FEDERAL/STATE-LEAD MONITORING REPORT

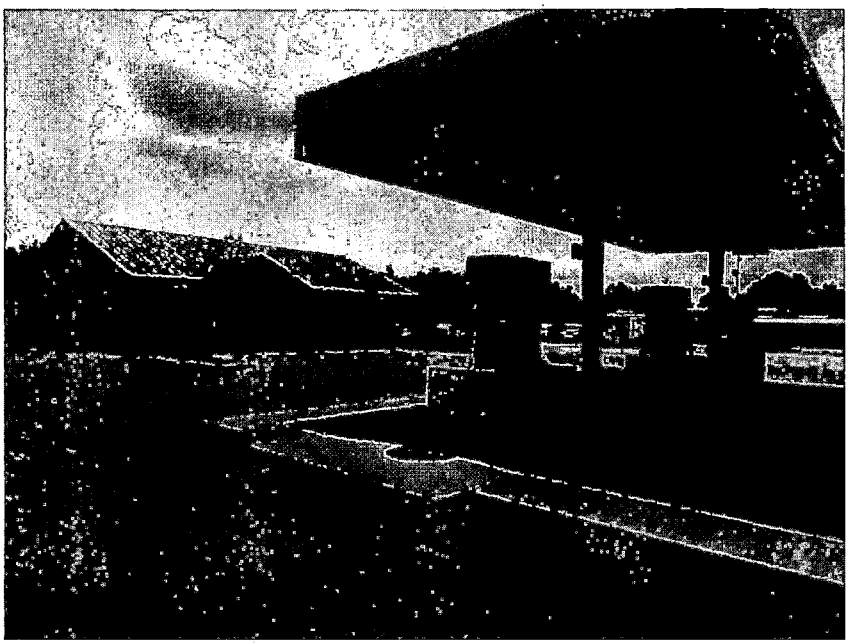
Quick Stop #50 (Incident #2857)

11761 McColl Road

Laurinburg, Scotland County, North Carolina

January 26, 2015

Terracon Project No. 70149609



Prepared for:

North Carolina Department of Environment and Natural Resources
Division of Waste Management
Raleigh, North Carolina

Prepared by:

Terracon Consultants, Inc.
Raleigh, North Carolina

Terracon

January 26, 2015

Mr. Mark Petermann
North Carolina Department of Environment and Natural Resources
Division of Waste Management
1637 Mail Service Center
Raleigh, North Carolina 27699-1637
Email: mark.petermann@ncdenr.gov

Re: Federal/State-Lead Monitoring Report
Quick Stop #50
11761 McColl Road
Laurinburg, Scotland County, North Carolina
UST Incident Number: 2857
Terracon Project No. 70149609

Dear Mr. Petermann:

Terracon Consultants, Inc. (Terracon) is pleased to submit this Federal/State-Lead Monitoring Report for the above referenced property. This report has been prepared in general accordance with North Carolina Department of Environment and Natural Resources (NCDENR), UST Section *Guidelines for Assessment and Corrective Action for UST Releases,* dated July 15, 2008, revised December 2013 and Task Authorization No. 02, approved on September 16, 2014.

If you have any questions regarding this report or the assessment activities, please contact us at 919-873-2211.

Sincerely,
Terracon Consultants, Inc.

Thomas A. Perdue, EI
Environmental Scientist

Michael T. Jordan, LG, RSM
Senior Geologist

Enclosures

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Quick Stop #50
Laurinburg, North Carolina
Terracon Project No. 70149609
Incident No. 2857
January 26, 2015

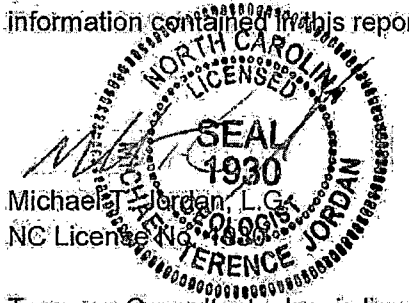
FEDERAL/STATE-LEAD MONITORING REPORT

A. SITE INFORMATION

Date of Report:	January 26, 2015
NCDENR Incident No:	2857
Facility ID:	00-0-0000008086
Site Name:	Quick Stop #50
Site Location:	11761 McColl Road Laurinburg, North Carolina 28352
Latitude:	N 34.732189
Longitude:	W - 79.501339
UST Owner/Operator:	Unknown
Current Property Owner:	Mr. Charles Nichols PO Box 1206 Laurinburg, North Carolina 28352 (910) 277-0050
Current Property Occupant:	Nic's Pic Kwik 9 Facility ID: 00-0-0000008086
Consultant:	Terracon Consultants, Inc. (Contact: Thomas A. Perdue, EI) 2401 Brentwood Road Raleigh, North Carolina 27604 (919) 873-2211
Laboratory:	Pace Analytical (NCDENR No. 5342) 9800 Kincey Avenue Huntersville, North Carolina 28078 (704) 875-9092
Release Information:	Release Date: 1984 Estimated Quantity: Unknown Cause of Release: Underground Storage Tank System Currently Active Tanks: 4,000-gallon gasoline UST, 6,000-gallon gasoline UST, 10,000-gallon gasoline UST, 1,000-gallon kerosene UST

Terracon

I, Michael T. Jordan, a Licensed Geologist for Terracon Consultants, Inc., do certify that the information contained in this report is correct and accurate to the best of my knowledge.



Michael T. Jordan, L.G.
NC License No. 1930

Terracon Consultants, Inc. is licensed to practice geology and engineering in North Carolina. The certification numbers of the corporation are C-367 and F-0869, respectively.

B. EXECUTIVE SUMMARY

The Quick Stop #50 site currently operates one 4,000-gallon gasoline UST, one 6,000-gallon gasoline UST, and one 10,000-gallon gasoline UST installed in 1979. The site previously operated one 2,000-gallon kerosene UST installed in 2002. The kerosene UST is currently located at the site; however, the kerosene UST has been out of service since 2012.

During UST modifications at the site in 1984, a loose product line coupling was observed, resulting in a release of unknown quantity at the site. The site currently operates as Nic's Pic Kwik 9. Groundwater sampling between 1984 and 2014 detected concentrations of petroleum compounds above their respective NCAC 2L groundwater quality standards (2L standard).

Water supply well WSW-72 located on the adjoining property to the south historically contained detectable concentrations of benzene and MTBE above their respective 2L standards. Municipal water is now available and being used at the adjacent facility. Water supply well WSW-72 is no longer active and was recently abandoned (pump removed and casing partially filled) by Environmental Hydrogeological Consultants, Inc. (EHC) on October 30, 2014. Two active water supply wells reportedly used for irrigation purposes were observed greater than 800 feet from the site. The wells are located to the northwest and hydraulically up-gradient relative to the site.

Approximately 0.23 feet (2.76 inches) of free product was measured by Terracon with an interface probe in Well MW-9. Forensic analytical data for a free product sample collected from well MW-9 displayed characteristics of unweathered kerosene. The nearest known kerosene source is a kerosene UST located about 105 feet to the west of well MW-9. The kerosene dispenser and product lines were observed directly above the west end of the UST. The kerosene release appears to be recent and not associated with historical releases being investigated as part of State Lead Program activities.

At the direction of the NCDENR, Terracon installed two Type II monitoring wells, attempted to complete the abandonment of water supply well WSW-72 on the adjoining property to the south, sampled six on-site monitoring wells, replaced the well plug, lock, and well casing cover for

monitoring well MW-8A, and conducted a compliance evaluation of the current on-site UST system. Field work was completed by Terracon between October 16 and October 30, 2014.

Petroleum constituents were not reported above Gross Contamination Levels (GCLs) in the groundwater samples collected at the site. Naphthalene and benzene were reported above 2L standards at relatively low concentrations at the site.

1,2,4-Trimethylbenzene was detected in well MW-4r above its Non-Residential VISL and free product was observed in well MW-9, suggesting a possible vapor intrusion issue related to the kerosene UST release.

Based on the presence of free product in monitoring well MW-9 without prior occurrences of free product, the NCDENR requested a Compliance Evaluation of the current UST system. According to the most recent inspection report, no violations were reported for the current UST system. The kerosene UST was reportedly removed from service in 2012; however, the NCDENR did not have a notice of temporary or permanent closure on record for the kerosene UST.

C. SITE HISTORY AND CHARACTERIZATION

C.1 Site Setting

The site is comprised of 1.3 acres and contains an approximate 2,600-square foot building with a dispenser island canopy, an automatic car wash, a Twice-the-Ice machine, and associated parking and driveway areas currently occupied by Nic's Pic Kwik 9, an active gasoline station. The site is depicted in **Figure 1**.

The adjacent properties to the north consist of wooded land, McColl Road, and cleared vacant land. Areas to the west include McColl Road, cleared and wooded land and a heating, ventilation, and air conditioning repair business. The adjoining and nearby properties to the south include cleared land, a storage unit building and an automotive repair facility. The adjacent properties to the east include South Turnpike Road Extension, cleared and wooded land, and the Church of Nazarene.

C.2 Release Summary

The Quick Stop #50 site currently operates one 4,000-gallon gasoline UST, one 6,000-gallon gasoline UST, and one 10,000-gallon gasoline UST installed in 1979. The site previously operated one 2,000-gallon kerosene UST installed in 2002. The kerosene UST is currently located at the site; however, the kerosene UST has been out of service since 2012.

During UST modifications at the site in 1984, a loose product line coupling was observed, resulting in a release of unknown quantity at the site. The site currently operates as Nic's Pic Kwik 9. Groundwater sampling between 1984 and 2014 detected concentrations of petroleum compounds above their respective NCAC 2L groundwater quality standards (2L standard). A chronological summary of assessment activities at the site is discussed in the following section of the report.

C.3 Previous Investigations

During the modifications of prior USTs at the site in August 1984, a release of unknown quantity was observed originating from a loose line coupling. In 1985, groundwater sampling reported petroleum constituents in the on-site water supply well above laboratory method detection limits. The on-site water supply well was abandoned and the site was connected to the municipal water supply. As a result of the discovered contamination, several groundwater monitoring wells were installed at the site in the early 1990s that included wells MW-2B, MW-4, MW-5 and MW-6. These monitoring wells were reportedly last sampled in 1991 because no assessment information was available between 1991 and 2007.

In 2007, Schnabel Engineering South (Schnabel) reported that historical on-site monitoring wells MW-4, MW-5, and MW-6 were reportedly damaged and well MW-2B could not be located. Apparently one monitoring well (MW-8A) was sampled at the site in 2007 but petroleum constituents were not detected in the well. Schnabel sampled water supply well WSW-72, located on the adjoining property to the south, and reported the well contained benzene and MTBE in excess of their respective 2L standards. Since municipal water was not available to the adjacent facility in 2007, bottled water was provided to the adjoining property.

According to the Monitoring Report dated January 25, 2010 prepared by Agra Environmental, Inc. (Agra), wells MW-2Br and MW-10 were installed in December 2009 with well MW-2Br replacing well MW-2B. The two new monitoring wells were sampled along with wells MW-8A and MW-9. According to laboratory analysis, n-butylbenzene was detected in well MW2Br below its 2L standard. In addition to the on-site monitoring wells, water supply well WSW-72 was also sampled. Agra reported MTBE was detected in the water supply well below its 2L standard.

Crawford Environmental Services sampled monitoring wells MW-2Br, MW-8A, MW-9, and MW-10 in 2012. Based on the laboratory analytical results, petroleum constituents were not reported above laboratory method detection limits.

Terracon conducted a groundwater sampling event on July 14, 2014 as summarized in Terracon's Federal/State-Lead Monitoring Report dated September 10, 2014. Shallow groundwater depths in current monitoring wells MW-2Br, MW-8, MW-9 and MW-10 ranged from approximately 7.86 to 9.39 feet below top-of-casing (TOC). Per the scope of work, groundwater samples were collected from three of the four monitoring wells for analysis of volatile organic compounds (VOCs) by EPA Method 6200B plus MTBE, EDB, and IPE. Constituents were not reported above GCLs in the groundwater samples collected at the site. Naphthalene and 1,1,2,2-tetrachloroethane were detected above their respective 2L standards of 6.0 µg/L and 0.2 µg/L. Thirteen other petroleum constituents were reported in wells MW-2Br, MW-8A and MW-10 at concentrations below their respective 2L standards. Analytical data from July 2014 are generally consistent with the 2012 sampling event. A free product thickness of approximately 0.06 feet (0.72 inches) was measured with an interface probe in well MW-9; therefore, the well was not sampled. Free product was not observed in monitoring well MW-9 in historical groundwater sampling events. The nearest possible free product

source is an out-of-service 2,000-gallon kerosene UST located approximately 105 feet to the west of monitoring well MW-9. According to the site owner, Mr. Charles Nichols, the kerosene UST was "removed from service in 2012" due to the lack of kerosene demand but has not been properly closed-in-place.

C.4 Water Supply Wells

In the Groundwater Monitoring Report dated June 2, 2012, 30 water supply wells were identified within 1,000 feet of the former UST basin (source area). Terracon conducted a Receptor Survey Update in September 2014. During Terracon's receptor survey update, two of the 30 water supply wells were reportedly active and utilized for irrigation purposes only. These wells are located at least 800 feet to the northwest and topographically up-gradient relative to the site. Nineteen water supply wells were reportedly abandoned or inactive. Due to unresponsive well owners, the current status of nine additional water supply wells could not be confirmed. Municipal water is available to the site and surrounding properties. Results of the water-supply well inventory are presented in **Table 1** and well locations are depicted on **Figure 2**.

Water supply well WSW-72 is located on the adjoining property to the south and was historically impacted by benzene and MTBE above their respective 2L standards. The facility previously operated an on-site water supply well based on the unavailability of municipal water to the area; therefore, bottled water was provided to the facility from 2007 until 2014. According to personnel at the facility and the Laurinburg Public Works Department, the municipal water supply is currently available and being used at the facility. The pump to well WSW-72 had been removed and the well was considered inactive during the site reconnaissance.

C.5 Surface Water

According to the USGS topographic map, the site is situated in the center of a slight topographic divide that generally slopes to the northeast, east, southwest and west. The site is located in the upper reaches of the drainage basin for Water Creek. The topographic map indicates that a tributary of Water Creek is located approximately 285 feet to the south of the site; however, the drainage feature was dry on October 29, 2014. Surface waters are depicted on **Figures 2 and 3**.

C.6 Land Use Information

The adjacent properties to the north consist of wooded land, McColl Road, and cleared vacant land. Areas to the west include McColl Road, cleared and wooded land and a heating, ventilation, and air conditioning repair business.

Potential off-site sources include an automotive repair facility located on the adjoining property to the south. According to the topographic map, this facility is topographically up-gradient relative to the site; however, groundwater elevation data indicates the site is hydraulically down-gradient.

Potential off-site receptors include the Church of Nazarene located on the adjoining property to the east. The closest Church of Nazarene structure to the site is located approximately 200 feet to the southeast and topographically cross-gradient relative to the site.

D. ASSESSMENT INFORMATION

The objectives of this report are to:

- Determine if the free product observed in monitoring well MW-9 is a current or historical release;
- Determine if 1,1,2,2-tetrachloroethane originated from an off-site source;
- Abandon water supply well WSW-72 on the adjoining property to the south;
- Monitor current groundwater concentrations at the site; and
- Repair monitoring well MW-8A.

Terracon completed this report to summarize the findings of assessment activities performed at the site on October 16, October 29, and October 30, 2014. This Federal/State-Lead Monitoring report was prepared for the site in response to a request by the Incident Manager, Mr. Mark Petermann with the NCDENR Division of Waste Management, State Lead Program.

The Federal/State-Lead Monitoring Report was prepared in general accordance with the 15A NCAC 2L .0115 regulations and the NCDENR Underground Storage Tank (UST) Section Guidelines for Assessment and Corrective Action for UST Releases, dated July 15, 2008, revised December 2013, under the supervision of Mr. Christopher L. Corbitt, a North Carolina registered licensed geologist (North Carolina License No. 1015).

D.1 Site Geology and Hydrogeology

The following resources were reviewed to evaluate site-specific geological and hydrogeological characteristics.

- Laurinburg Quadrangle, North Carolina, USGS 7.5-minute series topographic map, dated 2014 (**Figure 3**).
- Geologic Map of North Carolina, dated 1985.
- Hydrogeologic Framework of the North Carolina Coastal Plain Aquifer System, M.D Winner, Jr., and R.W. Coble, 1989.
- Basic Elements of Ground-Water Hydrology With Reference to Conditions in North Carolina, Ralph C. Heath, 1980.

- Soil Survey of Scotland County, North Carolina, US Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey via the Internet, http://websoilsurvey.nrcs.usda.gov/app/.

The site is located within the Atlantic Coastal Plain Physiographic Province. The Atlantic Coastal Plain Province consists of stair-step-like planar terraces that dip gently towards the ocean. At higher elevations, the land is dissected by drainage features that form gently rolling hills and valleys. Elevations range from about 600 feet to 25 feet above mean sea level. The boundary between the Piedmont and Coastal Plain is the Fall Zone. This zone represents the elevational break between the resistant rocks of the Piedmont and the more easily eroded sediments of the Coastal Plain.

Groundwater recharge in the Coastal Plain typically occurs in the interstream areas, which are essentially composed of all areas except those immediately along streams and the adjoining floodplains (Heath, 1980). Groundwater moves through the groundwater flow system under the control of the hydraulic gradients and hydraulic conductivities to discharge areas, which are typically located in the streams and floodplains (Heath, 1980). Due to the presence of confining units, vertical movement of groundwater is inhibited. This results in the shallow unconfined aquifers receiving much greater recharge than the underlying confined aquifers.

Fluctuations in the depth of the water table can be expected depending on variations in precipitation, surface water run-off, and evapotranspiration. Normally, the highest elevations of the surficial water table occur in late winter and early spring with the lowest levels occurring in the late summer and fall. Terracon surveyed the top of the well casings in relation to a temporary benchmark and collected depth to water measurements from the top of the well casings (TOCs) during the monitoring well sampling activities in an attempt to estimate the groundwater flow direction. Depths to groundwater generally varied between 13.13 feet below TOC to 14.52 feet below TOC at the site. The depth-to-groundwater (DTW) measurement for monitoring well MW-9 was adjusted for the presence of free product. Based on the groundwater elevation data, groundwater is expected to flow to the north-northwest from the site (**Figure 4**).

Information obtained from the Web Soil Survey for Scotland County, depicts soils on the site as Autryville sand (AuB), Blanton sand (BlC), and Coxville loam (CoA). Surficial soils at the site are underlain by the Middendorf Formation. "The Middendorf is composed of a heterogeneous mix of fine to medium sand and silty clay beds, coarse channel sand, and thin laminated beds of sand and clay, all of non-marine origin. Cross-bedding, lenses, pinch-outs, and facies changes are common features in the Middendorf and are typical of sediments deposited in a deltaic environment. Other characteristic features of Middendorf are its light color tones of white, tan, and red, and kaolinitic clay balls or clay fragments scattered throughout the sand beds in outcrops" (Winner and Coble, 1989).

D.2 Compliance Evaluation

Based on the presence of free product in monitoring well MW-9 without prior occurrences of free product, the NCDENR requested a Compliance Evaluation of the current UST system. The most recent inspection report made available by the NCDENR was dated August 23, 2012. According to

the inspection report, no violations were reported for the current UST system. According to the site owner, Mr. Charles Nichols, the kerosene UST was removed from service in 2012 due to a lack of kerosene demand; however, the NCDENR did not have a notice of temporary or permanent closure on record for the kerosene UST. The most recent UST inspection report is provided in **Appendix A**.

D.3 Field Activities

D.3.1 Free Product Evaluation

Approximately 0.06 feet (0.72 inches) of light non-aqueous phase liquids (LNAPL) was measured with an interface probe in monitoring well MW-9 on July 14, 2014. Subsequent measurements of free product in well MW-9 indicated approximately 0.18 feet (2.16 inches) on October 16, 2014 and approximately 0.23 feet (2.76 inches) on October 29, 2014. Free product was not observed in monitoring well MW-9 based on historical groundwater sampling events prior to 2014. The nearest possible free product source is an out-of-service 2,000-gallon kerosene UST located approximately 105 feet to the west of monitoring well MW-9. The kerosene dispenser and product lines were observed directly above the west end of the UST. According to the site owner, Mr. Charles Nichols, the kerosene UST was "removed from service" in 2012 due to a lack of kerosene demand. Mr. Nichols stated that the UST is still located at the site but is no longer in use.

A free product evaluation in the form of a bail-down test with LNAPL sampling was requested as part of the authorized scope of work; however, due to insufficient LNAPL thickness, a bail-down test was not conducted in well MW-9. Terracon collected a LNAPL sample for forensic laboratory analysis from well MW-9 on October 30, 2014 (Section D.4.1).

D.3.2 Monitoring Well Installation

Terracon mobilized to the site on October 16, 2014 to install a replacement well for Type II monitoring well MW-4 which was damaged previously. Well MW-4 was located near the kerosene UST. Monitoring well MW-4r was installed approximately 5 feet to the southeast of the former MW-4 location to monitor the free product release identified in monitoring well MW-9 in Terracon's prior site visit.

Terracon also installed Type II monitoring well MW-11 in the northern portion of the site to mimic the construction of monitoring well MW-8A. Previously, 1,1,2,2-tetrachloroethane was detected in monitoring well MW-8A at a concentration below its 2L standard. Monitoring well MW-11 was installed in the northern portion of the site in an attempt to determine if the chlorinated compound originated from an off-site source since it is not related to petroleum releases. Monitoring well MW-11 was placed approximately 70 feet to the northwest of well MW-8A along the northwestern property boundary.

Monitoring well MW-5r was scheduled to replace monitoring well MW-5 as a deep well in the southern portion of the site as part of the evaluation of 1,1,2,2-tetrachloroethane. Due to the presence of free product in well MW-9, Terracon cancelled the installation of MW-5r, scheduled to be placed approximately 50 feet to the south of the kerosene UST, to prevent potential vertical migration of free product in the groundwater by drilling equipment.

Monitoring wells MW-4r and MW-11 were constructed by a North Carolina-licensed well driller with Environmental Hydrogeological Consultants, Inc. (EHC) utilizing a truck-mounted auger rig using the following procedures:

- Installation of 10 feet of 2-inch diameter, 0.010-inch slotted schedule 40 PVC well screen with a threaded bottom cap;
- Installation of 2-inch diameter, threaded, flush-joint PVC riser pipe to surface;
- Addition of pre-sieved 20/40 grade silica sand as an annular sand pack around the well screen from the bottom of the boring to two feet above the well screen;
- Placement of hydrated bentonite pellets from the top of the sand pack to approximately one foot below the surface;
- Addition of cement grout to the surface; and,
- Installation of an 8-inch diameter, circular, bolt-down, steel, monitoring well cover with a locking well cap inset in a flush-mounted, concrete well pad.

Monitoring well MW-4r was set at a depth of 15.5 feet below grade surface (bgs) and monitoring well MW-11 was set at a depth of 40 feet bgs. The well construction records for the new wells are provided in **Appendix B**.

D.3.3 Well Abandonment

On October 30, 2014, attempts were made to abandon water supply well WSW-72 located on the adjoining property to the south which is currently operating as an automotive repair facility. A supply line for the well was observed in a wall cavity behind an air compressor in the eastern corner of the repair facility. Personnel at the automotive repair facility stated that the well pump was previously located behind the air compressor but it had been removed. None of the employees could provide a date of removal or estimate how long the well has been inactive. Terracon attempted to gauge well WSW-72; however, the well appeared to elbow at approximately 16 inches below the surface of the concrete slab. As a result of EHC not being able to tremie grout past the well elbow, EHC poured

dry high-density bentonite into the well from the surface and hydrated with distilled water in lifts from approximately 16 inches below the slab to the surface.

D.3.4 Monitoring Well Repair

Monitoring well MW-8A was missing a well plug, lock, and well casing cover at the time of Terracon's site visit in July 2014. During Terracon's site visit on October 16, 2014, EHC replaced the well plug, lock, and repaired the well casing cover.

D.4 Sampling Activities

Terracon mobilized to the site on October 29 and 30, 2014 to sample monitoring wells MW-2Br, MW-4r, MW-8A, MW-10 and MW-11 as requested by the NCDENR. Prior to sample collection, Terracon gauged the depth to groundwater in each of the monitoring wells. The approximate locations of the wells are shown on the Site Plan (**Figure 1**). Current and historical groundwater elevation measurements are provided in **Table 2**.

D.4.1 Groundwater Sampling Activities

Prior to sampling monitoring wells MW-2Br, MW-4r, MW-8A, MW-10, and MW-11, the monitoring wells were purged with a peristaltic pump using low flow sampling techniques (i.e., <200 milliliters per minute). The following field parameters were measured in the wells: pH, temperature, oxidation reduction potential (ORP), dissolved oxygen (DO), and conductivity. After stabilization of field parameters (pH and conductivity), a groundwater sample was collected directly into laboratory supplied containers at low flow sampling rates. Each groundwater sample was packed on ice and shipped via FedEx along with chain of custody documentation to Pace Analytical (Pace) in Huntersville, North Carolina (North Carolina Field Services Certification #5342) for analysis of volatile organic compounds (VOCs) by Standard Method 6200B including xylenes, MTBE, EDB and IPE.

D.4.2 LNAPL Sampling Activities

Terracon collected a LNAPL sample from well MW-9 using a disposable-bailer and pouring the product into laboratory supplied sample containers. The sample was packed on ice and shipped via FedEx along with chain of custody documentation to ZymaX Forensics in Escondido, California, a subordinate laboratory for Pace, to conduct a C3-C44 Whole Oil Analysis by ASTM D3328.

D.5 Analytical Results

D.5.1 Groundwater Analytical Results

Petroleum constituents were not reported above GCLs in the groundwater samples collected at the site. The following constituents were detected in the wells above laboratory method detection limits (MDLs):

- MW-4r: Naphthalene and benzene were detected above their respective 2L standards.

