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11 May 2016

Mr. Michael Townsend
Remedial Project Manager
Superfund Remedial & Site Evaluation Branch
U. S. Environmental Protection Agency, Region 4
Sam Nunn - Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303

Subject: Annual Groundwater Remedial Action Performance Monitoring Report – 2015
General Electric/Shepherd Farm NPL Site
East Flat Rock, Henderson County, North Carolina
NCD 079 044 426

Dear Mr. Townsend:

On behalf of GE Lighting Systems (GELS), Geosyntec Consultants of NC, PC (Geosyntec) has reviewed the comments on the Annual Groundwater Remedial Action Performance Monitoring Report – 2015 provided by David Mattison of NCDEQ Superfund Section dated 12 April 2016. Responses to these comments are provided in the text below with page changes/inserts where appropriate.

General Comment No. 01: Section 1.4 – Remediation Target Compounds in Groundwater

Please delete the phrase "(right?)" at the conclusion of Section 1.4.

Response:

The correction has been made and provided on a replacement page 4, attached.

General Comment No. 02: Section 2.5 – Stream Flow

Please correct the second sentence of the second paragraph of Section 2.5 to reflect the corrected estimated discharge of Bat Fork Creek per General Comment # 11 below.

Response:

The original estimated discharge of Bat Fork Creek is correct, and the noted inconsistency was due to rounding of values shown in table 2-4. Please see the response to General Comment No. 11 below.

General Comment No. 03: Section 3.1.1 – GE Subsite Results

Please correct the second sentence of the first bullet item of Section 3.1.1 to state "The reported detections ranged between 0.58 J µg/L (**MW-16**) and 542.0 µg/L (MW-14).

Response:

The correction has been made and provided on a replacement page 18, attached.

General Comment No. 04: Section 4.2 – Sediment Monitoring

In accordance with the laboratory analytical reports submitted as Appendix A, please correct the second bullet item in Section 4.2 to state "PCBs were detected in SED-2 at a total concentration of 0.124 mg/kg **and in SED-3 at an estimated total concentration of 0.0687 J mg/kg**, well below its RG."

Response:

The correction has been made and provided on a replacement page 23, attached.

General Comment No. 05: Section 5.1.1 – Total Volume Measurements

The second sentence of the second paragraph of Section 5.1.1 indicates that the total discharge through the Groundwater Remediation System (GRS) in pumping year 2014-2015 was approximately 1 million (M) gallons (gal) less than extracted and treated in pumping year (PY) 2013-2014. However, the first bullet item in the section entitled "*GRS Performance Summary*" in Section 6 indicates that the total discharge through the GRS in PY 2014-2015 was approximately 0.5 M gal less than extracted and treated in PY 2013-2014. Please clarify this discrepancy.

Response:

The total discharge through the GRS as determined from the system influent totalizer was approximately 17.1 M gal in PY 2013-2014 and 16.4 M gal in PY 2014-2015 (data shown in Table 5-1). This represents a drop of approximately 0.7 M gal in total GRS discharge between the two PYs. Section 5.1.1 has been updated to reflect this more precise number. The 0.5 M gal estimate of the GRS discharge drop expressed in Section 6 was calculated by comparing the sums of individual recovery well discharge volumes (data shown in Table 5-2) from both PYs. As suggested in Note 3 of Table 5-2, summing the recovery well discharge volumes may not be representative of the whole GRS discharge volume, but instead is a better indicator of individual well performance. The first bullet under

"GRS Performance Summary" has been updated to include both methods of flow measurement.

General Comment No. 06: Section 5.2.2 – Mass Removal

The third sentence of the third paragraph of Section 5.2.2 – Mass Removal contradicts the information provided in the second sentence of the first paragraph of Section 5.2.2 – Mass Removal. Please correct this discrepancy.

Response:

The contradiction in the third sentence of the third paragraph of Section 5.2.2 has been deleted and provided on a replacement page 27, attached. In making this correction, page 28 was affected and a minor typo in Table 5-4 was noticed and corrected (Total Gallons treated OCT ***~~13~~14*** *– SEP 15); the updated page 28 and Table 5-4 are also attached.*

General Comment No. 07: Section 6 – Groundwater, Surface Water, and Sediment Quality Summary

In accordance with the laboratory analytical reports submitted as Appendix A, please correct the first sentence of the second bullet item in this section to state "PCBs were detected in SED-2 **and in SED-3, at concentrations** below its RG (1 mg/kg)."

Response:

The correction has been made and provided on a replacement page 30, attached.

General Comment No. 08: Section 6 – Groundwater, Surface Water, and Sediment Quality Summary

Please correct the sixth bullet item in this section to state "VOCs were not detected in the one residential water supply well sampled in September **2015**, nor in MW-60A, on offsite monitoring well sampled as part of the residential well network."

Response:

The correction has been made and provided on a replacement page 30, attached.

General Comment No. 09: Table 2-3 – Water Level Measurements

The calculated water level elevations given for piezometers BAPZ-1 and BAPZ-2 for September 15, 2015 in Table 2-3 do not agree with the water level elevations given for piezometers BAPZ-1

and BAPZ-2 for September 15, 2015 in Figure 2-1, Figure C-8, or Table C-9. Please correct these discrepancies.

Response:

The corrections have been made and provided on a replacement Table 2-3 (second page only), attached.

General Comment No. 10: Table 2-3 – Water Level Measurements

The water elevations calculated for staff gauges SG-1 and SG-2 for September 15, 2015 in Table 2-3 are incorrect (e.g., SG-1: 2144.01 ft NGVD-29 – 4.63 ft ≠ 2140.77 ft NGVD-29). Please correct these oversights.

Response:

The corrections have been made and provided on a replacement Table 2-3 (second page only), Figure 2-1, Figure C-9 and Table C-10, attached.

General Comment No. 11: Table 2-4 – Stream Flow Measurements Recorded 14 September 2015

The estimated discharges calculated for surface water measurement points SW-3 and SW-6 for September 14, 2015 in Table 2-4 are incorrect (e.g., SW-3: 0.3 ft/s x 0.50 ft x 7.3 ft ≠ 0.92 cfs). Please correct these oversights.

Response:

The calculated discharges at SW-3 and SW-6 in Table 2-4 are correct, however the data in this table was rounded which led to the noted inconsistencies when calculating the discharge by hand. Table 2-4 has been updated to display an appropriate number of significant digits. A replacement Table 2-4 is attached.

General Comment No. 12: Table 2-5 – Summary of Stream Flow Measurements Since GRS Start-Up

Table 2-5 reflects the incorrect estimated discharges calculated for surface water measurement points SW-3 and SW-6 for September 14, 2015 as previously mentioned in the above Comment #11. Please correct these oversights.

Response:

Per the response provided to General Comment No. 11, these values are correct as reported.

General Comment No. 13: Table 4-2 – Sediment Analytical Results for September 2015

In accordance with the laboratory analytical reports submitted as Appendix A, please correct Table 4-2 – Sediment Analytical Results for September 2015 to indicate that the sediment sample SED-3 collected in September 2015 contained an estimated 68.7J micrograms per kilogram (µg/kg) total polychlorinated biphenyls (PCBs).

Response:

The correction has been made and provided on a replacement Table 4-2, attached.

General Comment No. 14: Figure 2-1 – GE Subsite Shallow Groundwater Table Elevation on 15 September 2015

Please correct Figure 2-1 to reflect the groundwater elevation at groundwater monitoring well MW-58 as is indicated on Table 2-3 – Water Level Measurements.

Response:

The correction has been made and provided on a replacement Figure 2-1, attached.

General Comment No. 15: Figure 2-1 – GE Subsite Shallow Groundwater Table Elevation on 15 September 2015

Please correct Figure 2-1 – GE Subsite Shallow Groundwater Table Elevation on 15 September 2015 to reflect corrected groundwater elevations at staff gauges SG-1 and SG-2 as previously mentioned in General Comment # 10.

Response:

The correction has been made and provided on a replacement Figure 2-1, attached.

General Comment No. 16: Figure 2-6 – Hydraulic Containment in the Saprolite at the GE & Shepherd Farm Subsites on 15 September 2015

Please correct Figure 2-6 to reflect the groundwater elevations at groundwater monitoring wells MW-32, MW-37, MW-42, MW-43, and MW-54 as is indicated on Table 2-3 – Water Level Measurements and Figure 2-1 – GE Subsite Shallow Groundwater Table Elevation on 15 September 2015.

Response:

The corrections have been made and provided on a replacement Figure 2-6, attached.

General Comment No. 17: Figure 3-3 – Plan View of September 2015 PCE Measurements at the GE Subsite

In accordance with the laboratory analytical reports submitted as Appendix A, please correct Figure 3-3 to indicate that the groundwater sample collected in September 2015 from monitoring well MW-16 contained an estimated 0.58 J micrograms per liter (µg/L) tetrachloroethene (PCE).

Response:

The correction has been made and provided on a replacement Figure 3-3, attached.

General Comment No. 18: Figure 3-4 – Vertical Delineation of the PCE Plume – September 2015 Measurements

In accordance with the laboratory analytical reports submitted as Appendix A, please correct Figure 3-4 to indicate that the groundwater samples collected in September 2015 from monitoring well MW-16 and monitoring well MW-16A contained an estimated 0.58 J µg/L and 4.9 µg/L PCE, respectively.

Response:

The corrections have been made and provided on a replacement Figure 3-4, attached.

General Comment No. 19: Appendix C – Hydrographs and Historical Groundwater Levels

Please correct the notes for Figure C-3, Figure C-4, Figure C-5, and Figure C-6 to indicate that groundwater monitoring wells MW-11, MW-19, MW-21, MW-28, MW-30, MW-30A, and MW-53 were abandoned **August 14, 2014**.

Response:

The corrections have been made and provided on a replacement Figure C-3, Figure C-4, Figure C-5, and Figure C-6, attached.

General Comment No. 20: Appendix C – Hydrographs and Historical Groundwater Levels

The groundwater elevation given for recovery well RW-2/2R for September 15, 2015 in Table C-10 does not agree with the groundwater elevation given for recovery well RW-2/2R for September 15, 2015 in Table 2-2, Figure 2-1, Figure 2-3, Figure 2-6, and Figure C-1. Please correct this discrepancy.

Response:

The correction has been made and provided on a replacement Table C-11, attached. This table has been renumbered due to changes made in response to General Comment No. 21.

General Comment No. 21: Appendix C – Hydrographs and Historical Groundwater Levels

Please supplement Appendix C – Hydrographs and Historical Groundwater Levels with the groundwater elevation data collected from staff gauges SG-1 and SG-2

Response:

Appendix C has been supplemented with groundwater elevation data from SG-1 & SG-2. Hydrographs for SG-1 and SG-2 are attached in newly created Figure C-9. The generation of this figure required renumbering of the tables in Appendix C, and as such Tables C-10, C-11, and C-12 (old C-9, C-10, and C-11) are attached. Table C-10 contains available historical groundwater levels for SG-1 and SG-2.

General Comment No. 22: Appendix H – Historical Surface Water and Sediment Results since Groundwater Remediation System Startup

In accordance with the laboratory analytical reports submitted as Appendix A, please correct Table H-2 to indicate that the sediment sample SED-3 collected in September 2015 contained an estimated 68.7J µg/kg total PCBs.

Response:

The correction has been made and provided on a replacement Table H-2 (second page only), attached.

Please contact us at 704-227-0840 should you have any questions.

Sincerely,

David Hanley, P.E.
Engineer

Jeffrey M. Ahrens, P.E.
Principal Engineer

Attachment – Revised Report Pages

CC: Mr. David Mattison, NCDENR
Mr. Cody Platt, GE Corporate Environmental Programs
Mr. Steve Floyd, GE Lighting
Mr. Todd Hagemeyer, Geosyntec
Mr. Todd Kafka, Geosyntec

Attachment
Revised Report Pages

Geosyntec consultants

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- In 2005, USEPA and the North Carolina Department of Environment and Natural Resources (NCDENR, now referred to as the North Carolina Department of Environmental Quality [NCDEQ]) approved the removal of nitrobenzene, barium, and beryllium from the remediation target compound list after meeting the removal criteria.

- In 2009, USEPA and NCDENR provided conditional approval for (1) the removal of benzene, trans-1,2-dichloroethene (tDCE), and manganese from both Subsites; (2) chloroform from the SF Subsite only; and (3) lead and nickel from all but one monitoring location at the SF Subsite (RWSF-1), provided that the removed constituents were analyzed every fifth year.

- In 2011, NCDENR approved in its letter dated 31 January 2011 the removal of lead and nickel from the annual remediation target compound list for RWSF-1, provided that the removed constituents be analyzed every fifth year (NCDENR, 2011). NCDENR also approved the removal of lead, manganese and nickel from the remediation target compound list for the residential monitoring well network.

A list of the modified RTCs, their RGs, and sampling frequency is provided in **Table 1-1**. The 2015 monitoring program followed the "annual sampling" requirements shown on **Table 1-1**. The next 5th year sampling event will occur in fall 2018.

1.5 Groundwater Remedial Actions

A phased approach was used to implement the groundwater remedial action. The AGRS was installed in July 1997 and operated until September 2000. Construction of the final GRS was completed at the end of September 2000. The AGRS and GRS are described below.

1.5.1 AGRS

The AGRS operated from July 1997 to September 2000 to initiate mass removal and provide performance data to support the final design. The AGRS was constructed on the GE Subsite and consisted of four recovery wells (RW-1 though RW-4), a treatment system, an outfall, associated pumps, piping and controls. Extracted groundwater flowed through an oil-water separator and was treated for VOCs using a four-tray low-

- Tetrachloroethene (PCE) was detected above its RG of 1.0 µg/L at 12 of 14 performance well locations. The reported detections ranged between 0.58 J µg/L (MW-16) and 542.0 µg/L (MW-14).

- Trichloroethene (TCE) was detected above its RG of 2.8 µg/L at six of 14 performance well locations. The reported detections above the RG ranged between 0.58 J µg/L (MW-8) and 21.5 µg/L (MW-14).

- Cis-1,2-dichloroethene (cDCE) was not detected above the RG of 70 µg/L at any of the 14 performance well locations

- Vinyl chloride was not detected above its RG of 1 µg/L at any of the performance well locations.

- 1,2-Dichloroethane (1,2-DCA) was detected above its RG of 1.0 µg/L at one of the 14 performance monitoring well locations. The reported concentration was 1.8 µg/L at MW-27A.

- Chloroform was detected above its RG of 1.0 µg/L at two of the 14 performance well locations. The reported exceedances were at concentrations of 8.9 µg/L at MW-12 and 2.8 µg/L at MW-12A.

