 122

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0920	1340	1350	1352	1415	
Depth to Water (ft)	3.53	3.59	3.70	3.72	3.73	
Date (mm/dd/yy)	12/17/13	12/18/13	12/18/13	12/18/13	12/18/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#2	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#2	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 35.22

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal) (where applicable): N/A

= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	1342	1345	1348	1351						Remarks
Purge vol. (gal)	0.0	0.15	0.3	0.45						
Purge rate (mL/min)	200	200	200	200						
pH (su)	8.80	8.67	8.66	8.67						
Temp. (°C)	21.64	21.55	21.61	21.73						
Spec. cond. (µS/cm)	2148	2108	2113	2151						
D.O. (mg/L)	–	–	–	–						
ORP (mV)	–	–	–	–						
Turbidity (NTU)	8.87	5.28	5.78	6.67						
Color/tint										
Odor										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-09	12/18/13	1355	2	None	1-250 ml H-3; 1-1 gal ox

Sampler's Name (print): Eric Nzcnist	Sampler Signature:

Groundwater Sampling Record

Facility: WF3	Site ID: MW-10	Sampler: EFN
Project Number: 0604S-0031-002	Date: 12/18/13	FTN Associates, Ltd

Site Description

Type: ☒ Monitoring Well ☐ Temporary Well ☐ Extraction Well ☐ Production Well ☐ Dewatering Well ☐ Borehole ☐ Other

Weather: Sunny	Air Temp (°F): 65	Wind: N-5
Well Locked? ☒ Yes ☐ No	Total Depth (ft) 32.82	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: ☒ Mark/notch on TOC ☐ North rim of TOC ☐ Other:

Water level Meter Make/Model No.: Solinst Mod 122

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0825	1440	1455	1503	1545	
Depth to Water (ft)	10.03	1005	10.28	10.32	10.33	
Date (mm/dd/yy)	12/17/13	12/18/13	12/18/13	12/18/13	12/18/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#2	☒ Peristaltic	☐ Disposable polyethylene
HF Scientific	#2	☐ Bladder (dedicated / portable)	☐ Disposable Teflon
		☐ Submersible	☐ Disposable PVC

Purge depth (ft): 30

Well goes dry during purging: ☐ Yes ☒ No

Casing vol. (gal): (where applicable) N/A

= [total depth (feet) – depth to water (feet)] • [well ID (inches)^2] • 0.0408

Time ("24:00" hr)	1445	1448	1451	1454	1457	1500	1503			Remarks
Purge vol. (gal)	0.0	0.2	0.3	0.4	0.5	0.6	0.7			
Purge rate (mL/min)	200	200	200	200	200	200	200			
pH (su)	8.93	8.79	8.74	8.70	8.72	8.75	8.74			
Temp. (°C)	21.97	22.17	22.14	22.23	22.25	22.12	22.18			
Spec. cond. (µS/cm)	4980	4968	5240	5748	6322	6348	6341			
D.O. (mg/L)	-	-	-	-	-	-	-			
ORP (mV)	-	-	-	-	-	-	-			
Turbidity (NTU)	14.44	9.74	5.34	8.02	4.42	6.49	5.17			
Color/tint										
Odor										

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-10	12/18/13	1505	2	None	1-250mL H-3; 1-1gal ∝
DUP MW-10	"	1525	"	"	" "

Sampler's Name (print): ERIC NECAISE

Sampler Signature: Eric Necaise

Groundwater Sampling Record

Facility: WF3	Site ID: MW-11	Sampler: EFN
Project Number: 6045-0031-002	Date: 12/18/13	FTN Associates, Ltd

Site Description

Type: [X] Monitoring Well [ ] Temporary Well [ ] Extraction Well [ ] Production Well [ ] Dewatering Well [ ] Borehole [ ] Other_____

Weather: Sunny	Air Temp (°F): 60	Wind: N-5
Well Locked? [X] Yes [ ] No	Total Depth (ft) 38.29	Damage/repairs needed:
Remarks:		