Seven additional petroleum constituents were detected above MDLs at concentrations below their respective 2L standards.

- MW-8A: Naphthalene was detected above its 2L standard. Six additional petroleum constituents were detected above MDLs at concentrations below their respective 2L standards.
- MW-2Br: One petroleum constituent (sec-butylbenzene) was detected above the MDL but below its 2L standard.
- MW-10: Two petroleum constituents were detected above MDLs but at concentrations below their respective 2L standards.
- MW-11: Petroleum constituents were not detected above MDLs.

The potential for vapor intrusion risk was evaluated using the NCDENR Division of Waste Management Non-Residential Vapor Intrusion Screening Levels (VISLs) based on the groundwater data collected at the site. 1,2,4-Trimethylbenzene was detected above its Non-Residential VISL of 24.4 micrograms per liter (µg/L) in well MW-4r at a concentration of 130 µg/L.

The groundwater analytical results from the monitoring wells are summarized in **Table 3, Table 4** and **Figure 5**. A naphthalene concentration map is provided as **Figure 6**. A copy of the laboratory analytical reports is provided in **Appendix C.**

D.5.2 LNAPL Analytical Results

Forensic analytical data for the LNAPL sample collected from well MW-9 reported peaks in carbon values C11 through C17 which is indicative of kerosene. According to the Interpretive Letter prepared by Dr. Alan Jeffery with Zymax, the LNAPL sample displays characteristics of unweathered kerosene with a small amount of diesel fuel.

E. CONCLUSIONS AND RECOMMENDATIONS

Based on information obtained during the completion of Federal/State Lead Monitoring activities, Terracon provides the following conclusions and findings.

- Benzene and naphthalene were reported at concentrations above the 2L standards.
- None of the detected constituents exceeded the GCLs.
- 1,1,2,2-Tetrachloroethane was not detected above laboratory reporting limits at the site.
- Free product has been measured in well MW-9 since July 2014. Forensic analysis of a free product sample from the well characterized the product as unweathered kerosene. The nearest known source of kerosene is an underground tank located about 105 feet to the west of well MW-9. The kerosene dispenser and product lines were observed directly above the west end of the UST. The kerosene release appears to be recent and not associated with historical releases documented at the site and assessed as part of State-Lead Incident No. 2857.

- Free product was not observed in newly installed monitoring well MW-4r located five feet from the kerosene UST and dispenser. It is likely that kerosene has not had the time to impact well MW-4r.
- The most recent UST inspection report (dated 2012) did not report violations associated with the operation of the current UST system. Due to a lack of demand, the kerosene UST was reportedly removed from service in 2012; however, the NCDENR did not have a notice of temporary or permanent closure on record for the kerosene UST.
- 1,2,4-Trimethylbenzene was detected in well MW-4r above its Non-Residential VISL and free product was observed in well MW-9, suggesting a possible vapor intrusion issue related to the kerosene UST release.
- Water supply well WSW-72 located on the adjoining property to the south historically contained detectable concentrations of benzene and MTBE above their respective 2L standards. Municipal water is now available and being used at the adjacent facility. Water supply well WSW-72 is no longer active and was recently abandoned (pump removed and casing partially filled) by EHC on October 30, 2014. Two active water supply wells reportedly used for irrigation purposes were observed greater than 800 feet from the site. The wells are located to the northwest and hydraulically up-gradient relative to the site.

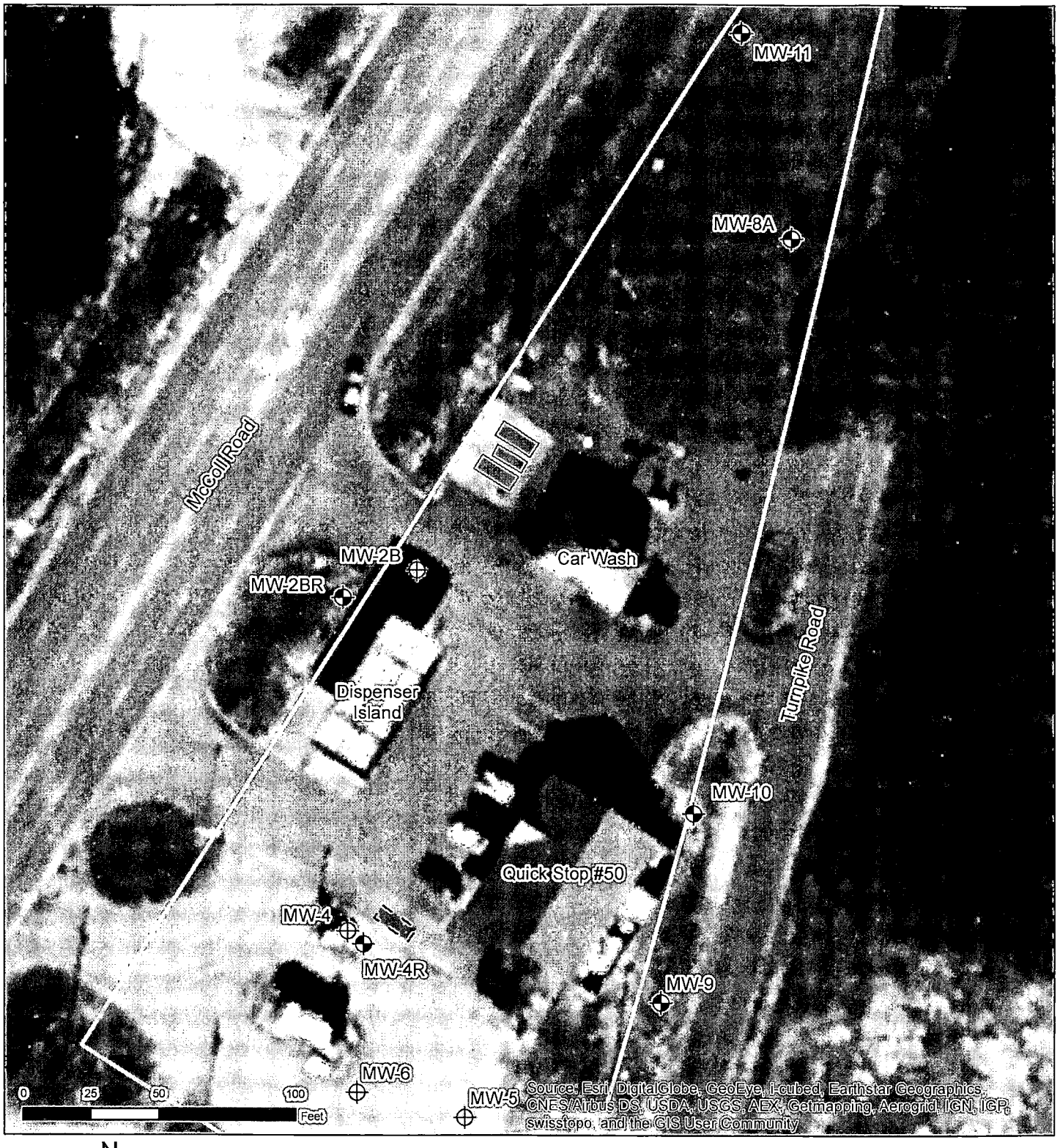
Based on the data presented in this Federal/State-Lead Monitoring report, Terracon recommends the following activities be completed at the site.

- NCDENR should further evaluate the possible vapor intrusion issue related to the kerosene UST release.
- Conduct a groundwater transport model to demonstrate the release from Incident Number 2857 will not negatively or adversely impact down-gradient water supply wells.

F. REFERENCES

- Comprehensive Site Assessment dated December 1991 prepared by Environmental Hydrogeological Consultants, Inc. (EHC).
- Monitoring Well and WSW Sampling Event dated November 9, 2007 prepared by Schnabel Engineering South.
- Monitoring Report dated January 25, 2010 prepared by Agra Environmental.
- Groundwater Monitoring Report dated June 2, 2012 prepared by Crawford Environmental Services.
- Federal/State-Lead Monitoring Report dated September 10, 2014 prepared by Terracon Consultants.

FIGURES



N

Active Monitoring Well
Destroyed Well
Site Boundary
Current UST
Out of Service Kerosene UST

Data Sources:
- Well Locations - Crawford Env. (Roanoke, VA) & Terracon
- Imagery - ESRI WMS

C:\WAH_GIS\NC_USTs\70149609_QuickStop50_NC\T_project\mxd\Dec2014_updateV70149609_2857_Fig1_SitePlan_121814_102.mxd

Project No.	70149609
Drawn By:	JDF
Reviewed By:	TAP
Date:	December 2014

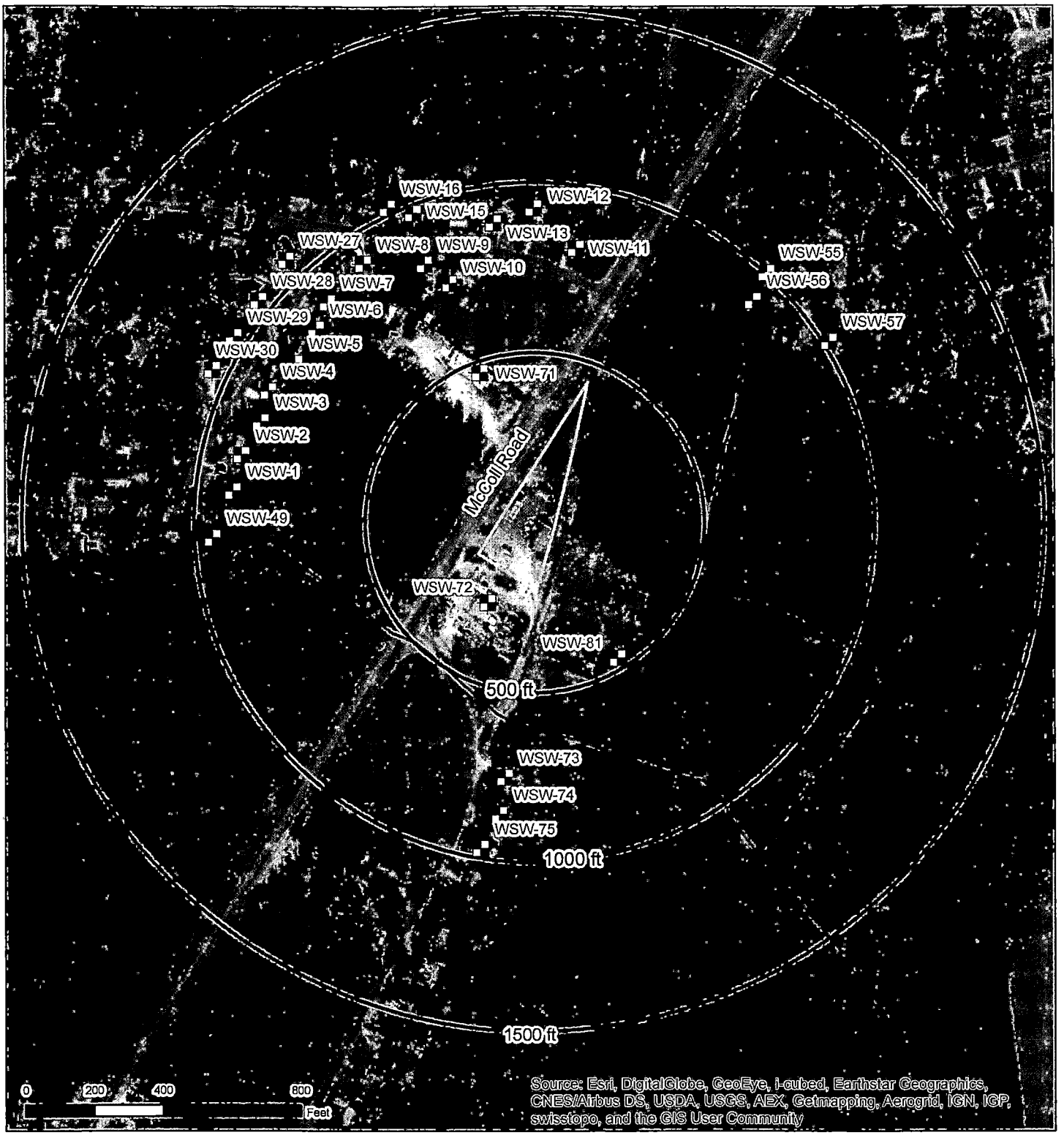
Terracon
2401 Brentwood Rd. Raleigh, NC 27604
PH. (919) 873-2211 terracon.com

Site Plan

QUICK STOP 50
INCIDENT NUMBER 2857
11761 MCCOLL ROAD
LAURINBURG, NC

Figure

1



N

Water Supply Well

Site Boundary

Stream/River

Data Sources:
- Well Locations - Crawford Env. (Roanoke, VA)
- Stream/River: National Hydrography Dataset
- Site Boundary: Laurinburg GIS
- Imagery - ESRI WMS

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Project No.	70149609
Drawn By:	JDF
Reviewed By:	TAP
Date:	December 2014

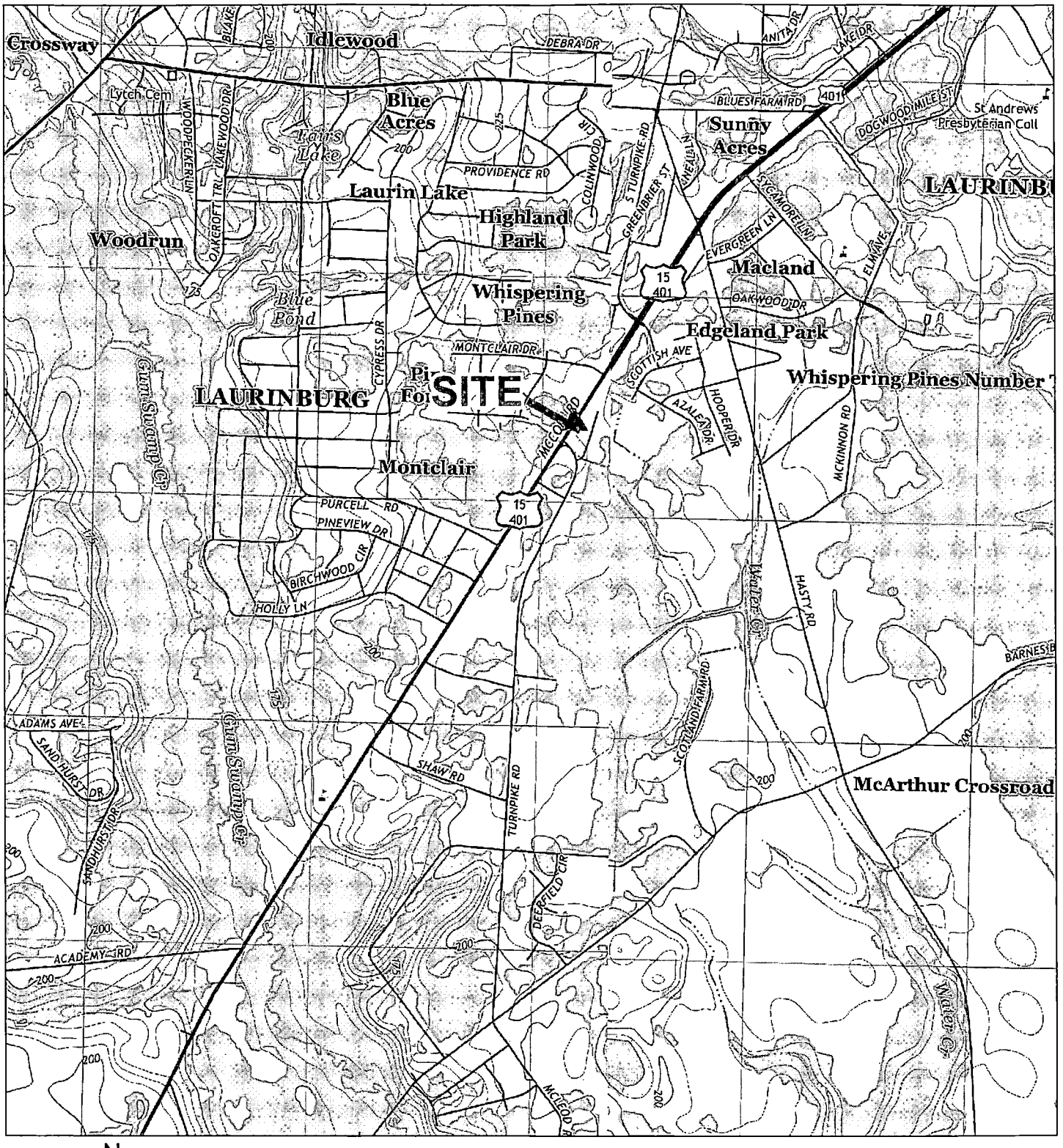
Terracon
2401 Brentwood Rd. Raleigh, NC 27604
PH. (919) 873-2211 terracon.com

Water Supply Well Location Map

QUICK STOP 50
INCIDENT NUMBER 2857
11761 MCCOLL ROAD
LAURINBURG, NC

Figure

2



SITE COORDINATES: 79°30'4.328"W 34°43'57.15"N

Data Source:
USGS Laurinburg Quadrangle, 2014, 7.5-Minute Series

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Project No.	70149609
Drawn By:	JDF
Reviewed By:	TAP
Date:	December 2014

Terracon
2401 Brentwood Rd. Raleigh, NC 27604
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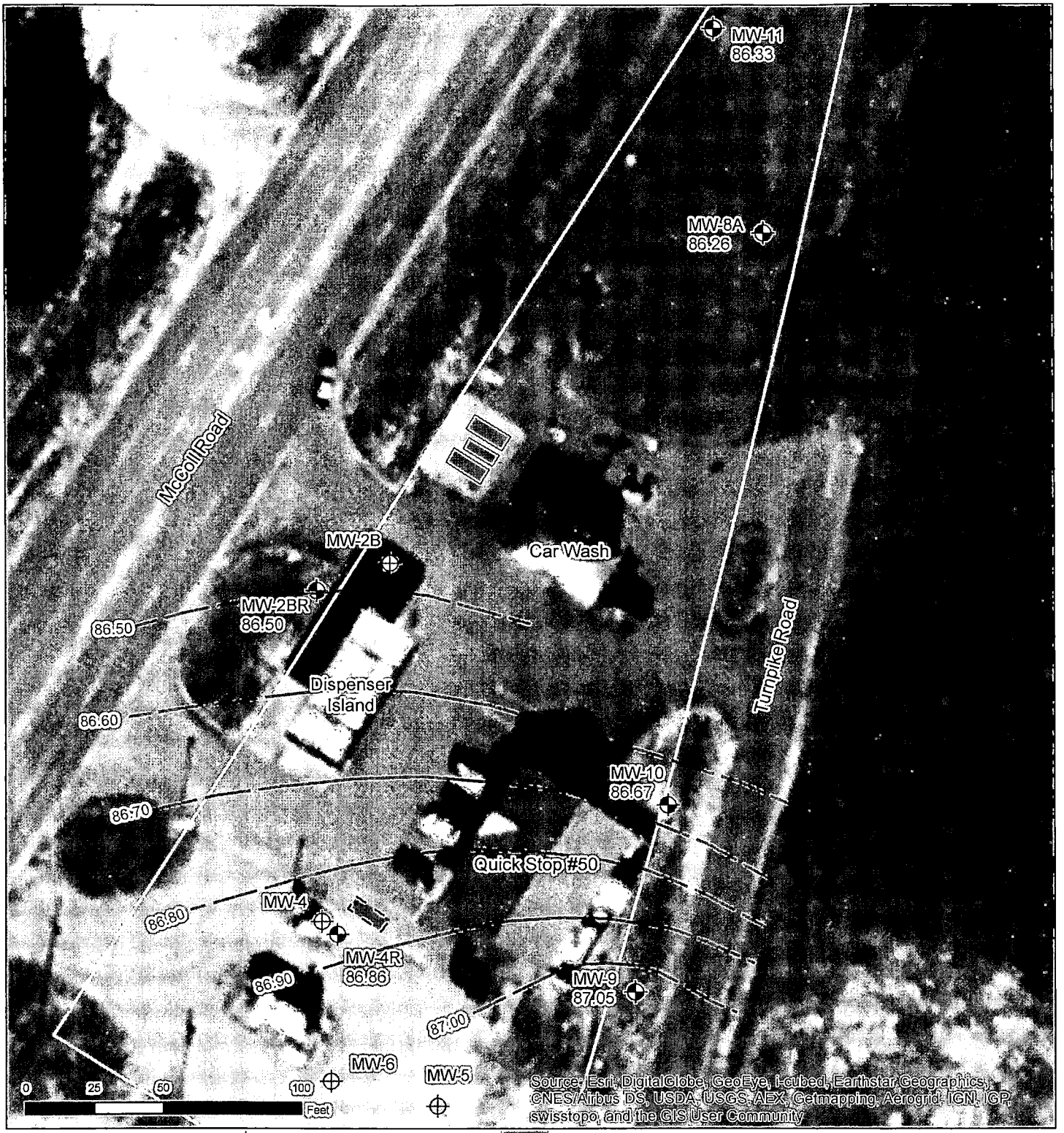
Site Location Map

QUICK STOP 50
INCIDENT NUMBER 2857
11761 MCCOLL ROAD
LAURINBURG, NC

Figure

3



N

Active Monitoring Well

Destroyed Well

Potentiometric Contour

86.67 Groundwater Elevation

Site Boundary

Current UST

Out of Service Kerosene UST

Notes:
- Elevations reference to arbitrary datum of 100 feet
- Depth to water measurements for MW-8A not included due to different screen intervals.

Data Sources:
- Well Locations - Crawford Env. (Roanoke, VA) & Terracon
- Imagery - ESRI WMS

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Project No.	70149609
Drawn By:	JDF
Reviewed By:	TAP
Date:	December 2014

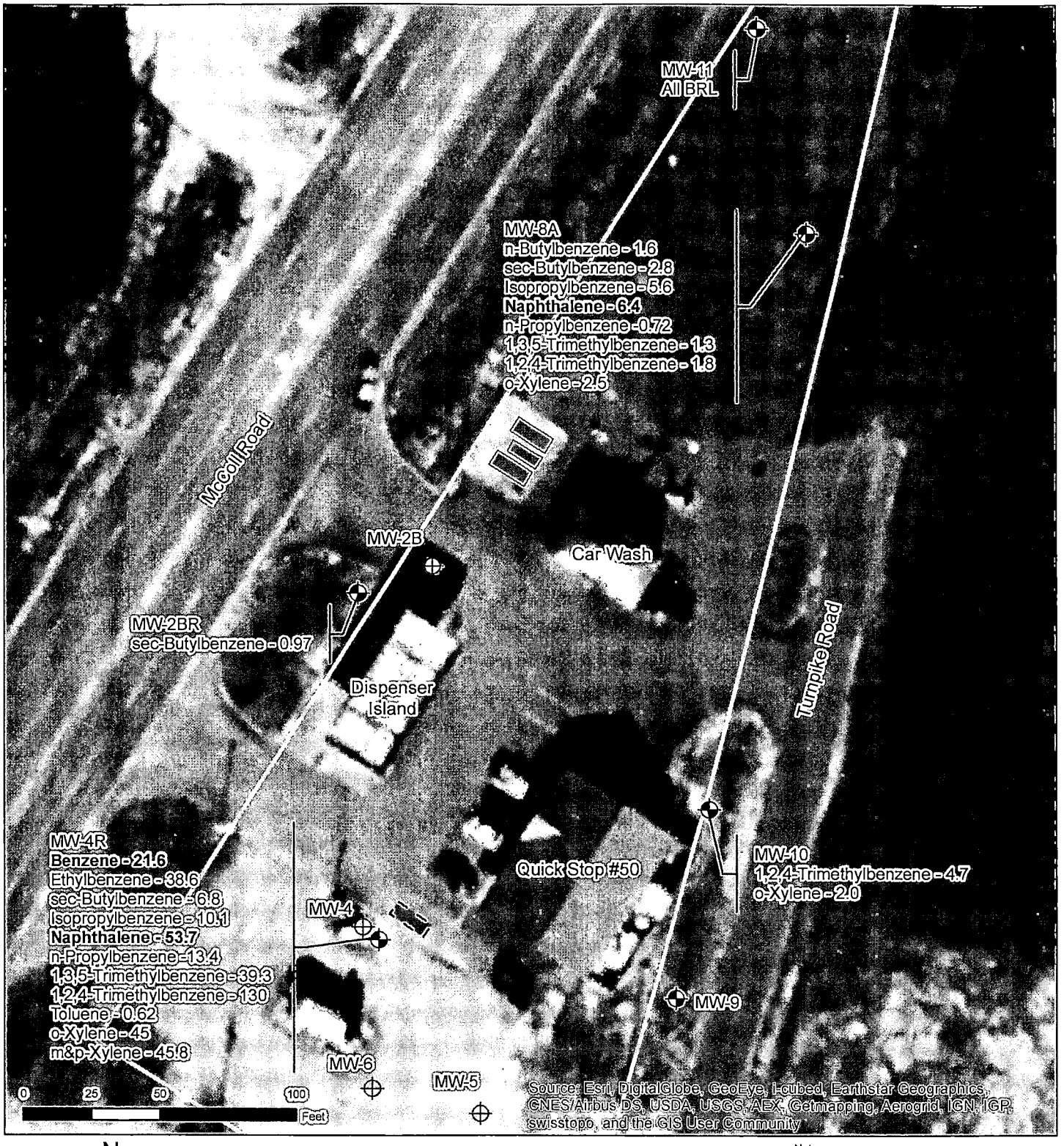
Terracon
2401 Brentwood Rd. Raleigh, NC 27604
PH. (919) 873-2211 terracon.com

Groundwater Elevation Map
(10/29/2014)