PCE serves as a useful indicator for remedial system performance since it is the primary plume constituent and has historically been detected above the RG at more locations than any of the other RTCs. **Figure 3-3** depicts a plan view of dissolved PCE concentrations reported in September 2015 at the GE Subsite. The highest concentrations were located along the western edge of the Large GE Wetland. The distribution of PCE along the primary west to east groundwater flowpath at the GE Subsite is shown in a vertical profile shown in **Figure 3-4**. This figure reveals that upward hydraulic gradients from the shallow bedrock to the saprolite predominate in the vicinity of Bat Fork Creek at the MW-27/27A, MW-14/14A, and MW-16/16A well pairs compared to mixed upward and downward vertical gradients farther away from the creek (MW-12/12A/12B cluster). Across the creek to the east, artesian conditions prevail at MW-60A that further support the creek's role as a groundwater discharge zone. These hydraulics appear to influence PCE concentrations at the downgradient end of the flowpath where vertical flow appears to be stronger than horizontal flow as evidenced by relatively low concentrations at MW-27/27A less than 200 feet from

summarized in **Table 4-2**; of the constituents analyzed, there is only a RG for PCBs (1 mg/kg). The sediment sample results are summarized as follows:

- VOCs were not detected at any of the sampling stations.
- PCBs were detected in SED-2 at a total concentration of 0.124 mg/kg and in SED-3 at an estimated total concentration of 0.0687 J mg/kg, well below its RG.

The laboratory analytical reports for these sediment sample analyses are included in **Appendix A**. A compilation of the sediment results during the entire operation of the GRS from September 2000 through September 2015 is provided in **Appendix H** (Table H-2). VOCs have not been detected above reporting limits in sediment samples historically with the exception of sporadic PCE detections at SED-2 (2003, 2004 and 2013) and SED-3 (2013). There are no sediment standards or RGs for VOCs. Additionally, while PCBs have been detected historically at the SED-2 location and occasionally at the SED-3 location (the downstream-most location), none of the PCB detections have exceeded its RG of 1 mg/kg.

5. SUMMARY OF TREATMENT SYSTEM ACTIVITIES

5.1 GRS Operation

The GRS operation is monitored routinely. Monitoring data include (1) the collection of weekly total discharge readings through the GRS via the totalizing flow meter located in the treatment building, (2) the collection of monthly flow meter readings at each of the recovery wells, and (3) receipt and review of daily system faxes regarding the status of the five primary alarm conditions (e.g., sump high level, bag filter pressure high, AC power off, blower fault, and motor overload). An assessment of the GRS performance is provided in the following subsections.

5.1.1 Total Volume Measurements

The GRS was designed to treat groundwater discharged from each of nine active recovery wells using a four-tray air stripper; since 2012, RW-1 has not been operating due to repeated fouling by an aluminosilicate mineral, yet the overall capture zone at the GE Subsite has not been adversely affected. Total flow from the recovery wells is combined into a single influent line outside the treatment building and through a digital flow sensor and analog totalizing flow meter ("influent totalizer") located inside the building and upstream of the air stripper. This enables a more accurate assessment of flow from the recovery wells as effluent flow rates fluctuate due to discharge pump cycling at the air stripper whereas influent flow is constant and directly related to recovery well flow rates. A Global Water™ data logger installed at the digital flow sensor records instantaneous total influent flow readings at 30-minute intervals.

The annual treated flow during any given pumping year is reported based on the difference in total discharge (in gallons) between the end and beginning of the pumping year. For pumping year 2014-2015, the total discharge through the GRS measured from the influent totalizer was 16.44 million (M) gallons (gal) (**Table 5-1**), approximately 0.7 M gal less than extracted in pumping year 2013-2014. This equates to an average treated flow rate of 31.3 gallons per minute (gpm) compared to the design flow rate of 32 gpm. The instantaneous flow readings from the data logger reveal that total discharge typically ranges between 20 and 40 gpm depending upon well performance with a median value of 32.3 gpm.

GRS Performance Summary:

- An estimated total of 16.4 M gal of VOC-impacted groundwater was extracted and treated during pumping year 2014-2015 (based on the system totalizing flow meter), which, as determined from the system influent totalizer, represents a 0.7 M gal decrease compared to pumping year 2013-2014. Comparing the sums of individual recovery well discharge volumes between the pumping years, the estimated decrease in total treated groundwater is 0.5 M gal. Relatively lower average recovery well pumping rates due to increased downtime likely resulted in observed treatment volume reduction. The volume extracted equates to an approximate average pumping rate of 31.3 gpm. Based on individual well flow totalizer readings, the extracted volume was about 0.5 M gal higher at the SF Subsite compared to pumping year 2013-2014, and about 0.9 M gal lower at the GE Subsite compared to pumping year 2013-2014.

- Approximately 11.0 lbs of total VOC mass were removed during pumping year 2014-2015, of which PCE contributed 10.4 lbs. The mass removed in pumping year 2014-2015 remained lower than the historical average, and a declining trend in total VOC mass removal has been apparent since 2008 as the plume continues to decrease in size and concentration.

- After 15 full pumping years (from October 2000 to September 2015), the GRS has extracted and treated over 210 million gallons of groundwater and has removed an estimated 352 lbs of total VOCs.

- O&M activities included recommended O&M tasks such as air stripper cleaning, recovery well diagnostics, well pump cleaning, flow meter cleaning, etc. RWSF-2, RWSF-3, RW-2R, RW-5, and RW-7 experienced downtime due to mechanical and electrical problems. Otherwise, downtime was a function of occasional events that shutdown the entire GRS (e.g., PLC cards). In these circumstances, an alarm generally alerted GELS personnel that repairs were needed.

- Flooding of the recovery well vaults, especially RW-7 (February and June) and RWSF-3 (January), can short the waterproof electrical connections and short the pumps.

5.2 Treatment System Effluent Monitoring

Extracted groundwater is treated for VOCs using a four-tray air stripper, pumped to the facility for re-use as process water, and then discharged to the POTW after combining with the GE Lighting's process wastewater for pre-treatment. The groundwater upstream (influent) and downstream (effluent) of the air stripper are sampled quarterly during operations to evaluate the effectiveness of the air stripper.

5.2.1 Water

Influent and effluent groundwater samples from the treatment system were collected quarterly during the pumping year in December 2014 and March, May, and August 2015. The results of each quarterly sampling event were provided to USEPA in quarterly Influent and Effluent Sampling Results letter reports. The historical GRS influent and effluent water analytical results from December 2000 through August 2015 are shown in **Appendix I**.

5.2.2 Mass Removal

Influent groundwater quality measurements (**Table 5-4**) are used in conjunction with total GRS discharge rates (**Table 5-1**) to calculate the estimated mass removed from groundwater due to operation of the GRS. **Table 5-4** reveals that an estimated mass of 11.0 pounds (lbs) of VOCs was removed during pumping year 2014-2015 compared to 16.1 lbs removed during pumping year 2013-2014. The PCE contribution was 10.4 lbs of the total 11.0 lbs removed.

Since the startup of the GRS, the cumulative total mass removal of VOCs is estimated at 352 lbs. Of the VOCs, PCE has had the highest estimated mass removal, totaling 299 lbs followed by cDCE at 26.3 lbs.

Semi-annual VOC removal rates are plotted in **Figure 5-2**. On average, the GRS has historically had mass removal rates of approximately 12 lbs of total VOCs per six months. Although yearly fluctuations in mass removal estimates may reflect varying contributions from different extraction wells over time, a generally decreasing trend in

mass removal has been apparent since 2008. The timeframe when this trend has been observed covers a range of extraction efficiencies and configurations, providing additional evidence of the overall decrease in VOC concentrations in groundwater.

Table 5-4
Estimated Mass Removal During PY 2014-2015
General Electric/Shepherd Farm Site Annual Performance Monitoring
East Flat Rock, North Carolina

Total gallons treated since startup:	211,413,994
Total Gallons treated OCT - DEC 14:	3,535,944
Total Gallons treated JAN - MAR 15:	4,599,290
Total Gallons treated APR - JUN 15:	4,400,649
Total Gallons treated JUL - SEP 15:	3,902,705
Total Gallons treated OCT 14 - SEP 15:	16,438,588

Remediation Target Compound	GRS Design Influent Concentration	OCT 14- DEC 14			JAN 15 - MAR 15			APR 15 - JUN 15			JUL 15 - SEP 15			PY 14-15 Mass Removed	Total Mass Removed Since September 2000*
		GRS Influent (17 NOV 14)	Mass Removed		GRS Influent (16 FEB 15)	Mass Removed		GRS Influent (26 MAY 15)	Mass Removed		GRS Influent (17 AUG 15)	Mass Removed			
	µg/L	µg/L	g	lbs	µg/L	g	lbs	µg/L	g	lbs	µg/L	g	lbs	lbs	lbs
Volatile Organic Compounds (µg/L)															
Benzene	0.43	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.14
Chloroform	0.55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.80
1,2-Dichloroethane	12.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.93
cis-1,2-Dichloroethene	43.2	1.1	15	0.03	3.0	52.2	0.12	2.8	46.6	0.10	3.0	44.3	0.10	0.35	26.3
trans-1,2-Dichloroethene	0.24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.27
Tetrachloroethene	302	**92.7**	1241	2.7	**91.8**	1598	3.5	**68.3**	1138	2.5	**48.8**	721	1.6	10.4	299
Trichloroethene	12.6	**3.7**	50	0.11	**2.9**	50	0.11	1.6	26.7	0.06	1.5	22.2	0.05	0.3	21.6
Vinyl Chloride	0.08	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.29
Total VOCs	372	98	1305	2.9	98	1701	3.8	72.7	1211	2.7	53.3	787	1.7	11.0	352

Notes:

µg/L = micrograms per liter

g = grams

lbs = pounds

Total volume per time period based on total discharge reported in Table 5-1

GRS design influent concetration from the Final Design for Groundwater (HSI GeoTrans, 2000)

* Nitrobenzene, barium, beryllium, lead, manganese, and nickel are no longer analyzed and have been removed from this analysis.

Mass removal is determined by multiplying the GRS influent concentration for the nearest quarter by the total liters treated during the same time period.

Total mass removed is determined by summing quarterly mass removal estimates.

Bolded values indicate detected concentrations greater than remediation goal.

Non-detects are entered as 0.0 ug/L for calculation purposes.

Groundwater, Surface Water, and Sediment Quality Summary:

- Surface water: VOCs were not detected in surface water with the exception of PCE which was detected at one of the six monitoring stations (SW-5) at a concentration below the 2B standard (3.3 µg/L) for PCE.

- Sediment: PCBs were detected in SED-2 and in SED-3, at concentrations below its RG (1 mg/kg). VOCs were not detected at any of the sediment sampling stations.

- Groundwater at GE Subsite: PCE, TCE, chloroform, and 1,2-DCA were detected above their RGs at the GE Subsite. PCE and TCE continue to be the most frequently reported VOCs in groundwater, with PCE detected in 12 of 14 monitoring wells and TCE detected in six of 14 monitoring wells.

- Groundwater at SF Subsite: At the SF Subsite, PCE was the only VOC detected in groundwater and was encountered in each of the three sampled monitoring wells at concentrations greater than the RG.

- Groundwater Concentration Trends: Declining VOC concentration trends continue to dominate. Thirty-three (33) declining VOC concentration trends were observed at the GE Subsite monitoring wells and three (3) declining VOC trends were observed at the SF Subsite monitoring wells, with parent PCE concentration declines exhibiting the greatest number at both Subsites. One increasing trend was observed for the PCE daughter product, cDCE, at GE Subsite well MW-13A located adjacent to the Large GE Wetland; the higher organic carbon content of soil and groundwater near the wetland is likely stimulating natural microbes to foster reductive dechlorination of PCE locally, resulting in the formation of cDCE. The persistence of downward trends in VOC groundwater concentrations at performance monitoring wells over time provides empirical evidence of the overall improvement to the groundwater quality at the GE and Shepherd Farm Subsites.

- Residential Wells: VOCs were not detected in the one residential water supply well sampled in September 2015, nor in MW-60A, an offsite monitoring well sampled as part of the residential well network.

Table 2- 3 (continued)
Water Level Measurements
General Electric/Shepherd Farm Site Annual Performance Monitoring
East Flat Rock, North Carolina

Location	Aquifer Unit	Well Depth (ft)	Screened Interval (ft bgs)	TOC Elevation (ft NGVD-29)	Depth to Water (ft BTOC)	9/15/15 Water Elevation (ft NGVD-29)
MW-30A†	Bedrock	62	52-62	Abandoned 14 August 2014		
MW-32*	Saprolite	17	7-17	2157.69	11.80	2145.89
MW-37*	Saprolite	36	26-36	2158.41	25.00	2133.41
MW-38	Saprolite	63	43-63	2178.03	12.46	2165.57
MW-39	Saprolite	55	35-55	2179.64	18.28	2161.36
MW-40	Saprolite	53	33-53	2177.73	18.36	2159.37
MW-41	Saprolite	48	28-48	2178.54	25.83	2152.71
MW-42*	Saprolite	38	18-38	2177.05	23.70	2153.35
MW-43*	Saprolite	40	20-40	2171.91	17.50	2154.41
MW-45	Saprolite	13	3-13	2160.60	6.67	2153.93
MW-46	Saprolite	13	3-13	2159.80	5.96	2153.84
MW-53†	Saprolite	23	8-23	Abandoned 14 August 2014		
MW-54*	Saprolite	19	4-19	2173.17	19.60	2153.57
MW-55	Saprolite	19	4-19	2160.42	10.49	2149.93
MW-56	Saprolite	23	NR	2181.80	20.38	2161.42
MW-57	Saprolite	44	34-44	2195.31	15.59	2179.72
MW-58	Saprolite	33	23-33	2162.56	7.57	2154.99
MW-59	Saprolite	56	46-56	2171.33	22.56	2148.77
MW-60A	Bedrock	45	35-45	2137.20	3.90	2133.30
MW-61	Saprolite	35	25-35	2244.30	23.88	2220.42
MW-62	Saprolite	35	25-35	2223.30	23.72	2199.58
MW-62A	Bedrock	67	57-67	2222.43	24.55	2197.88
MW-64	Saprolite	10	5-10	2178.84	11.68	2167.16
MW-64A	Bedrock	35	25-35	2179.05	12.12	2166.93
MW-65	Saprolite	45	35-45	2210.85	36.42	2174.43
MW-66	Saprolite	27	17-27	2168.85	6.58	2162.27
BAPZ-1	Saprolite	10	5-10	2153.92	4.63	2149.29
BAPZ-2	Saprolite	14.8	10-15	2157.48	7.84	2149.64
SG-1	Surface Water	--	--	2144.01**	dry	dry
SG-2	Surface Water	--	--	2155.49**	4.95	2150.54

Notes:

bgs = below ground surface

NGVD-29 = National Geodetic Vertical Datum of 1929

TOC = top of casing

BTOC = below top of casing

*Well converted from flush-mount to stickup completion in April 2014, resurveyed.

†Well abandoned in August 2014.