Water Level Data

Measuring point description: [X] Mark/notch on TOC [ ] North rim of TOC [ ] Other:

Water level Meter Make/Model No.: Solinst Mod 122

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	0830	1550	1615	1618	1700	
Depth to Water (ft)	10.34	10.39	12.10	12.34	12.85	
Date (mm/dd/yy)	12/17/13	12/18/13	12/18/13	12/18/13	12/18/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#2	[X] Peristaltic	[ ] Disposable polyethylene
HF Scientific	#2	[ ] Bladder (dedicated / portable)	[ ] Disposable Teflon
		[ ] Submersible	[ ] Disposable PVC

Purge depth (ft): 30	Well goes dry during purging: [ ] Yes [X] No
Casing vol. (gal): (where applicable) N/A	= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	1600	1603	1606	1609	1612	1615	1618			Remarks
Purge vol. (gal)	0.0	0.05	0.1	0.15	0.2	0.25	0.3			
Purge rate (mL/min)	100	100	100	100	100	100	100			
pH (su)	9.13	8.93	8.85	8.81	8.80	8.78	8.81			
Temp. (°C)	20.89	20.91	21.09	21.23	21.18	21.08	21.05			
Spec. cond. (µS/cm)	5936	5814	5751	5716	5724	5743	5752			
D.O. (mg/L)	-	-	-	-	-		-			
ORP (mV)	-	-	-	-	-		-			
Turbidity (NTU)	18.61	17.37	6.75	2.73	3.17	4.82	6.12			
Color/tint	~~10.61~~									
Odor	-									

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-11	12/18/13	1620	2	None	1-250 ml (H-3); 1-1 gal Gamma
EB MW-11	"	1700	1	"	1-250 ml (H-3)

Sampler's Name (print): ERIC NECASE	Sampler Signature:

Groundwater Sampling Record

Facility: Waterford - 3	Site ID: MW-12	Sampler: EFN	
Project Number: 06045-0031-002	Date: 12/17/13	FTN Associates, Ltd	

Site Description

Type: [X] Monitoring Well [ ] Temporary Well [ ] Extraction Well [ ] Production Well [ ] Dewatering Well [ ] Borehole [ ] Other

Weather: Sunny	Air Temp (°F): 65	Wind: No wind
Well Locked? [X] Yes [ ] No	Total Depth (ft) 39.7 bgs	Damage/repairs needed: None
Remarks:		

Water Level Data

Measuring point description: [X] Mark/notch on TOC [ ] North rim of TOC [ ] Other:

Water level Meter Make/Model No.:

Serial No. (Optional):

	Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time ("24:00" hr)	1100	1255	1315	1323	1350	
Depth to Water (ft)	7.16	7.70	7.74	7.75	7.72	
Date (mm/dd/yy)	12/17/13	12/17/13	12/17/13	12/17/13	12/17/13	
LNAPL Thickness (ft) *(If present)*						
DNAPL Thickness (ft) *(If present)*						

Note: Record "S" in Remarks Column if sheen is observed.

Field Data

Instrument Make/Model No:	Unit or Serial No:	Pump description:	Bailer description:
YSI	#2	[X] Peristaltic	[ ] Disposable polyethylene
HF Quantaflo	#2	[ ] Bladder (dedicated / portable)	[ ] Disposable Teflon
		[ ] Submersible	[ ] Disposable PVC

Purge depth (ft): 34.7 bgs

Casing vol. (gal): (where applicable) N/A

Well goes dry during purging: [ ] Yes [X] No

= [total depth (feet) – depth to water (feet)] ▪ [well ID (inches)^2] ▪ 0.0408

Time ("24:00" hr)	1304	1307	1310	1313	1316	1319	1322			Remarks
Purge vol. (gal)	0.0	0.1	0.2	0.3	0.4	0.5	0.6			
Purge rate (mL/min)	175	175	175	175	175	175	175			
pH (su)	6.26	6.73	6.90	6.94	6.95	6.96	6.94			
Temp. (°C)	21.54	21.79	21.78	21.72	21.81	21.83	21.77			
Spec. cond. (µS/cm)	2443	2486	2457	2453	2437	2445	2468			
D.O. (mg/L)	-	-	-	-	-	-	-			
ORP (mV)	-	-	-	-	-	-	-			
Turbidity (NTU)	438.3	322.5	257.5	233.2	227.6	218.4	212.3			
Color/tint	gray	gray	gray	gray	gray	gray	gray			
Odor	-	-								