QUICK STOP 50
INCIDENT NUMBER 2857
11761 MCCOLL ROAD
LAURINBURG, NC

Figure

4



N

Active Monitoring Well
Destroyed Well
Site Boundary
Current UST
Out of Service Kerosene UST

Notes:
- All concentrations in micrograms per liter (ug/L)
- Bolded concentrations exceed MSCC standards
- BRL = below reporting limits

Data Sources:
- Well Locations - Crawford Env. & Terracon (Roanoke, VA)
- Imagery - ESRI WMS

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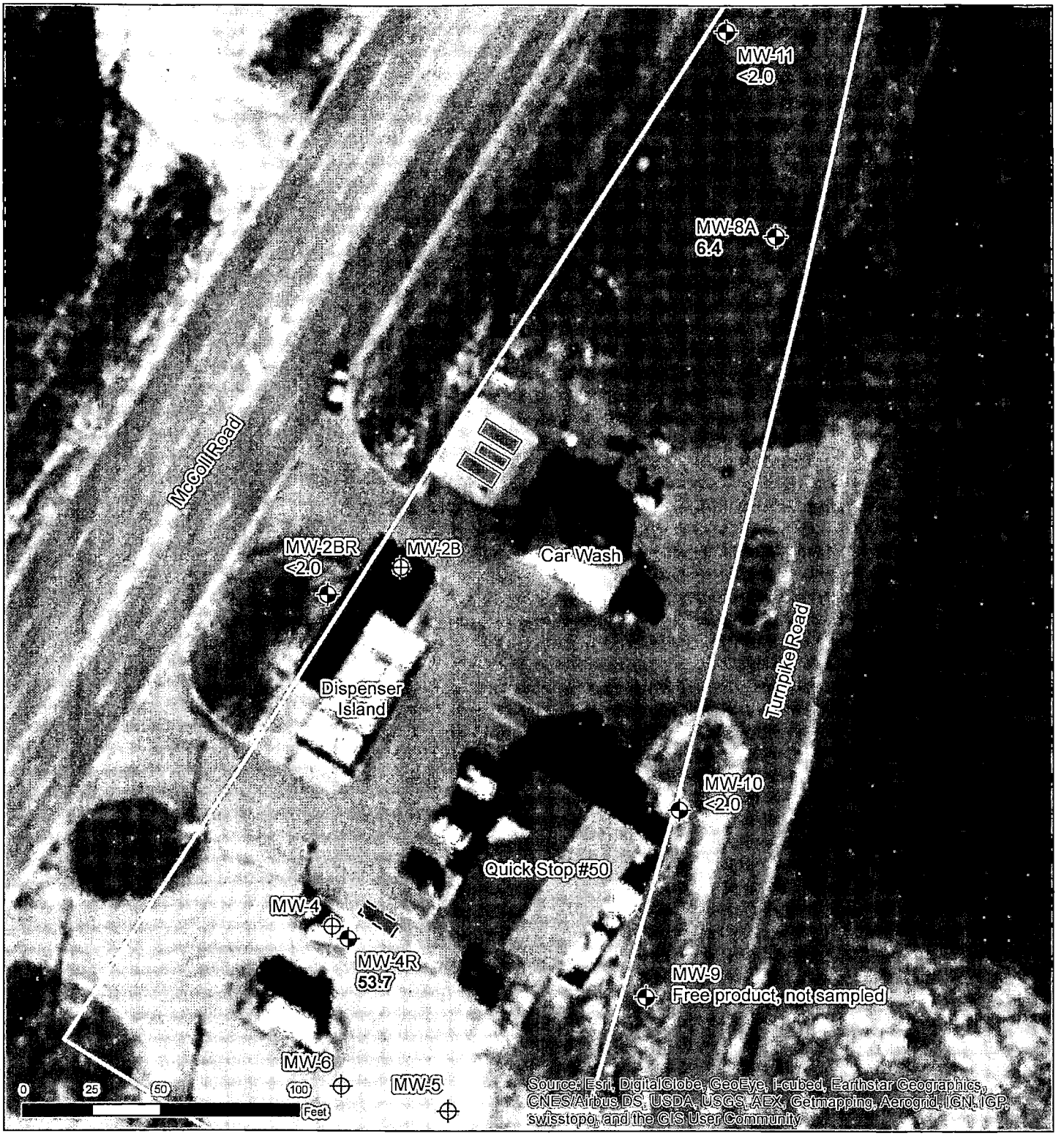
Project No.	70149609
Drawn By:	JDF
Reviewed By:	TAP
Date:	December 2014

Terracon
2401 Brentwood Rd. Raleigh, NC 27604
PH. (919) 873-2211 terracon.com

Groundwater Analytical Results (10/30/2014)

QUICK STOP 50
INCIDENT NUMBER 2857
11761 MCCOLL ROAD
LAURINBURG, NC

Figure 5



N

Active Monitoring Well
Destroyed Well
Site Boundary
Current UST
Out of Service Kerosene UST

Notes:
- All concentrations in micrograms per liter (µg/L)
- Bolded concentrations exceed MSCC standards

Data Sources:
- Well Locations - Crawford Env. & Terracon (Roanoke, VA)
- Imagery - ESRI WMS

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Project No.	70149609
Drawn By:	JDF
Reviewed By:	TAP
Date:	December 2014

Terracon
2401 Brentwood Rd. Raleigh, NC 27604
PH. (919) 873-2211 terracon.com

Naphthalene Concentration Map
(10/30/2014)

QUICK STOP 50
INCIDENT NUMBER 2857
11761 MCCOLL ROAD
LAURINBURG, NC

Figure
6

TABLES

TABLE 1
Water Supply Well Information

Quick Stop 50
Laurinburg, North Carolina

Terracon Project No. 70149609
NCDENR Incident No. 2857

Well No.	Property Owner	Mailing Address	Property Address	Distance/Directions from site	Well Status/Use	Tax PIN	Notes
WSW-1	Rita Moore	12021 Simmons Avenue	12021 Simmons Avenue	892' W	Inactive	010222 06001	NA
WSW-2	Robert and Edna Easterling	12041 Simmons Avenue	12041 Simmons Avenue	830' NW	Irrigation	010222 06002	Connected to municipal water supply
WSW-3	John and Wynnfred Gay	12061 Simmons Avenue	12061 Simmons Avenue	817' NW	Inactive	010222 06003	NA
WSW-4	Carlotta Lewis	703 South Patterson Street, Maxton, NC	12101 Simmons Avenue	788' NW	Inactive	010222 06004	NA
WSW-5	Jerry and Eddie Mae Eastling	12111 Simmons Avenue	12111 Simmons Avenue	790' NW	Unknown	010222 06005	NA
WSW-6	Dougal and Linda Faulk	12121 Simmons Avenue	12121 Simmons Avenue	813' NW	Inactive	010222 06006	NA
WSW-7	Premier Real Estate Inc./Tony M Morgan	PO Box 1891	12141 Simmons Avenue	838' NW	Unknown	010222 06007	NA
WSW-8	Gwyn Harris	13040 Montclair Drive	13040 Montclair Drive	889' NW	Inactive	010222 06008	NA
WSW-9	Jody A Murphy	13060 Montclair Drive	13060 Montclair Drive	724' NW	Inactive	010222 06009	NA
WSW-10	Lois Jean Fisher	13080 Montclair Drive	13080 Montclair Drive	634' N	Inactive	010222 06010	NA
WSW-11	Cynthia Johnson	13221 Montclair Drive	13221 Montclair Drive	720' N	Unknown	010222 03007	NA
WSW-12	Karen Michelle Denning	13201 Montclair Drive	13201 Montclair Drive	773' N	Unknown	010222 03006	NA
WSW-13	John H and Margaret Uncapher	13181 Montclair Drive	13181 Montclair Drive	787' N	Inactive	010222 03005	NA
WSW-14	Joe and Carmel Donaldson	13161 Montclair Drive	13161 Montclair Drive	828' N	Inactive	010222 03004	NA
WSW-15	John and Brenda Grubbs	101 Sterling Lane	13141 Montclair Drive	862' NW	Inactive	010222 03003	NA
WSW-16	Monopoly Investment Co.	PO Box 1891	13121 Montclair Drive	919' NW	Unknown	010222 03002	NA
WSW-27	George E. Bennett, III	11480 McColl Road	12160 Simmons Avenue	981' NW	Inactive	010222 05007	NA
WSW-28	Anthony and Barbara C. Poole	12140 Simmons Avenue	12140 Simmons Avenue	988' NW	Unknown	010222 05008	NA
WSW-29	Virginia Jones	12120 Simmons Avenue	12120 Simmons Avenue	980' NW	Inactive	010222 05009	NA
WSW-30	Earl and Nellie Locklear	11721 Johns Road	12100 Simmons Avenue	993' NW	Irrigation	010222 05010	Connected to municipal water supply
WSW-49	Mildred Graham	13000 Andrews Drive	13000 Andrews Drive	954' W	Inactive	010222 07006	NA
WSW-55	Morris and Brenda Britt	12781 Scottish Avenue	12781 Scottish Avenue	945' NE	Inactive	010221 02007	NA
WSW-56	Gregory Carter	12761 Scottish Avenue	12761 Scottish Avenue	901' NE	Inactive	010221 02008	NA
WSW-57	Anthony and Donna Good (Johnson Family)	PSC Box 184, Grandforks AFB, ND	11760 Azalea Drive	989' NE	Unknown	010221 03001	NA
WSW-71	Stephen and Peggy Cole	408 Bundy Lane	11780 McColl Road	354' NW	Inactive	010222 01002	NA
WSW-72	Edmond and James Baddour	PO Box 1595, Pinehurst, NC	11721 McColl Road	348' SW	Inactive	010237 01007	NA
WSW-73	Jeff and Nina Ann Hildreth	11061 Turnpike Road	11061 Turnpike Road	912' S	Unknown	010225 02017	NA
WSW-74	Furman and Evadean Chavis	11041 Turnpike Road	11041 Turnpike Road	950' S	Unknown	010225 02016	NA
WSW-75	James and Margie McRae	11021 Turnpike Road	11021 Turnpike Road	980' S	Inactive	010225 02015	NA
WSW-81	Church of the Nazarene	11121 Turnpike Road	11121 Turnpike Road	501' S	Inactive	010237 01012	Pump is present but no power is supplied to the well

TABLE 2
Monitoring Well Construction Information
and Historic Groundwater Elevations

Quick Stop 50
Laurinburg, North Carolina

Terracon Project No. 70179609
NCDENR Incident No. 2857

Well Id	Date Installed	Date Water Level Measured	Well Casing Depth (ft. BGS)	Screened Interval (x to y ft. BGS)	Bottom of Well (ft. BGS)	Top of Casing Elevation (ft.)	Depth to Water from Top of Casing (ft.)	Free Product Thickness (ft.)	Groundwater Elevation (ft.)	Comments
MW-2B	1988-1991	10/10/1991	Unknown	Unknown	15	Unknown	5.18	NA	-	Destroyed
		10/5/2007					Could not locate	NA	-	
MW-2Br	12/9/2009	12/16/2009	5	5-20	20	99.73	8.93	NA	-	
		4/5/2012					11.15	NA	-	
		7/14/2014					8.07	NA	91.94	
		10/29/2014					13.23	NA	86.50	
MW-4	1984-1987	10/10/1991	Unknown	Unknown	29	Unknown	7.10	NA	-	Filled with sand
		10/5/2007					19.61	NA	-	
		12/16/2009					Destroyed	NA	-	
		4/5/2012					Destroyed	NA	-	
		7/14/2014					Destroyed	NA	-	
MW-4R	10/16/2014	10/29/2014	5.5	5.5-15.5	15.5	99.99	13.13	NA	86.86	
MW-5	1984-1987	10/10/1991	Unknown	Unknown	49	Unknown	7.72	NA	-	Destroyed
		10/5/2007					Destroyed	NA	-	
		12/16/2009					Destroyed	NA	-	
		4/5/2012					Destroyed	NA	-	
		7/14/2014					Destroyed	NA	-	
MW-6	1984-1987	10/10/1991	Unknown	Unknown	29	Unknown	7.30	NA	-	Destroyed
		10/5/2007					Destroyed	NA	-	
		12/16/2009					Destroyed	NA	-	
		4/5/2012					Destroyed	NA	-	
		7/14/2014					Destroyed	NA	-	
MW-8A (4-inch well)	November 1984	10/10/1991	20	35-38	39	100.78	6.38	NA	-	Damaged grout around casing
		10/5/2007					19.71	NA	-	
		12/16/2009					9.95	NA	-	
		4/5/2012					12.40	NA	-	
		7/14/2014					9.39	NA	92.21	
		10/29/2014					14.52	NA	86.26	
MW-9	12/11/1991	10/5/2007	5	5-19.85	19.85	100.13	Dry	NA	-	
		12/16/2009					8.64	NA	-	
		4/5/2012					11.09	NA	-	
		7/14/2014					7.86	0.06	86.92	
		10/29/2014					13.26	0.23	87.05	
MW-10	12/9/2009	12/16/2009	5	5-20	20	99.95	8.77	NA	-	
		4/5/2012					11.21	NA	-	
		7/14/2014					8.28	NA	91.45	
		10/29/2014					13.28	NA	86.67	
MW-11	10/16/2014	10/29/2014	30	30-40	40	100.23	13.90	NA	86.33	

Notes:
1. "-" indicates, no free product was measured
ft. BGS - Feet below grade surface

TABLE 3
Summary of Groundwater Analytical Results

Quick Stop 50
Laurinburg, North Carolina

Terracon Project No. 70179609
NCDENR Incident No. 2857

Analytical Method																	
Contaminant of Concern →																	
Well/Sample I.D.	Date Collected	Benzene	n-Butylbenzene	sec-Butylbenzene	Chloroform	Ethylbenzene	Isopropylbenzene	p-Isopropyltoluene	Methyl tert-Butyl Ethyl (MTBE)	Methylene Chloride	Naphthalene	n-Propylbenzene	1,1,2,2-Tetrachloroethane	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes (Total)
MW-2B	10/10/1991	ND	-	ND	-	ND	-	-	ND	-	-	-	-	68	-	-	734
	7/8/1993	88	-	ND	-	460	-	-	1,000	-	-	-	-	750	-	-	1,400
	12/31/1993	117	-	ND	-	895	-	-	ND	-	-	-	-	2,200	-	-	6,620
	5/23/1994	50	-	ND	-	338	-	-	ND	-	-	-	-	283	-	-	1,470
	8/25/1994	20	-	ND	-	228	-	-	11	-	-	-	-	321	-	-	1,420
	11/9/1994	ND	-	ND	-	306	-	-	ND	-	-	-	-	328	-	-	2,550
MW-2Br	12/16/2009	ND	2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/5/2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/14/2014	<0.027	<0.017	0.45J	<0.017	<0.17	<0.029	0.20J	<0.019	0.25J	2.8	<0.024	<0.013	<0.17	<0.17	<0.17	<0.34
	10/29/2014	<0.50	<0.5	0.97	<0.50	<0.50	<0.50	-	<0.50	<2.0	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<1.5
MW-4	7/1/1986	1.9	-	ND	-	-	-	-	-	-	-	-	-	ND	-	-	ND
	11/1/1986	ND	-	ND	-	-	-	-	-	-	-	-	-	ND	-	-	ND
	3/1/1987	ND	-	ND	-	-	-	-	-	-	-	-	-	ND	-	-	ND
	7/1/1987	ND	-	ND	-	-	-	-	-	-	-	-	-	ND	-	-	ND
	10/10/1991	ND	-	ND	-	ND	-	-	ND	-	-	-	-	ND	-	-	ND
MW-4R	10/29/2014	21.6	<0.50	6.8	<0.50	38.6	10.1	-	<0.50	<2.0	53.7	13.4	<0.50	0.62	130.0	39.3	90.8
MW-5	7/1/1986	ND	-	ND	-	-	-	-	-	-	-	-	-	ND	-	-	ND
	11/1/1986	ND	-	ND	-	-	-	-	-	-	-	-	-	ND	-	-	ND
	3/1/1987	ND	-	ND	-	-	-	-	-	-	-	-	-	ND	-	-	ND
	7/1/1987	ND	-	ND	-	-	-	-	-	-	-	-	-	ND	-	-	ND
	10/10/1991	ND	-	ND	-	ND	-	-	ND	-	-	-	-	ND	-	-	ND
MW-6	7/1/1986	ND	-	ND	-	-	-	-	-	-	-	-	-	ND	-	-	ND
	11/1/1986	ND	-	ND	-	-	-	-	-	-	-	-	-	ND	-	-	ND
	3/1/1987	ND	-	ND	-	-	-	-	-	-	-	-	-	ND	-	-	ND
	7/1/1987	ND	-	ND	-	-	-	-	-	-	-	-	-	ND	-	-	ND
	10/10/1991	ND	-	ND	-	ND	-	-	ND	-	-	-	-	ND	-	-	ND
MW-8A	7/1/1987	ND	-	ND	-	-	-	-	-	-	-	-	-	1.7	-	-	ND
	11/1/1987	ND	-	ND	-	-	-	-	-	-	-	-	-	ND	-	-	ND
	3/1/1988	ND	-	ND	-	-	-	-	-	-	-	-	-	ND	-	-	ND
	7/1/1988	ND	-	ND	-	-	-	-	-	-	-	-	-	ND	-	-	ND
	10/10/1991	ND	-	ND	-	ND	-	-	ND	-	-	-	-	ND	-	-	ND
	10/5/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/16/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/5/2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/14/2014	<0.027	1.4	2.6	0.17J	0.37J	3.5	0.24J	<0.019	0.59	4.2	0.9	0.45J	<0.17	3.6	<0.17	0.71J
	10/29/2014	<0.50	1.6	2.8	<0.50	<0.50	5.6	-	<0.50	<2.0	6.4	0.72	<0.50	<0.50	1.8	1.3	2.5
MW-9	10/5/2007	Dry, not sampled															
	12/16/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/5/2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/14/2014	Free Product (0.06 feet)															
	10/29/2014	Free Product (0.23 feet)															
MW-10	12/16/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/5/2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/14/2014	<0.027	1.8	1.7	<0.17	<0.17	1.8	2.8	<0.019	<0.17	6.1	1.6	<0.013	<0.17	30	3.0	17.8
	10/29/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	<0.50	<2.0	<2.0	<0.50	<0.50	<0.50	4.7	<0.50	2.0
MW-11	10/29/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	<0.50	<2.0	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	2.0
WSW-72	10/5/2007	8.4	-	ND	-	-	-	-	45.1	-	-	-	-	1.7	-	-	ND
	12/16/2009	ND	ND	ND	ND	ND	ND	ND	9.7	ND	ND	ND	ND	ND	ND	ND	ND
2L Standard (ug/L)		1	70	70	70	600	70	25	20	5	6	70	0.2	600	400	400	500
GCL (ug/L)		5,000	6,900	8,500	70,000	84,500	25,000	11,700	20,000	5,000	6,000	30,000	200	260,000	28,500	25,000	85,500

All results in µg/L.
<- denotes less than sample detection limit.
"-" denotes not analyzed.
Grey shading denotes levels above the 2L standard.
Yellow shading denotes levels above the GCL.

TABLE 4
Vapor Intrusion Screeing Levels

Quick Stop 50
Laurinburg, North Carolina

Terracon Project No. 70179609
NCDENR Incident No. 2857

	Date sampled	10/30/2014				
	Sample ID	MW-2Br	MW-4r	MW-8A	MW-10	MW-11
Analytical Method	Distance to Water from Top of Casing (feet)					
6200B	Distance from Structure (feet)					
Contaminant of Concern	DWM Non-Residential VISLs					
Benzene	69.3	<0.5	21.6	<0.50	<0.50	<0.50
n-Butylbenzene	NE	<0.5	<0.50	1.6	<0.50	<0.50
sec-Butylbenzene	NE	0.97	6.8	2.8	<0.50	<0.50
Ethylbenzene	152	<0.50	38.6	<0.50	<0.50	<0.50
Isopropylbenzene	745	<0.50	10.1	5.6	<0.50	<0.50
Naphthalene	146	<2.0	53.7	6.4	<2.0	<2.0
n-Propylbenzene	NE	<0.50	13.4	0.72	<0.50	<0.50
Toluene	16,100	<0.50	0.62	<0.50	<0.50	<0.50
1,2,4-Trimethylbenzene	24.4	<0.50	130.0	1.8	4.7	<0.50
1,3,5-Trimethylbenzene	NE	<0.50	39.3	1.3	<0.50	<0.50
Xylenes (Total)	414	<1.5	90.8	2.5	2.0	2.0

All results in µg/L.
<- denotes less than sample reporting detection limit.
NE - Not established.
Green shading denotes levels above DWM Non-Residential Vapor Intrustion Screening Levels (VISLs).
J - Analyte was detected above method detection limits but below laboratory reporting limits.

APPENDIX A
UST INSPECTION REPORT DATED 2012

North Carolina Department of Environment and Natural Resources
Underground Storage Tank NC

Printed: 8/29/2012 2:52 PM
Inspection Result: Passed
Inspection Date: 8/28/2012
Partial Inspection: No
Arrive and Depart Times: 11:15 AM-12:05 PM

Facility ID:	0-0-0000008086	**Inspector**	John Hasty
Facility Name	NIC'S PIC KWIK 9	**Insp. Type**	Compliance
Facility Address	11761 MCCALL ROAD LAURINBURG, NC 28352 Scotland County	**Reason(s)**	Routine Compliance
		Location	34.73254, 79.50132
		Permit Exp.	6/30/2013

CONTACTS

Contact Type	Contact Information
Owner since 6/5/1998	CHARLES D. NICHOLS , HWY 501 N./PO BOX 1206 LAURINBURG, NC 28353, Phone: (910) 277-0050
Regulatory Operator since 5/25/2004	Dean Nichols, 11761 MCCALL ROAD LAURINBURG, NC 28352, Phone: (910) 277-0956
Primary Operator since 4/17/2002	Sirena Witmore, Hwy 501 N. Laurinburg, NC 28352, Phone: (910) 277-0050 Trained: Yes, 8/28/2012, Training Type:Inspection

OWNERSHIP CHANGE

New Owner	Change Date	Basis	Transfer of Ownership Form (UST-15) Submitted

EMERGENCY RESPONSE

Emergency Response Operator at inspection is listed in training log?	Yes
Emergency Response Operator log (UST-26) onsite and completed with names of trained employees?	