**Staff gauge datum elevation

Table 2-4
Stream Flow Measurements Recorded 14 September 2015
General Electric/Shepherd Farm Site Annual Performance Monitoring
East Flat Rock, North Carolina

Stream Section in Downstream Order	Measurement Date	Avg. Velocity[1] (ft/s)	Avg. Stage Height (ft)	Active Channel Width (ft)	Estimated Discharge[2] (cfs)	Approximate Channel Cross-Section[2] (sq. ft)	Approximate Discharge Cross-Section[2] (sq. ft)
SW-1[a]	09/14/15	—	0.043	2.3	—	40.4	0.2
SW-2	09/14/15	0.10	0.150	4.3	0.06	88.8	1.1
SW-4	09/14/15	0.30	0.460	4.5	0.62	51.5	3.9
SW-5	09/14/15	0.20	0.240	5.8	0.28	35.3	2.4
SW-6	09/14/15	0.40	0.123	3.8	0.19	28.8	0.8
SW-3	09/14/15	0.25	0.503	7.3	0.92	57.0	7.3

Notes:

[1] Average velocity calculated by slowly moving a stream flow monitoring device modified to a Global Water Flow Probe Model FP211 probe across and throughout the stream channel (at the cross-section).

[2] Estimated discharge at each station is the product of the velocity, average stage height, and active channel width. The approximate channel cross-section and discharge cross-section are provided to demonstrate the portion of the full stream channel actively discharging on the date of measurement. The discharge cross-section is the product of the thalweg depth (deepest part of stream channel) and the channel width.

[a] Flow was observed at SW-1, however velocity could not be measured due to shallow depth.

cfs - cubic feet per second

Table 4-2
Sediment Analytical Results for September 2015
General Electric/Shepherd Farm Site Annual Performance Monitoring
East Flat Rock, North Carolina

Parameter	Remediation Goal	SED-1		SED-2		SED-3	
Volatile Organic Compounds (µg/kg)							
cis-1,2-Dichloroethene	NL	ND	(7.6)	ND	(7.0)	ND	(10.7)
trans-1,2-Dichloroethene	NL	ND	(7.6)	ND	(7.0)	ND	(10.7)
1,2-Dichloroethane	NL	ND	(7.6)	ND	(7.0)	ND	(10.7)
Tetrachloroethene	NL	ND	(7.6)	ND	(7.0)	ND	(10.7)
Trichloroethene	NL	ND	(7.6)	ND	(7.0)	ND	(10.7)
Vinyl chloride	NL	ND	(15.3)	ND	(13.9)	ND	(21.5)
PCBs (µg/kg)							
PCBs Total	1,000	ND	(50.4)	124		68.7	J

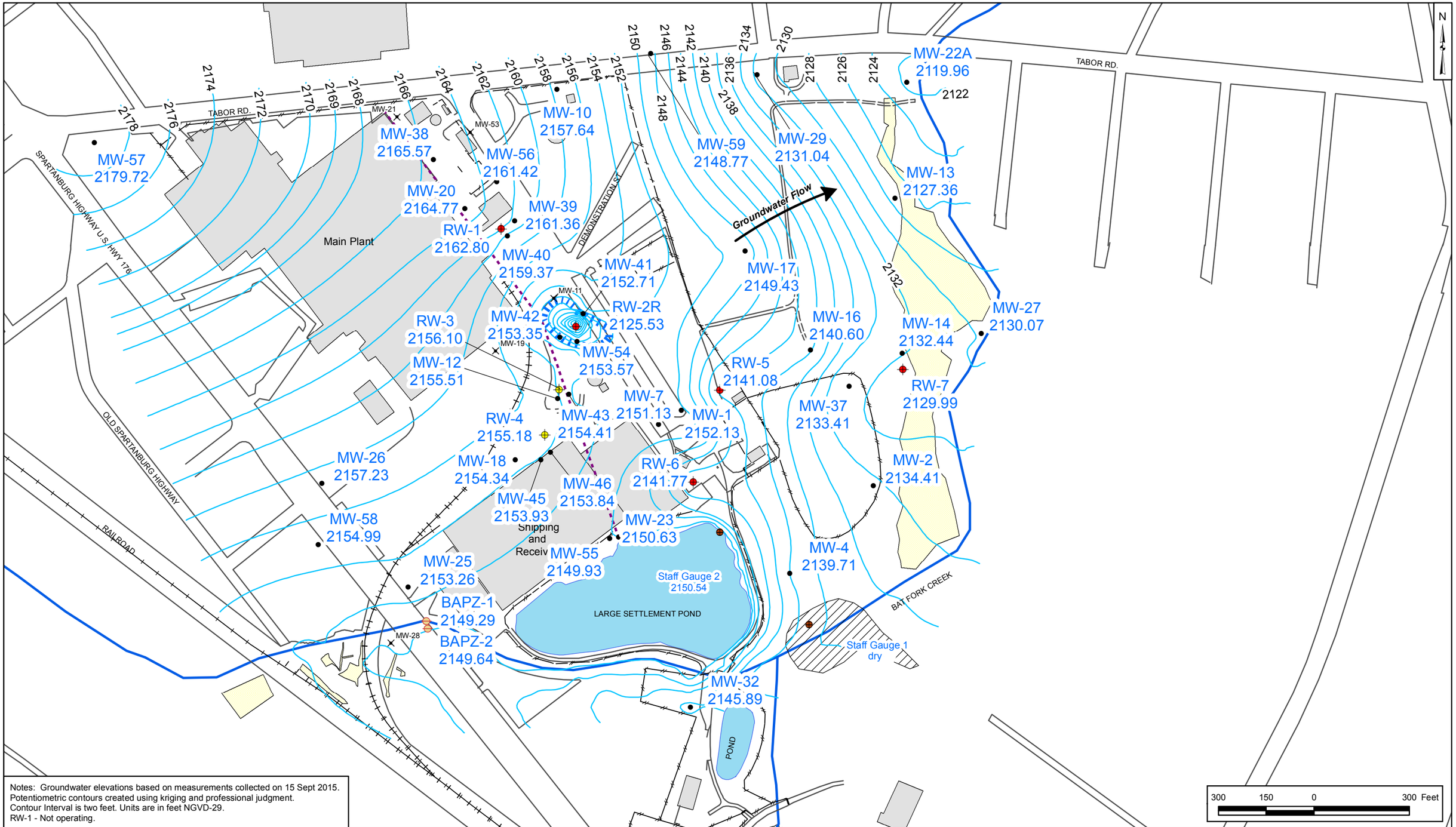
Notes:

µg/kg - microgram per kilogram

NL = not listed

ND = not detected above reporting limit in parentheses

J = estimated result above the laboratory method detction limit, but below the reporting limit



Notes: Groundwater elevations based on measurements collected on 15 Sept 2015.
Potentiometric contours created using kriging and professional judgment.
Contour Interval is two feet. Units are in feet NGVD-29.
RW-1 - Not operating.

- Bat Fork Creek
- Former Drainline (Law 1990)
- Wetlands
- Potentiometric Surface Elevation Contour
- Potentiometric Surface Depression
- Approximate Extent of Historic Ponding Due to Beaver Dams
- Shallow Monitoring Well Abandoned in 2014
- Piezometer
- Shallow Monitoring Well
- Bedrock Monitoring Well
- Recovery Well
- Inactive Recovery Well
- Staff Gauge

Well Name: MW-55
Groundwater Elevation (ft): 2150.45

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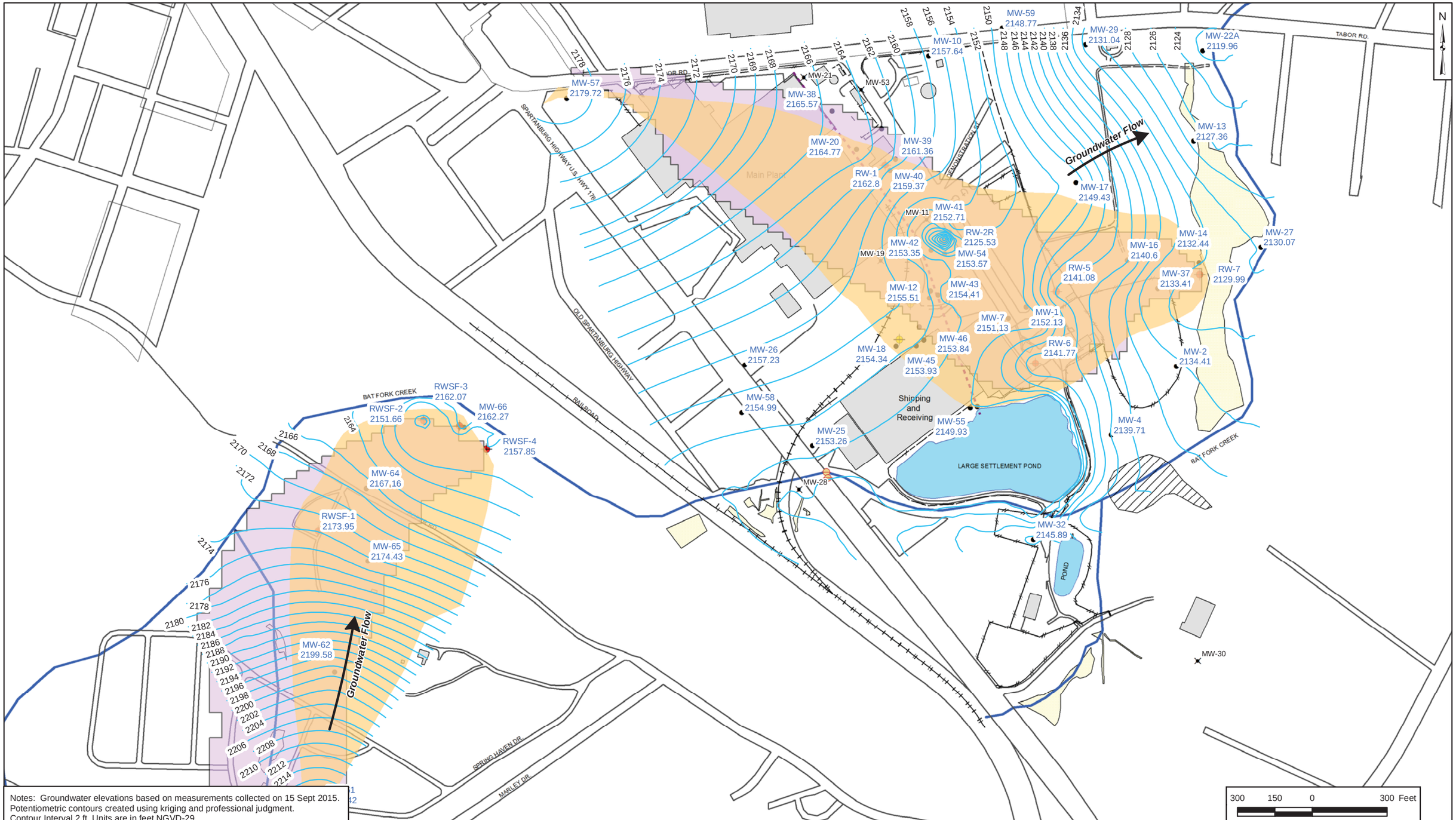
GE Subsite Shallow Groundwater Table Elevation on 15 September 2015

East Flat Rock, NC

Figure **2-1**

File Path: N:\GE Lighting Systems\GIS\Groundwater\2015\mxd\Fig02-1 - GE - Shallow.mxd
Last Edited by: MJ Gonzalez



Notes: Groundwater elevations based on measurements collected on 15 Sept 2015.
Potentiometric contours created using kriging and professional judgment.
Contour Interval 2 ft. Units are in feet NGVD-29.

- Potentiometric Surface Elevation Contour
- Former Drainline (Law 1990)
- Wetlands
- Approximate Extent of Historic Ponding Due to Beaver Dams
- Simulated Hydraulic Capture Zone
- Estimated Hydraulic Capture Zone
- Shallow Monitoring Well Abandoned in 2014
- Piezometer
- Shallow Monitoring Well
- Bedrock Monitoring Well
- Recovery Well
- Inactive Recovery Well
- Staff Gauge

Well Name: MW-55
Groundwater Elevation: 2150.82 (ft)

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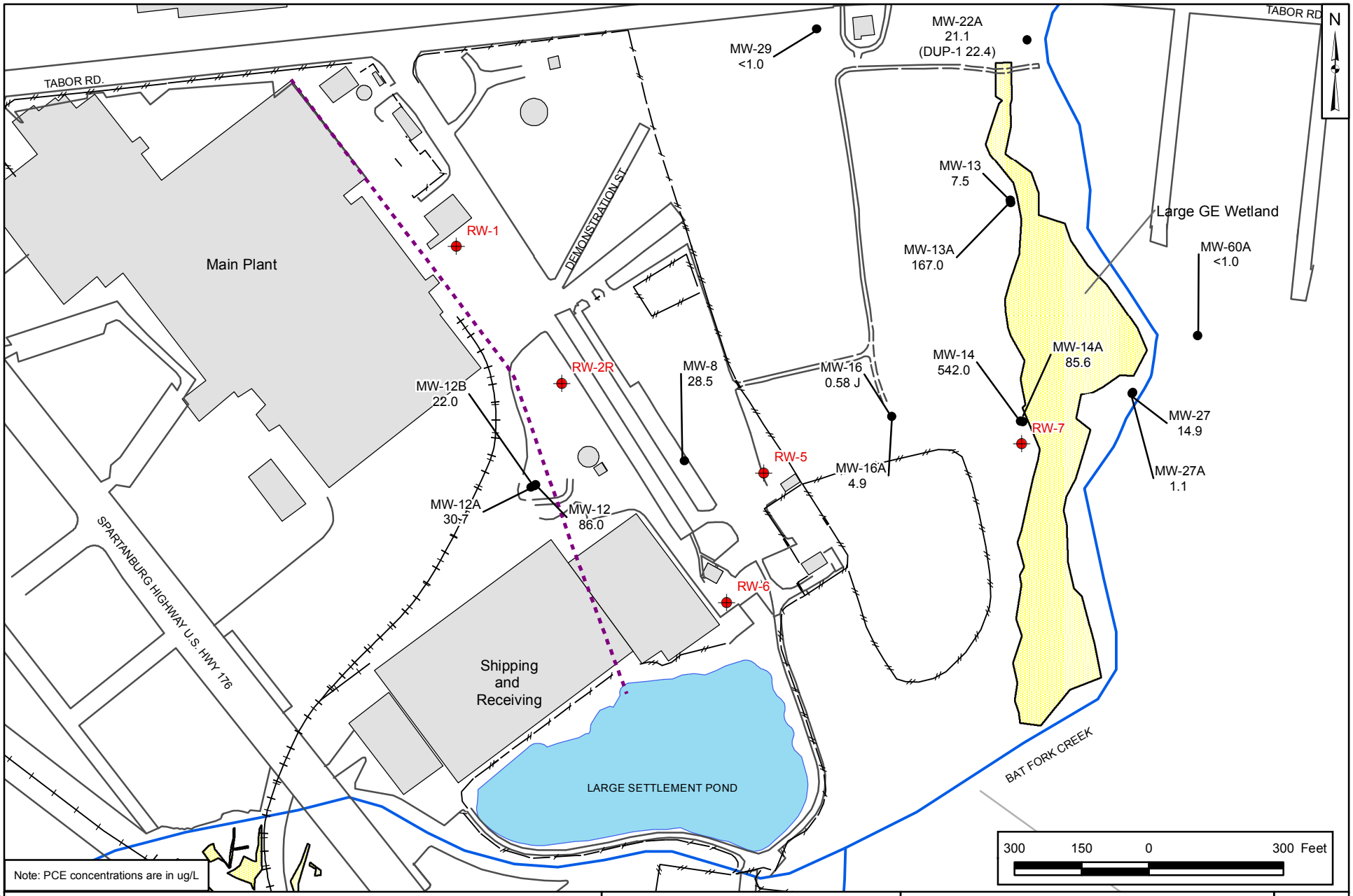
Hydraulic Containment in the Saprolite at the GE & Shepherd Farm Subsites on 15 September 2015
East Flat Rock, NC