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-12	12/17/13	1325	2	None	1-250 H-3; 1-1gal α

Sampler's Name (print): ERIC NECAISE

Sampler Signature:

Date	Project Name	Project No	Project Manager (Print)	Page of
12/18/13	WF3	06045-0031-002	BOB WEST	1 of 2

Laboratory Name:	Submitted By:
TELEDYNE	FTN Associates, Ltd. 3 Innwood Circle, Suite 220 Little Rock, AR 72211 (501) 225-7779 Fax: (501) 225-6738
Phone:	
Sampler Signature(s): Eric Necaise	Recorded By (Print): ERIC NECAISE

Parameters (Method Number): H-3; GAMMA

Lab Turnaround Time: ☐ 24 Hours ☐ 48 Hours ☐ Normal ☐ Other Due: __/__/__

SAMPLE DESCRIPTION

Sample Identification	Date / Time	Matrix* W	S	O	No. of Containers	Comp	Grab	H-3	GAMMA	Laboratory Notes
MW-12	12/17/13 1325	X			2		X	1	1	
MW-03	1510									
MW-04	1610									
MW-05	12/18/13 0920									
MW-06	1030									
MW-07	1135									
MW-08	1305									
MW-09	1355									
					Container Type			G	P	
					Preservative			NO	NO	

*Matrix: W = Water, S = Soil, O = Other; G = Glass, P = Plastic, V = VOA vials; T = Sodium Thiosulfate, H = HC1 to pH2, NO = None; S = Sulfuric acid pH2, N = Nitric acid pH2, B = NaOH to pH12; Z = Zinc acetate

Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time
Eric Necaise	Eric Necaise	12/18/13	1700	Danielle Breaud	Danielle Breaud	12/18/13	1700
Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time

Sampler Remarks:	Laboratory Remarks:

DOCUMENT1

Revision Date 03-2012

ftn

Date	Project Name	Project No	Project Manager (Print)	Page 2 of 2
12/18/13	WF 3	06045-0031-002	BOB WEST	

Laboratory Name:	Submitted By:	Parameters (Method Number)	Lab Turnaround Time
TELEDYNE Phone:	FTN Associates, Ltd. 3 Innwood Circle, Suite 220 Little Rock, AR 72211 (501) 225-7779 Fax: (501) 225-6738	H-3 / GAMMA	☐ 24 Hours ☐ 48 Hours ☐ Normal ☐ Other Due: __/__/__
Sampler Signature(s)	**Recorded By (Print)**		
Eric Necaise	ERIC NECAISE		

SAMPLE DESCRIPTION

Sample Identification	Date / Time	Matrix* W	Matrix* S	Matrix* O	No. of Containers	Comp	Grab	H-3	GAMMA	Laboratory Notes
MW-10	12/18/13 1535	X			2		X	1	1	
DUP MW-10	1535	↓			↓	.		↓	↓	
MW-11	1620	↓			↓			↓	↓	
EB MW-11	1700	↓			1			↓		
					Container Type			G	P	
					Preservative			NO	NO	

*Matrix: W = Water, S = Soil, O = Other; G = Glass, P = Plastic, V = VOA vials; T = Sodium Thiosulfate, H = HC1 to pH2, NO = None; S = Sulfuric acid pH2, N = Nitric acid pH2, B = NaOH to pH12; Z = Zinc acetate

Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time
Eric Necaise	ERIC NECAISE	12/18/13	1700	Danielle Breaud	Danielle Breaud	12/18/13	1700
Relinquished By (Signature)	Print Name	Date	Time	Received By (Signature)	Print Name	Date	Time

Sampler Remarks:	Laboratory Remarks:

DOCUMENT1