INSPECTOR COMMENTS

Type	Date	Comment

TANKS AND PIPING INFORMATION

Tanks	Tank #1(4)	Tank #2(NL-2)	Tank #3(REG-1)	Tank #4(SNL-3)
Tank ID	4	NL-2	REG-1	SNL-3
Manifolded Tank	No	No	No	No
Manifolded with tanks				
Is tank registered?	Yes	Yes	Yes	Yes
Tank Status	Current	Current	Current	Current
Tank closure report submitted				
Date tank last operated				
Inches of product in Tank				
Date tank installed	11/30/1998	5/8/1979	5/8/1979	5/8/1979
New Tank System installed in accordance with NC or MI	Yes			
Tank Construction Material (DW required after 11/1/07)	Single Wall Steel	Single Wall Steel	Single Wall Steel	Single Wall Steel
If other, description				
Tank material verified by	UST-7A/B	UST-7A/B	UST-7A/B	UST-7A/B
Was UST Piping Installed on or after 11/1/2007?				
Piping Construction Material (DW required after 11/1/07)	Single Wall FRP	Single Wall FRP	Single Wall FRP	Single Wall FRP
If other, description				
Pipe material verified by	Visual	Visual	Visual	Visual
Capacity of Tank in Gallons	2000	6000	10000	4000

Tanks	Tank #1(4)	Tank #2(NL-2)	Tank #3(REG-1)	Tank #4(SNL-3)
Product stored in Tank	Kerosene	Gasoline	Gasoline	Gasoline
if gasoline, Detail				
If hazardous substance, CAS# or description				
If other, description				
Tank / Product use	Motor Fuel	Motor Fuel	Motor Fuel	Motor Fuel
If E-blend > 10% or Biodiesel Blend > 20%; Was UST-20 completed and approved?	N/A	N/A	N/A	N/A

CORROSION PROTECTION

Tank Corrosion Protection	Tank #1(4)	Tank #2(NL-2)	Tank #3(REG-1)	Tank #4(SNL-3)
DWM notified of current CP method	Yes	Yes	Yes	Yes
Integrity assessment performed after 3/1/06	No	No	No	No
CP Method 1	Impressed Current	Impressed Current	Impressed Current	Impressed Current
if other, Description				
CP Installation Date	11/30/1998	11/30/1998	11/30/1998	11/30/1998
CP Method 2				
if other, Description				
CP Installation Date				
Flex Connector , Piping Extensions, and/or other metal fittings Present	Unknown	Other Metal, Flex Connector	Other Metal	Other Metal
Flex connector isolated from ground	Unknown	Yes	N/A	N/A
Source of verification of CP for Flex Connectors, piping extensions and/or other metal fittings	Visual	Visual	Visual	Visual
if other, Description				
Submersible pump (STP) is isolated from ground	Yes	Yes	Yes	Yes
Piping extensions and/or other metal fittings are isolated from ground	Yes	Yes	Yes	Yes
Flex connector, STP and/or other metal fittings protected from corrosion	Yes	N/A	Yes	Yes
Corrosion protection method				
Flex connector , Piping extensions, and/or other metal fittings CP Installation Date	8/29/1998		8/29/1998	8/29/1998
Dielectric Coating Installed (If tank installed after 12/22/88	N/A	N/A	N/A	N/A

Pipe Corrosion Protection	Tank #1(4)	Tank #2(NL-2)	Tank #3(REG-1)	Tank #4(SNL-3)
DWM notified of current CP method	Yes	Yes	Yes	Yes

Pipe Corrosion Protection	Tank #1(4)	Tank #2(NL-2)	Tank #3(REG-1)	Tank #4(SNL-3)
CP method	FRP Piping	FRP Piping	FRP Piping	FRP Piping
if other, Description				
CP Installation Date	11/30/1998	11/30/1998	11/30/1998	11/30/1998
Dielectric Coating Installed (If piping installed after 12/22/88	N/A	N/A	N/A	N/A

Dispenser Corrosion Protection	Dispenser #1(1)	Dispenser #2(2)	Dispenser #3(3)	Dispenser #4(4)
Flex Connector, Piping Extensions, and/or other metal fittings Present	Unknown	Other Metal, Flex Connector	Other Metal, Flex Connector	Other Metal, Flex Connector
Flex connector isolated from ground	Yes	Yes	Yes	Yes
Source of verification of CP for Flex Connectors, piping extensions and/or other metal fittings	Visual	Visual	Visual	Visual
if other, Description				
Piping extensions and/or other metal fittings are isolated from ground	Yes	Yes	Yes	Yes
Flex Connectors, Piping extensions and/or other metal fittings protected from corrosion				
Corrosion protection method	Isolated	Isolated	Isolated	Isolated
Flex connector, Piping extensions, and/or other metal fittings CP Installation Date	8/29/1998	8/29/1998	8/29/1998	8/29/1998
Source of Information for verification of corrosion protection for Riser pipe and other metal piping	Not Verified	Visual	Visual	Visual
if other, Description				

CP Tests	Test #1
Applies to Tanks	#4(SNL-3), #3(REG-1), #2(NL-2), #1(4)
Portion of System Tested	Tanks, Flex connectors
Date of last Corrosion Protection Test	7/10/2012
As Left Voltage	27.0000
As Left Current	1.3000
CP Test Result	Pass
Was CP Test done in accordance with National Standard?	Yes
CP Tester Name	Frank Gravely
Certificate Number	25432
Certifying Organization	NACE
CP Testing Company Name	PGP Services
CP Testing Company Phone	(704) 619-1528
UST7 form for last CP test submitted to DWM	Yes

SPILL PREVENTION

Has DWM been notified of spill methods?	Yes

Spill/Overfill Details	Tank #1(4)	Tank #2(NL-2)	Tank #3(REG-1)	Tank #4(SNL-3)
Is a drop tube present?	Yes	Yes	Yes	Yes
Type of Stage I vapor recovery?	Dual Point	Dual Point	Dual Point	Dual Point

Local Fill	Tank #1(4)	Tank #2(NL-2)	Tank #3(REG-1)	Tank #4(SNL-3)
Does Tank have a Remote Fill?	No	No	No	No
Is spill prevention equipment provided and verified?	Yes	Yes	Yes	Yes
Spill bucket is double-walled? (If installed after 11/1/07)	N/A	N/A	N/A	N/A
Spill bucket is isolated or made of non-corroding materials? (If installed after 11/1/07)	N/A	N/A	N/A	N/A
Date spill prevention provided	11/30/1998			
Is spill prevention operating properly?	Yes	Yes	Yes	Yes
If No, select all that apply				
If other, describe				

OVERFILL PREVENTION

Has DWM been notified of overfill methods?	Yes

Overfill Control	Tank #1(4)	Tank #2(NL-2)	Tank #3(REG-1)	Tank #4(SNL-3)
Is overfill prevention equipment provided and verified?	Yes	Yes	Yes	Yes
Date overfill control provided	11/30/1998	11/30/1998	11/30/1998	11/30/1998
Type of overfill equipment	Auto Shutoff Device	Ball Float Valve	Ball Float Valve	Ball Float Valve
Source of information for overfill control verification	Installer certification letter	Installer certification letter	Installer certification letter	Installer certification letter
If other, describe				
Is overfill control operating properly?	Yes	Yes	Yes	Yes
If No, select all that apply				
If other, describe				
Annual overfill check date (If installed after 11/1/07)(UST-22A)				
Annual overfill check results(UST-22A)				

Dispenser Sumps	Dispenser #1(1)	Dispenser #2(2)	Dispenser #3(3)	Dispenser #4(4)
Are containment sumps present?	Yes	Yes	Yes	No
Installation Date	9/1/1998	9/1/1998	9/1/1998	
Are containment sumps monitored?	No	No	No	
Is monitoring required?	No	No	No	No
Piping components and/or STP were installed/replaced on or after 11/1/07?	No	No	No	No
Are spills evident in sumps?	No	No	No	No
Are single wall piping components located in containment sump? (If installed after 11/1/107)				

Other Sumps	Sump#1(1)	Sump#2(2)	Sump#3(3)
Are containment sumps present?	Yes	Yes	Yes
Installation Date	8/18/1998	8/18/1998	8/18/1998
Are containment sumps monitored?	No	No	No
Is monitoring required?	No	No	No
Piping components and/or STP were installed/replaced on or after 11/1/07?	No	No	No
Are spills evident in sumps?	No	No	No
Are single wall piping components located in containment sump? (If installed after 11/1/107)			

SITING AND SECONDARY CONTAINMENT

Siting And Sec.Containment-General	Tank #1(4)	Tank #2(NL-2)	Tank #3(REG-1)	Tank #4(SNL-3)
UST system upgraded with corrosion protection, spill and overfill before 1/1/91?	No	No	No	No
UST system and/or piping are located within siting and secondary containment areas?	No	No	No	No

LEAK DETECTION

General	Tank #1(4)	Tank #2(NL-2)	Tank #3(REG-1)	Tank #4(SNL-3)
DWM notified of leak detection method?	Yes	Yes	Yes	Yes
Piping type	European Suction	Pressurized System	Pressurized System	Pressurized System
Type LLD present	N/A	MLLD	MLLD	MLLD
Tank – Primary leak detection method	Automatic Tank Gauging	Automatic Tank Gauging	Automatic Tank Gauging	Automatic Tank Gauging
Tank - if other, specify				
Tank – Secondary leak detection method				
Tank - if other, specify				
Piping - Primary leak detection method	Line Tightness Testing (LTT)	Line Tightness Testing (LTT)	Line Tightness Testing (LTT)	Line Tightness Testing (LTT)
Piping - if other, specify				
Piping - Secondary leak detection method				
Piping - if other, specify				

PIPING LEAK DETECTION

Pressurized Piping	Tank #2(NL-2)	Tank #3(REG-1)	Tank #4(SNL-3)
Last MLLD/ELLD Test Date	7/10/2012	7/10/2012	7/10/2012
MLLD/ELLD Test Result	Pass	Pass	Pass
Last LTT Test Date	7/10/2012	7/10/2012	7/10/2012
LTT Test Result	Pass	Pass	Pass
Does test result indicate suspected release?	No	No	No
Number of MLLD/ELLD Types	1	1	1

MLLD/ELLD Equipment	Tank #2(NL-2) LLD #0	Tank #3(REG-1) LLD #0	Tank #4(SNL-3) LLD #0
MLLD/ELLD Manufacturer/Model	V-R: FX1V	V-R: FX1V	V-R: FX1V

MLLD/ELLD Equipment	Tank #2(NL-2) LLD #0	Tank #3(REG-1) LLD #0	Tank #4(SNL-3) LLD #0
If other, describe			
MLLD/ELLD Third Party Certified?	Yes	Yes	Yes

European Suction	Tank #1(4)
Requirements for European suction piping verified?	Yes
Source of information for European Suction verification	UST Equipment Contractor Report
If other, specify	

AUTOMATIC TANK GAUGE

ATG Systems	ATG #1
ATG Manufacturer/Model	V-R: TLS-350 (Mag)
If other, describe	
ATG Third Party Certified?	Yes
Is ATG console operational?	Yes
Tanks	#1(4), #2(NL-2), #3(REG-1), #4(SNL-3)

ATG Monthly LD	Tank #1(4)	Tank #2(NL-2)	Tank #3(REG-1)	Tank #4(SNL-3)
2012 Aug	Pass	Pass	Pass	Pass
2012 Jul	Pass	Pass	Pass	Pass
2012 Jun	Pass	Pass	Pass	Pass
2012 May	Pass	Pass	Pass	Pass
2012 Apr	Pass	Pass	Pass	Pass
2012 Mar	Pass	Pass	Pass	Pass
2012 Feb	Pass	Pass	Pass	Pass
2012 Jan	Pass	Pass	Pass	Pass
2011 Dec	Pass	Pass	Pass	Pass
2011 Nov	Pass	Pass	Pass	Pass
2011 Oct	Pass	Pass	Pass	Pass
2011 Sep	Pass	Pass	Pass	Pass

ATG Conclusions	
Leak Detection Requirements Met?	Yes
Do the results indicate a suspected release?	
Issues	

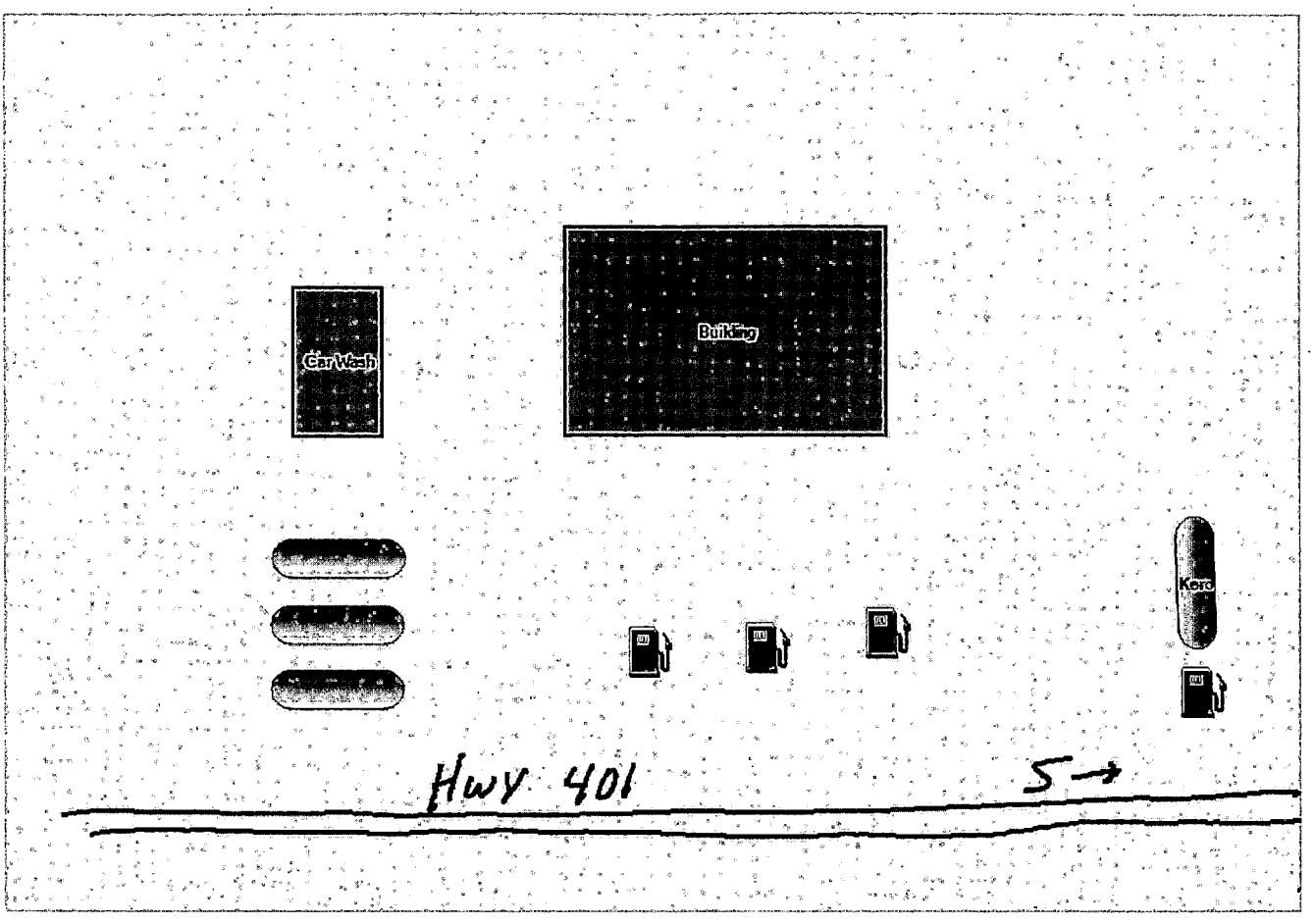
TRANSPORTER/FUEL DELIVERY INFORMATION

Delivery Information	Tank #1(4)	Tank #2(NL-2)	Tank #3(REG-1)	Tank #4(SNL-3)
All deliveries made to permitted tanks	Yes	Yes	Yes	Yes

POTENTIAL ISSUES

No violations found.

SITE DIAGRAM



APPENDIX B
WELL CONSTRUCTION RECORDS

WELL CONSTRUCTION RECORD

This form can be used for single or multiple wells

1. Well Contractor Information:

Matthew Markus

Well Contractor Name

4248-B

NC Well Contractor Certification Number

EHC Environmental, Inc.

Company Name

2. Well Construction Permit #: _____

List all applicable well permits (i.e. County, State, Variance, Injection, etc.)

3. Well Use (check well use):

Water Supply Well:

☐Agricultural ☐Municipal/Public

☐Geothermal (Heating/Cooling Supply) ☐Residential Water Supply (single)

☐Industrial/Commercial ☐Residential Water Supply (shared)

☐Irrigation

Non-Water Supply Well:

☑Monitoring ☐Recovery

Injection Well:

☐Aquifer Recharge ☐Groundwater Remediation

☐Aquifer Storage and Recovery ☐Salinity Barrier

☐Aquifer Test ☐Stormwater Drainage

☐Experimental Technology ☐Subsidence Control

☐Geothermal (Closed Loop) ☐Tracer

☐Geothermal (Heating/Cooling Return) ☐Other (explain under #21 Remarks)

4. Date Well(s) Completed: 10-16-14 **Well ID#** MW#4-R

5a. Well Location:

Dean Nichols

Facility/Owner Name

Facility ID# (if applicable)

11361 McColl Rd Laurinburg, NC 28352

Physical Address, City, and Zip

Scottland

County

Parcel Identification No. (PIN)

5b. Latitude and Longitude in degrees/minutes/seconds or decimal degrees:
(if well field, one lat/long is sufficient)

34.732063 N -79.501514 W

6. Is (are) the well(s): ☑**Permanent** or ☐**Temporary**

7. Is this a repair to an existing well: ☐Yes or ☑No

If this is a repair, fill out known well construction information and explain the nature of the repair under #21 remarks section or on the back of this form.

8. Number of wells constructed: 1

For multiple injection or non-water supply wells ONLY with the same construction, you can submit one form.

9. Total well depth below land surface: 15.5 **(ft.)**

For multiple wells list all depths if different (example- 3@200' and 2@100')

10. Static water level below top of casing: 13.1 **(ft.)**

If water level is above casing, use "+"

11. Borehole diameter: 2 **(in.)**

12. Well construction method: Auger

(i.e. auger, rotary, cable, direct push, etc.)

FOR WATER SUPPLY WELLS ONLY:

13a. Yield (gpm) _____ **Method of test:** _____

13b. Disinfection type: _____ **Amount:** _____

For Internal Use ONLY:

14. WATER ZONES

FROM	TO	DESCRIPTION
ft.	ft.	
ft.	ft.	

15. OUTER CASING (for multi-cased wells) OR LINER (if applicable)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
0 ft.	5.5 ft.	2 in.	Sch 40	PVC

16. INNER CASING OR TUBING (geothermal closed-loop)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		
ft.	ft.	in.		

17. SCREEN

FROM	TO	DIAMETER	SLOT SIZE	THICKNESS	MATERIAL
5.5 ft.	15.5 ft.	2 in.	.010	Sch 40	PVC
ft.	ft.	in.			

18. GROUT

FROM	TO	MATERIAL	EMPLACEMENT METHOD & AMOUNT
0 ft.	1 ft.	concrete	slow pour
1 ft.	5 ft.	bentonite	slow pour
ft.	ft.		

19. SAND/GRAVEL PACK (if applicable)

FROM	TO	MATERIAL	EMPLACEMENT METHOD
5 ft.	15.5 ft.	sand	slow pour
ft.	ft.		

20. DRILLING LOG (attach additional sheets if necessary)

FROM	TO	DESCRIPTION (color, hardness, soil/rock type, grain size, etc.)
0 ft.	1 ft.	rock,backfill
1 ft.	15.5 ft.	red sandy clay
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	

21. REMARKS

22. Certification:

M. Markus — Signature of Certified Well Contractor

10-16-14 — Date

By signing this form, I hereby certify that the well(s) was (were) constructed in accordance with 15A NCAC 02C .0100 or 15A NCAC 02C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

23. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well construction details. You may also attach additional pages if necessary.

SUBMITTAL INSTUCTIONS

24a. For All Wells: Submit this form within 30 days of completion of well construction to the following:

**Division of Water Resources, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617**

24b. For Injection Wells ONLY: In addition to sending the form to the address in 24a above, also submit a copy of this form within 30 days of completion of well construction to the following:

**Division of Water Resources, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636**

24c. For Water Supply & Injection Wells:

Also submit one copy of this form within 30 days of completion of well construction to the county health department of the county where constructed.

WELL CONSTRUCTION RECORD

This form can be used for single or multiple wells

1. Well Contractor Information:

Matthew Markus

Well Contractor Name

4248-B

NC Well Contractor Certification Number

EHC Environmental, Inc.

Company Name

2. Well Construction Permit #: _____

List all applicable well permits (i.e. County, State, Variance, Injection, etc.)

3. Well Use (check well use):

Water Supply Well:

☐Agricultural ☐Municipal/Public

☐Geothermal (Heating/Cooling Supply) ☐Residential Water Supply (single)

☐Industrial/Commercial ☐Residential Water Supply (shared)

☐Irrigation

Non-Water Supply Well:

☑Monitoring ☐Recovery

Injection Well:

☐Aquifer Recharge ☐Groundwater Remediation

☐Aquifer Storage and Recovery ☐Salinity Barrier

☐Aquifer Test ☐Stormwater Drainage

☐Experimental Technology ☐Subsidence Control

☐Geothermal (Closed Loop) ☐Tracer

☐Geothermal (Heating/Cooling Return) ☐Other (explain under #21 Remarks)

4. Date Well(s) Completed: 10-16-14 **Well ID#** MW#11

5a. Well Location:

Dean Nichols

Facility/Owner Name

Facility ID# (if applicable)

11361 McColl Rd Laurinburg, NC 28352

Physical Address, City, and Zip

Scottland

County

Parcel Identification No. (PIN)

5b. Latitude and Longitude in degrees/minutes/seconds or decimal degrees:
(if well field, one lat/long is sufficient)

34.733005 N -79.500999 W

6. Is (are) the well(s): ☑**Permanent** or ☐**Temporary**

7. Is this a repair to an existing well: ☐Yes or ☑No

If this is a repair, fill out known well construction information and explain the nature of the repair under #21 remarks section or on the back of this form.

8. Number of wells constructed: 1

*For multiple injection or non-water supply wells **ONLY** with the same construction, you can submit one form.*

9. Total well depth below land surface: 30 (ft.)

For multiple wells list all depths if different (example- 3@200' and 2@100')

10. Static water level below top of casing: 13.9 (ft.)

If water level is above casing, use "+"

11. Borehole diameter: 2 (in.)

12. Well construction method: Auger

(i.e. auger, rotary, cable, direct push, etc.)

FOR WATER SUPPLY WELLS ONLY:

13a. Yield (gpm) _____ **Method of test:** _____

13b. Disinfection type: _____ **Amount:** _____

For Internal Use ONLY:

14. WATER ZONES

FROM	TO	DESCRIPTION
ft.	ft.	
ft.	ft.	

15. OUTER CASING (for multi-cased wells) OR LINER (if applicable)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
0 ft.	30 ft.	2 in.	Sch 40	PVC

16. INNER CASING OR TUBING (geothermal closed-loop)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		
ft.	ft.	in.		

17. SCREEN

FROM	TO	DIAMETER	SLOT SIZE	THICKNESS	MATERIAL
30 ft.	40 ft.	2 in.	.010	Sch 40	PVC
ft.	ft.	in.			

18. GROUT

FROM	TO	MATERIAL	EMPLACEMENT METHOD & AMOUNT
0 ft.	1 ft.	concrete	slow pour
1 ft.	29 ft.	bentonite	slow pour
ft.	ft.		

19. SAND/GRAVEL PACK (if applicable)

FROM	TO	MATERIAL	EMPLACEMENT METHOD
29 ft.	40 ft.	sand	slow pour
ft.	ft.		

20. DRILLING LOG (attach additional sheets if necessary)

FROM	TO	DESCRIPTION (color, hardness, soil/rock type, grain size, etc.)
0 ft.	1 ft.	topsoil
1 ft.	30 ft.	red sandy clay
30 ft.	40 ft.	grey clay
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	

21. REMARKS

22. Certification:

M. Markus

Signature of Certified Well Contractor

10-16-14

Date

By signing this form, I hereby certify that the well(s) was (were) constructed in accordance with 15A NCAC 02C .0100 or 15A NCAC 02C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

23. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well construction details. You may also attach additional pages if necessary.

SUBMITTAL INSTUCTIONS

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Division of Water Resources, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617

24b. For Injection Wells ONLY: In addition to sending the form to the address in 24a above, also submit a copy of this form within 30 days of completion of well construction to the following:

Division of Water Resources, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636

24c. For Water Supply & Injection Wells:

Also submit one copy of this form within 30 days of completion of well construction to the county health department of the county where constructed.

APPENDIX C
LABORATORY ANALYTICAL RESULTS AND CHAIN-OF-CUSTODY FORMS

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

November 14, 2014

Thomas Perdue
Terracon
5240 Greens Dairy Road
Raleigh, NC 27616

RE: Project: QUICK STOP 50
Pace Project No.: 92223618

Dear Thomas Perdue:
Enclosed are the analytical results for sample(s) received by the laboratory on October 31, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nicole Benjamin
nicole.benjamin@pacelabs.com
Project Manager

Enclosures

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: QUICK STOP 50
Pace Project No.: 92223618

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

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www.pacelabs.com

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: QUICK STOP 50
Pace Project No.: 92223618

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92223618001	**MW-2BR**	SM 6200B	CAH	63	PASI-C
92223618002	**MW-4R**	SM 6200B	CAH	63	PASI-C
92223618003	**MW-10**	SM 6200B	CAH	63	PASI-C
92223618004	**MW-8A**	SM 6200B	CAH	63	PASI-C
92223618005	**MW-11**	SM 6200B	CAH	63	PASI-C

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SUMMARY OF DETECTION

Project: QUICK STOP 50
Pace Project No.: 92223618

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92223618001	**MW-2BR**					
SM 6200B	sec-Butylbenzene	0.97	ug/L	0.50	11/02/14 22:35	
92223618002	**MW-4R**					
SM 6200B	Benzene	21.6	ug/L	0.50	11/02/14 23:06	
SM 6200B	sec-Butylbenzene	6.8	ug/L	0.50	11/02/14 23:06	
SM 6200B	Ethylbenzene	38.6	ug/L	0.50	11/02/14 23:06	
SM 6200B	Isopropylbenzene (Cumene)	10.1	ug/L	0.50	11/02/14 23:06	
SM 6200B	Naphthalene	53.7	ug/L	2.0	11/02/14 23:06	
SM 6200B	n-Propylbenzene	13.4	ug/L	0.50	11/02/14 23:06	
SM 6200B	Toluene	0.62	ug/L	0.50	11/02/14 23:06	
SM 6200B	1,2,4-Trimethylbenzene	130	ug/L	0.50	11/02/14 23:06	
SM 6200B	1,3,5-Trimethylbenzene	39.3	ug/L	0.50	11/02/14 23:06	
SM 6200B	m&p-Xylene	45.8	ug/L	1.0	11/02/14 23:06	
SM 6200B	o-Xylene	45.0	ug/L	0.50	11/02/14 23:06	
92223618003	**MW-10**					
SM 6200B	1,2,4-Trimethylbenzene	4.7	ug/L	0.50	11/02/14 18:10	
SM 6200B	o-Xylene	2.0	ug/L	0.50	11/02/14 18:10	
92223618004	**MW-8A**					
SM 6200B	n-Butylbenzene	1.6	ug/L	0.50	11/02/14 22:51	
SM 6200B	sec-Butylbenzene	2.8	ug/L	0.50	11/02/14 22:51	
SM 6200B	Isopropylbenzene (Cumene)	5.6	ug/L	0.50	11/02/14 22:51	
SM 6200B	Naphthalene	6.4	ug/L	2.0	11/02/14 22:51	
SM 6200B	n-Propylbenzene	0.72	ug/L	0.50	11/02/14 22:51	
SM 6200B	1,2,4-Trimethylbenzene	1.8	ug/L	0.50	11/02/14 22:51	
SM 6200B	1,3,5-Trimethylbenzene	1.3	ug/L	0.50	11/02/14 22:51	
SM 6200B	o-Xylene	2.5	ug/L	0.50	11/02/14 22:51	

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PROJECT NARRATIVE

Project: QUICK STOP 50
Pace Project No.: 92223618

Method: SM 6200B
Description: 6200B MSV
Client: Terracon
Date: November 14, 2014

General Information:
5 samples were analyzed for SM 6200B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: QUICK STOP 50
Pace Project No.: 92223618