Figure **2-6**

File Path: N:\GE Lighting Systems\GIS\Groundwater\2015\mxd\Fig02-6 Hydr Containment Map - Saprolite.mxd
Last Edited by: DMillsey



Note: PCE concentrations are in ug/L

Bat Fork Creek

Former Drainline (Law 1990)

Wetlands

Geosyntec consultants

Kennesaw, GA

FEBRUARY 2016

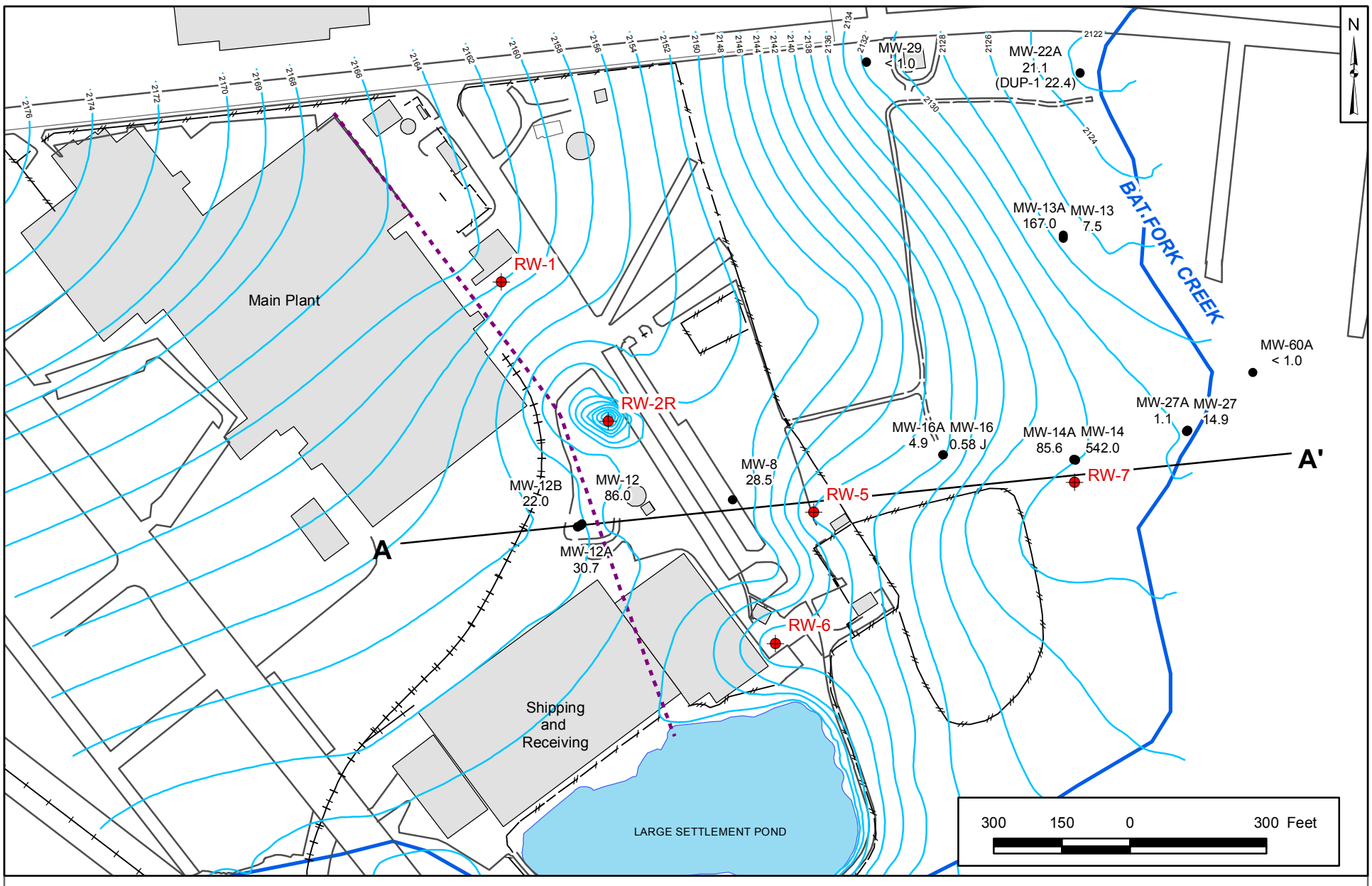
Plan View of September 2015 PCE Measurements at the GE Subsite

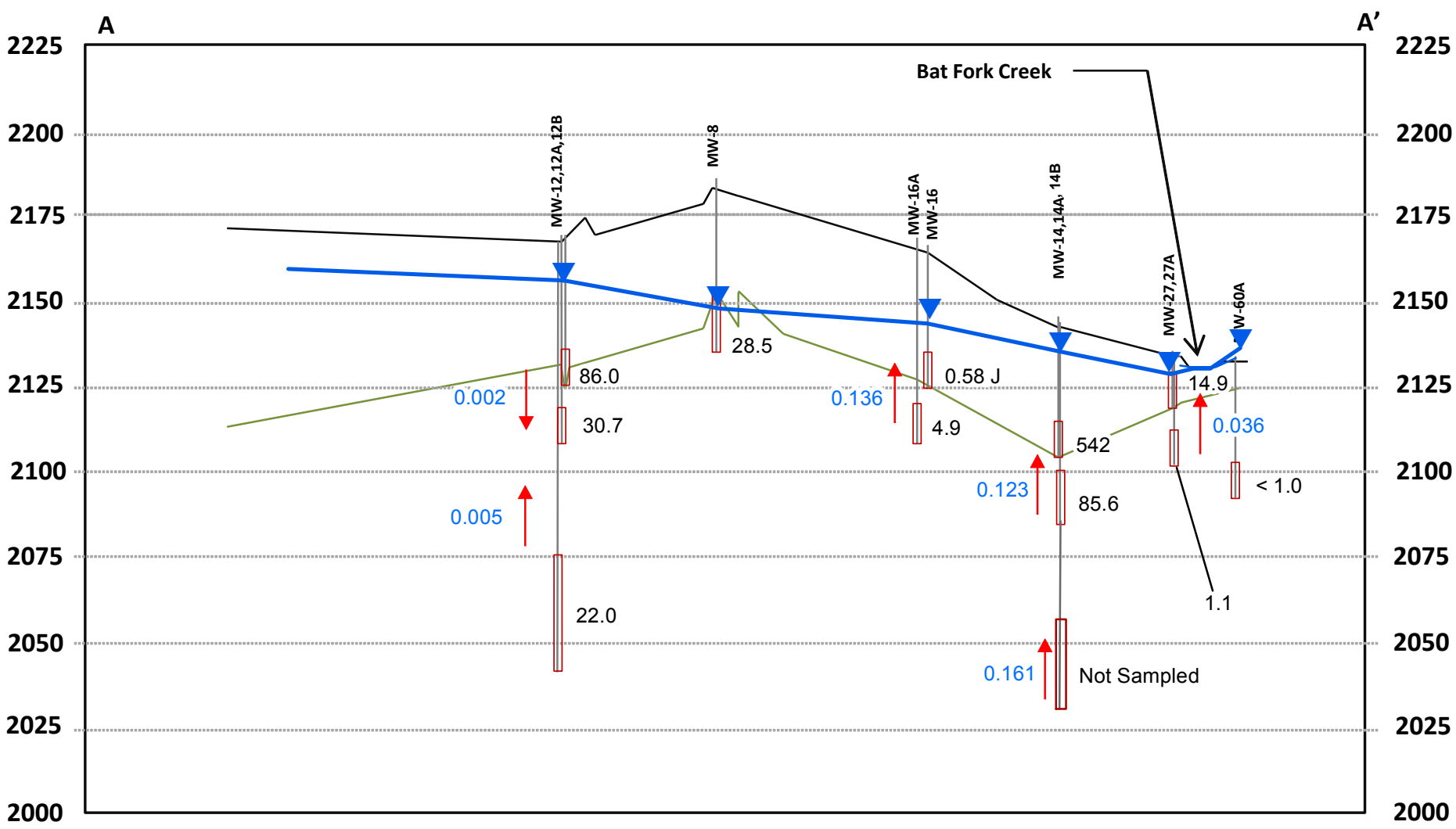
East Flat Rock, NC

Figure

3-3

File Path: N:\GE Lighting Systems\GIS\mxd\Report_2014\Fig03-3 GE PCE in Wells.mxd
Last Edited By: DHonley





Notes:
1. Vertical exaggeration: 7.5x
2. Wells are projected perpendicular to the section line.
3. For well clusers:
   A designator = shallow bedrock well
   B designator = deep bedrock well
4. Groundwater contour interval is 2 feet.

Legend

- Shallow Monitoring Well (PCE concentration in µg/L)
- Bedrock Monitoring Well (PCE concentration in µg/L)
- Recovery well
- Ground Surface
- Groundwater Potentiometric Surface September 2015
- Bedrock Surface
- 0.045 Vertical gradient ft/ft
- Monitoring Well
- Screen Interval { 48 September 2015 PCE Result

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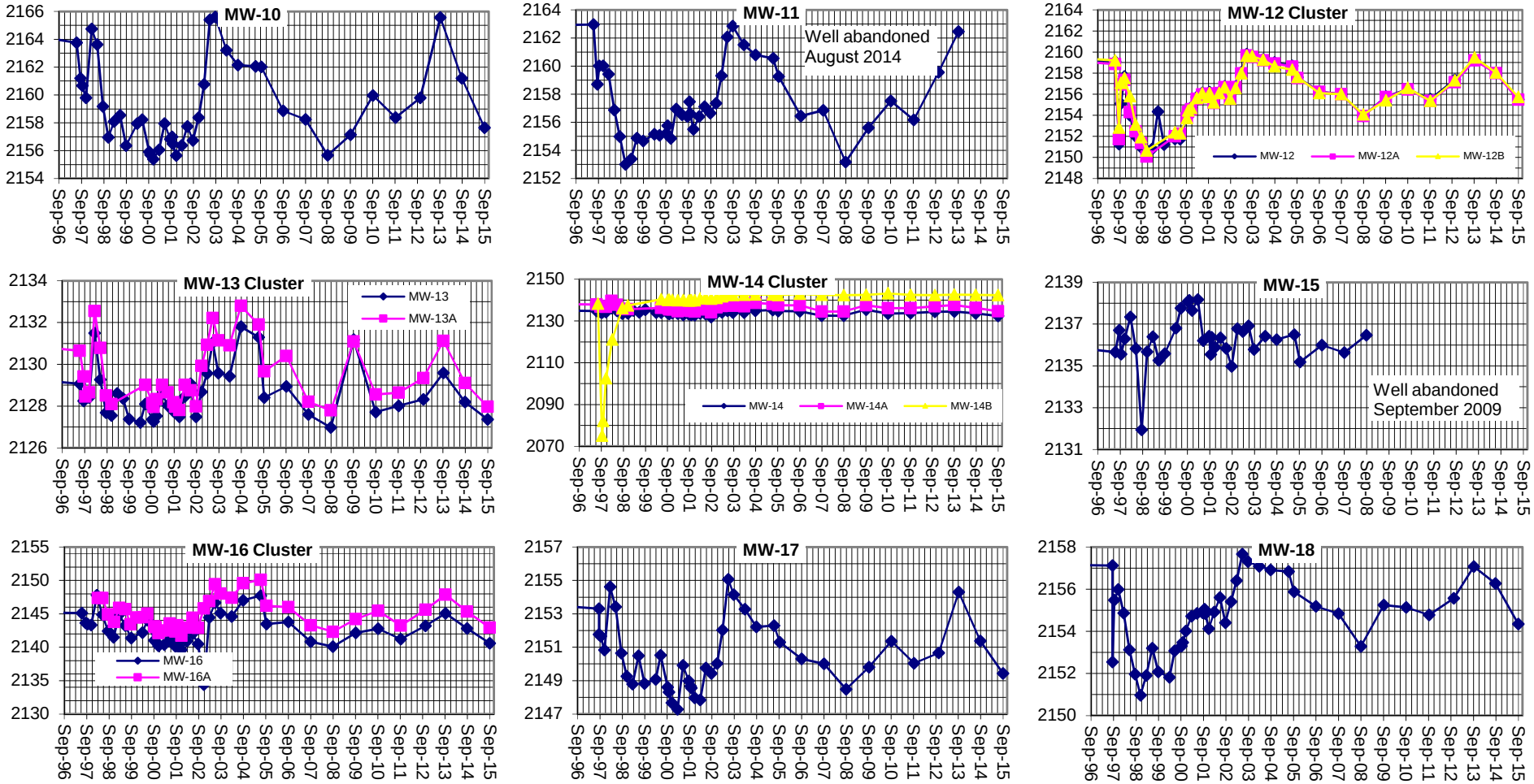
Vertical Delineation of the PCE Plume
September 2015 Measurements