Sample: MW-2BR **Lab ID: 92223618001** Collected: 10/30/14 11:57 Received: 10/31/14 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV	Analytical Method: SM 6200B							
Benzene	ND	ug/L	0.50	1		11/02/14 22:35	71-43-2	
Bromobenzene	ND	ug/L	0.50	1		11/02/14 22:35	108-86-1	
Bromochloromethane	ND	ug/L	0.50	1		11/02/14 22:35	74-97-5	
Bromodichloromethane	ND	ug/L	0.50	1		11/02/14 22:35	75-27-4	
Bromoform	ND	ug/L	0.50	1		11/02/14 22:35	75-25-2	
Bromomethane	ND	ug/L	5.0	1		11/02/14 22:35	74-83-9	
n-Butylbenzene	ND	ug/L	0.50	1		11/02/14 22:35	104-51-8	
sec-Butylbenzene	**0.97**	ug/L	0.50	1		11/02/14 22:35	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	1		11/02/14 22:35	98-06-6	
Carbon tetrachloride	ND	ug/L	0.50	1		11/02/14 22:35	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		11/02/14 22:35	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/02/14 22:35	75-00-3	
Chloroform	ND	ug/L	0.50	1		11/02/14 22:35	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/02/14 22:35	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	1		11/02/14 22:35	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	1		11/02/14 22:35	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	1		11/02/14 22:35	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		11/02/14 22:35	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	0.50	1		11/02/14 22:35	106-93-4	
Dibromomethane	ND	ug/L	0.50	1		11/02/14 22:35	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		11/02/14 22:35	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		11/02/14 22:35	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		11/02/14 22:35	106-46-7	
Dichlorodifluoromethane	ND	ug/L	0.50	1		11/02/14 22:35	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		11/02/14 22:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		11/02/14 22:35	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		11/02/14 22:35	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		11/02/14 22:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		11/02/14 22:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		11/02/14 22:35	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	1		11/02/14 22:35	142-28-9	
2,2-Dichloropropane	ND	ug/L	0.50	1		11/02/14 22:35	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	1		11/02/14 22:35	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		11/02/14 22:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		11/02/14 22:35	10061-02-6	
Diisopropyl ether	ND	ug/L	0.50	1		11/02/14 22:35	108-20-3	
Ethylbenzene	ND	ug/L	0.50	1		11/02/14 22:35	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.0	1		11/02/14 22:35	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	1		11/02/14 22:35	98-82-8	
Methylene Chloride	ND	ug/L	2.0	1		11/02/14 22:35	75-09-2	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		11/02/14 22:35	1634-04-4	
Naphthalene	ND	ug/L	2.0	1		11/02/14 22:35	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	1		11/02/14 22:35	103-65-1	
Styrene	ND	ug/L	0.50	1		11/02/14 22:35	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	1		11/02/14 22:35	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		11/02/14 22:35	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		11/02/14 22:35	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: QUICK STOP 50
Pace Project No.: 92223618

Sample: MW-2BR **Lab ID: 92223618001** Collected: 10/30/14 11:57 Received: 10/31/14 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV	Analytical Method: SM 6200B							
Toluene	ND	ug/L	0.50	1		11/02/14 22:35	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.0	1		11/02/14 22:35	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.0	1		11/02/14 22:35	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		11/02/14 22:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		11/02/14 22:35	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		11/02/14 22:35	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/02/14 22:35	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	0.50	1		11/02/14 22:35	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	1		11/02/14 22:35	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	1		11/02/14 22:35	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		11/02/14 22:35	75-01-4	
m&p-Xylene	ND	ug/L	1.0	1		11/02/14 22:35	179601-23-1	
o-Xylene	ND	ug/L	0.50	1		11/02/14 22:35	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%	70-130	1		11/02/14 22:35	17060-07-0	
4-Bromofluorobenzene (S)	101	%	70-130	1		11/02/14 22:35	460-00-4	
Toluene-d8 (S)	98	%	70-130	1		11/02/14 22:35	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: QUICK STOP 50
Pace Project No.: 92223618

Sample: MW-4R **Lab ID: 92223618002** Collected: 10/30/14 10:22 Received: 10/31/14 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV	Analytical Method: SM 6200B							
Benzene	**21.6**	ug/L	0.50	1		11/02/14 23:06	71-43-2	
Bromobenzene	ND	ug/L	0.50	1		11/02/14 23:06	108-86-1	
Bromochloromethane	ND	ug/L	0.50	1		11/02/14 23:06	74-97-5	
Bromodichloromethane	ND	ug/L	0.50	1		11/02/14 23:06	75-27-4	
Bromoform	ND	ug/L	0.50	1		11/02/14 23:06	75-25-2	
Bromomethane	ND	ug/L	5.0	1		11/02/14 23:06	74-83-9	
n-Butylbenzene	ND	ug/L	0.50	1		11/02/14 23:06	104-51-8	
sec-Butylbenzene	**6.8**	ug/L	0.50	1		11/02/14 23:06	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	1		11/02/14 23:06	98-06-6	
Carbon tetrachloride	ND	ug/L	0.50	1		11/02/14 23:06	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		11/02/14 23:06	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/02/14 23:06	75-00-3	
Chloroform	ND	ug/L	0.50	1		11/02/14 23:06	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/02/14 23:06	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	1		11/02/14 23:06	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	1		11/02/14 23:06	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	1		11/02/14 23:06	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		11/02/14 23:06	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	0.50	1		11/02/14 23:06	106-93-4	
Dibromomethane	ND	ug/L	0.50	1		11/02/14 23:06	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		11/02/14 23:06	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		11/02/14 23:06	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		11/02/14 23:06	106-46-7	
Dichlorodifluoromethane	ND	ug/L	0.50	1		11/02/14 23:06	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		11/02/14 23:06	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		11/02/14 23:06	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		11/02/14 23:06	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		11/02/14 23:06	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		11/02/14 23:06	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		11/02/14 23:06	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	1		11/02/14 23:06	142-28-9	
2,2-Dichloropropane	ND	ug/L	0.50	1		11/02/14 23:06	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	1		11/02/14 23:06	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		11/02/14 23:06	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		11/02/14 23:06	10061-02-6	
Diisopropyl ether	ND	ug/L	0.50	1		11/02/14 23:06	108-20-3	
Ethylbenzene	**38.6**	ug/L	0.50	1		11/02/14 23:06	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.0	1		11/02/14 23:06	87-68-3	
Isopropylbenzene (Cumene)	**10.1**	ug/L	0.50	1		11/02/14 23:06	98-82-8	
Methylene Chloride	ND	ug/L	2.0	1		11/02/14 23:06	75-09-2	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		11/02/14 23:06	1634-04-4	
Naphthalene	**53.7**	ug/L	2.0	1		11/02/14 23:06	91-20-3	
n-Propylbenzene	**13.4**	ug/L	0.50	1		11/02/14 23:06	103-65-1	
Styrene	ND	ug/L	0.50	1		11/02/14 23:06	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	1		11/02/14 23:06	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		11/02/14 23:06	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		11/02/14 23:06	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: QUICK STOP 50
Pace Project No.: 92223618

Sample: MW-4R **Lab ID: 92223618002** Collected: 10/30/14 10:22 Received: 10/31/14 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV	Analytical Method: SM 6200B							
Toluene	**0.62**	ug/L	0.50	1		11/02/14 23:06	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.0	1		11/02/14 23:06	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.0	1		11/02/14 23:06	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		11/02/14 23:06	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		11/02/14 23:06	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		11/02/14 23:06	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/02/14 23:06	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	0.50	1		11/02/14 23:06	96-18-4	
1,2,4-Trimethylbenzene	**130**	ug/L	0.50	1		11/02/14 23:06	95-63-6	
1,3,5-Trimethylbenzene	**39.3**	ug/L	0.50	1		11/02/14 23:06	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		11/02/14 23:06	75-01-4	
m&p-Xylene	**45.8**	ug/L	1.0	1		11/02/14 23:06	179601-23-1	
o-Xylene	**45.0**	ug/L	0.50	1		11/02/14 23:06	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	95	%	70-130	1		11/02/14 23:06	17060-07-0	
4-Bromofluorobenzene (S)	100	%	70-130	1		11/02/14 23:06	460-00-4	
Toluene-d8 (S)	99	%	70-130	1		11/02/14 23:06	2037-26-5	

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ANALYTICAL RESULTS

Project: QUICK STOP 50
Pace Project No.: 92223618

Sample: MW-10 **Lab ID: 92223618003** Collected: 10/30/14 11:05 Received: 10/31/14 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV	Analytical Method: SM 6200B							
Benzene	ND	ug/L	0.50	1		11/02/14 18:10	71-43-2	
Bromobenzene	ND	ug/L	0.50	1		11/02/14 18:10	108-86-1	
Bromochloromethane	ND	ug/L	0.50	1		11/02/14 18:10	74-97-5	
Bromodichloromethane	ND	ug/L	0.50	1		11/02/14 18:10	75-27-4	
Bromoform	ND	ug/L	0.50	1		11/02/14 18:10	75-25-2	
Bromomethane	ND	ug/L	5.0	1		11/02/14 18:10	74-83-9	
n-Butylbenzene	ND	ug/L	0.50	1		11/02/14 18:10	104-51-8	
sec-Butylbenzene	ND	ug/L	0.50	1		11/02/14 18:10	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	1		11/02/14 18:10	98-06-6	
Carbon tetrachloride	ND	ug/L	0.50	1		11/02/14 18:10	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		11/02/14 18:10	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/02/14 18:10	75-00-3	
Chloroform	ND	ug/L	0.50	1		11/02/14 18:10	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/02/14 18:10	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	1		11/02/14 18:10	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	1		11/02/14 18:10	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	1		11/02/14 18:10	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		11/02/14 18:10	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	0.50	1		11/02/14 18:10	106-93-4	
Dibromomethane	ND	ug/L	0.50	1		11/02/14 18:10	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		11/02/14 18:10	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		11/02/14 18:10	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		11/02/14 18:10	106-46-7	
Dichlorodifluoromethane	ND	ug/L	0.50	1		11/02/14 18:10	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		11/02/14 18:10	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		11/02/14 18:10	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		11/02/14 18:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		11/02/14 18:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		11/02/14 18:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		11/02/14 18:10	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	1		11/02/14 18:10	142-28-9	
2,2-Dichloropropane	ND	ug/L	0.50	1		11/02/14 18:10	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	1		11/02/14 18:10	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		11/02/14 18:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		11/02/14 18:10	10061-02-6	
Diisopropyl ether	ND	ug/L	0.50	1		11/02/14 18:10	108-20-3	
Ethylbenzene	ND	ug/L	0.50	1		11/02/14 18:10	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.0	1		11/02/14 18:10	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	1		11/02/14 18:10	98-82-8	
Methylene Chloride	ND	ug/L	2.0	1		11/02/14 18:10	75-09-2	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		11/02/14 18:10	1634-04-4	
Naphthalene	ND	ug/L	2.0	1		11/02/14 18:10	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	1		11/02/14 18:10	103-65-1	
Styrene	ND	ug/L	0.50	1		11/02/14 18:10	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	1		11/02/14 18:10	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		11/02/14 18:10	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		11/02/14 18:10	127-18-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: QUICK STOP 50
Pace Project No.: 92223618

Sample: MW-10 **Lab ID: 92223618003** Collected: 10/30/14 11:05 Received: 10/31/14 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV	Analytical Method: SM 6200B							
Toluene	ND	ug/L	0.50	1		11/02/14 18:10	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.0	1		11/02/14 18:10	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.0	1		11/02/14 18:10	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		11/02/14 18:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		11/02/14 18:10	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		11/02/14 18:10	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/02/14 18:10	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	0.50	1		11/02/14 18:10	96-18-4	
1,2,4-Trimethylbenzene	**4.7**	ug/L	0.50	1		11/02/14 18:10	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	1		11/02/14 18:10	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		11/02/14 18:10	75-01-4	
m&p-Xylene	ND	ug/L	1.0	1		11/02/14 18:10	179601-23-1	
o-Xylene	**2.0**	ug/L	0.50	1		11/02/14 18:10	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	95	%	70-130	1		11/02/14 18:10	17060-07-0	
4-Bromofluorobenzene (S)	101	%	70-130	1		11/02/14 18:10	460-00-4	
Toluene-d8 (S)	99	%	70-130	1		11/02/14 18:10	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: QUICK STOP 50
Pace Project No.: 92223618

Sample: MW-8A **Lab ID: 92223618004** Collected: 10/30/14 13:53 Received: 10/31/14 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV	Analytical Method: SM 6200B							
Benzene	ND	ug/L	0.50	1		11/02/14 22:51	71-43-2	
Bromobenzene	ND	ug/L	0.50	1		11/02/14 22:51	108-86-1	
Bromochloromethane	ND	ug/L	0.50	1		11/02/14 22:51	74-97-5	
Bromodichloromethane	ND	ug/L	0.50	1		11/02/14 22:51	75-27-4	
Bromoform	ND	ug/L	0.50	1		11/02/14 22:51	75-25-2	
Bromomethane	ND	ug/L	5.0	1		11/02/14 22:51	74-83-9	
n-Butylbenzene	**1.6**	ug/L	0.50	1		11/02/14 22:51	104-51-8	
sec-Butylbenzene	**2.8**	ug/L	0.50	1		11/02/14 22:51	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	1		11/02/14 22:51	98-06-6	
Carbon tetrachloride	ND	ug/L	0.50	1		11/02/14 22:51	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		11/02/14 22:51	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/02/14 22:51	75-00-3	
Chloroform	ND	ug/L	0.50	1		11/02/14 22:51	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/02/14 22:51	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	1		11/02/14 22:51	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	1		11/02/14 22:51	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	1		11/02/14 22:51	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		11/02/14 22:51	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	0.50	1		11/02/14 22:51	106-93-4	
Dibromomethane	ND	ug/L	0.50	1		11/02/14 22:51	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		11/02/14 22:51	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		11/02/14 22:51	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		11/02/14 22:51	106-46-7	
Dichlorodifluoromethane	ND	ug/L	0.50	1		11/02/14 22:51	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		11/02/14 22:51	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		11/02/14 22:51	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		11/02/14 22:51	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		11/02/14 22:51	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		11/02/14 22:51	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		11/02/14 22:51	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	1		11/02/14 22:51	142-28-9	
2,2-Dichloropropane	ND	ug/L	0.50	1		11/02/14 22:51	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	1		11/02/14 22:51	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		11/02/14 22:51	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		11/02/14 22:51	10061-02-6	
Diisopropyl ether	ND	ug/L	0.50	1		11/02/14 22:51	108-20-3	
Ethylbenzene	ND	ug/L	0.50	1		11/02/14 22:51	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.0	1		11/02/14 22:51	87-68-3	
Isopropylbenzene (Cumene)	**5.6**	ug/L	0.50	1		11/02/14 22:51	98-82-8	
Methylene Chloride	ND	ug/L	2.0	1		11/02/14 22:51	75-09-2	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		11/02/14 22:51	1634-04-4	
Naphthalene	**6.4**	ug/L	2.0	1		11/02/14 22:51	91-20-3	
n-Propylbenzene	**0.72**	ug/L	0.50	1		11/02/14 22:51	103-65-1	
Styrene	ND	ug/L	0.50	1		11/02/14 22:51	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	1		11/02/14 22:51	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		11/02/14 22:51	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		11/02/14 22:51	127-18-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(704)875-9092

ANALYTICAL RESULTS

Project: QUICK STOP 50
Pace Project No.: 92223618

Sample: MW-8A **Lab ID: 92223618004** Collected: 10/30/14 13:53 Received: 10/31/14 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV	Analytical Method: SM 6200B							
Toluene	ND	ug/L	0.50	1		11/02/14 22:51	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.0	1		11/02/14 22:51	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.0	1		11/02/14 22:51	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		11/02/14 22:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		11/02/14 22:51	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		11/02/14 22:51	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/02/14 22:51	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	0.50	1		11/02/14 22:51	96-18-4	
1,2,4-Trimethylbenzene	**1.8**	ug/L	0.50	1		11/02/14 22:51	95-63-6	
1,3,5-Trimethylbenzene	**1.3**	ug/L	0.50	1		11/02/14 22:51	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		11/02/14 22:51	75-01-4	
m&p-Xylene	ND	ug/L	1.0	1		11/02/14 22:51	179601-23-1	
o-Xylene	**2.5**	ug/L	0.50	1		11/02/14 22:51	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%	70-130	1		11/02/14 22:51	17060-07-0	
4-Bromofluorobenzene (S)	101	%	70-130	1		11/02/14 22:51	460-00-4	
Toluene-d8 (S)	99	%	70-130	1		11/02/14 22:51	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: QUICK STOP 50
Pace Project No.: 92223618

Sample: MW-11 **Lab ID: 92223618005** Collected: 10/30/14 13:15 Received: 10/31/14 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV	Analytical Method: SM 6200B							
Benzene	ND	ug/L	0.50	1		11/02/14 19:13	71-43-2	
Bromobenzene	ND	ug/L	0.50	1		11/02/14 19:13	108-86-1	
Bromochloromethane	ND	ug/L	0.50	1		11/02/14 19:13	74-97-5	
Bromodichloromethane	ND	ug/L	0.50	1		11/02/14 19:13	75-27-4	
Bromoform	ND	ug/L	0.50	1		11/02/14 19:13	75-25-2	
Bromomethane	ND	ug/L	5.0	1		11/02/14 19:13	74-83-9	
n-Butylbenzene	ND	ug/L	0.50	1		11/02/14 19:13	104-51-8	
sec-Butylbenzene	ND	ug/L	0.50	1		11/02/14 19:13	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	1		11/02/14 19:13	98-06-6	
Carbon tetrachloride	ND	ug/L	0.50	1		11/02/14 19:13	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		11/02/14 19:13	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/02/14 19:13	75-00-3	
Chloroform	ND	ug/L	0.50	1		11/02/14 19:13	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/02/14 19:13	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	1		11/02/14 19:13	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	1		11/02/14 19:13	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	1		11/02/14 19:13	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		11/02/14 19:13	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	0.50	1		11/02/14 19:13	106-93-4	
Dibromomethane	ND	ug/L	0.50	1		11/02/14 19:13	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		11/02/14 19:13	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		11/02/14 19:13	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		11/02/14 19:13	106-46-7	
Dichlorodifluoromethane	ND	ug/L	0.50	1		11/02/14 19:13	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		11/02/14 19:13	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		11/02/14 19:13	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		11/02/14 19:13	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		11/02/14 19:13	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		11/02/14 19:13	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		11/02/14 19:13	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	1		11/02/14 19:13	142-28-9	
2,2-Dichloropropane	ND	ug/L	0.50	1		11/02/14 19:13	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	1		11/02/14 19:13	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		11/02/14 19:13	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		11/02/14 19:13	10061-02-6	
Diisopropyl ether	ND	ug/L	0.50	1		11/02/14 19:13	108-20-3	
Ethylbenzene	ND	ug/L	0.50	1		11/02/14 19:13	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.0	1		11/02/14 19:13	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	1		11/02/14 19:13	98-82-8	
Methylene Chloride	ND	ug/L	2.0	1		11/02/14 19:13	75-09-2	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		11/02/14 19:13	1634-04-4	
Naphthalene	ND	ug/L	2.0	1		11/02/14 19:13	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	1		11/02/14 19:13	103-65-1	
Styrene	ND	ug/L	0.50	1		11/02/14 19:13	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	1		11/02/14 19:13	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		11/02/14 19:13	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		11/02/14 19:13	127-18-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: QUICK STOP 50
Pace Project No.: 92223618

Sample: MW-11 **Lab ID: 92223618005** Collected: 10/30/14 13:15 Received: 10/31/14 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV	Analytical Method: SM 6200B							
Toluene	ND	ug/L	0.50	1		11/02/14 19:13	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.0	1		11/02/14 19:13	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.0	1		11/02/14 19:13	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		11/02/14 19:13	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		11/02/14 19:13	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		11/02/14 19:13	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/02/14 19:13	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	0.50	1		11/02/14 19:13	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	1		11/02/14 19:13	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	1		11/02/14 19:13	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		11/02/14 19:13	75-01-4	
m&p-Xylene	ND	ug/L	1.0	1		11/02/14 19:13	179601-23-1	
o-Xylene	ND	ug/L	0.50	1		11/02/14 19:13	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	95	%	70-130	1		11/02/14 19:13	17060-07-0	
4-Bromofluorobenzene (S)	99	%	70-130	1		11/02/14 19:13	460-00-4	
Toluene-d8 (S)	98	%	70-130	1		11/02/14 19:13	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: QUICK STOP 50
Pace Project No.: 92223618

QC Batch: MSV/29040 Analysis Method: SM 6200B
QC Batch Method: SM 6200B Analysis Description: 6200B MSV
Associated Lab Samples: 92223618001, 92223618002, 92223618003, 92223618004, 92223618005

METHOD BLANK: 1320502 Matrix: Water
Associated Lab Samples: 92223618001, 92223618002, 92223618003, 92223618004, 92223618005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	0.50	11/02/14 17:55	
1,1,1-Trichloroethane	ug/L	ND	0.50	11/02/14 17:55	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	11/02/14 17:55	
1,1,2-Trichloroethane	ug/L	ND	0.50	11/02/14 17:55	
1,1-Dichloroethane	ug/L	ND	0.50	11/02/14 17:55	
1,1-Dichloroethene	ug/L	ND	0.50	11/02/14 17:55	
1,1-Dichloropropene	ug/L	ND	0.50	11/02/14 17:55	
1,2,3-Trichlorobenzene	ug/L	ND	2.0	11/02/14 17:55	
1,2,3-Trichloropropane	ug/L	ND	0.50	11/02/14 17:55	
1,2,4-Trichlorobenzene	ug/L	ND	2.0	11/02/14 17:55	
1,2,4-Trimethylbenzene	ug/L	ND	0.50	11/02/14 17:55	
1,2-Dibromo-3-chloropropane	ug/L	ND	1.0	11/02/14 17:55	
1,2-Dibromoethane (EDB)	ug/L	ND	0.50	11/02/14 17:55	
1,2-Dichlorobenzene	ug/L	ND	0.50	11/02/14 17:55	
1,2-Dichloroethane	ug/L	ND	0.50	11/02/14 17:55	
1,2-Dichloropropane	ug/L	ND	0.50	11/02/14 17:55	
1,3,5-Trimethylbenzene	ug/L	ND	0.50	11/02/14 17:55	
1,3-Dichlorobenzene	ug/L	ND	0.50	11/02/14 17:55	
1,3-Dichloropropane	ug/L	ND	0.50	11/02/14 17:55	
1,4-Dichlorobenzene	ug/L	ND	0.50	11/02/14 17:55	
2,2-Dichloropropane	ug/L	ND	0.50	11/02/14 17:55	
2-Chlorotoluene	ug/L	ND	0.50	11/02/14 17:55	
4-Chlorotoluene	ug/L	ND	0.50	11/02/14 17:55	
Benzene	ug/L	ND	0.50	11/02/14 17:55	
Bromobenzene	ug/L	ND	0.50	11/02/14 17:55	
Bromochloromethane	ug/L	ND	0.50	11/02/14 17:55	
Bromodichloromethane	ug/L	ND	0.50	11/02/14 17:55	
Bromoform	ug/L	ND	0.50	11/02/14 17:55	
Bromomethane	ug/L	ND	5.0	11/02/14 17:55	
Carbon tetrachloride	ug/L	ND	0.50	11/02/14 17:55	
Chlorobenzene	ug/L	ND	0.50	11/02/14 17:55	
Chloroethane	ug/L	ND	1.0	11/02/14 17:55	
Chloroform	ug/L	ND	0.50	11/02/14 17:55	
Chloromethane	ug/L	ND	1.0	11/02/14 17:55	
cis-1,2-Dichloroethene	ug/L	ND	0.50	11/02/14 17:55	
cis-1,3-Dichloropropene	ug/L	ND	0.50	11/02/14 17:55	
Dibromochloromethane	ug/L	ND	0.50	11/02/14 17:55	
Dibromomethane	ug/L	ND	0.50	11/02/14 17:55	
Dichlorodifluoromethane	ug/L	ND	0.50	11/02/14 17:55	
Diisopropyl ether	ug/L	ND	0.50	11/02/14 17:55	
Ethylbenzene	ug/L	ND	0.50	11/02/14 17:55	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA

Project: QUICK STOP 50
Pace Project No.: 92223618

METHOD BLANK: 1320502 Matrix: Water
Associated Lab Samples: 92223618001, 92223618002, 92223618003, 92223618004, 92223618005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Hexachloro-1,3-butadiene	ug/L	ND	2.0	11/02/14 17:55	
Isopropylbenzene (Cumene)	ug/L	ND	0.50	11/02/14 17:55	
m&p-Xylene	ug/L	ND	1.0	11/02/14 17:55	
Methyl-tert-butyl ether	ug/L	ND	0.50	11/02/14 17:55	
Methylene Chloride	ug/L	ND	2.0	11/02/14 17:55	
n-Butylbenzene	ug/L	ND	0.50	11/02/14 17:55	
n-Propylbenzene	ug/L	ND	0.50	11/02/14 17:55	
Naphthalene	ug/L	ND	2.0	11/02/14 17:55	
o-Xylene	ug/L	ND	0.50	11/02/14 17:55	
sec-Butylbenzene	ug/L	ND	0.50	11/02/14 17:55	
Styrene	ug/L	ND	0.50	11/02/14 17:55	
tert-Butylbenzene	ug/L	ND	0.50	11/02/14 17:55	
Tetrachloroethene	ug/L	ND	0.50	11/02/14 17:55	
Toluene	ug/L	ND	0.50	11/02/14 17:55	
trans-1,2-Dichloroethene	ug/L	ND	0.50	11/02/14 17:55	
trans-1,3-Dichloropropene	ug/L	ND	0.50	11/02/14 17:55	
Trichloroethene	ug/L	ND	0.50	11/02/14 17:55	
Trichlorofluoromethane	ug/L	ND	1.0	11/02/14 17:55	
Vinyl chloride	ug/L	ND	1.0	11/02/14 17:55	
1,2-Dichloroethane-d4 (S)	%	94	70-130	11/02/14 17:55	
4-Bromofluorobenzene (S)	%	100	70-130	11/02/14 17:55	
Toluene-d8 (S)	%	99	70-130	11/02/14 17:55	

LABORATORY CONTROL SAMPLE: 1320503

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	56.2	112	60-140	
1,1,1-Trichloroethane	ug/L	50	55.5	111	60-140	
1,1,2,2-Tetrachloroethane	ug/L	50	55.5	111	60-140	
1,1,2-Trichloroethane	ug/L	50	53.1	106	60-140	
1,1-Dichloroethane	ug/L	50	54.8	110	60-140	
1,1-Dichloroethene	ug/L	50	57.9	116	60-140	
1,1-Dichloropropene	ug/L	50	52.8	106	60-140	
1,2,3-Trichlorobenzene	ug/L	50	57.9	116	60-140	
1,2,3-Trichloropropane	ug/L	50	54.1	108	60-140	
1,2,4-Trichlorobenzene	ug/L	50	55.8	112	60-140	
1,2,4-Trimethylbenzene	ug/L	50	52.6	105	60-140	
1,2-Dibromo-3-chloropropane	ug/L	50	60.2	120	60-140	
1,2-Dibromoethane (EDB)	ug/L	50	55.5	111	60-140	
1,2-Dichlorobenzene	ug/L	50	52.6	105	60-140	
1,2-Dichloroethane	ug/L	50	49.2	98	60-140	
1,2-Dichloropropane	ug/L	50	52.1	104	60-140	
1,3,5-Trimethylbenzene	ug/L	50	52.4	105	60-140	
1,3-Dichlorobenzene	ug/L	50	52.1	104	60-140	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical®
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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: QUICK STOP 50
Pace Project No.: 92223618

LABORATORY CONTROL SAMPLE: 1320503

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,3-Dichloropropane	ug/L	50	52.7	105	60-140	
1,4-Dichlorobenzene	ug/L	50	51.4	103	60-140	
2,2-Dichloropropane	ug/L	50	58.1	116	60-140	
2-Chlorotoluene	ug/L	50	51.3	103	60-140	
4-Chlorotoluene	ug/L	50	51.6	103	60-140	
Benzene	ug/L	50	51.2	102	60-140	
Bromobenzene	ug/L	50	52.4	105	60-140	
Bromochloromethane	ug/L	50	54.1	108	60-140	
Bromodichloromethane	ug/L	50	56.2	112	60-140	
Bromoform	ug/L	50	49.8	100	60-140	
Bromomethane	ug/L	50	50.7	101	60-140	
Carbon tetrachloride	ug/L	50	57.3	115	60-140	
Chlorobenzene	ug/L	50	51.3	103	60-140	
Chloroethane	ug/L	50	46.9	94	60-140	
Chloroform	ug/L	50	53.1	106	60-140	
Chloromethane	ug/L	50	42.1	84	60-140	
cis-1,2-Dichloroethene	ug/L	50	54.6	109	60-140	
cis-1,3-Dichloropropene	ug/L	50	57.4	115	60-140	
Dibromochloromethane	ug/L	50	50.4	101	60-140	
Dibromomethane	ug/L	50	55.4	111	60-140	
Dichlorodifluoromethane	ug/L	50	45.8	92	60-140	
Diisopropyl ether	ug/L	50	50.6	101	60-140	
Ethylbenzene	ug/L	50	50.7	101	60-140	
Hexachloro-1,3-butadiene	ug/L	50	51.4	103	60-140	
Isopropylbenzene (Cumene)	ug/L	50	51.4	103	60-140	
m&p-Xylene	ug/L	100	103	103	60-140	
Methyl-tert-butyl ether	ug/L	50	53.5	107	60-140	
Methylene Chloride	ug/L	50	53.6	107	60-140	
n-Butylbenzene	ug/L	50	53.0	106	60-140	
n-Propylbenzene	ug/L	50	52.0	104	60-140	
Naphthalene	ug/L	50	59.2	118	60-140	
o-Xylene	ug/L	50	49.8	100	60-140	
sec-Butylbenzene	ug/L	50	51.1	102	60-140	
Styrene	ug/L	50	54.9	110	60-140	
tert-Butylbenzene	ug/L	50	43.9	88	60-140	
Tetrachloroethene	ug/L	50	52.7	105	60-140	
Toluene	ug/L	50	50.9	102	60-140	
trans-1,2-Dichloroethene	ug/L	50	55.5	111	60-140	
trans-1,3-Dichloropropene	ug/L	50	49.6	99	60-140	
Trichloroethene	ug/L	50	50.8	102	60-140	
Trichlorofluoromethane	ug/L	50	46.4	93	60-140	
Vinyl chloride	ug/L	50	44.6	89	60-140	
1,2-Dichloroethane-d4 (S)	%			96	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			101	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: QUICK STOP 50
Pace Project No.: 92223618

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1320504 1320505

Parameter	Units	92223755006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	23.6	24.1	118	120	60-140	2	
1,1,1-Trichloroethane	ug/L	ND	20	20	24.8	25.0	124	125	60-140	1	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	21.6	24.7	108	123	60-140	13	
1,1,2-Trichloroethane	ug/L	ND	20	20	21.9	23.4	109	117	60-140	7	
1,1-Dichloroethane	ug/L	ND	20	20	24.0	24.3	120	122	60-140	1	
1,1-Dichloroethene	ug/L	ND	20	20	26.7	27.0	134	135	60-140	1	
1,1-Dichloropropene	ug/L	ND	20	20	23.8	24.0	119	120	60-140	1	
1,2,3-Trichlorobenzene	ug/L	ND	20	20	21.4	23.2	107	116	60-140	8	
1,2,3-Trichloropropane	ug/L	ND	20	20	21.3	23.7	106	119	60-140	11	
1,2,4-Trichlorobenzene	ug/L	ND	20	20	21.6	23.0	108	115	60-140	6	
1,2,4-Trimethylbenzene	ug/L	ND	20	20	22.7	23.2	114	116	60-140	2	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20	20.9	23.9	105	119	60-140	13	
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	22.7	24.3	114	122	60-140	7	
1,2-Dichlorobenzene	ug/L	ND	20	20	21.5	22.4	107	112	60-140	4	
1,2-Dichloroethane	ug/L	ND	20	20	20.5	21.4	103	107	60-140	4	
1,2-Dichloropropane	ug/L	ND	20	20	22.3	23.4	112	117	60-140	5	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	22.9	23.4	114	117	60-140	2	
1,3-Dichlorobenzene	ug/L	ND	20	20	22.0	22.4	110	112	60-140	2	
1,3-Dichloropropane	ug/L	ND	20	20	21.5	23.0	107	115	60-140	7	
1,4-Dichlorobenzene	ug/L	ND	20	20	21.8	22.5	109	112	60-140	3	
2,2-Dichloropropane	ug/L	ND	20	20	23.3	24.1	116	121	60-140	4	
2-Chlorotoluene	ug/L	ND	20	20	22.2	22.7	111	113	60-140	2	
4-Chlorotoluene	ug/L	ND	20	20	22.3	22.7	111	113	60-140	2	
Benzene	ug/L	ND	20	20	22.8	23.5	114	118	60-140	3	
Bromobenzene	ug/L	ND	20	20	22.0	22.9	110	114	60-140	4	
Bromochloromethane	ug/L	ND	20	20	23.1	23.8	115	119	60-140	3	
Bromodichloromethane	ug/L	ND	20	20	22.8	23.9	114	120	60-140	5	
Bromoform	ug/L	ND	20	20	19.1	21.2	95	106	60-140	11	
Bromomethane	ug/L	ND	20	20	21.1	20.0	105	100	60-140	5	
Carbon tetrachloride	ug/L	ND	20	20	25.1	26.4	126	132	60-140	5	
Chlorobenzene	ug/L	ND	20	20	22.6	23.5	113	117	60-140	4	
Chloroethane	ug/L	ND	20	20	23.9	23.5	119	118	60-140	1	
Chloroform	ug/L	ND	20	20	23.2	23.7	116	119	60-140	2	
Chloromethane	ug/L	ND	20	20	18.7	19.3	93	97	60-140	3	
cis-1,2-Dichloroethene	ug/L	ND	20	20	24.0	24.5	120	123	60-140	2	
cis-1,3-Dichloropropene	ug/L	ND	20	20	22.1	23.7	111	118	60-140	7	
Dibromochloromethane	ug/L	ND	20	20	19.9	21.3	100	107	60-140	7	
Dibromomethane	ug/L	ND	20	20	22.7	23.9	114	120	60-140	5	
Dichlorodifluoromethane	ug/L	ND	20	20	21.5	22.0	108	110	60-140	2	
Diisopropyl ether	ug/L	ND	20	20	21.3	22.2	106	111	60-140	4	
Ethylbenzene	ug/L	ND	20	20	22.5	23.4	112	117	60-140	4	
Hexachloro-1,3-butadiene	ug/L	ND	20	20	21.5	22.6	107	113	60-140	5	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	22.9	23.6	115	118	60-140	3	
m&p-Xylene	ug/L	ND	40	40	46.0	47.5	115	119	60-140	3	
Methyl-tert-butyl ether	ug/L	ND	20	20	20.7	22.7	103	114	60-140	9	
Methylene Chloride	ug/L	ND	20	20	21.5	21.9	108	109	60-140	2	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: QUICK STOP 50
Pace Project No.: 92223618

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1320504 1320505

Parameter	Units	92223755006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
n-Butylbenzene	ug/L	ND	20	20	22.4	23.3	112	117	60-140	4	
n-Propylbenzene	ug/L	ND	20	20	22.6	23.4	113	117	60-140	3	
Naphthalene	ug/L	ND	20	20	21.1	23.5	106	117	60-140	10	
o-Xylene	ug/L	ND	20	20	22.0	22.6	110	113	60-140	3	
sec-Butylbenzene	ug/L	ND	20	20	22.6	23.2	113	116	60-140	3	
Styrene	ug/L	ND	20	20	23.4	24.5	117	122	60-140	5	
tert-Butylbenzene	ug/L	ND	20	20	19.3	19.6	96	98	60-140	2	
Tetrachloroethene	ug/L	ND	20	20	23.8	24.6	119	123	60-140	3	
Toluene	ug/L	ND	20	20	22.5	23.1	113	116	60-140	3	
trans-1,2-Dichloroethene	ug/L	ND	20	20	24.9	25.3	125	127	60-140	1	
trans-1,3-Dichloropropene	ug/L	ND	20	20	19.2	20.7	96	103	60-140	8	
Trichloroethene	ug/L	ND	20	20	22.9	23.4	115	117	60-140	2	
Trichlorofluoromethane	ug/L	ND	20	20	22.7	22.7	113	114	60-140	0	
Vinyl chloride	ug/L	ND	20	20	20.1	20.6	100	103	60-140	3	
1,2-Dichloroethane-d4 (S)	%						94	96	70-130		
4-Bromofluorobenzene (S)	%						102	103	70-130		
Toluene-d8 (S)	%						100	100	70-130		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: QUICK STOP 50
Pace Project No.: 92223618

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: QUICK STOP 50
Pace Project No.: 92223618

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92223618001	**MW-2BR**	SM 6200B	MSV/29040		
92223618002	**MW-4R**	SM 6200B	MSV/29040		
92223618003	**MW-10**	SM 6200B	MSV/29040		
92223618004	**MW-8A**	SM 6200B	MSV/29040		
92223618005	**MW-11**	SM 6200B	MSV/29040		

Pace Analytical	Sample Condition Upon Receipt (SCUR)	Page 1 of 2
	Document Number: F-CHR-CS-003-rev.15	Issuing Authority: Pace Huntersville Quality Office

Client Name: Terracon

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other_____

Thermometer Used: IR Gun T1401 Type of Ice: (Wet) Blue None ☐ Samples on Ice, cooling process has begun

Temp Correction Factor T1401 No Correction

Corrected Cooler Temp.: 3.9 °C Biological Tissue is Frozen: Yes No N/A

Temp should be above freezing to 6°C. Comments:

Optional: Proj. Due Date: [redacted] Proj. Name: [redacted]

Date and Initials of person examining contents: MM 10/31

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix:_____		
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☐No	
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☐N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted:_____ Date/Time:_____

Comments/ Resolution:_____

SCURF Review: [redacted] Date: 10/31/07

SRF Review: [redacted] Date: 11/1/07

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Please label here

WO# : 92223618

92223618

Chain of Custody

Pace Analytical®
www.pacelabs.com
6701 Conference Drive, Raleigh, NC 27607
ph: (919) 834-4984, fax: (919) 834-6497
NCWW Cert#67, NCDW Cert#37731

W.O. # 92223618

Report Results To:
Company: Tetra Tech
Address: 2401 Brentwood Rd Suite 107, Raleigh, NC
Attn: Thomas Perdue
Phone: 919-418-2423
Fax:
Sampled by (signature):

Bill To: Same

Project Reference: Quick Step 50
Project Number: 70149609
Purchase Order #:
☐ Standard Report Delivery
☐ Rush Report Delivery (w/surcharge)
**Rush projects are subject to prior approval by the laboratory
Requested Due Date:

Sample Description	Composite or Grab	Start Date / Start Time	End Date / End Time	Matrix WW, DW, SW GW, Soil, etc.	Analyses Requested	Sample #
MW-2B	G		10/30/14 11:57	GW	8260B including IPE, EDB, MTBE	001
MW-4	G		10/30/14 10:32	GW		002
MW-10	G		10/30/14 11:05	GW		003
MW-11	G		10/30/14 13:15	GW		004
MW-8A	G		10/30/14 13:53	GW		005

Relinquished by (signature)	Received by (signature)	Date	Time
	10/31 930	10/30/14	15:04
Relinquished by (signature)	Received by (signature)	Date	Time
Relinquished by (signature)	Received by (signature)	Date	Time

Receipt Conditions (Lab Use Only)
☐ 4±2°C ☐ Temp: ____ °C
Res. Chlorine:
☐ Absent ☐ Present ☐ n/a
Acid preserv. <2?
☐ Yes ☐ No ☐ n/a
Base preserv. >12?
☐ Yes ☐ No ☐ n/a

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

November 20, 2014

Thomas Perdue
Terracon
5240 Greens Dairy Road
Raleigh, NC 27616

RE: Project: Quickstop 50
Pace Project No.: 92223739

Dear Thomas Perdue:
Enclosed are the analytical results for sample(s) received by the laboratory on October 31, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nicole Benjamin
nicole.benjamin@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

PROJECT NARRATIVE

Project:
Pace Project No.:

Method:
Description:
Client:
Date:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical www.pacelabs.com	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: April 04, 2013 Page 1 of 2
	Document No.: F-RAL-CS-001-rev.02	Issuing Authorities: Pace Asheville Quality Office

Client Name: Terracon

Where Received: ☐ Huntersville ☐ Asheville ☐ Eden ☑ Raleigh

Courier (Circle): Fed Ex UPS USPS (Client) Commercial Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals Intact: ☑ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other_____

Circle Thermometer Used: IR Gun SN:122065387 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

IR Gun Back Up SN:122065371

Temp Correction Factor: Add (Subtract) 0.6 C

Corrected Cooler Temp.: 5.4 C Biological Tissue is Frozen: Yes No (N/A)

Temp should be above freezing to 6°C

Comments:

Date and initials of person examining contents / Preservation check: 10/31/14

Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes	☑No	☐N/A	6.
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12.
-Includes date/time/ID/Analysis Matrix:	WA			
All containers needing preservation have been checked.	☑Yes	☐No	☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes	☐No	☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes	☐No		
Samples checked for dechlorination:	☑Yes	☐No	☐N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	15.
Trip Blank Present:	☐Yes	☐No	☑N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if purchased):				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted:_____ Date/Time:_____

Comments/ Resolution:_____

SCURF /SRF Review:: (VB) AMB Date: 10/31/14 11-4-14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Place label here

WO#: 92223739

92223739

Pace Analytical®
www.pacelabs.com
6701 Conference Drive, Raleigh, NC 27607
ph: (919) 834-4984, fax: (919) 834-8497
NCWW Cert#67, NCDW Cert#37731

Chain of Custody

W.O. # 92223739

Report Results To:
Company: Terracon Consultants
Address: 2401 Brentwood Road, Suite 107
Raleigh, NC 27604
Attn: Thomas Perdue
Phone: 919-436-2973
Fax:
Sampled by (signature):

Bill To: Same

Project Reference: Quick Stop 50
Project Number: 70149609
Purchase Order #:
☒ Standard Report Delivery 10 Days
☐ Rush Report Delivery (w/surcharge)
**Rush projects are subject to prior approval by the laboratory
Requested Due Date: 11/13/14 11/12/14

MW-9	6		10/30/14 16:41	GW/PL	B3328	COC

Relinquished by (signature)	Received by (signature)	Date	Time
	[signature]	10/31/14	1545
Relinquished by (signature)	Received by (signature)	Date	Time
Relinquished by (signature)	Received by (signature)	Date	Time

Receipt Conditions (Lab Use Only)
☐ 4±2°C ☐ Temp: 2.2 °C
Res. Chlorine:
☐ Absent ☐ Present ☐ n/a
Acid preserv. <2?
☐ Yes ☐ No ☐ n/a
Base preserv. >12?
☐ Yes ☐ No ☐ n/a

Chain of Custody

Pace Analytical®
www.pacelabs.com

Workorder: 92223739 Workorder Name: Quickstop 50 Results Requested 11/12/2014

Report / Invoice To	Subcontract To
Nicole Benjamin Pace Analytical Charlotte 9800 Kincey Ave. Suite 100 Huntersville, NC 28078 Phone (704)875-9092 Email: nicole.benjamin@pacelabs.com	ZYMAX 600 S ANDREASEN DR ESCONDIDO, CA 92029 P.O. NB14274

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HCL	Requested Analysis: 8330B Nitroaromatics	LAB USE ONLY
1	MW-9	10/30/2014 16:41	92223739001	Other	1	X	43782-1
2							
3							
4							
5							

Transfers	Released By	Date/Time	Received By	Date/Time
1		11/3/14	Zymax	11/4/14 10:55
2				
3				

Comments

Cooler Temperature on Receipt 10.1 °C | Custody Seal Y or (N) | Received on Ice (Y) or N | Samples Intact (Y) or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

C3-C44 Whole Oil Analysis

(ASTM D3328)

1. Gasoline Range PIANO Distribution
2. Whole Chromatogram
3. Expanded Chromatogram(in 3 pages)
4. Quantitation Report with Peak areas

ZymaX FORENSICS

11/5/2014

ZymaX ID	43782-1
Sample ID	MW-9
Evaporation	
n-Pentane / n-Heptane	0.00
2-Methylpentane / 2-Methylheptane	0.00
Waterwashing	
Benzene / Cyclohexane	0.00
Toluene / Methylcyclohexane	0.00
Aromatics / Total Paraffins (n+iso+cyc)	1.53
Aromatics / Naphthenes	20.27
Biodegradation	
(C4 - C8 Para + Isopara) / C4 - C8 Olefins	0.00
3-Methylhexane / n-Heptane	0.00
Methylcyclohexane / n-Heptane	1.26
Isoparaffins + Naphthenes / Paraffins	0.58
Octane rating	
2,2,4,-Trimethylpentane / Methylcyclohexane	0.00
Relative percentages - Bulk hydrocarbon composition as PIANO	
% Paraffinic	25.07
% Isoparaffinic	11.53
% Aromatic	60.42
% Naphthenic	2.98
% Olefinic	0.00

Submitted by,
Zymax Forensics, a DPRA Company

Shan-Tan Lu, Ph.D.
Director of Forensic Geochemistry

ZymaX FORENSICS

11/5/2014

ZymaX ID		43782-1
Sample ID		MW-9
		Relative Area %
1	Propane	0.00
2	Isobutane	0.00
3	Isobutene	0.00
4	Butane/Methanol	0.00
5	trans-2-Butene	0.00
6	cis-2-Butene	0.00
7	3-Methyl-1-butene	0.00
8	Isopentane	0.00
9	1-Pentene	0.00
10	2-Methyl-1-butene	0.00
11	Pentane	0.00
12	trans-2-Pentene	0.00
13	cis-2-Pentene/t-Butanol	0.00
14	2-Methyl-2-butene	0.00
15	2,2-Dimethylbutane	0.00
16	Cyclopentane	0.00
17	2,3-Dimethylbutane/MTBE	0.00
18	2-Methylpentane	0.00
19	3-Methylpentane	0.00
20	Hexane	0.00
21	trans-2-Hexene	0.00
22	3-Methylcyclopentene	0.00
23	3-Methyl-2-pentene	0.00
24	cis-2-Hexene	0.00
25	3-Methyl-trans-2-pentene	0.00
26	Methylcyclopentane	0.00
27	2,4-Dimethylpentane	0.00
28	Benzene	0.00
29	5-Methyl-1-hexene	0.00
30	Cyclohexane	0.00
31	2-Methylhexane/TAME	0.00
32	2,3-Dimethylpentane	0.00
33	3-Methylhexane	0.00
34A	1-trans-3-Dimethylcyclopentane	0.00
34B	1-cis-3-Dimethylcyclopentane	0.00
35	2,2,4-Trimethylpentane	0.00
I.S. #1	à,à,à-Trifluorotoluene	0.00

ZymaX FORENSICS

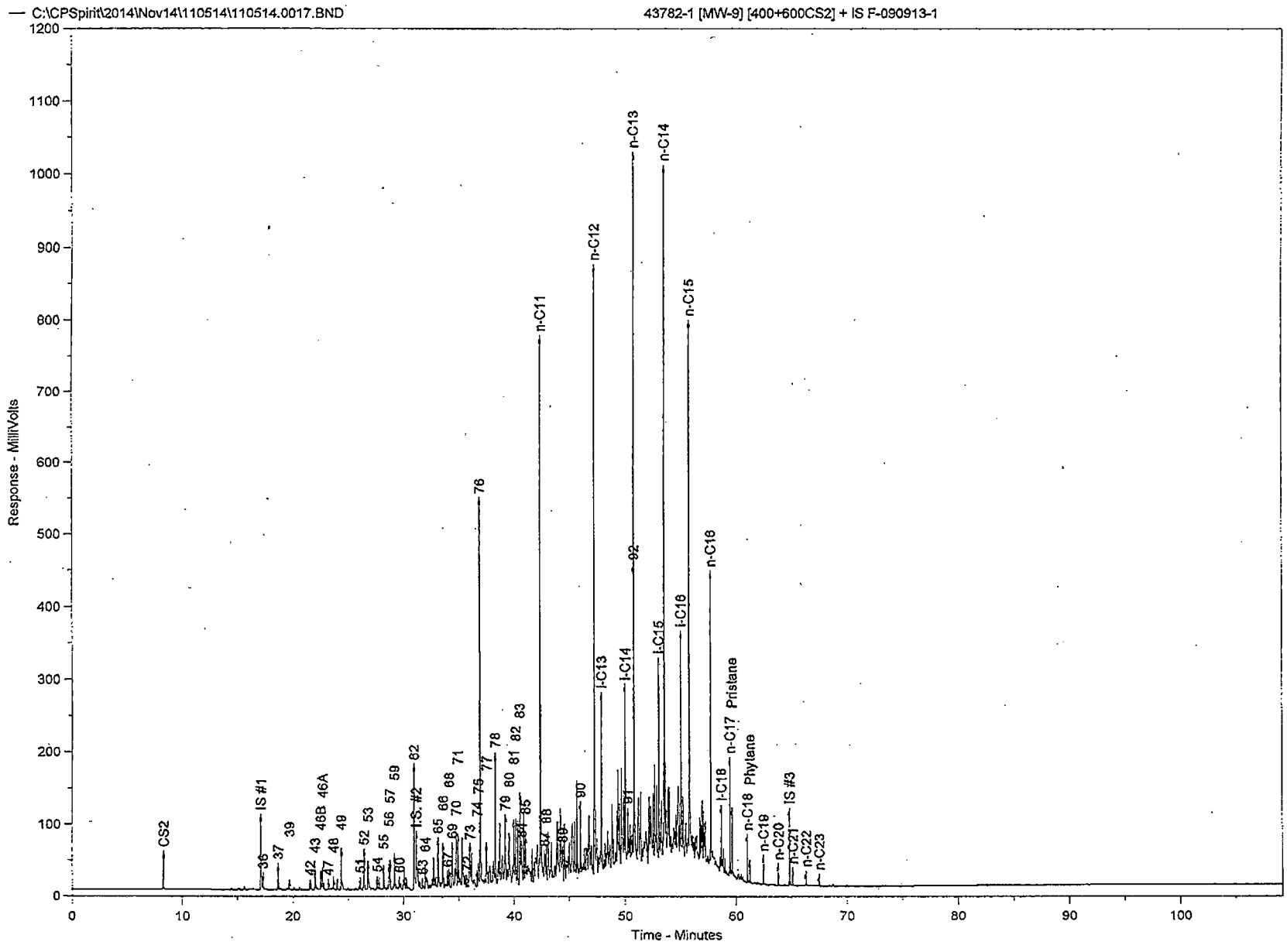
11/5/2014

ZymaX ID		43782-1
Sample ID		MW-9
		Relative Area %
36	n-Heptane	0.64
37	Methylcyclohexane	0.81
38	2,5-Dimethylhexane	0.00
39	2,4-Dimethylhexane	0.09
40	2,3,4-Trimethylpentane	0.00
41	Toluene/2,3,3-Trimethylpentane	0.00
42	2,3-Dimethylhexane	0.22
43	2-Methylheptane	0.54
44	4-Methylheptane	0.00
45	3,4-Dimethylhexane	0.00
46A	3-Ethyl-3-methylpentane	0.82
46B	1,4-Dimethylcyclohexane	0.44
47	3-Methylheptane	0.10
48	2,2,5-Trimethylhexane	0.17
49	n-Octane	1.64
50	2,2-Dimethylheptane	0.00
51	2,4-Dimethylheptane	0.22
52	Ethylcyclohexane	1.73
53	2,6-Dimethylheptane	1.13
54	Ethylbenzene	0.21
55	m+p Xylenes	0.67
56	4-Methyloctane	0.68
57	2-Methyloctane	0.90
58	3-Ethylheptane	0.00
59	3-Methyloctane	1.53
60	o-Xylene	0.08
61	1-Nonene	0.00
62	n-Nonane	5.47
I.S.#2	p-Bromofluorobenzene	0.00
63	Isopropylbenzene	0.08
64	3,3,5-Trimethylheptane	0.75
65	2,4,5-Trimethylheptane	1.66
66	n-Propylbenzene	2.19
67	1-Methyl-3-ethylbenzene	0.53
68	1-Methyl-4-ethylbenzene	0.77
69	1,3,5-Trimethylbenzene	3.01
70	3,3,4-Trimethylheptane	2.43