East Flat Rock, NC

Figure **3-4**

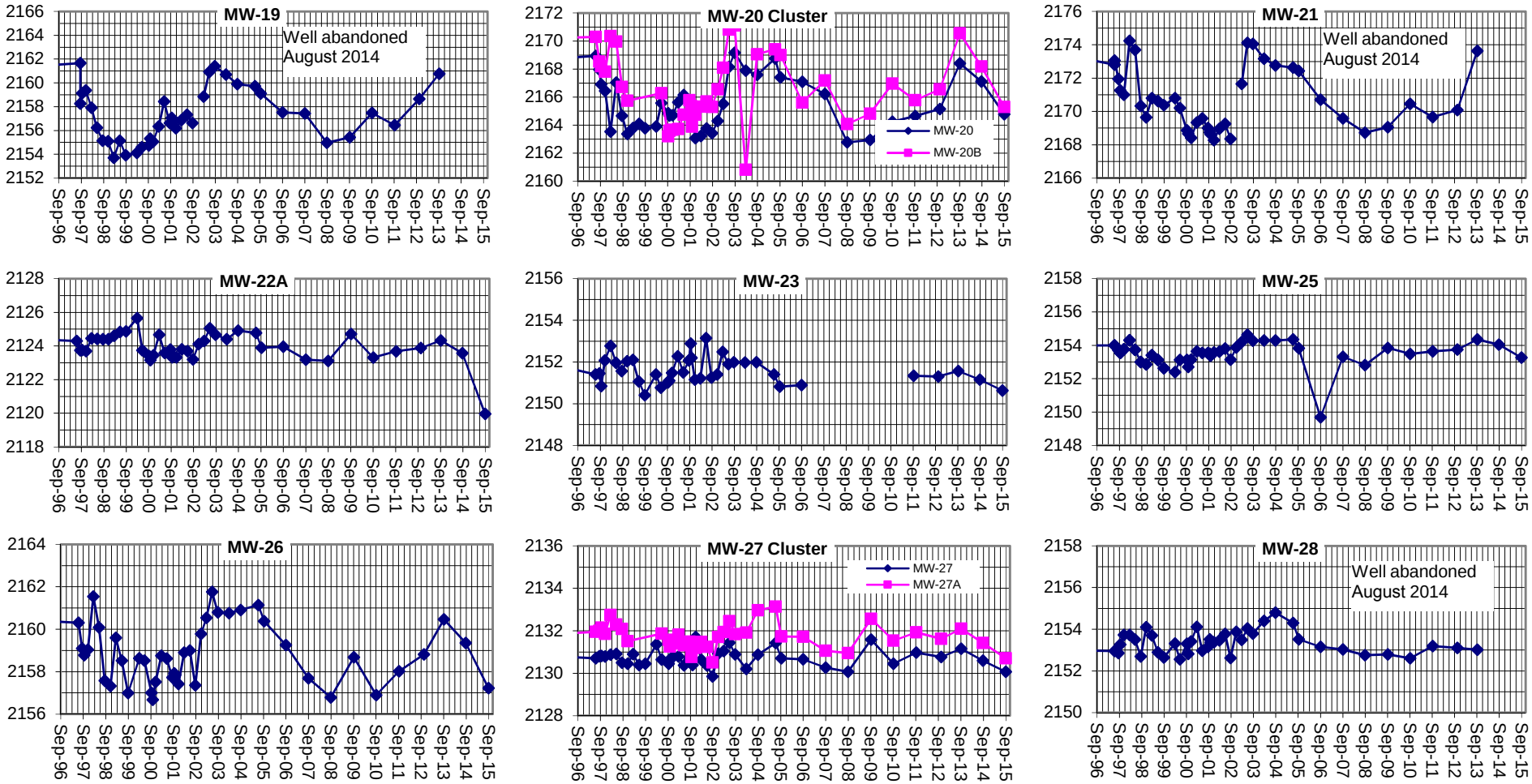
File Path: N:\GE Lighting Systems\GIS\Groundwater\2015\mxd\Fig03-4 GE PCE Vertical Delineation.mxd
Last Edited by:MFabrizio

N:\GE Lighting Systems\GRS performance monitoring\Sept 2015\Report\Appendix\B_Hydrographs and Historical water levels\Build



Note: MW-15 was abandoned in Sept. 2009 and MW-11 was abandoned August 14, 2014.

TITLE:	**Hydrographs for monitoring wells MW-10 through MW-18**		
LOCATION:	**GE Lighting Systems, East Flat Rock, NC**		
Geosyntec consultants	CHECKED:	DH	FIGURE:
	DRAFTED:	CDN	**C-3**
	FILE:	Wldatabase.xls	
	DATE:	11/10/2015	

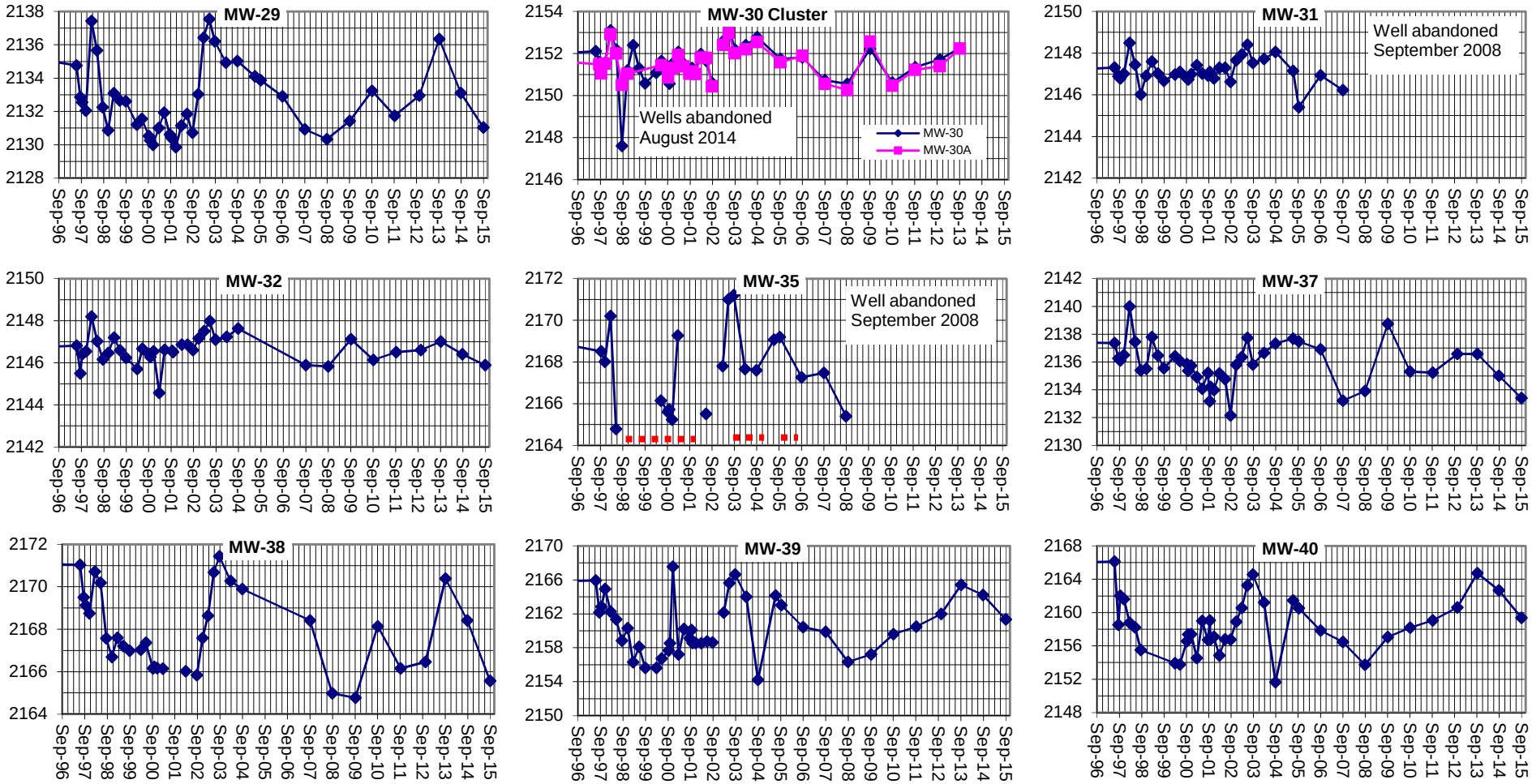


Note: MW-23 could not be located between Sept. 2006 and Sept. 2010 but was located again in 2011. MW-19, MW-21 and MW-28 were abandoned August 14, 2014.

TITLE:	**Hydrographs for monitoring wells MW-19 through MW-28**
LOCATION:	**GE Lighting Systems, East Flat Rock, NC**

Geosyntec consultants

CHECKED:	DH	FIGURE:
DRAFTED:	CDN	**C-4**
FILE:	Wldatabase.xls	
DATE:	11/10/2015	



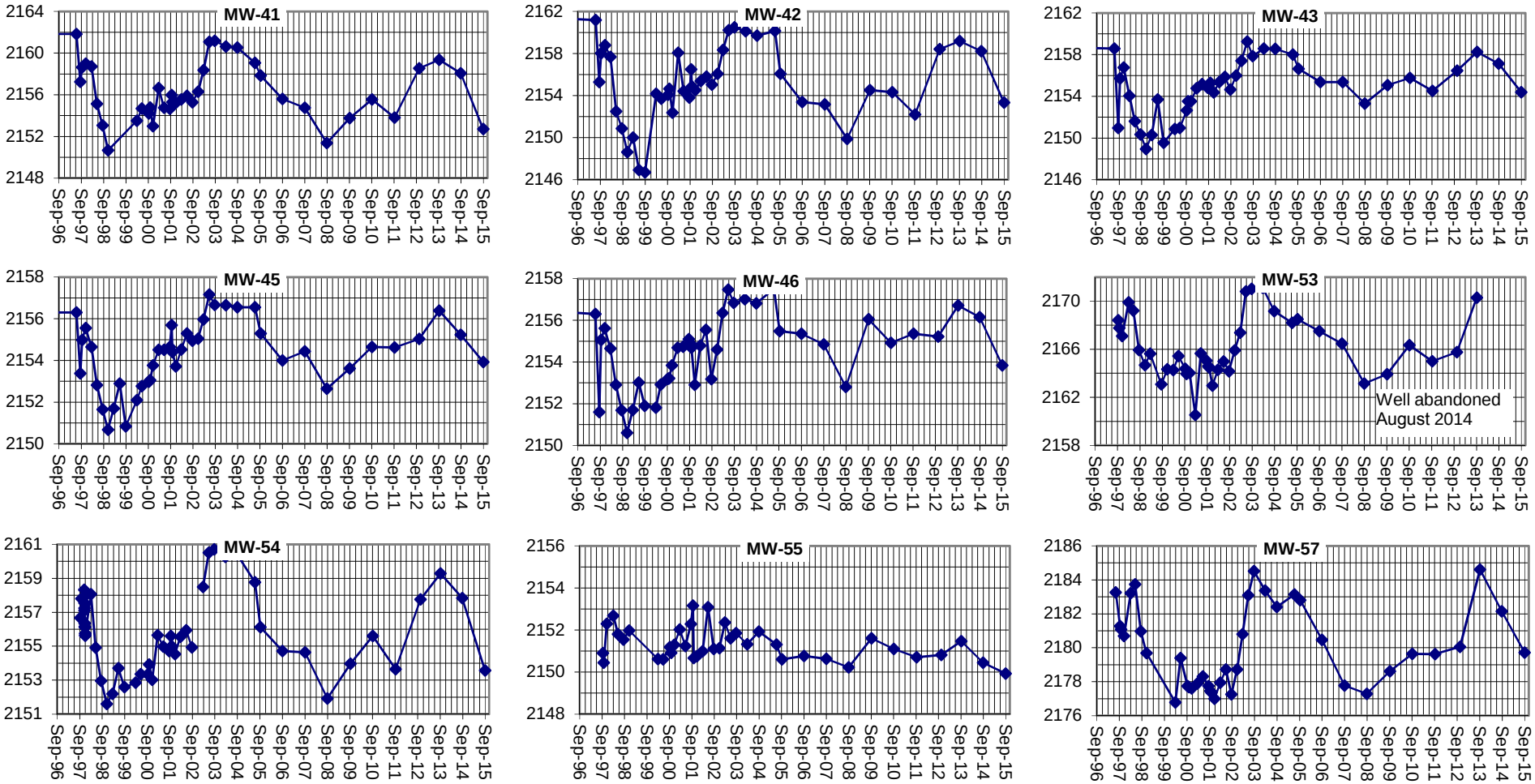
Depicts bottom of dry well

Note: MW-31 and MW- 35 were abandoned in Sept. 2008. MW-30 and MW-30A were abandoned August 14, 2014.

TITLE:	**Hydrographs for monitoring wells MW-29 through MW-40**
LOCATION:	**GE Lighting Systems, East Flat Rock, NC**

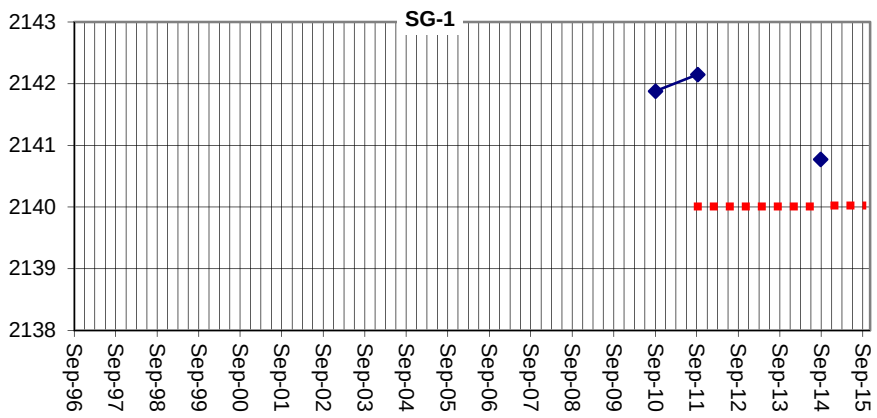
Geosyntec consultants

CHECKED:	DH	FIGURE:
DRAFTED:	CDN	**C-5**
FILE:	Wldatabase.xls	
DATE:	11/10/2015	



Note: MW-53 was abandoned August 14, 2014.

TITLE:	**Hydrographs for monitoring wells MW-41 through MW-57**		
LOCATION:	**GE Lighting Systems, East Flat Rock, NC**		
Geosyntec consultants	CHECKED:	DH	FIGURE:
	DRAFTED:	CDN	**C-6**
	FILE:	Wldatabase.xls	
	DATE:	11/10/2015	



Depicts approximate bottom of dry staff gauge

Note: SG-1 and SG-2 were installed in September 2009 but were not surveyed until September 2010.