ZymaX FORENSICS

11/5/2014

ZymaX ID		43782-1
Sample ID		MW-9
		Relative Area %
71	1-Methyl-2-ethylbenzene	1.94
72	3-Methylnonane	0.30
73	1,2,4-Trimethylbenzene	2.32
74	Isobutylbenzene	0.41
75	sec-Butylbenzene	0.98
76	n-Decane	17.31
77	1,2,3-Trimethylbenzene	2.19
78	Indan	6.26
79	1,3-Diethylbenzene	4.76
80	1,4-Diethylbenzene	2.95
81	n-Butylbenzene	4.34
82	1,3-Dimethyl-5-ethylbenzene	2.91
83	1,4-Dimethyl-2-ethylbenzene	4.94
84	1,3-Dimethyl-4-ethylbenzene	2.33
85	1,2-Dimethyl-4-ethylbenzene	1.35
86	Undecene	0.00
87	1,2,4,5-Tetramethylbenzene	1.23
88	1,2,3,5-Tetramethylbenzene	1.83
89	1,2,3,4-Tetramethylbenzene	2.04
90	Naphthalene	3.42
91	2-Methyl-naphthalene	2.92
92	1-Methyl-naphthalene	3.78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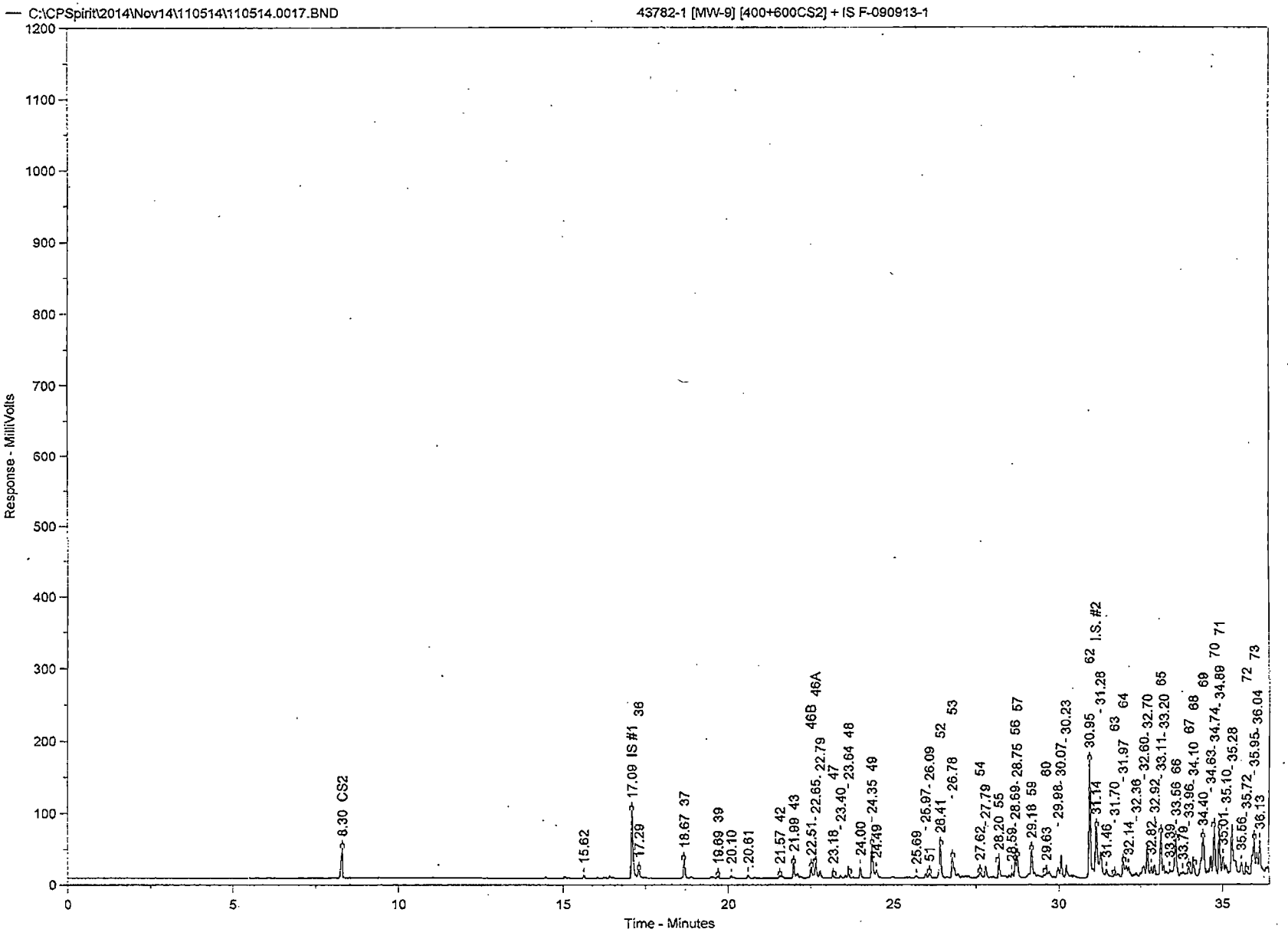
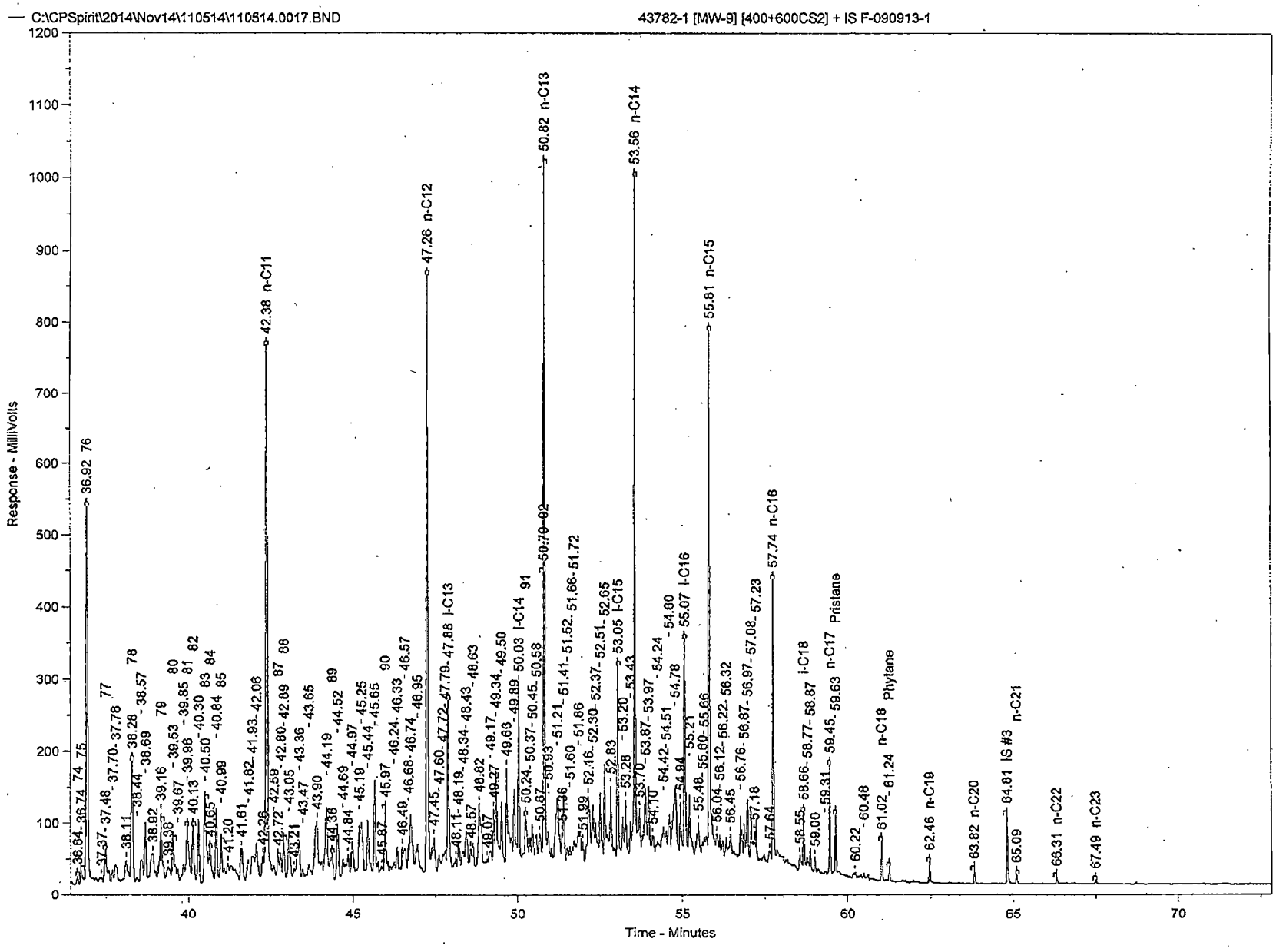
43782-1 [MW-9] [400+600CS2] + IS F-090913-1
Response - MilliVolts
Time - Minutes
CS2
IS #1
IS #2
IS #3
n-C11
n-C12
n-C13
n-C14
n-C15
n-C16
n-C17
n-C18
n-C20
n-C21
n-C22
n-C23
i-C13
i-C14
i-C15
i-C16
i-C18
Pristane
Phytane

ZymaX FORENSICS

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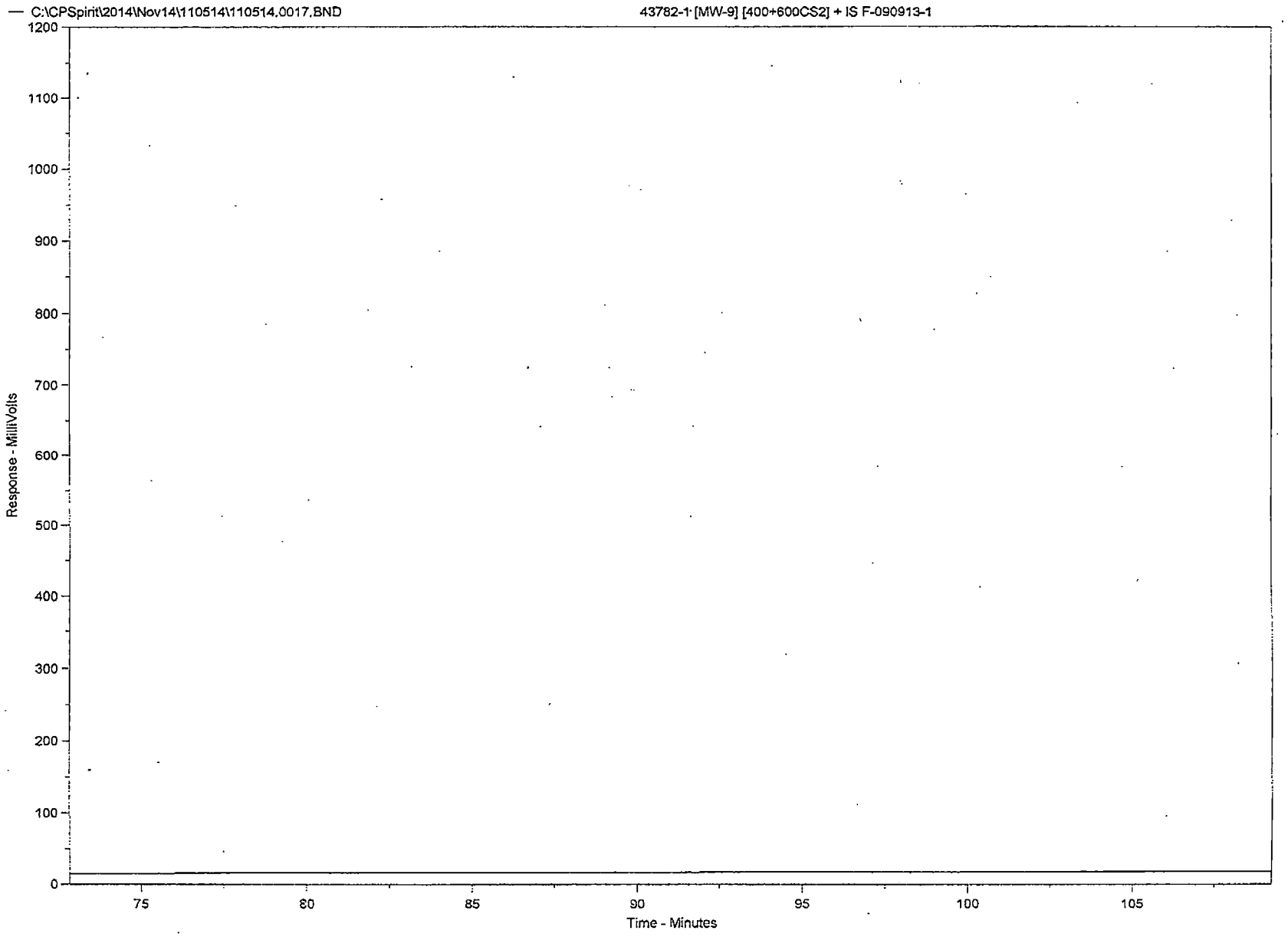
43782-1 [MW-9] [400+600CS2] + IS F-090913-1
Response - MilliVolts
Time - Minutes
n-C11
n-C12
n-C13
n-C14
n-C15
n-C16
n-C17
Pristane
n-C18
Phytane
n-C19
n-C20
IS #3
n-C21
n-C22
n-C23
I-C13
I-C14
I-C15
I-C16
I-C18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43782-1 [MW-9] [400+600CS2] + IS F-090913-1
Response - MilliVolts
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
75
80
85
90
95
100
105
Time - Minutes

Sample Name = **43782-1 [MW-9] [400+600CS2] + IS F-090913-1**

Instrument = Instrument 1
Heading 1 =
Heading 2 =

Acquisition Port = DP#

Raw File Name = **C:\CPSpirit\2014\Nov14\110514\110514.0017.RAW**
Method File Name = C:\CPSpirit\C344.met
Calibration File Name = C:\CPSpirit\062014.cal

Date Taken (end) = 11/8/2014 7:55:37 AM
Method Version = 44
Calibration Version = 4

Peak Name	Ret. Time	Area %	Area
CS2	8.30	0.2527	136775.90
	15.62	0.0286	15502.66
IS #1	17.09	0.6375	345084.10
36	17.29	0.1266	68555.22
37	18.67	0.1600	86634.46
39	19.69	0.0174	9412.56
	20.10	0.0184	9984.57
	20.61	0.0258	13992.60
42	21.57	0.0427	23104.43
43	21.99	0.1057	57237.29
46B	22.51	0.0861	46606.38
46A	22.65	0.1611	87193.34
	22.79	0.0589	31874.29
47	23.18	0.0194	10515.34
	23.40	0.0190	10274.50
48	23.64	0.0338	18304.21
	24.00	0.0933	50501.75
49	24.35	0.3225	174606.70
	24.49	0.0791	42819.93
	25.69	0.0235	12696.68
	25.97	0.0373	20182.79
51	26.09	0.0438	23706.67
52	26.41	0.3398	183962.30
53	26.78	0.2224	120415.80
54	27.62	0.0408	22097.56
	27.79	0.0894	48390.26
55	28.20	0.1321	71508.81
	28.59	0.0309	16709.34
56	28.69	0.1337	72379.79
57	28.75	0.1766	95592.77
59	29.18	0.3008	162823.20
60	29.63	0.0165	8910.65
	29.98	0.0958	51854.75
	30.07	0.1954	105751.30
	30.23	0.1035	56011.29
62	30.95	1.0762	582568.40
I.S. #2	31.14	0.6286	340296.40
	31.28	0.3036	164375.10
	31.46	0.0862	46659.07
63	31.70	0.0154	8362.56
64	31.97	0.1466	79367.26
	32.14	0.1015	54946.28
	32.36	0.0208	11243.37
	32.60	0.1453	78647.74
	32.70	0.2465	133465.50
	32.82	0.0697	37710.18
	32.92	0.0860	46530.22
65	33.11	0.3260	176496.80
	33.20	0.0577	31257.40
	33.39	0.0553	29960.75
66	33.56	0.4301	232812.00
	33.79	0.0654	35381.73
67	33.96	0.1048	56725.95
68	34.10	0.1505	81462.59
69	34.40	0.5912	320032.40

Peak Name	Ret. Time	Area %	Area
	34.63	0.1904	103092.80
70	34.74	0.4773	258357.60
71	34.89	0.3808	206119.60
	35.01	0.1772	95908.16
	35.10	0.1094	59242.55
	35.28	0.7056	381957.30
	35.56	0.1414	76533.00
72	35.72	0.0598	32369.08
73	35.95	0.4562	246954.90
	36.04	0.1993	107884.30
	36.13	0.2982	161435.40
74	36.64	0.0799	43245.15
75	36.74	0.1918	103813.30
76	36.92	3.4041	1842779.00
	37.37	0.1391	75300.93
77	37.48	0.4309	233257.00
	37.70	0.1307	70762.74
	37.78	0.2816	152432.40
	38.11	0.4491	243133.80
78	38.28	1.2318	666830.40
	38.44	0.0862	46676.33
	38.57	0.3578	193711.90
	38.69	0.5883	318490.80
	38.92	0.5978	323624.00
79	39.16	0.9355	506394.70
	39.38	0.3484	188606.90
80	39.53	0.5791	313490.30
	39.67	0.1359	73590.02
	39.85	0.2618	141740.10
81	39.96	0.8529	461686.30
82	40.13	0.5715	309362.90
	40.30	0.5528	299250.90
83	40.50	0.9717	526016.20
84	40.65	0.4575	247649.90
	40.84	0.5628	304689.80
85	40.99	0.2647	143288.60
	41.20	0.0664	35928.47
	41.61	0.3950	213822.80
	41.82	0.2624	142044.00
	41.93	0.4102	222037.20
	42.06	0.4859	263046.80
	42.26	0.2757	149251.00
n-C11	42.38	5.0439	2730443.00
	42.59	0.1687	91300.43
87	42.72	0.2418	130871.90
	42.80	0.2353	127387.90
88	42.89	0.3599	194818.10
	43.05	0.5870	317770.80
	43.21	0.1151	62297.39
	43.36	0.5716	309434.90
	43.47	0.0975	52763.67
	43.65	0.2083	112734.50
	43.90	1.1280	610646.60
	44.19	0.9137	494630.60
89	44.36	0.4016	217406.30
	44.52	0.6070	328580.60
	44.69	0.2147	116221.80
	44.84	0.2515	136156.50
	44.97	0.4478	242419.10
	45.19	0.4831	261524.90
	45.25	0.7073	382901.40
	45.44	0.6533	353653.10
	45.65	0.8302	449411.80
	45.87	0.1264	68423.48
90	45.97	0.6727	364148.60
	46.24	0.1651	89349.98
	46.33	0.2954	159891.80

Peak Name	Ret. Time	Area %	Area
	46.49	0.2354	127413.20
	46.57	0.3376	182736.70
	46.68	0.2357	127576.90
	46.74	0.7455	403575.70
	46.95	0.5355	289860.50
n-C12	47.26	4.8565	2629017.00
	47.45	0.5658	306292.30
	47.60	0.2009	108759.30
	47.72	0.1534	83042.84
	47.79	0.1892	102437.90
i-C13	47.88	1.4554	787848.20
	48.11	0.0628	33969.94
	48.19	0.2850	154263.00
	48.34	0.2004	108468.20
	48.43	0.4456	241201.40
	48.57	0.1448	78405.23
	48.63	0.1924	104152.20
	48.82	0.2130	115318.90
	49.07	0.0194	10506.04
	49.17	0.1603	86749.91
	49.27	0.3530	191067.00
	49.34	0.9071	491066.30
	49.50	0.4876	263974.50
	49.66	0.9574	518263.80
	49.89	0.6771	366545.30
I-C14	50.03	1.1405	617375.40
91	50.24	0.5749	311238.40
	50.37	0.2116	114563.10
	50.45	0.3283	177732.90
	50.58	0.3350	181322.40
	50.67	0.3357	181723.40
92	50.79	0.7431	402282.00
n-C13	50.82	4.1187	2229592.00
	50.93	0.2973	160914.60
	51.21	1.2364	669326.90
	51.36	0.1778	96267.59
	51.41	0.5079	274947.50
	51.52	0.1513	81911.52
	51.60	0.1031	55796.38
	51.66	0.1115	60364.50
	51.72	0.3038	164439.70
	51.86	0.3111	168407.70
	51.99	0.1557	84306.34
	52.16	0.8830	478018.30
	52.30	0.6299	340968.60
	52.37	0.4373	236749.20
	52.51	0.5898	319298.10
	52.65	0.6911	374100.40
	52.83	0.7092	383893.10
i-C15	53.05	1.2421	672372.70
	53.20	0.4186	226627.50
	53.28	0.4946	267746.10
	53.43	0.2844	153942.80
n-C14	53.56	4.5322	2453453.00
	53.70	0.6176	334335.30
	53.87	0.8976	485908.70
	53.97	0.6938	375579.50
	54.10	0.2587	140045.50
	54.24	0.3057	165462.40
	54.42	0.4327	234234.00
	54.51	0.2401	129972.10
	54.60	0.4394	237864.60
	54.78	1.3565	734327.30
	54.94	0.4197	227197.50
i-C16	55.07	1.6125	872901.40
	55.21	0.6085	329409.00
	55.48	0.3690	199737.00

Peak Name	Ret. Time	Area %	Area
	55.60	0.0351	18976.83
	55.66	0.0315	17055.18
n-C15	55.81	3.3040	1788603.00
	56.04	0.1582	85666.04
	56.12	0.1307	70749.90
	56.22	0.1199	64887.16
	56.32	0.1897	102669.10
	56.45	0.1722	93234.76
	56.76	0.4057	219614.40
	56.87	0.2521	136493.10
	56.97	0.5491	297271.90
	57.08	0.4029	218080.30
	57.18	0.1670	90395.82
	57.23	0.2529	136904.70
	57.64	0.1129	61128.72
n-C16	57.74	1.5295	827948.30
	58.55	0.1617	87552.23
i-C18	58.66	0.4226	228775.50
	58.77	0.1403	75962.59
	58.87	0.1542	83459.12
	59.00	0.0926	50122.45
	59.31	0.0289	15646.18
n-C17	59.45	0.6217	336569.20
Pristane	59.63	0.3494	189133.90
	60.22	0.0760	41159.77
	60.48	0.0312	16902.13
n-C18	61.02	0.2320	125577.80
Phytane	61.24	0.0931	50394.14
n-C19	62.46	0.1334	72226.17
n-C20	63.82	0.0888	48087.00
IS #3	64.81	0.4416	239055.90
n-C21	65.09	0.0657	35583.60
n-C22	66.31	0.0417	22594.29
n-C23	67.49	0.0273	14775.71

Total Area = 5.41337E+07 Total Height = 1.558017E+07 Total Amount = 1

Pace Analytical Energy Services dba Zymax Forensics
600 S. Andreasen Drive, Suite B
Escondido, CA 92029
Tel: 760.781.3338 Ext. 200

January 12, 2015

Thomas Perdue
Terracon
2401 Brentwood Rd. Ste 107
Raleigh, NC 27604

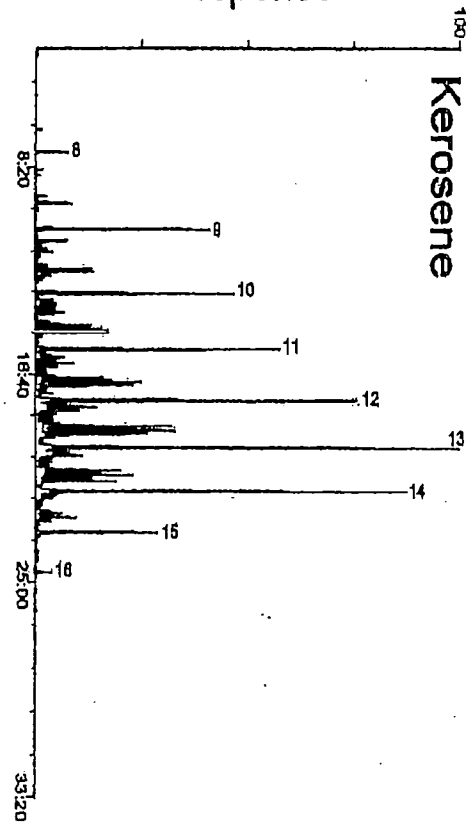
Re: Quickstop 50

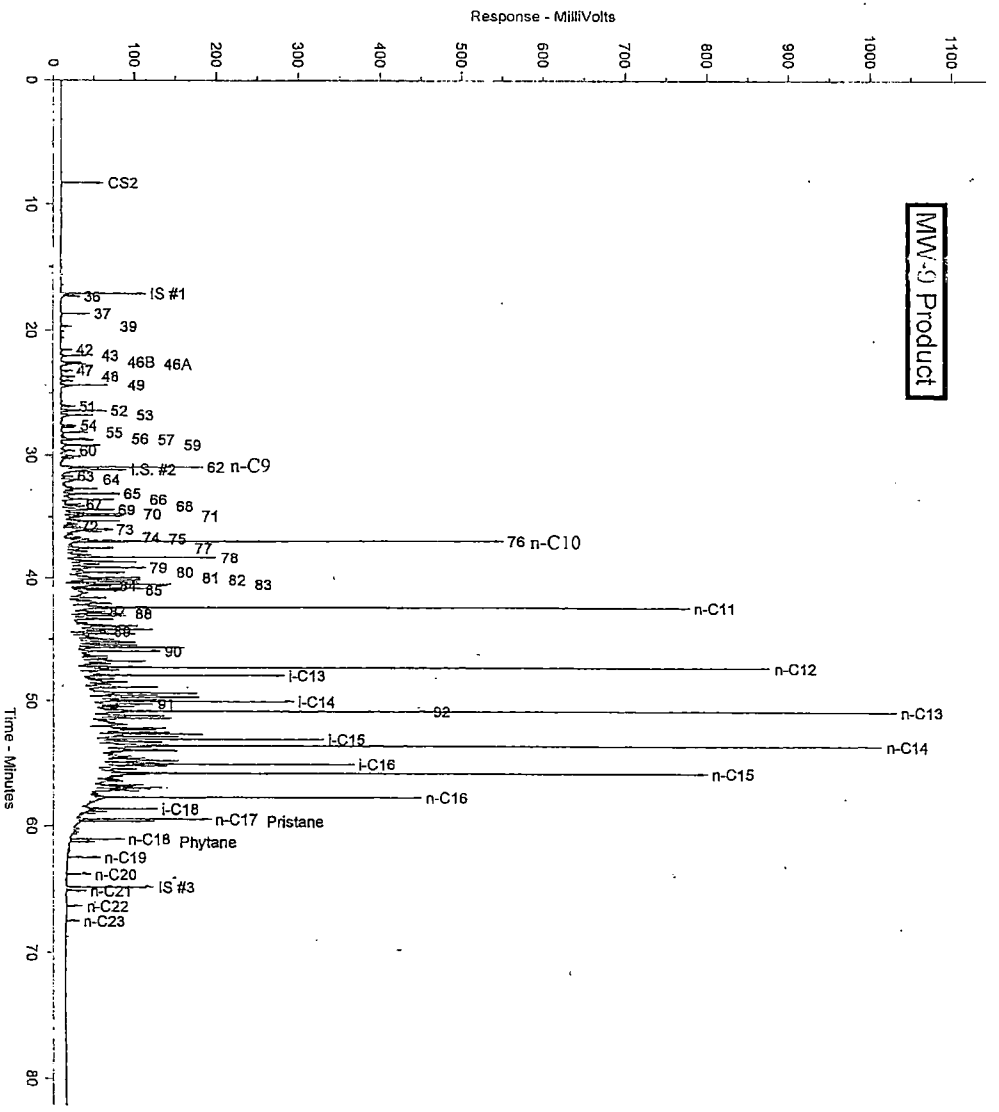
Dear Mr Perdue,

Attached is the analytical report for MW-9 product sample from this project. The sample was analyzed by C3-C44 GC/FID, the chromatogram of which is shown on the following page. This shows a petroleum product primarily in the carbon range C9-C16, and is consistent with kerosene or jet fuels, an example of which is also shown for comparison. The chromatogram of MW-9 is dominated by n-alkanes, which are the most readily biodegraded hydrocarbons in petroleum products. Their dominance in MW-9 and the similarity to the fresh kerosene standard indicate that there has been little or no degradation of the product in MW-9. MW-9 does contain a small amount of hydrocarbons in the carbon range C17-C23. This may indicate that MW-9 also contains a small amount of diesel.