TITLE:	**Hydrographs for staff gauges**		
LOCATION:	**GE Lighting Systems, East Flat Rock, NC**		
Geosyntec consultants	CHECKED:	DH	FIGURE:
	DRAFTED:	MBP	**C-9**
	FILE:	Wldatabase.xls	
	DATE:	04/14/2016	

Table C-10
Summary of Long-Term Bunched Arrowhead Wetland Piezometer Water Level Measurements
GE Lighting Systems Annual Performance Monitoring
East Flat Rock, North Carolina

Station	09/28/00 Baseline	12/04/00 December	03/06/01 March	06/04/01 June	09/04/01 September	10/04/01 Baseline2	10/18/01 RESTART	12/10/2001 December	3/11/2002 March	6/10/2002 June	9/9/2002 September	12/9/2002 December	3/10/2003 March	6/9/2003 June	9/8/2003 September	3/8/2004 March
BAPZ-1	2149.27	NA	2149.36	2149.28	2150.08	2149.73	2149.74	2150.02	2149.54	2149.44	2149.30	2149.57	2149.61	2149.72	2149.58	2149.52
BAPZ-2	2149.50	NA	2149.75	2149.59	2150.10	2149.85	2149.82	2149.93	2149.83	2149.77	2149.57	2149.97	2150.10	2150.16	2150	2150
BAPZ-3	NA	NA	NA	NA	2156.58	2156.42	2156.01	2155.92	2156.53	2155.86	2155.14	2156.73	2157.05	2156.63	2156.63	2156.63
BAPZ-3D	2155.99	NA	2157.00	2156.02	2155.55	2155.67	2156.16	2155.98	2157.11	2156.86	2154.95	2157.06	2157.06	2157.24	2157.11	2156.65
BAPZ-3S	2156.46	NA	2155.64	2156.84	2156.96	2156.31	2155.96	2156.26	2156.42	2156.01	2155.25	2156.52	2156.59	2156.76	2156.4	2157.31
BAPZ-4	2158.45	NA	2161.47	2160.25	2159.28	2158.60	2158.79	2158.84	2159.92	2159.27	2156.95	2158.71	2160.67	2161.10	2160.25	2160.78
BAPZ-5	2156.01	NA	2157.53	2152.67	2156.88	2156.01	2156.37	2156.17	2156.80	2157.34	2155.59	2158.57	2157.54	2157.95	2157.62	2157.79
BAPZ-6	2151.64	NA	2152.15	2151.60	2152.27	2151.46	2151.99	2152.28	2152.57	2151.66	2151.01	2152.43	2152.38	2152.45	2152.41	2152.6
BAPZ-7	2159.87	NA	2161.73	2161.38	2160.24	2159.84	2160.16	2160.11	2161.24	2160.69	dry	2161.93	2162.05	2162.51	2161.79	2162.17
BAPZ-8	2155.82	NA	2158.09	2156.28	2155.93	2155.97	2155.23	2156.31	2157.34	2156.30	2154.47	2158.39	2158.28	2158.45	2157.08	2158
BAPZ-9	2151.13	NA	2151.35	2151.00	2151.35	2150.96	2151.20	2151.72	2151.61	2151.15	2150.75	2152.07	2151.67	2151.99	2152.2	2152.34
SG-1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SG-2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Station	9/13/2004 September	6/28/2005 June	9/26/2005 September	9/18/2006 September	9/17/2007 September	9/15/2008 September	9/22/2009 September	9/20/2010 September	9/26/2011 September	9/27/2011 September	11/2/2012 November	9/23/2013 September	9/11/2014 September	9/15/2015 September	Average	Standard Deviation
BAPZ-1	2149.73	2149.91	2149.3	2149.51	2149.10	2149.25	2149.93	2149.23	2149.68	2149.57	2149.41	2149.61	2149.50	2149.29	2149.54	0.25
BAPZ-2	2150.05	2150.15	2149.77	2149.91	2149.51	2149.59	2150.38	2149.43	2149.86	2149.82	2149.78	2149.99	2149.96	2149.64	2149.85	0.23
BAPZ-3	2156.45	2156.52	2156	2156.84	2156.36	pushed over	pushed over	pushed over	pushed over	pushed over	pushed over	pushed over	pushed over	pushed over	2156.37	0.46
BAPZ-3D	2156.58	2156.62	2156.92	2156.48	2155.71	pushed over	pushed over	pushed over	pushed over	pushed over	pushed over	pushed over	pushed over	pushed over	2156.44	0.65
BAPZ-3S	2156.52	2157.04	2155.87	ants	silted in	silted in	silted in	silted in	silted in	silted in	silted in	silted in	silted in	silted in	2156.40	0.51
BAPZ-4	2160.47	2160.59	2159.13	2160.57	2158.12	cannot locate	cannot locate	cannot locate	cannot locate	cannot locate	cannot locate	cannot locate	cannot locate	cannot locate	2159.61	1.17
BAPZ-5	2158.17	2158.66	2156.81	2157.79	2156.34	2155.54	2158.37	2155.82	2157.84	abandoned	abandoned	abandoned	abandoned	abandoned	2156.92	1.32
BAPZ-6	2152.8	2153.49	2152.18	2152.5	2151.64	2151.28	2152.69	2151.24	2152.23	abandoned	abandoned	abandoned	abandoned	abandoned	2152.12	0.58
BAPZ-7	2161.99	2163.1	2160.58	2161.91	2160.29	2158.75	2162.76	2159.36	NA	abandoned	abandoned	abandoned	abandoned	abandoned	2161.11	1.18
BAPZ-8	2157.34	2160.06	2155.97	2157.28	2155.77	2158.63	abandoned	abandoned	abandoned	abandoned	abandoned	abandoned	abandoned	abandoned	2157.00	1.37
BAPZ-9	2152.62	2153.45	2151.82	2152.18	2151.03	2150.84	2152.95	2150.83	2151.73	abandoned	abandoned	abandoned	abandoned	abandoned	2151.66	0.71
SG-1	NA	NA	NA	NA	NA	NA	NA	2141.88	2142.15	NA	dry	dry	2140.77	dry	2141.60	0.73
SG-2	NA	NA	NA	NA	NA	NA	NA	2151.02	2151.01	NA	2150.69	2151.13	2150.56	2150.54	2150.83	0.26

Notes:

NA = not available

Table C-11
Summary of Long-Term Recovery Well Water Level Measurements
GE Lighting Systems Annual Performance Monitoring
East Flat Rock, North Carolina

Station	09/28/00 Baseline	12/04/00 December	03/06/01 March	06/04/01 June	09/04/01 September	10/04/01 Baseline2	10/18/01 RESTART	12/10/2001 December	3/11/2002 March	6/10/2002 June	9/9/2002 September	12/9/2002 December	3/10/2003 March	6/9/2003 June	9/8/2003 September	3/8/2004 March
RW-1	2158.99	2158.48	2152.81	2162.73	2154.92	2160.83	2155.77	2156.86	2152.21	2155.91	2156.04	2161.66	2162.98	2165.11	2166.9	2160.44
RW-2/2R	2156.90	2144.99	2144.24	2145.62	2146.26	2157.49	2154.29	2153.32	2151.87	2152.69	2153.09	2154.06	2157.51	2158.02	2159.67	2157.24
RW-3	2154.19	2153.80	2154.98	2156.98	2155.05	2155.34	2155.14	2156.28	2155.46	2155.96	2154.72	2155.54	2159.03	2160.81	2160.56	2158.8
RW-4	2154.01	2153.41	2154.18	2155.87	2154.41	2154.60	2154.38	2155.26	2154.46	2155.90	2153.90	2156.13	2157.49	2158.21	2158.44	2156.89
RW-5	NA	2141.77	2144.55	2137.95	2149.06	2151.25	2138.65	2141.73	2138.56	2142.80	2140.77	2143.76	2148.70	2150.39	2151.39	2131.66
RW-6	NA	2147.23	2146.79	2144.26	2139.12	2152.24	2137.73	2144.88	2146.50	2138.82	2141.67	2149.37	2149.87	2146.84	2149.61	2149.16
RW-7	NA	2134.84	2131.13	2129.53	2134.46	2134.38	2130.46	2131.51	2130.39	2129.20	2137.89	2130.31	2131.00	2131.97	2130.3	2131.61
RWSF-1	NA	2173.24	2174.20	2172.81	2174.66	2175.28	2172.86	2173.16	2170.80	2172.10	2170.11	2171.94	2176.74	2177.97	2176.62	2167.49
RWSF-2	NA	2157.42	2156.93	2158.55	2166.18	2166.32	2159.61	2162.63	2159.35	2159.62	2159.79	2166.66	2159.61	2161.13	2166.98	2159.81
RWSF-3	NA	2157.06	2156.18	2157.87	2163.16	2163.34	2159.48	2159.67	2158.56	2158.53	2158.05	2159.61	2159.28	2160.81	2159.14	2159.08
RWSF-4	NA	2158.62	2156.76	2158.51	2161.81	2162.10	2161.12	2159.29	2159.30	2159.08	2158.60	2160.08	2160.96	2162.33	2159.16	2160.38

Station	9/13/2004 September	6/28/2005 June	9/26/2005 September	9/18/2006 September	9/17/2007 September	9/15/2008 September	9/22/2009 September	9/20/2010 September	9/27/2011 September	11/2/2012 November	9/23/2013 September	9/11/2014 September	9/15/2015 September	Average	Standard Deviation
RW-1	2156.26	2163.08	2162.04	2156.59	2154.46	2152.38	2160.34	2159.06	2162.16	2163.31	2168.64	2166.11	2162.80	2159.65	4.46
RW-2/2R	2155.19	2151.43	2147.67	2143.74	2143.98	2141.01	2157.00	2147.82	2139.04	2156.57	2147.67	2155.19	2125.53	2150.31	7.47
RW-3	2158.54	2159.72	2156.76	2155.28	2156.67	2154.37	2156.56	2157.26	2156.21	2158.25	2160.12	2158.93	2156.10	2156.81	2.01
RW-4	2156.79	2157.99	2155.46	2154.7	2155.66	2153.93	2156.11	2156.12	2155.51	2156.51	2158.18	2157.14	2155.18	2155.75	1.45
RW-5	2153.85	2145.51	2140.73	2144.76	2127.20	2137.71	2174.23	2149.86	2129.81	2131.55	2143.14	2141.98	2141.08	2143.37	9.04
RW-6	2151.82	2144.22	2127.89	2129.88	2147.34	2127.70	2148.54	2141.44	2143.54	2141.17	2143.12	2146.39	2141.77	2143.53	6.54
RW-7	2131.94	2132.18	NA	2135.34	2128.71	2130.54	2136.50	2132.48	2133.10	2135.31	2133.00	2131.20	2129.99	2132.20	2.34
RWSF-1	2169.39	2170.15	2164.62	2175.21	2167.46	2167.48	2176.20	2168.47	2168.19	2170.39	2167.42	2168.81	2173.95	2171.70	3.48
RWSF-2	2162.2	2163.52	2165.6	2158.99	2156.83	2154.77	2156.68	2154.64	2165.49	2153.84	2163.63	2157.88	2151.66	2160.23	4.21
RWSF-3	2158.44	2161.78	2162	2163.63	2157.28	2157.39	2165.98	2157.91	2160.34	2163.23	2151.48	2152.53	2162.07	2159.42	3.17
RWSF-4	2161.38	2163.3	2161.28	2162.63	2158.71	2158.15	2161.62	2158.65	2162.18	2158.96	2160.43	2159.81	2157.85	2160.11	1.68

Notes:

NA = not available

Table C-12
Summary of Historical Monitoring Well Water Level Measurements
GE Lighting Systems Annual Performance Monitoring
East Flat Rock, North Carolina