Best regards,

Alan Jeffrey, PhD
Senior Geochemist


Response
Kerosene
100
8:20
16:40
25:00
33:20
8
9
10
11
12
13
14
15
16


Response - MilliVolts
0
100
200
300
400
500
600
700
800
900
1000
1100
Time - Minutes
0
10
20
30
40
50
60
70
80
MW-9 Product
CS2
36
IS #1
37
39
42
43
46B
46A
47
48
49
51
52
53
54
55
56
57
59
60
I.S. #2
62 n-C9
63
64
65
66
68
69
70
71
72
73
74
75
76 n-C10
77
78
79
80
81
82
83
84
85
n-C11
87
88
89
90
n-C12
i-C13
91
i-C14
92
n-C13
i-C15
n-C14
i-C16
n-C15
n-C16
i-C18
n-C17 Pristane
n-C18 Phytane
n-C19
n-C20
IS #3
n-C21
n-C22
n-C23

APPENDIX D
PHOTOGRAPHS

Quick Stop #50
Laurinburg, North Carolina
Terracon Project No. 70149609
Incident No. 2857
Date photographs taken: July 14, 2014 and October 16, 2014

Terracon

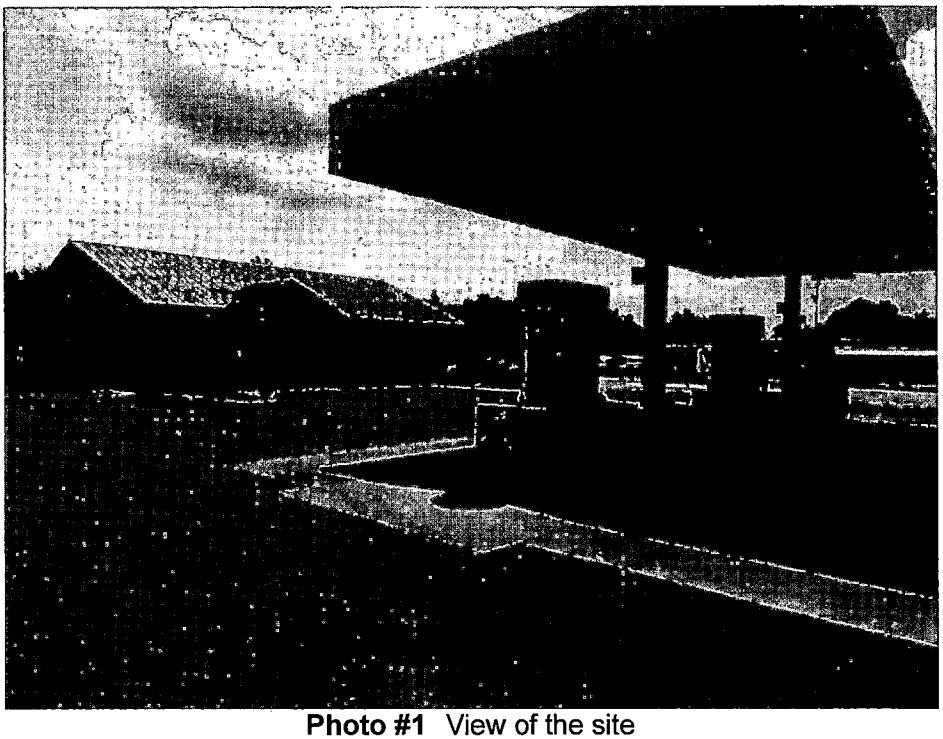


Photo #1 View of the site

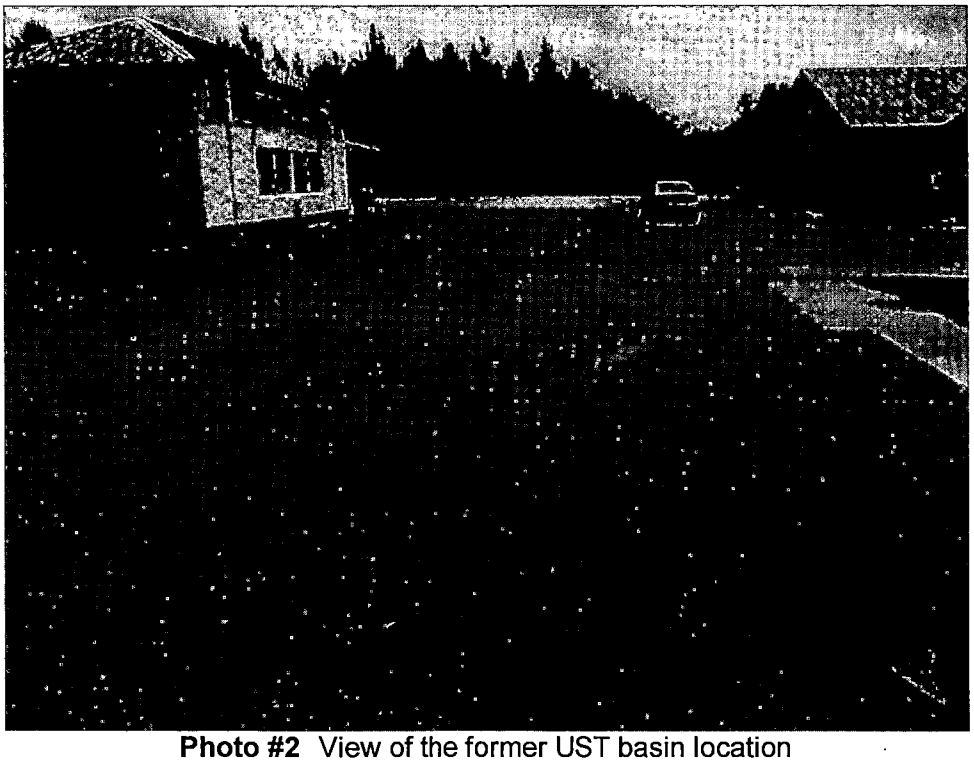


Photo #2 View of the former UST basin location

Quick Stop #50
Laurinburg, North Carolina
Terracon Project No. 70149609
Incident No. 2857
Date photographs taken: July 14, 2014 and October 16, 2014

Terracon

Photo #3 View of the current UST basin location

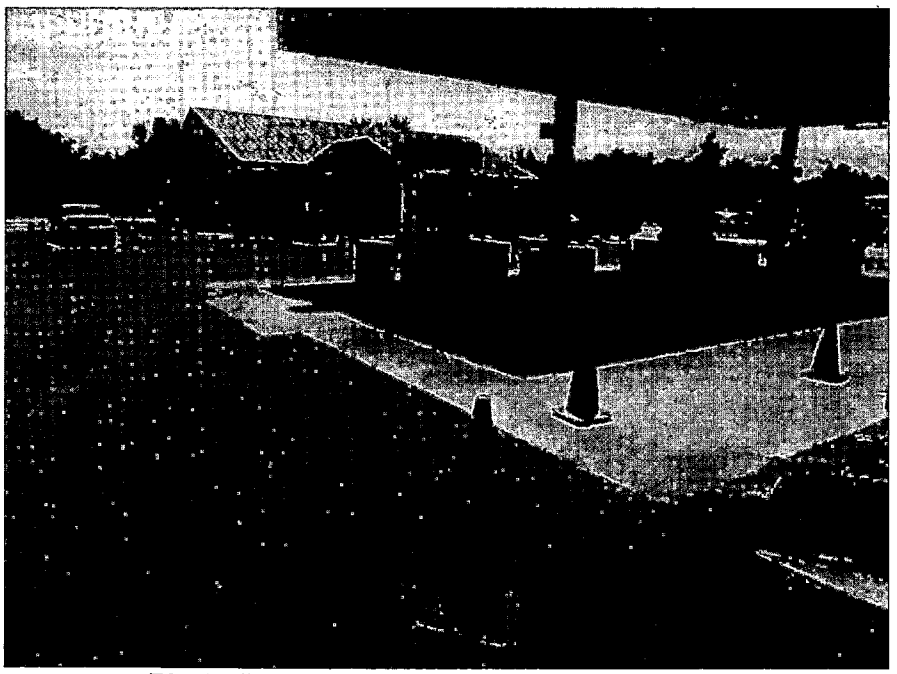


Photo #4 View of the on-site dispenser islands

Quick Stop #50
Laurinburg, North Carolina
Terracon Project No. 70149609
Incident No. 2857
Date photographs taken: July 14, 2014 and October 16, 2014

Terracon

Photo #5 View of monitoring well MW-2Br

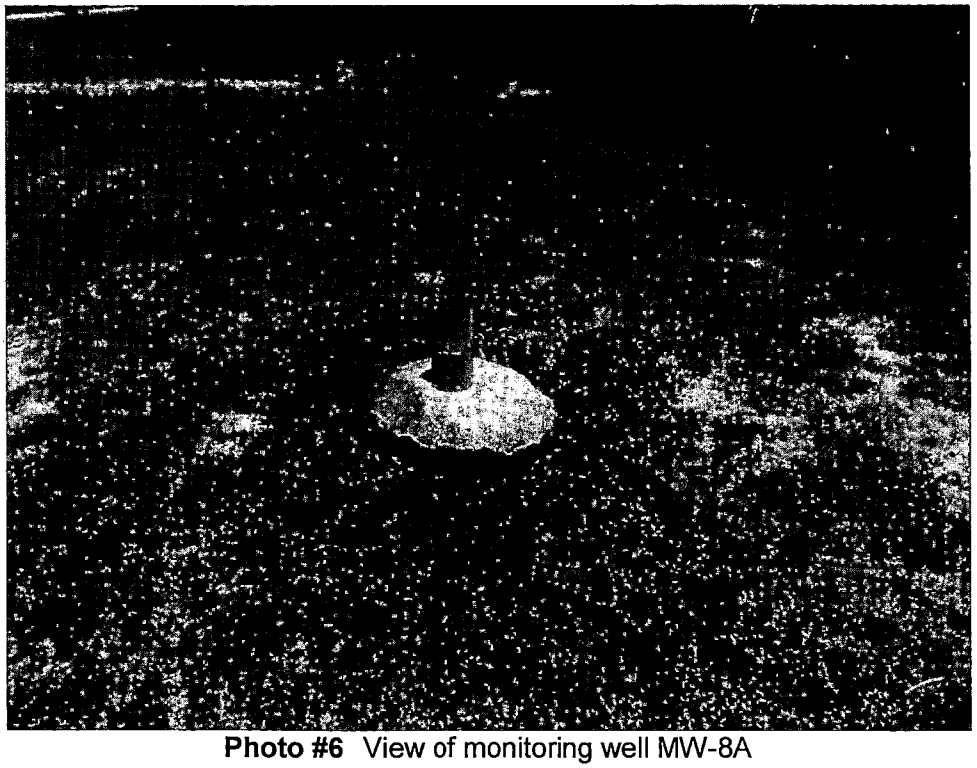


Photo #6 View of monitoring well MW-8A

Quick Stop #50
Laurinburg, North Carolina
Terracon Project No. 70149609
Incident No. 2857
Date photographs taken: July 14, 2014 and October 16, 2014

Terracon

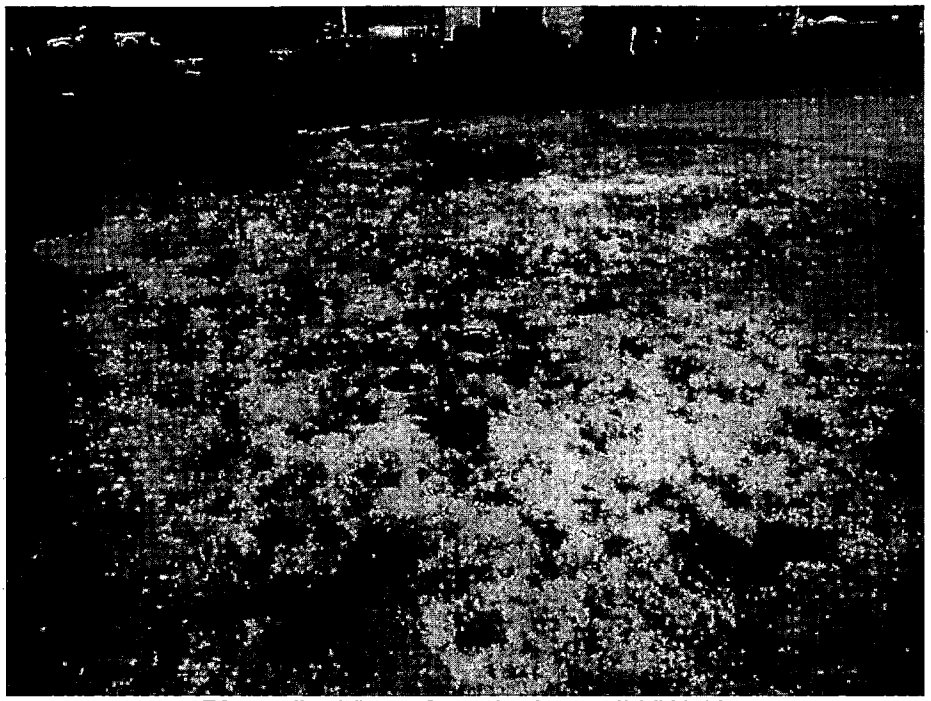


Photo #7 View of monitoring well MW-10

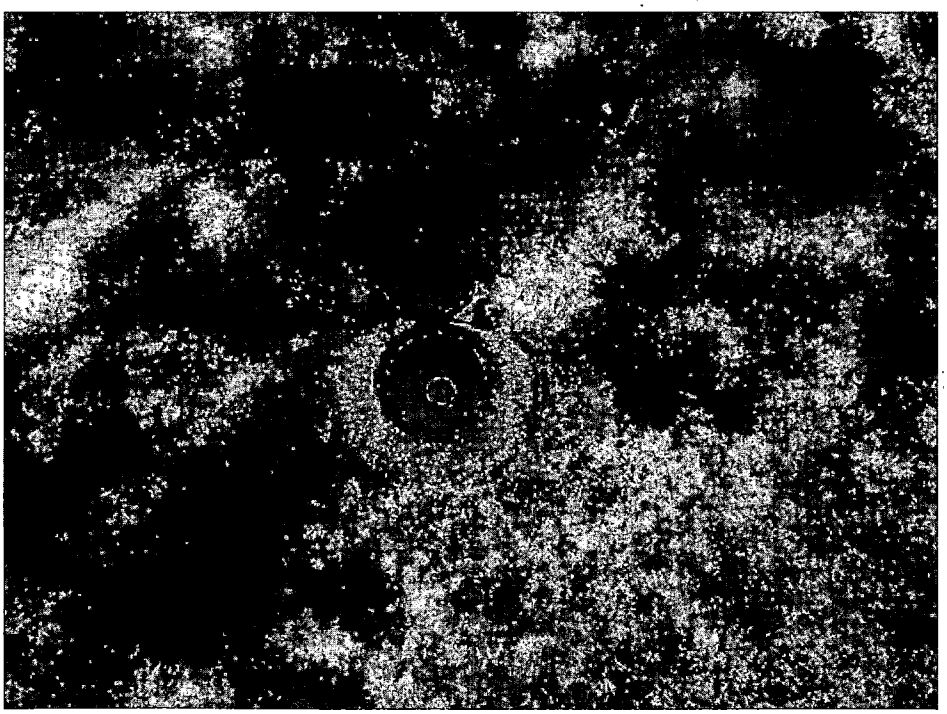


Photo #8 View of monitoring well MW-9

Quick Stop #50
Laurinburg, North Carolina
Terracon Project No. 70149609
Incident No. 2857
Date photographs taken: July 14, 2014 and October 16, 2014

Terracon

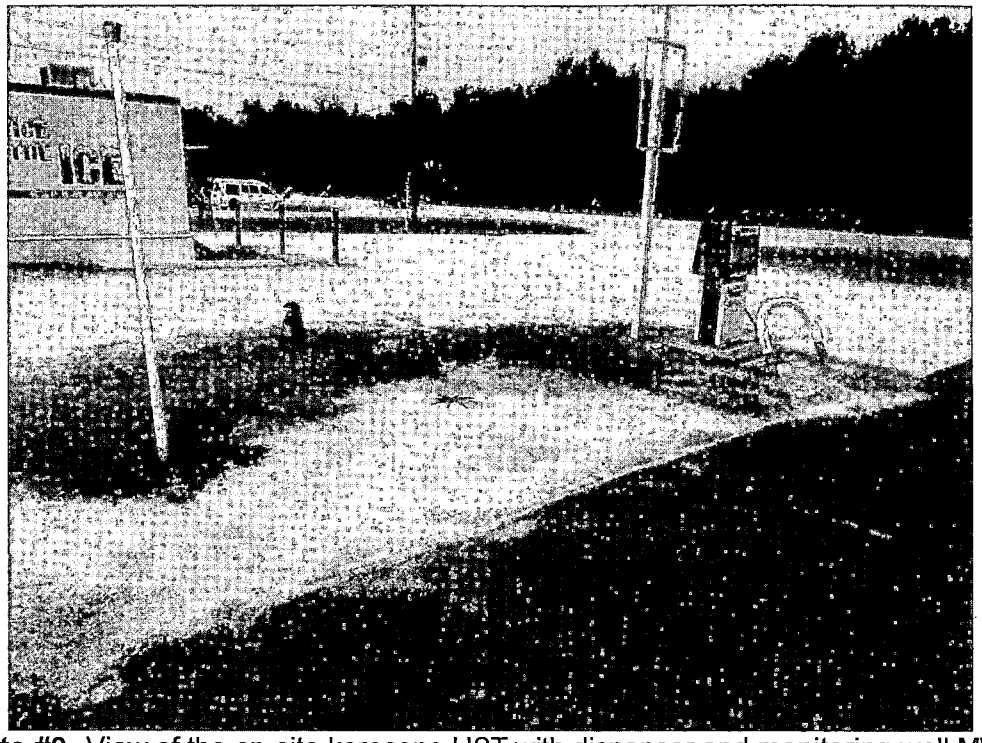


Photo #9 View of the on-site kerosene UST with dispenser and monitoring well MW-4

Photo #10 View of the installation of MW-11

Quick Stop #50
Laurinburg, North Carolina
Terracon Project No. 70149609
Incident No. 2857
Date photographs taken: July 14, 2014 and October 16, 2014

Terracon

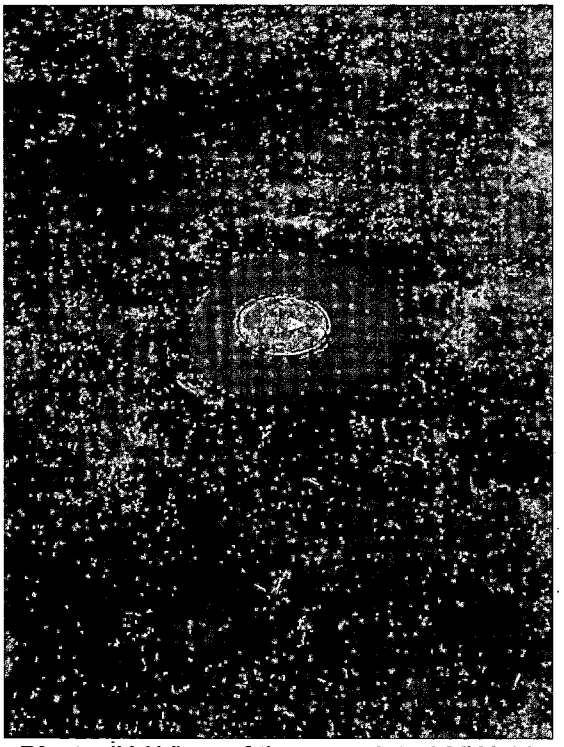


Photo #11 View of the completed MW-11

Photo #12 View of the installation of MW-4r

Quick Stop #50
Laurinburg, North Carolina
Terracon Project No. 70149609
Incident No. 2857
Date photographs taken: July 14, 2014 and October 16, 2014

Terracon

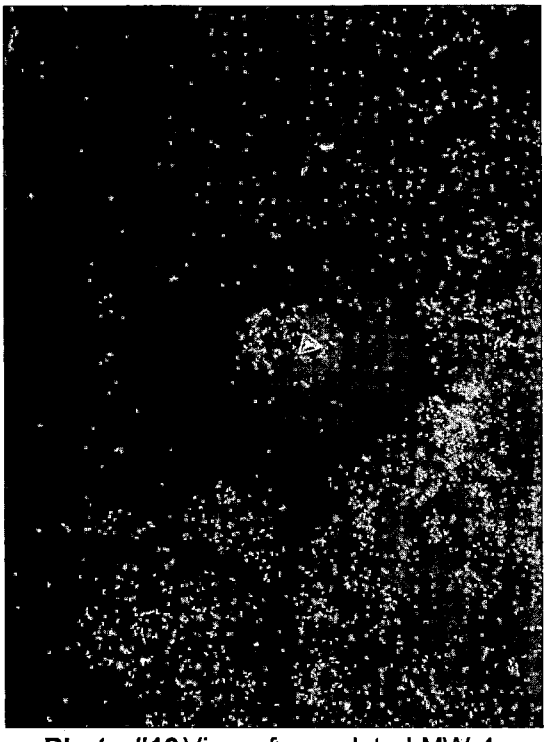


Photo #13 View of completed MW-4r

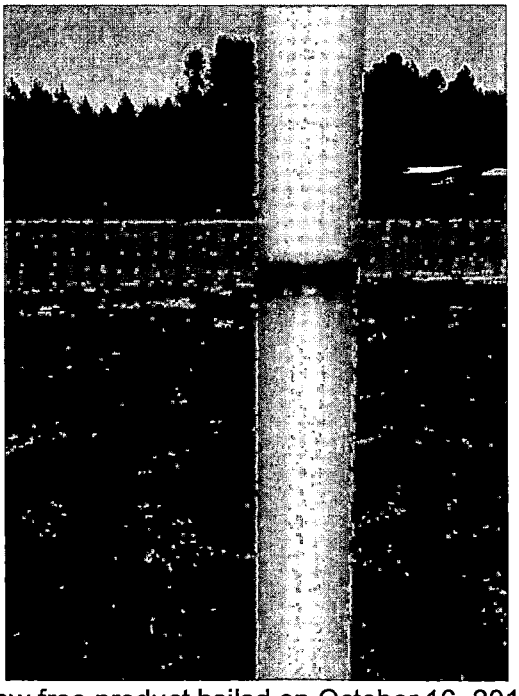


Photo #14 View free product bailed on October 16, 2014 from MW-9