Well ID	09/28/00	12/04/00	03/06/01	06/04/01	09/04/01	10/04/01	10/18/01	12/10/2001	3/11/2002	6/10/2002	9/9/2002
	Baseline	December	March	June	September	Baseline2	RESTART	December	March	June	September
MW-1	2151.93	2152.03	2152.13	dry	dry	dry	dry	dry	dry	dry	dry
MW-2	2135.64	2136.39	2136.66	2135.17	2134.79	2135.45	2135.35	2134.97	2136.22	2135.73	2134.11
MW-2A	2135.63	2136.41	2136.70	2135.25	2134.74	2135.53	2135.42	2134.92	2136.30	2135.83	2134.25
MW-3	2139.53	2139.85	2140.14	2138.51	2139.44	2138.80	2139.41	2138.84	2139.53	2139.02	2137.91
MW-4	2140.91	2138.84	2142.29	2141.34	2141.40	2141.34	2141.27	2140.56	2141.97	2141.65	2139.61
MW-5	2150.32	2149.00	2149.16	2149.83	2150.10	2151.31	2150.17	2149.2	2149.34	2150.95	2149.51
MW-6	2150.41	2150.16	2150.66	2151.00	2150.87	2151.79	2150.70	2149.97	2150.47	2151.82	2150.25
MW-7	2151.06	2150.88	2151.26	2150.66	2151.71	2152.61	2151.86	2150.84	2151.73	2152.84	2152.09
MW-8	2152.16	2152.41	2152.89	2154.03	2153.43	2153.83	2153.77	2152.63	2153.38	2154.59	2153.47
MW-10	2155.90	2155.38	2156.06	2157.94	2156.83	2157.00	2156.48	2155.64	2156.37	2157.73	2156.73
MW-11	2155.21	2154.85	2156.94	2156.53	2156.41	2157.47	2156.62	2155.5	2156.40	2157.12	2156.65
MW-12	2153.79	2154.75	2155.74	2156.13	2155.85	2156.20	2155.90	2155.28	2156.16	2156.73	2155.66
MW-12A	2153.73	2154.57	2155.56	2155.98	2155.70	2156.05	2155.75	2155.17	2156.09	2156.66	2155.55
MW-12B	2153.73	2154.70	2155.64	2156.07	2155.74	2156.10	2155.85	2155.22	2156.09	2156.64	2155.56
MW-13	2127.36	2127.52	2128.57	2128.03	2127.76	2127.68	2127.76	2127.48	2128.45	2129.06	2127.49
MW-13A	2128.14	2128.33	2129.02	2128.66	2128.18	2127.97	2128.03	2127.81	2129.02	2128.75	2127.98
MW-14	2133.82	2133.75	2133.60	2132.96	2133.32	2133.48	2132.92	2132.81	2133.61	2133.34	2131.97
MW-14A	2136.24	2135.59	2134.65	2135.07	2134.98	2135.61	2134.75	2134.56	2135.54	2135.63	2134.15
MW-14B	2140.08	2140.07	2139.93	2140.07	2139.72	2139.90	2139.93	2139.88	2140.73	2141.02	2140.69
MW-15	2138.08	2137.65	2138.18	2136.21	2136.42	2135.55	2136.37	2135.88	2136.35	2135.84	2134.97
MW-16	2141.02	2140.21	2140.39	2141.13	2140.12	2140.97	2140.55	2139.61	2140.89	2142.03	2140.46
MW-16A	2143.11	2142.11	2142.51	2143.56	2142.36	2143.28	2142.81	2141.73	2142.92	2144.42	2142.89
MW-17	2148.61	2147.67	2147.28	2149.91	2148.98	2148.67	2148.56	2147.96	2147.84	2149.76	2149.43
MW-18	2153.30	2154.01	2154.72	2154.85	2154.88	2155.05	2154.84	2154.12	2154.91	2155.60	2154.41
MW-19	2154.75	2155.05	2156.33	2158.43	2156.62	2157.07	2156.75	2156.19	2156.87	2157.33	2156.62
MW-20	2164.86	2164.71	2165.63	2166.14	2165.58	2165.53	2165.00	2163.08	2163.22	2163.76	2163.43
MW-20B	2163.20	2163.67	2163.73	2164.75	2165.77	2165.35	2163.89	2164.74	2165.32	2165.68	2165.30
MW-21	2168.87	2168.42	2169.33	2169.58	2169.00	2168.75	2168.64	2168.28	2168.96	2169.26	2168.36
MW-22A	2123.40	2123.44	2124.67	2123.59	2123.78	2123.33	2123.42	2123.33	2123.80	2123.70	2123.20
MW-23	2151.02	2151.48	2152.27	2151.50	2152.08	2152.88	2152.20	2151.15	2151.21	2153.14	2151.25
MW-25	2153.13	2153.14	2153.64	2153.55	2153.54	2153.50	2153.37	2153.58	2153.63	2153.81	2153.14
MW-26	2157.01	2157.52	2158.75	2158.62	2157.73	2157.92	2157.85	2157.42	2158.90	2159.00	2157.36
MW-27	2130.45	2130.77	2130.79	2130.38	2130.69	2130.58	2130.39	2131.71	2130.63	2130.36	2129.85
MW-27A	2131.57	2131.40	2131.82	2131.32	2131.49	2130.77	2131.22	2131.19	2131.48	2131.24	2130.51
MW-28	2153.30	2153.42	2154.11	2152.96	2153.15	2153.51	2153.37	2153.38	2153.46	2153.77	2152.62
MW-29	2130.52	2129.99	2131.01	2131.92	2130.61	2130.42	2130.36	2129.86	2131.14	2131.84	2130.72
MW-30	2151.36	2151.52	2152.07	2151.50	2151.25	2151.11	2151.31	2151.13	2151.97	2151.64	2150.60
MW-30A	2150.86	2151.31	2151.92	2151.38	2151.05	2151.04	2151.15	2151.02	2151.80	2151.79	2150.43
MW-31	2146.80	2146.99	2147.42	2147.02	2146.92	2147.09	2146.95	2146.78	2147.29	2147.30	2146.62
MW-32	2146.42	2146.54	2144.57	2146.62	NA	2146.57	2146.50	puddle	2146.86	2146.86	2146.60
MW-35	2165.60	2165.23	2169.27	NA	NA	NA	NA	dry	dry	2165.51	dry
MW-37	2135.85	2135.73	2134.91	2134.08	2135.22	2133.17	2134.20	2133.99	2135.17	2134.76	2132.16
MW-38	2166.15	2166.17	2166.14	NA	NA	NA	NA	covered	2166.02	covered	2165.83
MW-39	2157.67	2167.55	2157.22	2160.21	2159.10	2160.09	2158.56	2158.56	2158.52	2158.76	2158.64
MW-40	2156.57	2157.40	2154.53	2159.01	2156.72	2159.06	2156.79	2157.1	2154.84	2156.80	2156.74
MW-41	2154.21	2152.99	2156.65	2154.76	2154.66	2155.97	2155.29	2155.22	2155.55	2155.89	2155.28
MW-42	2154.08	2152.36	2158.07	2154.41	2153.81	2156.50	2154.86	2154.52	2155.38	2155.80	2155.04
MW-43	2152.65	2153.52	2154.78	2155.17	2154.82	2155.21	2155.29	2154.37	2155.37	2155.87	2154.65
MW-45	2152.98	2153.76	2154.51	2154.51	2154.65	2155.70	2154.40	2153.71	2154.52	2155.29	2154.95
MW-46	2153.19	2153.84	2154.69	2154.73	2155.09	2154.89	2154.68	2152.9	2154.78	2155.54	2153.18
MW-53	2164.38	2164.03	2160.53	2165.64	2165.05	2164.60	2164.49	2162.97	2164.29	2164.98	2164.16
MW-54	2153.34	2153.02	2155.65	2154.98	2154.71	2155.60	2155.00	2154.53	2155.56	2155.94	2154.93
MW-55	2151.18	2151.30	2152.03	2151.23	2152.29	2153.16	2150.67	2150.75	2150.99	2153.08	2151.10
MW-56		CL	CL	CL	CL	CL	CL	CL	CL	CL	CL
MW-57	2177.75	2177.60	2177.90	2178.31	2177.74	2177.45	2177.36	2177	2177.94	2178.73	2177.25
MW-58	2154.15	2155.38	2154.55	2154.01	2154.74	2155.08	2154.88	2155.3	2156.12	NA	NA
MW-59	2147.78	2146.84	2147.66	2149.58	2148.10	2147.75	2147.70	2147.01	2147.90	2149.37	2148.27
MW-60A	2134.96	2134.73	2134.82	2134.72	2134.52	2134.33	2134.41	2134.03	2135.25	2135.71	2133.95
MW-61	2220.72	2220.07	2220.96	2222.13	2220.56	2220.66	2220.46	2219.78	2220.37	2222.28	2220.65
MW-62	2200.42	2200.20	2200.98	2201.00	2200.18	2200.29	2200.20	2199.72	2200.70	2201.28	2200.19
MW-62A	2198.71	2198.39	2198.92	2199.50	2198.48	2198.58	2198.47	2198.09	2198.91	2199.40	2198.62
MW-63	2171.28	2169.92	abandoned in March 2001								
MW-63A	2171.56	2170.18	abandoned in March 2001								
MW-64	2169.23	2169.15	2170.02	2168.86	2168.99	2169.37	2169.02	2168.66	2169.43	2169.27	2167.83
MW-64A	2168.77	2168.51	2169.43	2168.35	2168.62	2168.88	2168.47	2168.13	2168.84	2168.63	2167.43
MW-65	2175.78	2175.84	2176.53	2176.53	2175.48	2175.89	2175.72	2176.4	2176.63	2176.61	2175.35
MW-66	2163.51	2160.74	2163.73	2160.83	2163.63	2162.55	2161.47	2161.54	2161.34	2161.20	2160.56

Notes:
NA = not accessible
CL = could not locate

Table C-12 (continued)
Summary of Historical Monitoring Well Water Level Measurements
GE Lighting Systems Annual Performance Monitoring
East Flat Rock, North Carolina

Well ID	12/9/2002	3/10/2003	6/9/2003	9/8/2003	3/8/2004	9/13/2004	6/28/2005	9/26/2005	9/18/2006	9/17/2007	9/15/2008
	December	March	June	September	March	September	June	September	September	September	September
MW-1	dry	2152.87	2155.89	2155.02	2153.39	2155.06	2155.08	dry	dry	2152.20	<2152.21
MW-2	2135.64	2136.93	2137.46	2136.14	2136.55	2137.14	2137.38	2136.33	2136.55	2134.28	2135.12
MW-2A	2134.25	2136.99	2137.46	2135.26	2136.67	2137.08	2137.14	2136.12	2136.60	2134.27	2135.33
MW-3	2139.69	2139.90	2140.28	2138.98	2139.54	2139.72	2140.31	2139.05	2139.39	2138.87	2139.30
MW-4	2142.86	2142.67	2143.32	2141.82	2142.16	2142.95	2143.19	2142.03	2142.35	2139.95	2140.71
MW-5	2150.87	2152.72	2155.74	2154.87	2153.16	2155.02	2155.95	2151.51	2151.16	2149.75	2148.52
MW-6	2151.85	2152.99	2155.29	2153.97	2153.00	2154.40	2152.69	2151.39	2151.40	2151.40	2150.07
MW-7	2152.09	2154.02	2156.37	2154.44	2154.63	2155.74	NM	2152.83	2152.47	2151.49	2150.28
MW-8	2154.59	2155.95	2158.33	2157.62	2156.88	2156.85	2155.87	2155.16	2153.87	2153.50	2152.03
MW-10	2158.37	2160.76	2165.40	2165.61	2163.22	2162.15	2162.05	2162.02	2158.86	2158.25	2155.67
MW-11	2157.35	2159.32	2162.08	2162.85	2161.51	2160.80	2160.56	2159.26	2156.45	2156.85	2153.16
MW-12	2156.71	2158.07	2159.80	2159.64	2159.30	2159.02	2158.70	2157.60	2156.25	2156.01	2153.93
MW-12A	2156.66	2157.98	2159.69	2159.54	2159.20	2158.92	2158.61	2157.54	2156.22	2155.99	2153.92
MW-12B	2156.58	2157.97	2159.65	2159.60	2159.25	2158.65	2158.33	2157.62	2156.11	2156.01	2154.07
MW-13	2128.68	2129.57	2131.03	2129.58	2129.43	2131.80	2128.41	2128.41	2128.94	2127.59	2126.97
MW-13A	2129.92	2130.94	2132.22	2131.15	2130.91	2132.80	2129.66	2129.66	2130.40	2128.21	2127.79
MW-14	2133.89	2134.16	2134.95	2134.02	2134.07	2134.91	2134.79	2134.79	2134.63	2132.49	2132.58
MW-14A	2136.57	2137.21	2138.51	2137.22	2137.09	2138.59	2137.50	2137.50	2137.52	2134.57	2134.50
MW-14B	2141.01	2141.79	2142.55	2142.40	2142.45	2142.63	2142.35	2142.35	2143.07	2142.50	2142.40
MW-15	2136.78	2136.64	2136.92	2135.78	2136.42	2136.26	2135.19	2135.19	2136.00	2135.64	2136.47
MW-16	2134.40	2144.45	2146.65	2145.10	2144.60	2147.01	2147.73	2143.49	2143.80	2140.83	2140.08
MW-16A	2145.82	2146.89	2149.43	2148.03	2147.40	2149.58	2150.09	2146.19	2145.99	2143.26	2142.29
MW-17	2150.02	2152.03	2155.07	2154.13	2153.28	2152.22	2152.30	2151.30	2150.30	2150.00	2168.37
MW-18	2155.41	2156.41	2157.66	2157.31	2157.09	2156.91	2156.84	2155.88	2155.19	2154.84	2153.28
MW-19	NA	2158.84	2160.92	2161.40	2160.70	2159.90	2159.71	2159.11	2157.51	2157.42	2154.97
MW-20	2164.29	2165.51	2168.14	2169.17	2167.89	2167.59	2168.75	2167.40	2167.10	2166.22	2162.77
MW-20B	2166.55	2168.09	2170.82	2171.10	2160.82	2169.06	2169.41	2169.00	2165.61	2167.19	2164.08
MW-21	NA	2171.66	2174.12	2174.05	2173.17	2172.76	2172.63	2172.44	2170.71	2169.58	2168.73
MW-22A	2124.11	2124.30	2125.05	2124.66	2124.41	2124.91	2124.78	2123.90	2123.95	2123.19	2123.11
MW-23	2151.40	2152.49	2151.90	2151.99	2151.97	2151.99	2151.40	2150.82	2150.89	CL	CL
MW-25	2153.87	2154.20	2154.63	2154.27	2154.30	2154.29	2154.35	2153.83	2149.69	2153.31	2152.82
MW-26	2159.78	2160.54	2161.76	2160.80	2160.76	2160.90	2161.14	2160.38	2159.25	2157.69	2156.78
MW-27	2130.92	2131.05	2131.44	2130.89	2130.20	2130.88	2131.43	2130.70	2130.66	2130.27	2130.07
MW-27A	2131.71	2131.94	2132.45	2131.84	2131.92	2132.96	2133.14	2131.73	2131.72	2131.06	2130.95
MW-28	2153.88	2153.49	2154.04	2153.79	2154.40	2154.80	2154.30	2153.51	2153.15	2153.03	2152.75
MW-29	2133.03	2136.42	2137.54	2136.21	2134.93	2135.03	2134.10	2133.87	2132.91	2130.93	2130.33
MW-30	NA	2152.59	2153.29	2152.20	2152.39	2152.78	NM	2151.74	2151.81	2150.73	2150.56
MW-30A	NA	2152.41	2152.99	2152.01	2152.20	2152.54	NM	2151.58	2151.89	2150.56	2150.26
MW-31	2147.66	2147.93	2148.41	2147.53	2147.72	2148.06	2147.15	2145.40	2146.93	2146.23	NA
MW-32	2147.16	2147.50	2147.99	2147.10	2147.24	2147.63	NM	NM	NM	2145.89	2145.83
MW-35	NA	2167.80	2171.00	2171.22	2167.66	2167.60	2169.07	2169.20	2167.26	2167.48	2165.40
MW-37	2135.79	2136.35	2137.74	2135.81	2136.66	2137.33	2137.69	2137.47	2136.92	2133.21	2133.90
MW-38	2167.58	2168.63	2170.68	2171.43	2170.28	2169.90	NA	CL	NM	2168.42	2164.98
MW-39	NA	2162.13	2165.61	2166.63	2164.02	2154.22	2164.15	2163.04	2160.42	2159.87	2156.32
MW-40	2158.90	2160.56	2163.25	2164.58	2161.21	2151.66	2161.45	2160.53	2157.83	2156.48	2153.74
MW-41	2156.29	2158.36	2161.09	2161.18	2160.63	2160.54	2159.07	2157.84	2155.61	2154.76	2151.36
MW-42	2156.08	2158.34	2160.22	2160.50	2160.13	2159.69	2160.14	2156.07	2153.38	2153.15	2149.87
MW-43	2155.99	2157.42	2159.25	2157.86	2158.59	2158.57	2158.00	2156.63	2155.37	2155.36	2153.31
MW-45	2155.05	2155.97	2157.16	2156.66	2156.65	2156.55	2156.55	2155.29	2154.00	2154.43	2152.64
MW-46	2154.60	2156.35	2157.48	2156.84	2157.02	2156.82	2157.51	2155.48	2155.36	2154.85	2152.80
MW-53	2165.90	2167.37	2170.80	2171.03	2171.12	2169.17	2168.19	2168.50	2167.51	2166.46	2163.14
MW-54	NA	2158.49	2160.51	2160.71	2160.26	2160.42	2158.76	2156.13	2154.71	2154.64	2151.92
MW-55	2151.14	2152.36	2151.60	2151.85	2151.32	2151.92	2151.31	2150.60	2150.77	2150.63	2150.22
MW-56	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL
MW-57	2178.72	2180.80	2183.10	2184.52	2183.37	2182.41	2183.14	2182.81	2180.47	2178.77	2177.28
MW-58	removed from list								2153.26	2155.50	2154.91
MW-59	2149.92	2152.17	2152.54	2155.53	2153.62	2154.17	2152.40	2152.46	2150.10	2148.85	2147.74
MW-60A	2136.33	2137.20	overflowing	2136.70	2136.86	2137.03	2136.92	2136.58	CL	CL	CL
MW-61	2223.06	2225.18	2228.81	2227.41	2226.00	2225.01	2225.54	2223.86	2222.42	2221.67	2221.29
MW-62	2201.98	2203.23	2205.59	2203.83	2203.26	2203.38	2204.03	2202.23	2201.70	2200.48	2199.66
MW-62A	2199.94	2201.16	2203.21	2201.82	2201.20	2200.73	2202.39	2200.37	2199.75	2198.61	2198.00
MW-63	abandoned in March 2001										
MW-63A	abandoned in March 2001										
MW-64	2170.77	2170.68	2172.02	2170.58	2169.94	2170.90	2171.93	2169.05	2170.18	2168.01	2167.59
MW-64A	2170.14	2170.02	2171.25	2170.05	2169.43	2170.35	2171.49	2168.67	2169.57	2167.49	2167.12
MW-65	2177.77	2177.66	2179.50	2177.46	2177.45	2177.86	2178.94	2177.03	2176.77	2175.04	2174.50
MW-66	2162.30	2162.34	2163.55	2162.20	2161.96	2159.84	NM	2162.24	2164.34	2160.90	2160.37

Notes:
NM = not measured
NA = not accessible
CL = couldn't locate

Table C-12 (continued)
Summary of Historical Monitoring Well Water Level Measurements
GE Lighting Systems Annual Performance Monitoring
East Flat Rock, North Carolina

Well ID	9/22/2009 September	9/20/2010 September	9/27/2011 September	11/2/2012 November	9/23/2013 September	9/11/2014 September	9/15/2015 September	Average	Standard Deviation
MW-1	2152.39	2152.77	2152.15	2152.18	2153.92	2152.83	2152.13	2153.17	1.31
MW-2	2138.00	2136.20	2136.28	2136.37	2136.80	2136.16	2134.41	2136.01	0.97
MW-2A	2136.74	2136.32	2136.28	2136.50	2136.95	2136.18	2134.65	2135.92	0.94
MW-3	abandoned*							2139.36	0.59
MW-4	2143.84	2141.27	2141.93	2142.44	2142.16	2141.65	2139.71	2141.66	1.17
MW-5	2150.47	2152.54	2151.60	2151.22	2153.74	2151.69	2149.44	2151.34	2.10
MW-6	2171.51	2151.80	2150.24	2151.40	2145.08	2151.80	2150.09	2152.02	4.16
MW-7	2152.24	2153.20	2151.19	2152.44	2154.74	2153.10	2151.13	2152.50	1.57
MW-8	2153.23	2155.04	2153.02	2154.97	2157.63	2147.97	2152.91	2154.21	2.11
MW-10	2157.15	2159.97	2158.38	2159.79	2165.57	2161.20	2157.64	2159.11	3.12
MW-11	2155.62	2157.52	2156.16	2159.55	2162.47	abandoned†		2157.82	2.52
MW-12	2155.78	2156.50	2155.53	2157.39	2159.25	2158.06	2155.51	2156.73	1.65
MW-12A	2155.74	2156.45	2155.37	2157.13	2159.20	2158.01	2155.47	2156.64	1.65
MW-12B	2155.41	2156.60	2155.36	2157.32	2159.49	2158.04	2155.74	2156.66	1.63
MW-13	2131.18	2127.71	2128.01	2128.32	2129.59	2128.20	2127.36	2128.55	1.21
MW-13A	2131.09	2128.55	2128.64	2129.34	2131.12	2129.10	2127.97	2129.36	1.41
MW-14	2135.38	2133.52	2133.76	2134.42	2134.51	2133.71	2132.44	2133.74	0.85
MW-14A	2137.58	2136.10	2136.10	2137.08	2137.71	2136.28	2134.67	2136.17	1.30
MW-14B	2142.49	2143.21	2142.52	2142.34	2142.60	2142.55	2142.38	2141.57	1.19
MW-15	abandoned*							2136.31	0.85
MW-16	2142.14	2142.77	2141.23	2143.20	2145.06	2142.82	2140.60	2142.18	2.72
MW-16A	2144.20	2145.47	2143.23	2145.61	2147.87	2145.35	2142.91	2144.87	2.46
MW-17	2149.80	2151.36	2150.04	2150.66	2154.31	2151.38	2149.43	2151.06	3.90
MW-18	2155.25	2155.14	2154.78	2155.57	2157.07	2156.27	2154.34	2155.38	1.16
MW-19	2155.43	2157.48	2156.46	2158.66	2160.77	abandoned†		2157.74	1.95
MW-20	2162.94	2164.25	2164.65	2165.14	2168.41	2167.11	2164.77	2165.62	1.86
MW-20B	2164.82	2166.96	2165.77	2166.56	2170.55	2168.18	2165.30	2166.25	2.47
MW-21	2169.05	2170.45	2169.66	2170.08	2173.63	abandoned†		2170.39	1.95
MW-22A	2124.72	2123.31	2123.68	2123.88	2124.32	2123.58	2119.96	2123.78	0.93
MW-23	CL	CL	2151.34	2151.30	2151.57	2151.15	2150.63	2151.64	0.63
MW-25	2153.84	2153.49	2153.64	2153.74	2154.35	2154.05	2153.26	2153.58	0.87
MW-26	2158.68	2156.90	2158.02	2158.82	2160.47	2159.35	2157.23	2158.87	1.46
MW-27	2131.58	2130.45	2130.97	2130.77	2131.16	2130.60	2130.07	2130.71	0.46
MW-27A	2132.56	2131.54	2131.93	2131.62	2132.10	2131.43	2130.70	2131.63	0.61
MW-28	2152.79	2152.60	2153.19	2153.10	2153.01	abandoned†		2153.44	0.55
MW-29	2131.42	2133.24	2131.74	2132.95	2136.34	2133.11	2131.04	2132.54	2.21
MW-30	2152.22	2150.62	2151.35	2151.71	2152.26	abandoned†		2151.67	0.71
MW-30A	2152.57	2150.47	2151.22	2151.40	2152.23	abandoned†		2151.52	0.74
MW-31	abandoned**							2147.15	0.65
MW-32	2147.12	2146.14	2146.51	2146.61	2147.01	2146.41	2145.89	2146.65	0.70
MW-35	abandoned**							2167.81	1.97
MW-37	2138.75	2135.31	2135.23	2136.58	2136.58	2135.01	2133.41	2135.48	1.59
MW-38	2164.77	2168.13	2166.15	2166.46	2170.38	2168.41	2165.57	2167.60	2.07
MW-39	2157.22	2159.59	2160.48	2162.00	2165.41	2164.22	2161.36	2160.77	3.30
MW-40	2157.07	2158.19	2159.06	2160.61	2164.74	2162.68	2159.37	2158.53	3.11
MW-41	2153.76	2155.55	2153.80	2158.53	2159.36	2158.07	2152.71	2156.38	2.63
MW-42	2154.53	2154.33	2152.20	2158.43	2159.18	2158.23	2153.35	2155.95	2.83
MW-43	2155.06	2155.78	2154.53	2156.46	2158.27	2157.14	2154.41	2155.85	1.69
MW-45	2153.62	2154.65	2154.62	2155.04	2156.39	2155.23	2153.93	2154.95	1.15
MW-46	2156.06	2154.92	2155.36	2155.22	2156.71	2156.16	2153.84	2155.20	1.32
MW-53	2163.91	2166.33	2165.01	2165.76	2170.29	abandoned†		2166.13	2.70
MW-54	2153.97	2155.61	2153.64	2157.76	2159.29	2157.84	2153.57	2156.12	2.51
MW-55	2151.60	2151.10	2150.70	2150.82	2151.47	2150.45	2149.93	2151.30	0.77
MW-56	CL	2161.92	2161.25	2162.61	2167.61	2164.75	2161.42	2163.26	2.48
MW-57	2178.61	2179.64	2179.63	2180.05	2184.61	2182.15	2179.72	2179.82	2.41
MW-58	2156.53	2154.25	2156.12	2156.20	2156.96	2156.50	2154.99	2155.23	0.98
MW-59	2148.72	2151.35	2149.79	2150.77	2155.47	2151.68	2148.77	2150.14	2.53
MW-60A	CL	CL	2135.20	2135.46	2136.95	2135.32	2133.30	2135.45	1.16
MW-61	2222.19	2223.89	2222.18	2222.66	2227.87	2223.86	2220.42	2222.83	2.50
MW-62	2202.90	2201.41	2200.85	2201.17	2203.95	2201.48	2199.58	2201.58	1.57
MW-62A	2199.28	2199.53	2198.98	2199.40	2201.96	2199.59	2197.88	2199.65	1.41
MW-63	abandoned in March 2001							2170.60	0.96
MW-63A	abandoned in March 2001							2170.87	0.98
MW-64	2173.60	2167.91	2171.07	2168.99	2170.23	2169.18	2167.16	2169.64	1.43
MW-64A	2171.59	2167.43	2169.48	2168.52	2175.73	2168.58	2166.93	2169.24	1.75
MW-65	2176.36	2175.68	2175.79	2176.46	2177.11	2176.05	2174.43	2176.50	1.17
MW-66	2165.64	2161.07	2163.24	2163.37	2161.05	2160.19	2162.27	2162.07	1.40

Notes:
NM = not measured
CL = could not locate
* = The MW-3 and MW-15 wellheads were observed to be flooded by beaver dam activity in the area and the wells had likely been compromised as a result; they were abandoned on 9/17/08 as approved by NCDENR on 8/25/08 via email.
** = The MW-31 and MW-35 wellheads were observed to be in disrepair in September 2007 and the wells had likely been compromised as a result; they were abandoned on 9/17/08 as approved by NCDENR on 8/25/08 via email.
abandoned† = Well was abandoned on 14 August 2014

Table H-2 (continued)
Summary of Sediment Results Since GRS Start Up
General Electric/Shepherd Farm Site Annual Performance Monitoring
East Flat Rock, North Carolina

Parameter	NC Sediment Standards	September 2010						September 2011						September 2012						September 2013							
		SED-1		SED-2		SED-3		SED-1		SED-2		SED-3		SED-1		SED-2		SED-3		SED-1		SED-2		SED-3		SED-4[a] (ug/L)	
Volatile Organic Compounds (µg/kg)																											
1,2-Dichloroethane	NL	ND	(4.6)	ND	(5.1)	ND	(5.3)	ND	(4.8)	ND	(5.6)	ND	(6.4)	ND	(5.8)	ND	(8.1)	ND	(5.2)	ND	(4.7)	ND	(4.6)	ND	(5.2)	ND	(1.0)
Benzene	NL	NA		NA		NA		NA		NA		NA		NA		NA		NA		ND	(4.7)	ND	(4.6)	ND	(5.2)	ND	(1.0)
Chloroform	NL	ND	(4.6)	ND	(5.1)	ND	(5.3)	NA		NA		NA		NA		NA		NA		ND	(4.7)	ND	(4.6)	ND	(5.2)	ND	(1.0)
cis-1,2-Dichloroethene	NL	ND	(4.6)	ND	(5.1)	ND	(5.3)	ND	(4.8)	ND	(5.6)	ND	(6.4)	ND	(5.8)	ND	(8.1)	ND	(5.2)	ND	(4.7)	ND	(4.6)	ND	(5.2)	ND	(1.0)
Tetrachloroethene	NL	ND	(4.6)	ND	(5.1)	ND	(5.3)	ND	(4.8)	65.2		ND	(6.4)	ND	(5.8)	ND	(8.1)	ND	(5.2)	ND	(4.7)	6.8		5.7		ND	(1.0)
trans-1,2-Dichloroethene	NL	NA		NA		NA		NA		NA		NA		NA		NA		NA		ND	(4.7)	ND	(4.6)	ND	(5.2)	ND	(1.0)
Trichloroethene	NL	ND	(4.6)	ND	(5.1)	ND	(5.3)	ND	(4.8)	ND	(5.6)	ND	(6.4)	ND	(5.8)	ND	(8.1)	ND	(5.2)	ND	(4.7)	ND	(4.6)	ND	(5.2)	ND	(1.0)
Vinyl chloride	NL	ND	(9.3)	ND	(10.3)	ND	(10.5)	ND	(9.7)	ND	(11.1)	ND	(12.8)	ND	(11.6)	ND	(16.2)	ND	(10.4)	ND	(9.4)	ND	(9.2)	ND	(5.2)	ND	(1.0)
Semi-Volatile Organic Compounds (µg/kg)																											
Nitrobenzene	NL	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Metals (mg/kg)																											
Barium	NL	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Beryllium	NL	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Lead	NL	NA		NA		NA		NA		NA		NA		NA		NA		NA		1.3		0.68		2.5		NA	
Manganese	NL	NA		NA		NA		NA		NA		NA		NA		NA		NA		45.5		12.8		54		NA	
Nickel	NL	NA		NA		NA		NA		NA		NA		NA		NA		NA		0.76		ND	(0.5)	0.6		NA	
PCBsTOTAL (µg/kg)																											
PCBs Total	1000	ND	(40.9)	59		ND	(44.6)	ND	(39.9)	ND	(45.1)	ND	(496.0)	ND	(42.3)	ND	(45.3)	ND	(44.7)	ND	(38.7)	ND	(39.3)	49.7		NA	

Parameter	NC Sediment Standards	September 2014						September 2015					
		SED-1		SED-2		SED-3		SED-1		SED-2		SED-3	
Volatile Organic Compounds (µg/kg)													
1,2-Dichloroethane	NL	ND	(5.8)	ND	(6.1)	ND	(4.6)	ND	(7.6)	ND	(7.0)	ND	(10.7)
Benzene	NL	NA		NA		NA		NA		NA		NA	
Chloroform	NL	NA		NA		NA		NA		NA		NA	
cis-1,2-Dichloroethene	NL	ND	(5.8)	ND	(6.1)	ND	(4.6)	ND	(7.6)	ND	(7.0)	ND	(10.7)
Tetrachloroethene	NL	ND	(5.8)	ND	(6.1)	ND	(4.6)	ND	(7.6)	ND	(7.0)	ND	(10.7)
trans-1,2-Dichloroethene	NL	ND	(5.8)	ND	(6.1)	ND	(4.6)	NA		NA		NA	
Trichloroethene	NL	ND	(5.8)	ND	(6.1)	ND	(4.6)	ND	(7.6)	ND	(7.0)	ND	(10.7)
Vinyl chloride	NL	ND	(11.6)	ND	(12.2)	ND	(9.2)	ND	(15.3)	ND	(13.9)	ND	(21.5)
Semi-Volatile Organic Compounds (µg/kg)													
Nitrobenzene	NL	NA		NA		NA		NA		NA		NA	
Metals (mg/kg)													
Barium	NL	NA		NA		NA		NA		NA		NA	
Beryllium	NL	NA		NA		NA		NA		NA		NA	
Lead	NL	NA		NA		NA		NA		NA		NA	
Manganese	NL	NA		NA		NA		NA		NA		NA	
Nickel	NL	NA		NA		NA		NA		NA		NA	
PCBsTOTAL (µg/kg)													
PCBs Total	1000	ND	(51.8)	ND	(62.5)	95.0		ND	(50.4)	124		68.7	J

Notes:

NL = Not listed

ND = not detected above reporting limit shown in parentheses

NA = not analyzed, dropped from list per USEPA and NCDENR

[a] SED-4 is a sediment porewater sample collected in 2013 for the Five Year Review using a permeable diffusion bag.

J = detected, but preceding value represents an estimated result